



22 July 2011

Committee Secretary
Senate Standing Committees on Rural Affairs and Transport
PO Box 6100
Parliament House
Canberra ACT 2600
Australia

Re: Senate Inquiry into animal welfare standards for Australia's live export markets

Dear Secretary

Meat & Livestock Australia (MLA) and the Australian Livestock Export Corporation Limited (LiveCorp) welcome the opportunity to jointly respond to the Senate Inquiry into animal welfare standards in Australia's livestock export markets.

Our joint submission responds to the terms of reference of the Inquiry (except section 2) and also discusses regional characteristics of Australia's key livestock export markets, regulatory arrangements, and the future directions of the livestock export trade. Section 2 of the terms of reference, regarding the domestic economic impact of the trade in Australia, is detailed in separate submissions by MLA and LiveCorp.

Should you wish to discuss our joint submission further please do not hesitate to contact

Yours sincerely

Don Heatley
MLA Chairman

Roly Nieper
LiveCorp Chairman



MLA and LiveCorp Joint Submission
(to be read in conjunction with the separate submissions
lodged by MLA and LiveCorp)

**Senate Inquiry into animal welfare
standards for Australia's live export
markets**

22 July 2011

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Abbreviations

AAV – AQIS Accredited Veterinarian
AAWS – Australian Animal Welfare Strategy
ABARE – Australian Bureau of Agricultural and Resource Economics
ACCL – Australian Certificate for the Carriage of Livestock
AEP – Approved Export Program
ALEC – Australian Livestock Exporters Council
AMIC – Australian Meat Industry Council
AMLC – Australian Meat and Live-Stock Corporation
AMPC – Australian Meat Processor Corporation
AMSA – Australian Maritime Safety Authority
AOP – annual operating plan
APFINDO – Asosiasi Produsen Daging and Feedlot Indonesia (Indonesian beef producer and lotfeeders association)
AQIS – Australian Quarantine and Inspection Service
ASEAN – Association of South East Asian Nations
ASEL – Australian Standards for the Export of Livestock
AWM – Animal Welfare Monitors
AWO – Animal Welfare Officer
CIE – Centre for International Economics
CRMP – Consignment Risk Management Plan
DAFF – Department of Agriculture, Fisheries and Forestry
DGLS – Director General of Livestock Services
GVP – gross value of production
GMI – Global Meat Industries model
IGWG – Industry/Government Working Group
ILC – Indigenous Land Corporation
IMO – International Maritime Organization
KPI – Key Performance Indicator
LATP – Live Animal Trade Program
LEP – Livestock Export Program
LiveCorp – Australian Livestock Export Corporation
LTAWP – Live Trade Animal Welfare Partnership
lwt – live weight
MENA – Middle East and North Africa
MLA – Meat & Livestock Australia
MoU – Memorandum of Understanding
MUI – Majelis Ulama Indonesia (Halal certifying body in Indonesia)
NFF – National Farmers' Federation
NLIS – National Livestock Identification System
NOI – Notice of Intention
OIE – World Organisation for Animal Health
PIC – Peak Industry Council
R&D – research and development
RAWS – Regional Animal Welfare Strategy
RFID – radio frequency identification
RPH – Rumah Potong Hewan (house of animal slaughter)
SFA – Statutory Funding Agreement
SOP – Standard Operating Procedure
swt – shipped weight
TPH – Tempat Potong Kewan (place of animal slaughter)
WGAFFC – Working Group on Agriculture, Food and Forestry Corporation

Executive summary

This submission has been prepared jointly by Meat & Livestock Australia (MLA) and the Australian Livestock Export Corporation (LiveCorp). It is provided in response to the Senate Inquiry into animal welfare standards for Australia's live export markets.

MLA and LiveCorp are deeply committed to maintaining a strong, viable sustainable livestock export industry. **The livestock export trade from Australia is essential for Australia and importing countries and plays to the natural advantages of both.**

- Australia has a unique capacity to supply the very livestock that are demanded by export markets. This unique capacity includes the relatively close proximity between markets in South East Asia and Australia's northern cattle production areas; tropical climatic conditions in the north to raise *Bos indicus* cattle that are ideally suited to markets in South East Asia; our historical surplus of sheep to satisfy Middle Eastern appetites; our freedom from major animal diseases such as foot and mouth disease; and our long standing commitment to animal welfare. These unique advantages have seen Australia become the world's largest exporter of livestock. Australia's reliance on the livestock trade also stems from the absence of any significant processing facilities north of the line between Townsville and Perth.
- Many countries are heavily reliant on the importation of live animals for a range of reasons: to address food security; rising incomes have allowed the population to demand more protein; the preference of consumers to source freshly prepared meat from local wet markets; the access to cheap livestock feed and labour; and the guarantee it gives to consumers for freshness. Such a mutually beneficial trade needs to be developed and enhanced.

The live trade and meat trade are not perfect substitutes. Australia exports boxed beef and sheepmeat to the same countries to which it supplies live animals. The two products predominantly serve different market segments, and as a result, many markets will continue to demand livestock imports even in the absence of Australian livestock.

But the industry recognises that with the role of being the world's largest livestock exporter also comes responsibilities. To this end, ongoing investment and significant energies have been focused over many years on improving animal welfare outcomes across the breadth of the supply chain that extends well past Australian shores. The extent of our activities has been made possible by the close collaboration with, and support from, the Australian Government in jointly funding research and development (among other initiatives) to improve animal welfare outcomes in our export markets.

The Australian livestock export industry operates in a highly complex environment with cultural, political, financial, religious, social, geographic and climatic complexities and constraints. These complexities and constraints must then be superimposed over the recognition that neither MLA nor LiveCorp have direct commercial or regulatory power to implement change or to drive uptake of new processes and procedures, including those related to animal welfare

improvements. MLA and LiveCorp have directed their limited resources to focusing on activities where they can deliver maximum return on investment in a livestock export industry that spans a diversity of markets. **In addressing these challenges, MLA and LiveCorp have been working towards continuous improvement in animal welfare outcomes in livestock export markets** (as opposed to seeking the immediate adoption of OIE standards). This strategy of continuous improvement has been acknowledged by DAFF and the OIE Regional Animal Welfare Strategy: Asia, the Far East and Oceania (RAWS).

MLA and LiveCorp have never claimed that animal welfare practices in overseas markets are sufficient or that OIE standards are consistently met.

Through the industry's on-the-ground presence in livestock export markets it has witnessed many examples of poor handling practices. Numerous reports and other information by MLA and LiveCorp have pointed to deficiencies in animal welfare practices serviced by Australia's livestock export trade. MLA and LiveCorp's on-the-ground presence in these markets has been in recognition of these deficiencies. Knowledge of these deficiencies allows MLA and LiveCorp to identify where investment, resourcing and vital programs – including animal handling training; infrastructure improvements; technical support and research and development – need to be focused. Our aim has been to continually and incrementally improve animal welfare practices so that over time the practices would reach acceptable levels and that OIE standards would be met.

The industry has been transparent in its activities and actions. Its proposed activities, key performance indicators and results are published in MLA's and LiveCorp's Annual Operating Plans and Annual Reports. Industry and government representatives regularly visit livestock export markets to see for themselves MLA and LiveCorp's activities and the unique features and complexities of each market. Over the past five years MLA and LiveCorp have submitted applications for funding to DAFF outlining the animal welfare issues in overseas markets and have submitted reports demonstrating the improvements made in animal welfare. Last year MLA and LiveCorp also presented the results of key livestock export related research and development to a forum on R&D held in Canberra, attended by over 50 staff from government departments, key industry bodies and animal welfare groups.

Substantial improvements in animal welfare have been delivered by industry and government. This has occurred through changes to Australian regulations, the application of research and development outcomes, providing and maintaining infrastructure, and increasing human capacity via training and monitoring. Regulations governing the industry have evolved from simply delivering against supply contracts to the current Australian Standards for the Export of Livestock (ASEL) enforced under Commonwealth legislation.

MLA and LiveCorp accept that Australian Government policy has now shifted to immediate and full implementation of OIE standards to all supply chains involving Australian livestock. MLA and LiveCorp do not oppose this reform – quite the opposite, it helped put it in place. But its immediacy and wide sweeping nature poses challenges for the industry – challenges the industry is prepared to meet. While the new arrangements will place a significantly increased regulatory burden on the livestock export trade, MLA and LiveCorp are committed to assisting supply chains to comply with this new policy.

A major advantage of the new arrangements is that hopefully in the future only non-compliant supply chains will be closed, rather than a whole trade suffering.

Without Australian livestock, importing countries will look to other countries which have no welfare considerations. Australia is one of 109 countries that exports livestock but is the only one that invests money and has an on-the-ground presence in export markets to improve animal welfare. In the largest live sheep export market in the world, the Middle East, no other exporting country is investing a single dollar in animal welfare initiatives despite sending hundreds of thousands of livestock there. While not perfect, Australia has made significant improvements in this region. These gains would simply not have been possible without our presence in the market. Net global animal welfare has increased with the investment by the Australian industry and government in livestock export markets and will be eroded if Australia is excluded from this trade.

1 Introduction

Meat & Livestock Australia and LiveCorp welcome the opportunity to respond to the terms of reference of the Senate Inquiry into animal welfare standards for Australia's live export markets.

MLA and LiveCorp have jointly prepared this submission as both organisations manage the Livestock Export Program (LEP) and have like-minded views on responses to the terms of reference of this inquiry.

Our submission is divided into chapters as follows:

- Chapter 2 outlines the respective roles and charters of MLA, LiveCorp and the LEP.
- Chapter 3 provides a background to the livestock export trade.
- Chapter 4 outlines the Australian regulations and standards for the export of livestock.
- Chapter 5 outlines the factors affecting animal welfare in livestock export markets.
- Chapter 6 details the role, actions, effectiveness and reporting of MLA and LiveCorp's efforts to improve animal welfare outcomes in livestock export markets.
- Chapter 7 discusses the work in encouraging importing countries to adopt OIE standards.
- Chapter 8 provides details on MLA and LiveCorp's view on the future of the livestock export trade.

Table 1.1 below highlights the chapter or section of this submission that addresses the terms of reference of the Inquiry.

Table 1.1: Chapter/section of this submission that responds to each of the terms of reference of the Senate Inquiry into animal welfare standards for Australia's live export markets

Senate Inquiry into animal welfare standards for Australia's live export markets Terms of Reference (ToR)	Chapter/ section which addresses the ToR
1. Investigate and report into the role and effectiveness of Government, Meat and Livestock Australia, LiveCorp and relevant industry bodies in improving animal welfare standards in Australia's live export markets, including:	6 Appendix C
a) The level, nature and effectiveness of expenditure and efforts to promote or improve animal welfare standards with respect to all Australian live export market countries	6.4
i) expenditure and efforts on marketing and promoting live export	2.3.1

Senate Inquiry into animal welfare standards for Australia's live export markets Terms of Reference (ToR)	Chapter/ section which addresses the ToR
to Australian producers;	
ii) ongoing monitoring of the subscription to, and practise of, animal welfare standards in all live export market countries;	6.7
iii) actions to improve animal welfare outcomes in all other live export market countries and the evidence base for these actions.	6.6.1.1 6.6.2.1 6.6.3.1 Appendix C
b) The extent of knowledge of animal welfare practices in Australia's live export markets including: i) formal and informal monitoring and reporting structures;	5 6.7
ii) formal and informal processes for reporting and addressing poor animal welfare practices.	6.7
2. Investigate and report on the domestic economic impact of the live export trade within Australia including:	Addressed in separate MLA and LiveCorp submissions
a) Impact on regional and remote employment especially in northern Australia;	
b) Impact and role of the industry on local livestock production and prices;	
c) Impact on the processing of live stock within Australia.	

2 The role and charter of MLA and LiveCorp

2.1 Overarching objectives of MLA

Meat & Livestock Australia Limited (MLA) is a producer-owned public company that was incorporated in February 1998. Predecessor organisations to MLA can be traced as far back as 1936. Those immediately preceding MLA's incorporation included the Meat Research Corporation and the Australian Meat & Live-Stock Corporation (AMLC).

MLA provides marketing and research and development services and solutions to Australia's red meat and livestock industry including livestock producers, lot feeders, wholesalers, foodservice operators, retailers of red meat, and, in conjunction with Australian Livestock Export Corporation (LiveCorp) and Australian Meat Processor Corporation (AMPC), livestock exporters and meat processors. Unlike the AMLC previously (which was a statutory Government authority), MLA possesses no powers to regulate Australia's red meat and livestock export trade.

2.1.1 *MLA membership*

Over 47,000 Australian cattle, sheep and goat producers are members of MLA, estimated to represent over 80 per cent of Australia's red meat production in 2009-10.

MLA aims to ensure all levy payers and stakeholders are aware of its role in the red meat and livestock industry and the benefits and costs of MLA's programs.

2.1.2 *How MLA is funded*

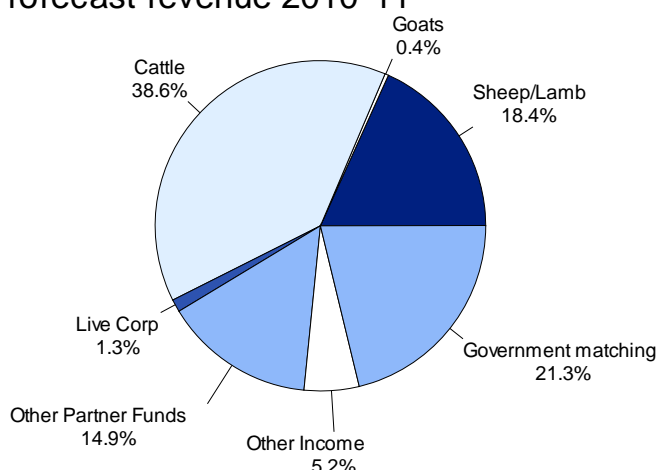
MLA is funded by:

- Transaction levies paid on livestock sales of sheep, goats and cattle
- Australian Government dollar-for-dollar matching funds for investment in research and development
- Co-operative contributions from individual processors, wholesalers, foodservice operators and retailers, and other partners in the innovation value chain
- Contributions from processor and livestock export industry bodies (see figure 2.1)

At the time of writing, with financial data for 2010/11 still being finalised. MLA's forecast revenue for 2010/11 is \$168 million.

Figure 2.1

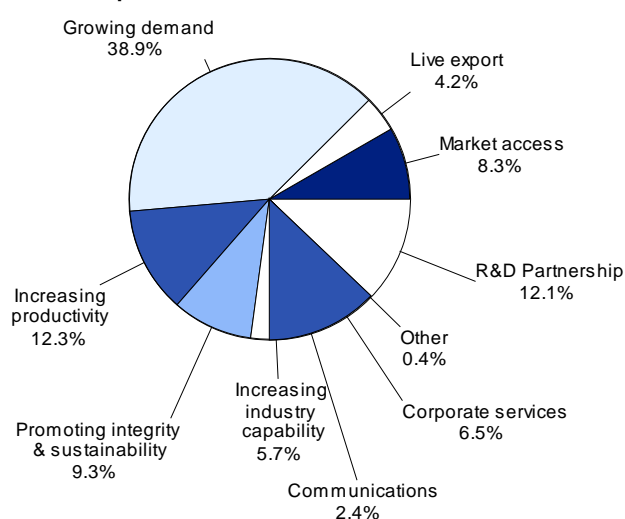
MLA forecast revenue 2010-11



Forecast expenditure across a broad range of portfolios for 2010/11 is \$167 million, of which \$89 million is to be spent on marketing programs and \$78 million spent on research and development. MLA expenditure on livestock exports is expected to account for 4.2% of total expenditure (see figure 2.2).

Figure 2.2

MLA forecast expenditure 2010-11



2.1.3 MLA's corporate and organisational structure

MLA is an unlisted public company limited by guarantee. It is incorporated under the Corporations Act 2001 and is required to meet the obligations of this Act.

Programs and services are delivered within the context of the Memorandum of Understanding (MoU) between MLA, Peak Industry Councils (see 2.1.4), ALEC, AMIC, the Australian Government and the service providers representing the meat processors, namely AMPC, and the livestock export sector, through LiveCorp.

2.1.4 Peak Industry Councils

The Industry/Government MoU has enabled the establishment of an effective industry consultation process. Key stakeholders are routinely consulted and provided with an opportunity to contribute to MLA strategy and programs.

MLA places considerable focus on interacting with industry organisations, including the Peak Industry Council (PIC) members of the company. This effort is both formal and informal and spans the business from Chair, Directors and Managing Director to General Managers and senior program staff across the company.

The following PICs contribute to policy direction, strategic imperatives, the Strategic Plan, Annual Operating Plans, budget oversight and monitor MLA's performance in accordance with the MoU:

- Australian Lot Feeders' Association
- Cattle Council of Australia
- Goat Industry Council of Australia
- Sheepmeat Council of Australia

While not a PIC, the Red Meat Advisory Council Limited is the red meat and livestock industry's peak national body for matters associated with cross-sectoral policy development and implementation.

2.1.5 MLA's governance structure

MLA's governance structure is regularly reviewed and updated to ensure it remains effective and relevant. In describing MLA's governance systems, it is necessary to take into account the following arrangements and documents specific to MLA's operating environment, together with the broader legal frameworks under which it operates. These include:

- The Commonwealth Deed of Agreement (Deed) between MLA and the Commonwealth Government (AMLI Act)
- Australian Meat and Live-stock Industry Act 1997 (AMLI Act)
- MLA Memorandum & Articles of Association (Constitution)
- Statutory obligations under the Corporations Act 2001
- MLA Code of business conduct and ethics
- Expectations of MLA members
- Meat & livestock industry memorandum of understanding (MoU)

2.1.6 The Deed of Agreement

The Deed between MLA and the Australian Government sets out the obligations of the parties and a governance framework covering a consultative, review, reporting and accountability process. The Australian Government (via the Department of Agriculture Fisheries and Forestry - DAFF) is able to monitor and influence MLA's governance arrangements through a range of mechanisms, but particularly through the Deed.

The Deed requires MLA and DAFF to meet regularly to discuss progress on programs. The Strategic Plan, Annual Operating Plan (AOP), AOP final report and Annual Report must be lodged and reviewed with DAFF. The Deed requires MLA to gain Peak Council approval for the Strategic Plan and AOP.

In addition, and in accordance with the requirements of the Deed, MLA completed an independent performance review in 2010. The terms of reference for this review focussed on an assessment of MLA's performance against its strategic and operational plans and MLA was required to consult with DAFF in developing the terms of reference.

The Deed recognises the role and obligations of the parties under the Australian Meat and Live-stock Industry Livestock Act 1997 (Clth) and the MoU.

2.1.7 Australian Meat and Live-stock Industry Act 1997 (AMLI Act)

The aim of this legislation, when introduced into Parliament in 1997, was to significantly reduce the overall regulatory control of meat and live-stock industry management, and to provide industry with appropriate authority and support to manage its future development. It was intended that industry leadership and management would be based on a co-operative relationship between industry sectors developed in a commercial environment focused on key industry issues and national development requirements sensitive to areas of industry market failure.¹ Some of the key provisions of the Act are:

- Section 60: MLA is declared to be the industry marketing body and the industry research and development body.
- Sections 63 and 64: Levies received by the Commonwealth from producers are to be paid to MLA.
- Section 66: The Commonwealth pays MLA an amount equal to one half of amounts paid by MLA for the purpose of research and development.
- Section 67: Requires MLA to only apply marketing levies received for marketing purposes and R&D levies for R&D.

The Deed and the MoU require MLA to account for all levy income and expenditure by specie and levy type. For example, the grassfed cattle levy for Marketing can only be applied to grassfed cattle marketing activities. All levy reserves must be accounted for by specie and levy type.

2.1.8 MLA's role and objects

MLA's objects are set out in its Constitution. The objects for which MLA is established are:

- a) to market and promote the industry in Australia and overseas;
- b) to improve the production and quality of meat and livestock in Australia;

¹ Australian Meat & Live-stock Industry Bill 1997 Explanatory Memorandum

- c) to improve the methods of production, handling, storage, transport and marketing of Australian meat and livestock and to encourage the production of livestock and the marketing of meat and livestock to be more efficient;
- d) to represent, promote, protect and further the interests of the industry overseas in relation to the export of meat and livestock from Australia and in relation to the sale and distribution of Australian meat and livestock and the consumption of Australian meat in countries other than Australia;
- e) to investigate and evaluate the needs of the industry for meat and livestock research and development and to encourage and facilitate the exploitation and commercialisation of the results of meat and livestock research and development;
- f) to undertake, co-ordinate and fund meat and livestock research and development activities;
- g) to undertake and carry out the joint functions and to consult, collaborate and co-operate with producers of livestock, meat processors and meat and livestock exporters and their representatives for the benefit of industry in the performance of the joint functions;
- h) to collect information and statistics relating to the industry and to prepare, analyse and distribute information and statistics relating to the industry for the benefit of the industry;
- i) to collaborate with government and with government departments and agencies, both Federal and State, in relation to animal health and welfare, meat safety and hygiene, crisis and issues management, regulatory activities and any other activities which may be necessary or convenient for the improvement of the productivity or the market performance of the industry; and
- j) generally to do all other things that may appear to the company to be incidental or conducive to the attainment of the objects or any of them for the benefit of the industry.

The MoU records the broad policies formulated jointly by prescribed industry bodies for the purposes of s.59 of the AMLI Act and sets out the roles, responsibilities and obligations of the signatories to the MoU.

2.1.9 MLA's strategy

MLA's planning process aligns the objectives of the Constitution and MoU, with the direction provided by the Peak Industry Councils' Meat Industry Strategic Plan 2010–2015 (MISP), and the Australian Government's national and rural research priorities to form the basis of the MLA Strategic Plan.

Every aspect of MLA's work is geared to delivering world-class services and solutions for a profitable and sustainable red meat and livestock industry. Pursuant to MLA's Strategic Plan, MLA carries out these services to support five strategic imperatives:

Imperative 1: Improving market access

- 1.1 Enhancing product integrity
- 1.2 Ensuring a whole of industry approach to maintaining and liberalising access to world meat markets
- 1.3 Maximising market options for producers and exporters in the livestock export trade

Imperative 2: Growing demand

- 2.1 Achieving consistent eating quality
- 2.2 Enhancing the nutritional reputation of red meat
- 2.3 Developing new products
- 2.4 Aggressive promotion in the domestic market
- 2.5 Aggressive promotion in export markets – beef
- 2.6 Aggressive promotion in export markets – sheep

Imperative 3: Increasing productivity across the supply chain

- 3.1 Increasing productivity on-farm
- 3.2 Increasing productivity off-farm
- 3.3 Improving supply chain and market information
- 3.4 Improving animal health and biosecurity

Imperative 4: Promoting industry integrity and sustainability

- 4.1 Ensuring sustainability and demonstrating environmental stewardship
- 4.2 Responding to climate change
- 4.3 Continued improvement in animal welfare
- 4.4 Community communications

Imperative 5: Increasing industry and people capability

- 5.1 Increasing adoption of innovation
- 5.2 Working with industry to attract, develop and retain world-class people
- 5.3 Building innovation capability
- 5.4 Supporting industry with policy research

2.2 Overarching objectives of LiveCorp

2.2.1 LiveCorp membership

All licensed Australian livestock exporters are eligible to become members of LiveCorp. LiveCorp currently has 45 full members with one associate member. All full members are involved the export of cattle (including dairy), sheep and goats for both slaughter and breeding purposes and operate in global markets spanning the Americas, Asia, the Middle East, Europe and Russia.

2.2.2 How LiveCorp is funded

LiveCorp's role is to provide marketing and R&D services for the benefit of the livestock export industry. LiveCorp is funded by:

- Levies paid by exporters on the export of live sheep, goats and cattle
- A voluntary levy on the export of dairy cattle of \$3 per head.

In 2010/11 LiveCorp's forecast revenue is expected to reach \$4.2 million.

2.2.3 LiveCorp's corporate and organisational structure

LiveCorp is a public non-listed company, limited by guarantee, which was registered with the Australian Securities and Investments Commission (ASIC) on 24 April 1998. LiveCorp entered into a Statutory Funding Agreement (SFA) SFA with the Australian Government on 1 January 2005.

2.2.4 The Statutory Funding Agreement

The SFA is a contract between the Commonwealth of Australia and LiveCorp for the purposes of the AMLI Act. It enables LiveCorp to receive the statutory levies which are appropriated via the Commonwealth budget to the DAFF Portfolio and is designed to ensure that the funds received are spent for the purposes for which they were appropriated.

The SFA describes the purpose for which the funds are to be applied and the requirements for strategic and annual operating plans, risk management plans, fraud control and intellectual property plans and audit. It is also a requirement of the SFA that LiveCorp commission an independent three-year review of its performance against the SFA and the Strategic and Annual Operating Plans.

The SFA requires LiveCorp and DAFF to meet regularly to discuss programs, issues and developments. The Strategic Plan, Annual Operating Plan and Final Reports must be lodged with and reviewed with DAFF. The Agreement requires LiveCorp to gain Peak Council approval for the Strategic Plan and Annual Operating Plan.

Programs and services are delivered within the context of Industry/Government MoU.

2.2.5 Peak Industry Councils

The Australian Livestock Exporters' Council (ALEC) as the Peak Industry Council representing livestock exporters is tasked with providing strategic direction and funding priorities to LiveCorp. This is achieved through the formalisation of a four year industry strategic plan that is developed with ALEC in consultation with industry stakeholders and other Peak Councils. Underpinning the implementation and delivery of the strategic plan is ALEC's role in approving LiveCorp's Annual Operating Plans.

2.2.6 Australian Meat and Live-stock Industry Act 1997 (AMLI Act)

Some of the key provisions of the AMLI Act are:

- Section 60: LiveCorp is declared to be the live-stock export marketing and research and development body.
- Sections 63 and 64: Levies received by the Commonwealth from exporters are to be paid to LiveCorp.
- LiveCorp is a donor company and as such any funds it invests on R&D, through MLA, attracts matching Commonwealth Funding

2.2.7 LiveCorp's role and objects

LiveCorp is the service provider to the Australian livestock export industry. Through a formalised unincorporated joint venture with MLA (the LEP), LiveCorp provides a

wide range of industry programs and initiatives that include livestock management and welfare, market access and development, supply chain capability enhancement and communication. Many of these activities are underpinned by research and development.

2.2.8 LiveCorp's mission

LiveCorp's mission is to enhance the livestock export industry's sustainability and competitiveness by providing support to Australia's livestock exporters through marketing and R&D services along the livestock export industry supply chain. These activities and services will help facilitate:

- Continuous improvement to livestock management, health and welfare throughout the supply chain.
- Market access and market development for Australia's livestock exporters.
- Adoption of R&D to enhance the livestock export industry supply chain's capability and risk management profile.

2.3 Overarching objectives of the Livestock Export Program

MLA and LiveCorp invest levies paid by Australian livestock producers and exporters respectively through the Livestock Export Program (LEP). The joint program undertakes a variety of R&D and market support activities designed to deliver best practice, and improve the wellbeing and performance of Australian livestock throughout the export process. It also invests in programs that drive demand in key receiving markets and support new and developing markets. These investments, and their outcomes, are communicated to stakeholders to demonstrate industry's commitment to addressing community concerns. The LEP operates under four key strategic imperatives which align with the MLA and LiveCorp strategic plans:

- Ongoing improvement in animal welfare outcomes.
- Improve industry efficiencies, capabilities and livestock performance through the supply chain.
- Build Government and community support for the industry and increase stakeholder awareness and satisfaction.
- Improve market access conditions and build demand for Australian livestock.

2.3.1 Promoting livestock exports to producers

The bulk of this submission addresses the first LEP objective "ongoing improvement in animal welfare outcomes". However, for the purposes of this inquiry, it is also important to convey some information on activities covered under the third of these objectives "build Government and community support for the industry and increase stakeholder awareness and satisfaction."

The LEP communication program has three objectives:

1. Encourage greater community and key stakeholder understanding and acceptance of the livestock export industry by highlighting industry initiatives, achievements, stories and people.

2. Protect the reputation of the livestock export industry by providing balanced coverage of issues in the media.
3. Provide key stakeholders with market updates and information on industry activities.

Under MLA's constitution it is responsible for growing demand and promoting the industry in Australia and overseas.

Regarding the third objective of the LEP, the communications program aims to make all stakeholders aware of the livestock export industry, the LEP's role in supporting this industry, and understand the programs undertaken by MLA and LiveCorp, the opportunities created by these programs and their costs and potential benefits to industry. This is achieved by the development and delivery of a range of information and services aimed at increasing awareness, demonstrating relevance and value, and proactively engaging stakeholders. This includes:

- Market information – The *Livelink* publication provides a summary of statistical information about the trade to assist the industry's knowledge and understanding of market trends. Forecasts for the live cattle and sheep trades are included in the *MLA Industry Projections*.
- Research and development (R&D) – feedback is provided to producers on the trade and particularly how production systems can be adapted to produce livestock that are ideally suited for the livestock export trade. This is critical to assisting producers dedicate their resources to delivering a product the market requires. R&D extension activities include:
 - Publications to assist the producer meet the animal welfare requirements of the trade such as *Is it fit to export?* (this guide assists in the maintenance of high standards of animal health and welfare by illustrating some types of animal that should not be supplied for export) and *Tips and tools* for the preparation of cattle and sheep for export (these guides give advice on methods to enhance the health and welfare of livestock during the export process).
 - Industry forums, such as Beef Up Forums – MLA has run 14 of these events since 2006/07 in regions that supply the livestock export trade (five since June 2010) where producers were informed about the livestock trade, MLA's activities and R&D programs (including animal welfare initiatives).
 - Articles in producer magazines – for example, articles appearing in MLA's *Frontier* magazine informing livestock producers about livestock exports.
- Trade shows and events – The LEP sponsored or provided speakers and/or a stand at 18 events across Australia last year including royal agricultural shows, the ABARES conference, NFF conference and MLA Meat Profit Days to communicate with producers (and consumers) about the livestock export industry and activities carried out by the LEP.
- E-newsletter – communications tool to inform producers and exporters on the LEP activities and how levies have been invested on animal welfare activities in overseas countries.

2.4 Investment in the Livestock Export Program

2.4.1 Financial

The Livestock Export Program (LEP) is funded by levies from livestock producers (through MLA) and livestock exporters (through LiveCorp). In addition, the Australian Government matches levies for every dollar spent on research and development (up to a cap).

Expenditure on the LEP for 2010/11 is expected to reach \$7 million, which has grown significantly over the last six years (\$3.1 million in 2004/05). Over the past three years expenditure has averaged \$6.7 million. At the same time the research and development component of this expenditure increased from \$1 million in 2004/05 to \$1.9 million in 2010/11 with the last three years averaging \$1.8 million.

In addition to providing matching R&D dollar support, part of the activities of the LEP have been funded by the Australian Government under the Live Animal Trade Program (LATP) and more recently the Live Trade Animal Welfare Partnership (LTAWP). The LTAP and LTAWP initiatives have involved a close working relationship, a “partnership”, between MLA, LiveCorp and the Australian Government on animal welfare issues (see section 4.3 for more details on this partnership).

From 2005/06 MLA, LiveCorp and the Australian Government increased its investment in the LEP as a result of a number of market events:

- In 2006/07 the cattle transaction levy was increased, with approximately \$900,000 of the funds raised from this increase being directed to the LEP.
- In 2005 a statutory levy on livestock exporters, received by LiveCorp, was introduced. This was subsequently increased by unanimous agreement of the exporters in February 2007. The levy change represented a 100 per cent increase on sheep (\$0.30 to \$0.60), lambs (\$0.30 to \$0.60) and goats (\$0.25 to \$0.50) exports, whilst cattle increased 33 per cent from \$0.007140/kg to \$0.009523/kg.

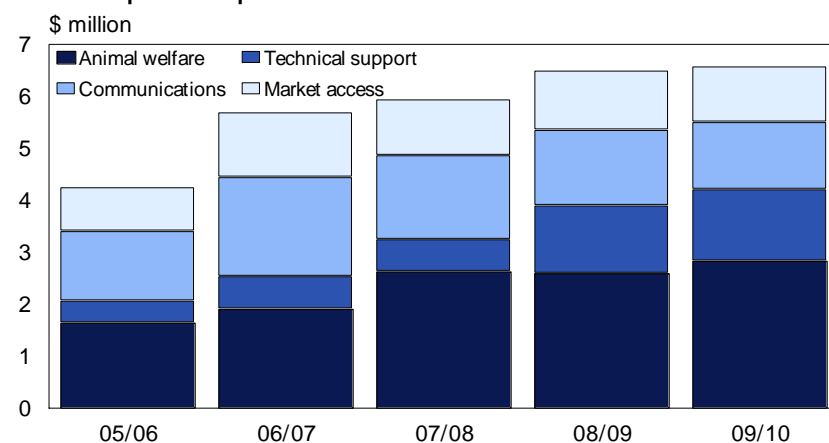
Table 2.2: MLA, LiveCorp and Australian Government funding summary of investment in the Livestock Export Program (LEP) (\$ '000)

	2005/06	2006/07	2007/08	2008/09	2009/10
FUNDING SUMMARY					
MLA	2,394	3,507	3,049	2,941	3,160
LiveCorp	1,256	1,168	1,666	1,972	1,928
LTAP/LTAWP	54	530	788	688	612
Government Matching	538	479	428	886	864
TOTAL	4,242	5,684	5,931	6,487	6,564

Section 6.4 of this submission details the expenditure by MLA, LiveCorp and the Australian Government on animal welfare programs.

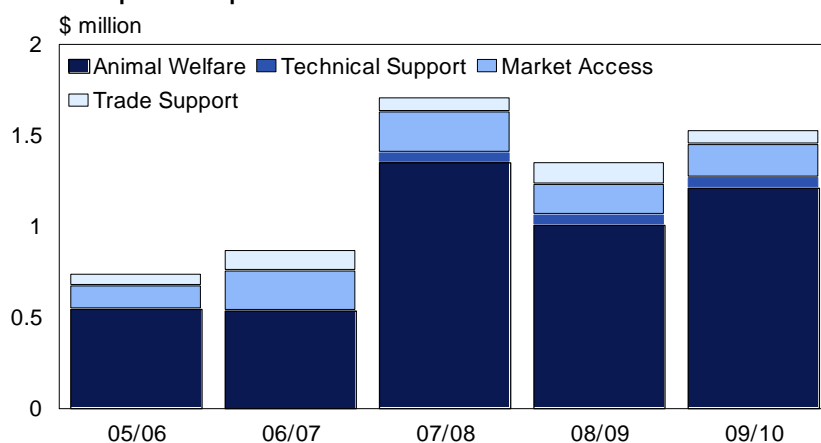
Figures 2.3, 2.4 and 2.5 show the livestock export expenditure (by MLA, LiveCorp and the Australian Government) by key program area in the overall LEP and in the LEP programs in Middle East/North Africa (MENA) region and Asia Pacific.

Figure 2.3
Live export expenditure



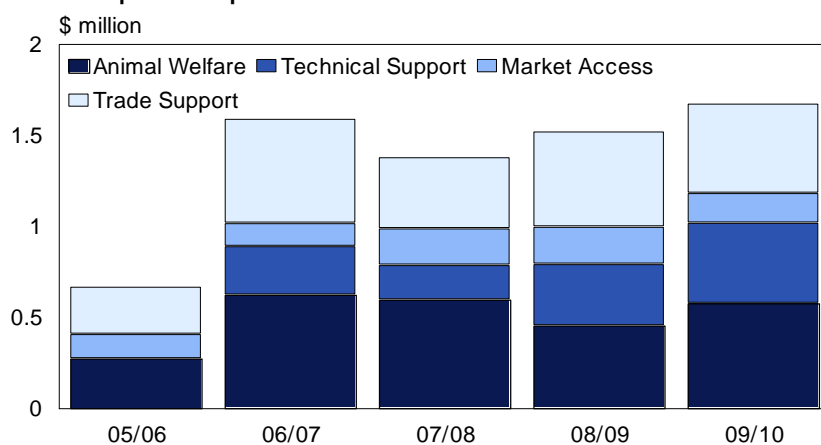
Source: MLA and LiveCorp

Figure 2.4
Live export expenditure in MENA



Source: MLA and LiveCorp

Figure 2.5
Live export expenditure in Asia Pacific



Source: MLA and LiveCorp

2.4.2 Human resources

The Livestock Export Program is staffed with human resources from both MLA and LiveCorp. In addition to the LEP staff, both organisations support the program with management, IT, finance and HR resources.

The LEP is jointly managed by the MLA Manager Livestock Exports and the LiveCorp Chief Executive Officer. Other LEP positions include: Communications Manager, R&D Manager, Industry Capability Manager, Middle East Manager Livestock Services, Indonesia Country Manager, Indonesia Animal Welfare Manager, three Indonesia Animal Welfare Assistants, Indonesia Marketing Manager, and Manager for Other South East Asian markets.

The Middle East and North Africa (MENA) program is run from the MLA office in Bahrain where the Middle East Manager Livestock services is based. This role covers 10 countries and is supported by a team of animal welfare and technical support specialists employed as consultants and contractors working in individual countries within the region. Market access and trade support services are provided by shared resources based in the MLA Bahrain office.

MLA opened an office in Indonesia in February 2010 to deliver the growing number of programs for this expanding market. Prior to establishing an office in Indonesia the Asia region was serviced out of MLA's Sydney office through a livestock services position, utilising a team of contractors with expertise in areas such as animal handling, livestock nutrition, yard design and point of slaughter. For two years prior to the office opening, a contractor specialising in point of slaughter was engaged on a full time basis to deliver the restraining box program. A full time assistant was also contracted and supplemented with animal welfare training contractors. Since the office opened, MLA has employed six locally engaged employees (of which three are focused on animal welfare) and two expatriates (of which one is responsible for animal welfare).

3 Background to the livestock export trade

3.1 Historical trends

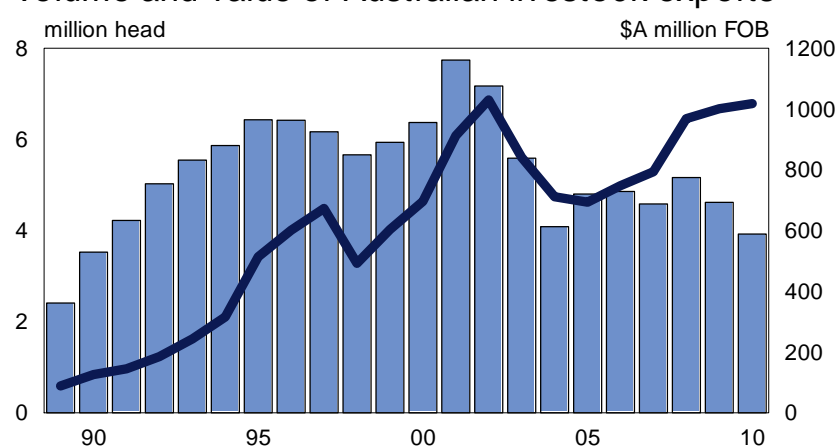
Australia first became a significant livestock exporter in the 1970s when large scale live sheep exports to the Middle East commenced. Annual shipments reached 5.5 million by the end of that decade and peaked at 8.5 million head in 1986/87. Although cattle had been exported from Australia for decades, the trade started to grow strongly from the late 1980s and peaked at 972,000 head in 2002. The ensuing years have seen the trade ebb and flow based on a range of factors such as drought, currency fluctuations and market access restrictions.

While the majority of livestock exports are feeder and slaughter animals, there is a significant number of high-value breeding livestock exported. Dairy cattle and cattle breeding exports represented 10% of the live cattle trade in 2010. Smaller numbers of breeding sheep and goats are also regularly exported.

The livestock export industry exported 3.9 million head of livestock (874,916 cattle, 2,968,571 sheep and 77,414 goats) in 2010, generating export revenue exceeding \$1 billion (see figure 3.1).

Figure 3.1

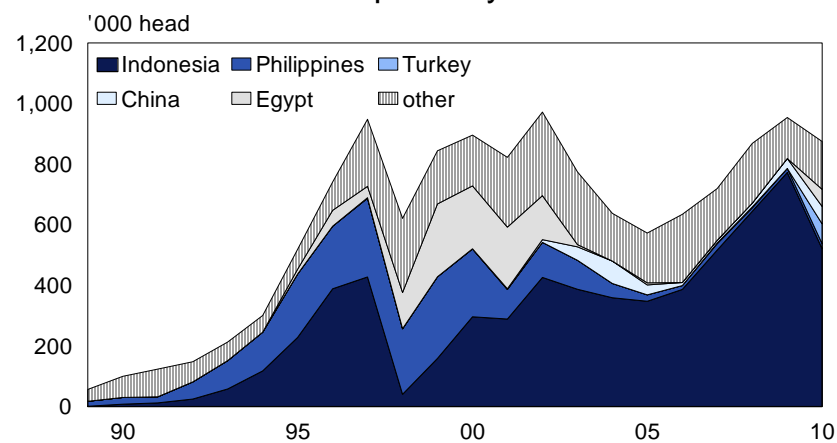
Volume and value of Australian livestock exports



Source: ABS

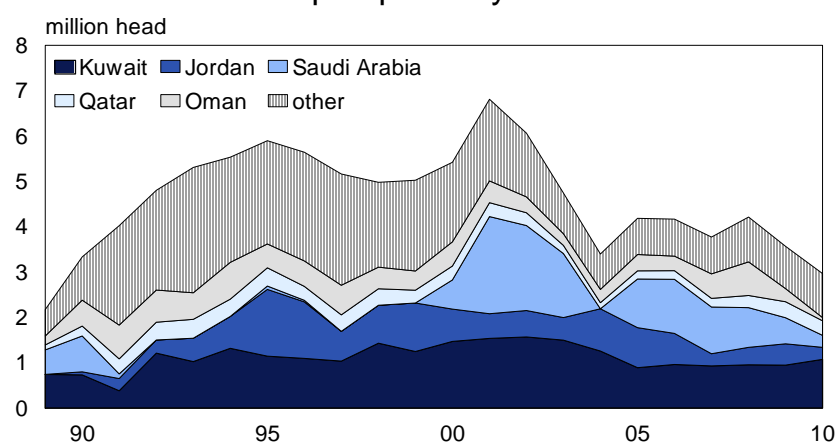
Over the past decade South East Asia accounts for around 80 per cent of Australia's live cattle exports (see figure 3.2) and most of Australia's live goat exports (see figure 3.4) while around 98 per cent of Australia's live sheep exports are destined for the Middle East (see figure 3.3). Indonesia has emerged over the past two decades to become Australia's largest and most valuable livestock export market, accounting for 60 per cent of live cattle exports in 2010. Because of weight restrictions on live cattle exports to Indonesia from June 2010, an unusually high proportion of live cattle were exported to the Middle East (23 per cent) in 2010. Likewise, the markets for live goat exports are highly concentrated, with Malaysia accounting for 83 per cent of exports in 2010. Live sheep exporters are less dependent on one main country although the bulk are exported to the Middle East with Kuwait taking 36 per cent, Bahrain 17 per cent and Qatar 11 per cent in 2010 (see figures 3.2, 3.3 and 3.4).

Figure 3.2
Australian live cattle exports by destination



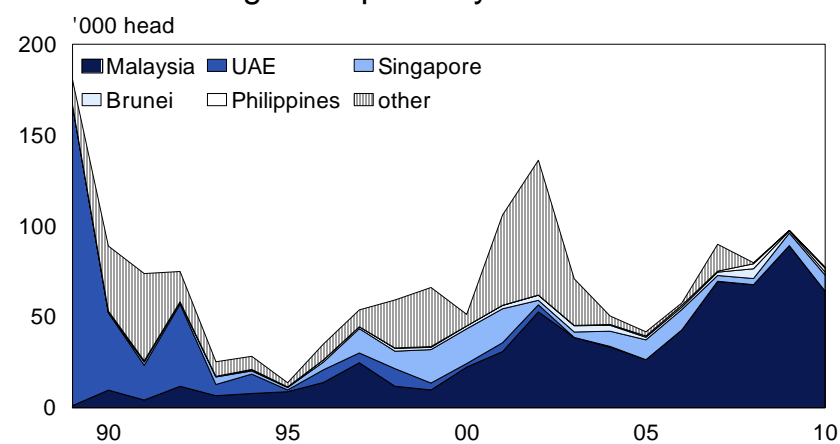
Source: ABS

Figure 3.3
Australian live sheep exports by destination



Source: ABS

Figure 3.4
Australian live goat exports by destination



Source: ABS

3.2 Regional characteristics

The regions where the majority of Australian livestock exports are destined are characterised by a range of unique economic, religious, cultural and political factors. These impact on the meat purchasing preferences of the local population.

3.2.1 Middle East/North Africa

3.2.1.1 Population and religion

The Middle East and North African (MENA) region is overwhelmingly Islamic, home to 20 per cent of the world's Muslim population. Religion and culture are intrinsically linked. Livestock have had an important role in Middle East culture for thousands of years. Eid al Adha which commemorates Abraham sacrificing a ram to God in place of his son, is one of the major Islamic festivals (and is one of the five pillars of Islam) involving livestock - usually sheep, camels or goats. It is a significant time for Muslims, one of reflection, thanksgiving and sharing with the poor and less fortunate.

3.2.1.2 Food security and government

The arid nature of much of the MENA region does not allow for production of sufficient numbers of the preferred fat-tailed lambs to meet the needs of the entire population. As a result, locally raised lamb is expensive and out of reach of the average person, affordable only to the wealthy. Meat and livestock must be imported from a range of countries to feed the majority of the population.

In three MENA markets - Kuwait, Bahrain and Qatar - that account for two thirds of the live sheep trade, the governments subsidise the importation of Australian livestock. The subsidy applies only to Australian livestock as Australia is relied upon as a consistent supplier of healthy, disease-free animals. They provide value for money and essentially feed the poorer section of the population. Each of these countries has a livestock company whose sole role is to provide affordable fresh meat for the people. Accordingly, the majority shareholding of each of the respective importing livestock companies is held by the government, with board representation to ensure the government's food security objectives are being managed appropriately.

Australian livestock have been an essential part of the food security of Gulf countries for many years. There is no other country with Australia's health status and history of reliable supply that could consistently provide livestock for local processing 12 months of the year. The major threat and area of concern for importing countries is a temporary market closure due to disease outbreaks in exporting countries where major diseases are endemic. The countries of prime concern are in Africa. Importing Gulf country Governments would find it difficult to rely on supply of livestock from these places.

3.2.1.3 Meat purchasing preferences

Access to refrigeration in the region is not as big an issue as it is in South East Asia. This is because average per person incomes are higher due to the region's extensive oil deposits and rising standards of living in recent years.

Demand for live cattle and sheep in the region (as opposed to boxed meat) stems from a strong preference by local consumers for locally slaughtered livestock as it

guarantees to them freshness. The region's preference for fresh meat is founded on religious and traditional customs. The traditional method of selling live sheep in the Middle East is in a local market (or souq). After purchase, an animal is taken to a nearby butcher for immediate processing into meat. The animal is slaughtered in full view of the customer and the meat from the animal is returned to the customer. In this way, the customer is 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.

3.2.1.4 Common distribution channels for Australian sheep

After Australian sheep are discharged from vessels in the MENA region, they are trucked to a feedlot where they are fed and watered for varying periods, usually from 1 to 30 days, averaging around 15 days. They are then either sold as live animals or are processed and sold as carcasses. The proportion of sheep that are sold "live" varies between countries. Some importers process virtually all their imported sheep and sell them as carcasses while other countries sell the majority of their sheep as live animals. The ultimate sales balance and distribution pathway is influenced by the country's wealth, population mix, land mass, religion and the season.

In the higher volume markets, some importers have their own abattoir or a standing contract with a municipal/commercial abattoir and sheep are primarily processed directly through these facilities to be **sold as carcasses**. Some carcasses are sold to wholesale and retail butchers while others are sold through the company's own butcher shops.

In other countries, sheep are **sold as live animals**. They are transported from the feedlot to livestock markets and on-sold to traders who then sell them to individuals for home slaughter or for processing at a nearby slaughter house. The latter is a "fee for service" slaughter/butchering arrangement whereby the customer accompanies the sheep from its live purchase through processing to its end point as a meat carcass. Live animal sales are more common during **religious festivals** such as Eid al Adha.

3.2.2 Indonesia

3.2.2.1 Population and religion

Indonesia is a diverse nation of over 17,500 islands, 33 provinces, with many distinct languages and ethnic groups.

It is the world's fourth most populous nation, with 233 million people - 88% of whom are Muslim. Tradition and religion retain a strong influence on all aspects of daily life in Indonesia.

Fifty per cent of the population still reside in rural villages where very few households have refrigerators.

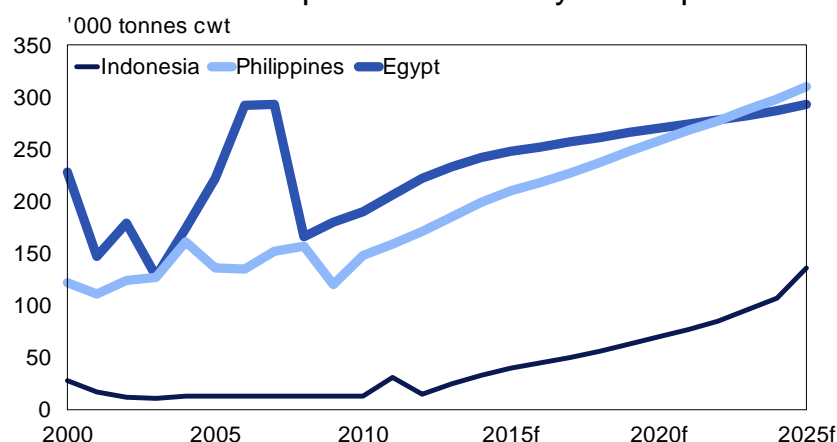
3.2.2.2 Food security and government

Demand for beef in Indonesia (as with a number of Australia's other livestock export markets) is expected to grow dramatically in the first half of this century (see figure 3.5) as the country develops and the population becomes more affluent. This is

prompting Indonesia (and other governments) to consider the security of their food supply generally and meat supply in particular.

Figure 3.5

Additional beef requirements of key live export destinations



Source: FAPRI

* beef requirements are total (boxed beef and carcass weight equivalent from live cattle)

Beef is one of five agricultural commodities prioritised for self sufficiency by the Indonesian Government (although rice and soy are the highest political priorities). The Blueprint on Beef Self Sufficiency Program 2014 recommends that the volume of imported live cattle and boxed beef be regulated due to a perception of an imbalance in the cattle trade (strongly in Australia's favour) and the need to encourage domestic production. The Blueprint suggests that a tariff higher than the current 5% be levied against imported beef, but that the 0% tariff on feeder cattle should stay in place as long as the cattle do not exceed a weight limit of 350kg.

For many years the Indonesian Government has been amending import regulations for boxed beef, to ban certain cuts, especially offal cuts, with the aim of reducing competitive pressure on local farmers, and providing an incentive for local production to increase.

3.2.2.3 Meat purchasing preferences

Generally rising incomes have allowed Indonesian consumers to switch to an increasing proportion of meat in their diet. As the population is largely Muslim, pork consumption is very low. Seafood (annual per capita consumption of 24kg) and poultry (6.5kg) are the main sources of protein, with beef consumption (2.4kg) low even by South East Asian standards. However beef consumption is expected to grow strongly with rising incomes as it is the preferred, prestige meat product.

The daily processing of cattle and distribution to local wet markets is the traditional meat marketing method in Indonesia and other parts of South East Asia. The markets are characterised by the display of fresh meat in open air stalls with little or no refrigeration. Selling beef in this way overcomes three barriers that are faced by beef in supermarket cabinets:

- it is more affordable to lower income residents;
- it doesn't require refrigeration - there is limited availability of cold chain infrastructure and domestic refrigeration beyond urban areas and more affluent

- it allows beef to be available in remote rural areas of the country as transporting cattle to the point of slaughter in remote regions, and then processing the cattle and distributing the beef within a close vicinity, requires less infrastructure than distributing chilled or frozen beef to remote regions.

3.2.2.4 Common distribution channels for Australian cattle

Live cattle exports to Indonesia are almost entirely destined for a feedlot where they are fed for 60 to 100 days (with the exception of dairy cattle).

The Indonesian feedlots holding Australian cattle have expanded significantly over the past 5 years to a capacity of approximately 270,000 head, allowing a turnover of 800,000 head per annum (the feedlot industry in Australia currently turns off approximately 2.5 million head per annum). Over 97 per cent of the beef from Australian cattle is sold through traditional wet markets or direct to meat manufacturers. Cattle are purchased daily from feedlots and are distributed to slaughter houses across Indonesia where they are processed overnight. The meat is retailed through nearby wet markets early the next morning, and generally consumed that day. Beef from a small number of Australian cattle slaughtered in Indonesia is sold through modern supermarkets.

3.2.3 Malaysia

3.2.3.1 Population and religion

Around half Malaysia's population of 29 million is Malay, a quarter is Chinese, around seven per cent is Indian, and the remainder is indigenous or other. Around 60 per cent of the population in Malaysia is Muslim.

3.2.3.2 Food security

Malaysia imports live goats due to the preference by the local Indian population for freshly slaughtered goatmeat and the lack of local animals.

In addition, Australian live goats are imported for breeding purposes (in eastern Malaysia) mainly for poverty eradication, as the Government provides goats to the rural communities for rearing, and in return the farmers earn money on-selling the animal or its progeny for slaughter.

3.2.3.3 Meat purchasing preferences

Rising incomes in Malaysia have allowed per capita meat consumption to increase over the past decade. Poultry is the most widely consumed meat in Malaysia (37kg/capita) due to its affordability and religious acceptability by both Muslims and Hindus. Beef and veal consumption was 5.6kg/capita while consumption of sheepmeat (possibly including goatmeat) reached 0.9kg/capita in 2010.

Goatmeat, mutton and lamb are a staple source of protein for the Indian population living in Malaysia. Such meats are typically consumed during the colder months of the year. In contrast, the Malay population rarely consume goatmeat, considering it to be high in cholesterol.

3.2.3.4 Distribution channels for Australian goats

Of the Australian goats that are exported to Malaysia, around 80 per cent of the resulting goatmeat is consumed by the Indian population. The Chinese community consumes most of the remaining 20 per cent of goatmeat in seasonal and occasional dishes where goatmeat is sought for its “heaty” warming and medicinal properties.

Around 90 per cent of Australian goats exported to Malaysia are air freighted to Kuala Lumpur International Airport. From there, they are transported to a farm/feedlot for 7-10 days and are fed roughage and a ration. Some of these farms/feedlots have a slaughter floor attached to them and goats are slaughtered on site. The remainder are transported to an abattoir. Shah Alam Abattoir is the largest centralised slaughter facility catering for Australian slaughter goats.

3.3 Australia’s unique capacity to supply live animals for export

Australia is uniquely positioned to supply livestock to other countries. It has cattle, goats and sheep well in excess of what is needed to supply the domestic market. Australia is recognised as being free from major animal diseases and has a strong commitment to animal welfare. These factors have seen Australia become the world’s largest exporter of livestock. Other livestock exporters do not have the same level of capacity to deliver in all these areas.

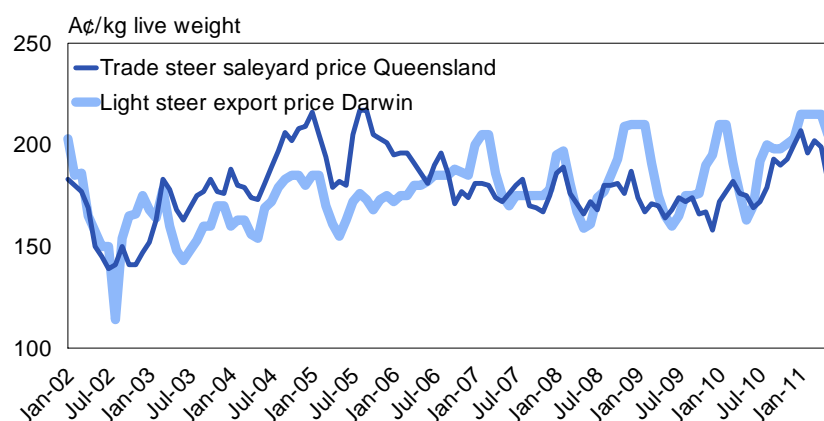
Livestock producers in northern and western Australia are highly dependent on the livestock export trade due to the lack of nearby processing facilities and lack of alternative land uses. Its proximity to northern cattle markets (Indonesia, Philippines, Malaysia) and tropical climatic conditions to raise high content *Bos indicus* cattle places it as an ideal supplier of protein to Asia.

Much of northern Australia is suitable for breeding tropically adapted cattle; however, finishing cattle to heavier weights for slaughter is severely restricted because quality feed is limited to a short growing period during the wet season and often on soils with nutrient deficiencies. In contrast, Indonesia has the ability to cost effectively finish cattle due to the abundance of cheap high quality feed (much of this being the by-product of other agricultural pursuits). The live trade from the north has grown on the back of the complementary nature of the trade (“Aussie bred, Indo fed”).

In areas where producers have a choice of exporting livestock versus sending livestock to a processor (and paying the cost of transportation), the livestock export trade has tended to provide a financial incentive (see figure 3.6 and 3.7).

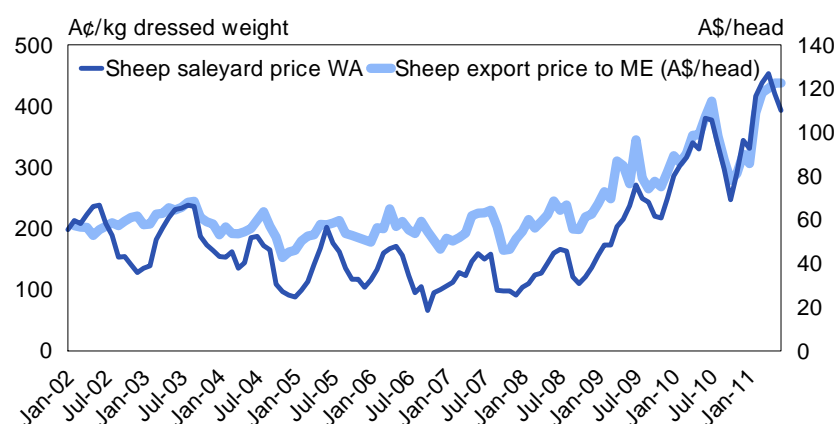
Historically, Australia’s abundance of Merino sheep allowed large volumes of these animals to be exported to Middle Eastern markets as an affordable protein source. Over the years the composition of Australia’s sheep flock has changed to first and second-cross younger animals, reducing the supply of older animals. However, as Middle Eastern incomes have risen, demand has remained strong for Australia’s dwindling supplies of sheep.

Figure 3.6
Australian cattle prices vs live cattle export prices



Source: MLA's NLRS, Landmark

Figure 3.7
Australian sheep prices vs live sheep export prices



Source: MLA's NLRS

3.4 Livestock trade and meat trade are not perfect substitutes

Australia's livestock exports represent a small proportion of its total red meat exports (see figures 3.8 and 3.9).

Australia exports boxed beef and sheepmeat to the same countries to which it supplies live animals as each product predominantly serves different market segments.

The urban populations of many of Australia's main livestock export markets are becoming increasingly sophisticated and more affluent and do not have the same preference for freshly slaughtered meat as do their rural counterparts. Hence, boxed beef and sheepmeat sales at supermarkets have been increasing.

Figure 3.8
Australian live cattle exports and beef exports

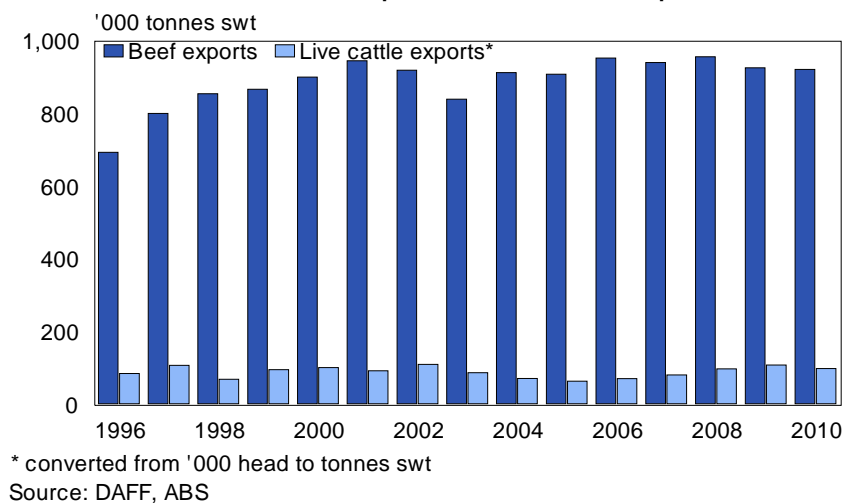
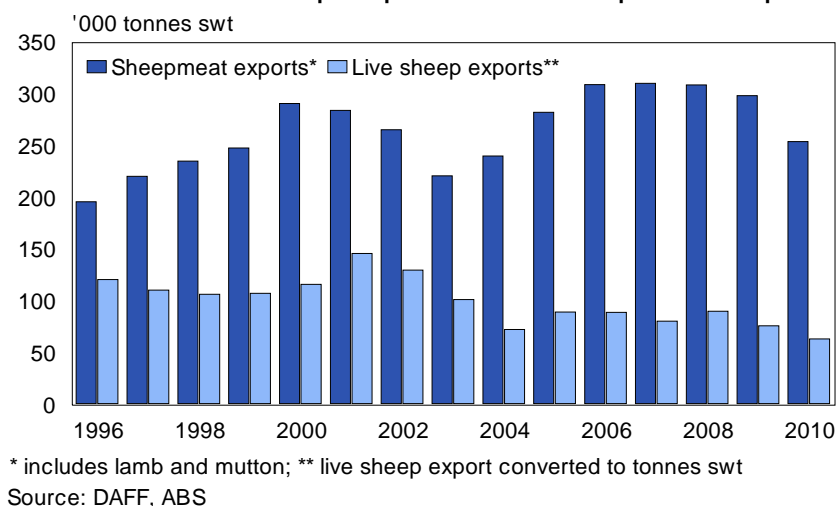


Figure 3.9
Australian live sheep exports and sheepmeat exports



However, if Australia ceased to supply livestock to overseas markets, the trade would not simply be replaced by the chilled and frozen meat trade (ABARE 2008). This was evidenced in Saudi Arabia in 2004 when Australian sheep exports were banned. In this case, not surprisingly, livestock imports from other destinations (see figure 3.10) increased. In contrast, not an extra kilogram of Australian boxed sheepmeat was sold to this market in 2004 – in fact, Australian boxed sheepmeat exports actually fell slightly.

Figure 3.10
Saudi Arabia live sheep imports vs. Australian exports



3.4.1 Middle East

Despite certifications at slaughter from Islamic societies in countries such as Australia, the strong preference of many Islamic customers is to consume fresh meat from livestock processed locally.

Chilled meat is accepted and patronised by some wealthier sections of the community and has increased in popularity in some countries. However, a core element in each country requires livestock to fulfil their religious beliefs, particularly at certain times of the year around religious festivals (especially Eid al Adha). Islamic countries will fulfil their livestock requirements from other countries if they cannot source stock from Australia.

3.4.2 Indonesia

Almost two-thirds of the beef from Australian cattle exported live is sold through traditional wet markets (see figure 3.11). There is a small quantity of beef from Australian cattle sold through modern supermarkets.

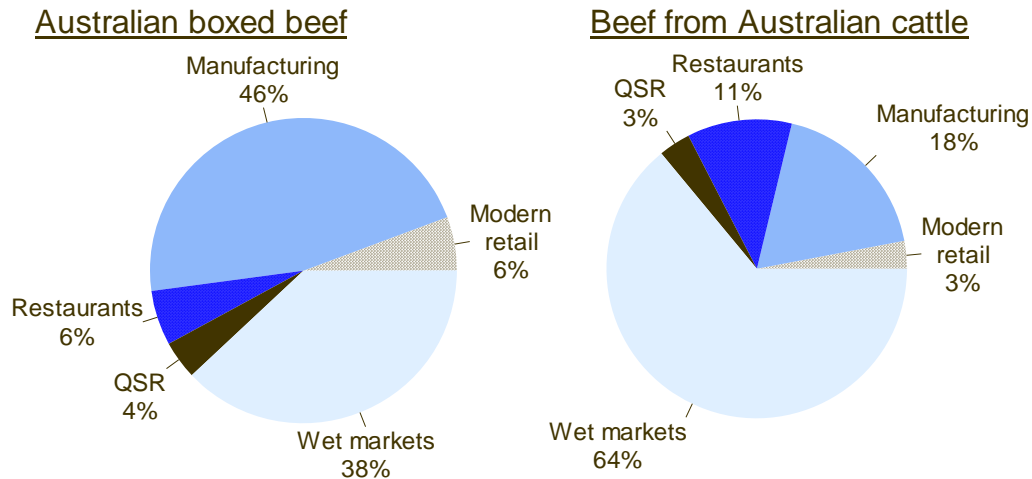
Traditional markets continue to play a predominant role in Indonesian food retailing, though they have experienced slower growth than the modern trade. In 2009, food sales in Indonesia's traditional market increased 2.2 per cent year-on-year while modern retail trade grocery sales increased 4.7 per cent.

A small number of importers process Australian cattle in more modern abattoirs and supply chilled beef to the growing supermarket trade. The supermarket sector, however, is increasingly being serviced by chilled imported boxed beef.

Imported boxed beef is destined for modern retail, middle-high end foodservice and a large proportion is used in manufactured products. The majority of manufacturing beef and cuts are used to make "Bakso balls" (meat balls) and sausages. Non manufacturing cuts of imported boxed beef are mainly destined for the middle to high end retail and foodservice sector. Currently, Australian beef competes with NZ and US beef in the foodservice sector. In the retail sector, boxed beef largely shares the shelf space with beef derived from Australian cattle.

Figure 3.11

Distribution of Australian boxed beef & beef from Australian live cattle exported to Indonesia



3.4.3 Malaysia

The Indian population in Malaysia has a heavy preference for goatmeat that is warm and freshly slaughtered rather than imported chilled or frozen goatmeat. Though refrigerators are available, Indian consumers prefer the traditional practice of purchasing warm meat and preparing it (mainly in curry form) and slow cooking it in time for dinner.

4 Australian regulations and standards for livestock exports

4.1 Overview of livestock export regulatory arrangements

Over the decades that Australia has been exporting livestock, regulations governing the industry have evolved significantly. Initially regulations were directed at delivering against supply contracts followed by a period of industry self regulation. The present regulatory framework includes both state and Commonwealth legislation.

The primary Commonwealth legislation governing the livestock export trade includes three key pieces of legislation, giving effect to Regulations and Orders that prescribe in detail the functioning of the trade. The key pieces of legislation are as follows:

- *Export Control Act 1982*
 - *Export Control (Orders) Regulations 1982*
 - *Export Control (Animals) Order 2004*
- *Australian Meat and Live-stock Industry Act 1997*
 - *Australian Meat and Live-stock Industry (Export Licensing) Regulations 1998*
 - *Australian Meat and Live-stock Industry (Standards) Order 2005*
- *Navigation Act 1912.*
 - *Marine Orders Part 43 Cargo & Handling - Livestock*

The *Export Control Act 1982* is designed to ensure the health and safety of food for export markets and to satisfy conditions of trade. It sets out the broad operating environment for the industry. The *Export Control (Animals) Order 2004* empowers the Australian Quarantine and Inspection Service (AQIS) to regulate and audit the trade and details other requirements such as:

- Registration of premises for holding and assembling livestock for export
- Notice of intention to export and related matters
- Inspection of livestock before export and grant of export permit
- Accreditation of veterinarians for livestock export

Regulations and Orders made pursuant to the *Export Control Act* specify the administrative arrangements and controls that apply to individual commodities.

There are a number of *Export Control Orders* relative to the live trade and specific to particular markets. These control orders can be used to restrict or control access to markets based on specific issues.

The *Australian Meat and Live-stock Industry Act 1997* (AMLI Act), amongst other things, provides a framework for the licensing requirements set out under the *Australian Meat and Live-stock Industry (Export Licensing) Regulations 1998* and in general terms this instrument provides AQIS, by delegated authority from the Secretary, with the legislative power to apply additional conditions (that might be

specific to species, destinations, modes of transport, etc), suspend or revoke a livestock export licence. Key elements of the export licensing assessment criteria include the approval of exporter operations and governance manual, federal police checks and audit reports.

Under section 17 of the AMLI Act the Secretary of the Department is authorised to make Orders to be complied with by holders of export licences under the Act. Pursuant to these powers the Secretary made *Australian Meat and Live-stock Industry (Standards) Order 2005* which specifies the requirement on livestock exporters to comply with the Australian Standards for the Export of Livestock (ASEL).

The Secretary of the Department is also authorised to make Orders that prohibit or restrict the supply of Australian livestock to certain destinations.

Vessels used for the transportation of livestock must meet all the applicable rules under the International Maritime Organization (IMO). Australia has also unilaterally adopted comprehensive standards for the export of live animals by sea. The requirements of Marine Orders Part 43 “Cargo and Cargo Handling – Livestock”, administered by the Australian Maritime Safety Authority (AMSA), prescribe the conditions for the stowage and carriage of livestock and provide for the survey and inspection of livestock ships. Satisfactory compliance with the requirements of this Marine Order results in the issue of an Australian Certificate for the Carriage of Livestock (ACCL) without which any livestock ship, regardless of country of registration, cannot load at an Australian port.

These regulatory requirements underpin the health, welfare and safety of Australian livestock. These requirements are supported by ongoing reviews to ensure continuous improvements. The current licensing arrangements also ensure exporters are accountable for their ‘individual’ actions and when necessary the regulator (AQIS) has a legislative basis to apply additional conditions or corrective action(s) – ensuring individual exporters bear the consequences of their actions.

4.2 Overview of the Australian Standards for the Export of Livestock (ASEL)

The Australian Standards for the Export of Livestock (ASEL) were developed in 2004 and their stated intention is based on ‘a whole-of-chain risk-based framework’ (i.e. to the point of discharge - see Australian Position Statement on the Export of Livestock) and include standards for the five stages of livestock export by sea, and a separate standard for air freight (Standard 6). The ASEL covers the supply chain from selection of livestock on farm through to discharge at the overseas port.

Since 2004, there have been several amendments to ASEL: Version 1 (1 July 2005); version 2 (28 September 2006); version 2.1 (14 December 2006); version 2.2 (1 February 2009) and version 2.3 (27 April 2011).

The ASEL provide for consistent legislation and enforcement at a national level, while also providing guidance for those with responsibility for animal welfare within the livestock chain.

ASEL broadly reflect community expectations for animal welfare in the livestock export industry, while also retaining a risk-based approach underpinned by scientific knowledge.

ASEL sets out the guiding principle and required outcomes along with detailed requirements for each of the following standards:

- Standard 1 – Sourcing and on-farm preparation of livestock
- Standard 2 – Land transport of livestock
- Standard 3 – Management of livestock in registered premises
- Standard 4 – Vessel preparation and loading
- Standard 5 – Onboard management of livestock
- Standard 6 – Air transport of livestock

4.2.1 AQIS enforcement - compliance with the regulations

AQIS is responsible for industry oversight and enforcement of ASEL and achieves this through a determination of compliance with:

- the legislation (the *Australian Meat and Live-stock Industry Act 1997*) and subordinate legislation (the *Australian Meat and Live-stock Industry (Export Licensing) Regulations 1998*, *Export Control Act 1982* (and subordinate legislation - the *Export Control (Animals) Order 2004*));
- the standards (Australian Standards for the Export of Livestock) (ASEL)
- the exporters governance manual (as required by the *Australian Meat and Live-stock Industry (Export Licensing) Regulations 1998* - Operations and Governance Manual);
- Notice of Intention and Consignment Risk Management Plan for Live-stock Exports by Sea (NOI/CRMP) form (NOI/CRMP) (as required by Sections 2.41 and 2.42 of the *Export Control (Animals) Order 2004*);
- Approved Export Plans (AEP);
- Health Certificate and Permission to Leave for Loading (Section 2.52 of the *Export Control (Animals) Order 2004*) (Health Certificate);
- Livestock Export Permit (Subsection 2.58 of the *Export Control (Animals) Order 2004*) (Livestock Export Permit);
- Daily Report (Daily Report); and
- End of Voyage Report (End of Voyage Report).

4.2.2 Types of livestock suitable for export

ASEL prescribes the minimum standard for weight, body condition and breed (phenotype) for the export for feeder and slaughter animals from Australia by production zone, port of loading and time of the year. In addition to these factors, ASEL includes 'rejection criteria' that cover health and welfare criteria.

ASEL does not stipulate the age of feeder and slaughter animals except for deer (minimum age) and camels (maximum age for males). Experience with the export of sheep and cattle to date (including published research and post-incident investigations) provides no evidence to suggest that age has a negative influence on animal welfare outcomes for these species. The standards covering weight, body

condition and rejection criteria are considered overarching parameters that deliver sound health and welfare outcomes.

ASEL attempts to align the species of livestock with the climate of the destination and the time of year so as to manage animal welfare risks associated with heat stress. Consequently, there are restrictions on exports by:

- class (cattle – *Bos taurus/Bos indicus*; sheep – pastoral and non-pastoral);
- port of loading (specific ports; north/south of a specific latitude); and
- time of year (May to October).

In addition, a heat stress risk assessment must be undertaken to provide a less than 2 per cent risk of 5 per cent mortality for certain species/destinations/time of year.

MLA and LiveCorp has invested in, and continues to invest in, research and development to enhance software and systems in order to manage climatic variables and heat stress for different classes of livestock/times of year/shipping route / port of discharge (see **Appendix A** for a listing of livestock export related R&D projects).

Where appropriate (and verifiable), ASEL must reflect new knowledge and improvements in software or management systems.

4.3 Memoranda of Understanding

An outcome of the Keniry Review in 2003 was the requirement for importing countries in the Middle East to enter into a Memoranda of Understanding (MoU) (as referenced in the Australian Position Statement on the Export of Livestock in ASEL). MoUs aim to protect the health and welfare of livestock by agreeing to the conditions under which trade can be undertaken. Key provisions in the MoUs include the assurance that live animals are offloaded on arrival (either in the normal manner or if there is a suspected problem, into a quarantine zone for further inspection and testing). This arrangement guarantees that animals will not be left on vessels for long periods beyond the normal shipping time for the journey.

The MoUs are a key mechanism to managing risk to Australian livestock that are exported.

MoUs on the live animal trade have been signed with the United Arab Emirates, Kuwait, Saudi Arabia, Jordan, Libya, Lebanon, Eritrea, Egypt, Oman, Qatar and Bahrain. A number MoUs are still being negotiated.

4.4 Assessment of adequacy and effectiveness of current Australian regulatory arrangements

4.4.1 Adequacy of regulations in Australia

By and large, current Australian regulatory arrangements serve the industry well to the point of destination (as the Australian Government loses its jurisdiction once livestock disembark the vessel or aircraft in export markets), although ongoing refinement and continuous improvement is required to better meet changing producer, exporter, importer, community and government expectations.

4.4.1.1 Federal and state responsibilities

MLA and LiveCorp support the role State and Territory authorities take in administering and enforcing legislation. Both companies acknowledge the work and progress made under the Australian Animal Welfare Strategy (AAWS) to replace various codes of practice (that were largely written in the 1980s and early 1990s and were not intended to be legally enforceable) with standards and guidelines.

An area of remaining concern relates to the demarcation between State and Federal Legislation. Under the Constitution, animal welfare legislation and compliance is the responsibility the States and Territories of Australia.

It has been suggested that ASEL should commence at the registered premises, as it is at this point that the transfer of ownership from the producer to the exporter usually takes place. However, currently ASEL Standards 1 and 2 apply to activities prior to the arrival of animals at these registered premises. Once standards and guidelines are fully implemented and endorsed in each state for cattle, sheep and goat production as well as livestock transport, ASEL sections 1 & 2 will need to either mirror or align with such requirements.

Upon entry to the premises the animals come under the care and management of the licensed exporter at which point ASEL are managed under the Operations and Governance Manual along with the oversight of the AQIS Accredited Veterinarian (AAV). It should be noted that despite the requirement of ASEL under Commonwealth law, relevant state authorities also have capacity to inspect livestock and facilities and enforce legislation within their respective jurisdictions up to and including inspection on the wharf.

It is important to ensure a consistent and seamless linkage between Australian Government regulations and those enforced by States and Territories.

4.4.2 Adequacy of ASEL

In overall terms, ASEL is delivering against its stated objectives. Declining vessel mortalities demonstrate the continuous improvement in animal welfare outcomes on board vessels (see box 4.1). However, it is important to note that ASEL is not static and continues to evolve and adapt.

To continuously improve ASEL and thus animal welfare outcomes throughout the export process, MLA and LiveCorp, supported by the Australian Government, have undertaken significant research and training initiatives. In excess of \$5.5 million has been invested into approximately 100 research projects or extension activities over the last decade, many contributing to improved standards or management practices relating to ASEL. A table of R&D projects is listed at **Appendix A**. This research has resulted in many scientific and extension publications relevant to the livestock export trade – these are listed at **Appendix B**.

Industry believes that research and development should be undertaken on specific issues before a change in management practice or standard should be considered. In this regard, further reviews of ASEL should be targeted to address a specific concern rather than a broad review of ASEL.

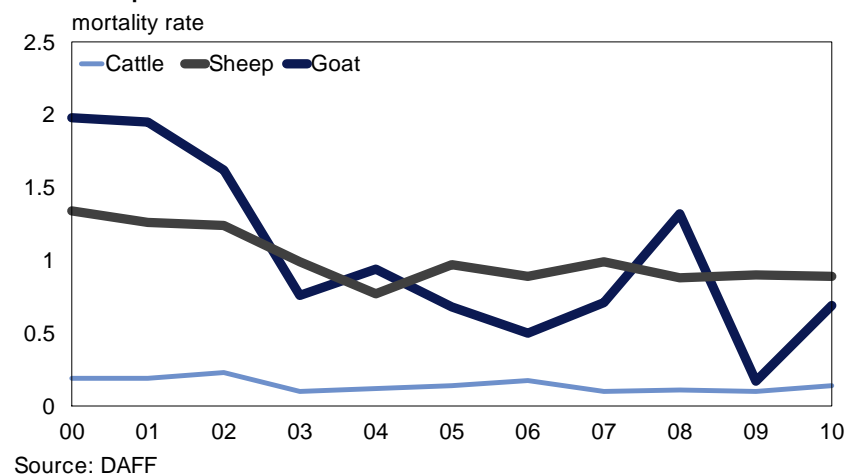
Nevertheless, there is opportunity for further improvement of ASEL in terms of content, implementation and enforcement. Suggestions for improvement are as follows.

Box 4.1: declining livestock mortalities on vessels

Mortality is a key welfare indicator used for the livestock export industry. Mortality levels on all voyages are reported to the Australian Government and if these exceed predetermined trigger levels, a full investigation occurs. These levels are 2 per cent for sheep and 1 per cent for cattle on voyages over 10 days and 0.5 per cent for both species on any voyages under 10 days. Over the past decade livestock mortality on vessels has shown a downward trend. This reflects a number of factors including:

- ASEL and other regulations (which cover a wide range of factors including limiting exports to specific destinations at certain times of the year and at maximum stocking densities)
- Industry investment in more efficient transport resulting in reduced travel times
- Tailored requirements for specific destinations
- Implementation of industry standards, training and building awareness of the profile and quality attributes of the livestock suitable for export.

Figure 4.1
Live export mortalities on vessels



4.4.2.1 Repetition

It has become apparent that ASEL's 'whole chain approach' has led to a degree of repetition which is notably one of the main criticisms of the current ASEL. For example, rejection criteria, humane killing etc should be referenced once and applied across all stages of ASEL.

4.4.2.2 Some areas are not verifiable

Some of the standards are not verifiable as written and would be better expressed in terms of outcomes. For example, S 2.22 refers to livestock being unloaded at registered premises by competent stock handlers etc.

4.4.2.3 Some areas are vague

Some of the standards are vague. S 2.24 makes the statement that all relevant standards for land transport to arrival at the registered premises must also be applied to transport to the wharf, without specifying which ones should apply.

4.4.2.4 Process for the revision of standards

While there is an opportunity to further enhance ASEL there is also scope to enhance the process by which new knowledge or changed circumstances can be incorporated into the ASEL.

A desirable framework for formulating new or revised versions of ASEL may include:

- Animal welfare objective - includes intended animal welfare outcome
- Standards - the animal welfare requirements that must be met
- Notes - explanations of the context of the standards and guidelines
- References - main references from the scientific literature (technical reviews)
- Definitions - elements of each standard must be well-defined to allow for consistent application and verification
- Verification of compliance - performance indicators and intervention levels

To be effective, any standard should satisfy three basic criteria, namely:

- Clear - easily understood by all
- Essential - for the intended purpose, and
- Verifiable - the compliance target is defined so that both the regulator and the person being regulated can identify when the standard has been met.

4.4.3 Adequacy of regulations in export markets

Despite the above detailed regulatory framework for the assembly and export of livestock from Australia, once the livestock are landed in destination markets, Australian regulations and frameworks do not apply to facilities and operatives in the destination market.

New processes are being developed to support animal welfare and traceability once Australian livestock disembark in overseas markets (see chapter 8).

4.5 The risk management strategies necessary to address animal welfare

A very tight regulatory framework, overseen by the Australian Government and supplemented by State and Territory regulations, is the key risk management strategy employed within the livestock export industry to ensure the welfare of livestock to the point of discharge. To supplement these regulations, the Australian Government has signed a number of Memoranda of Understanding with overseas governments. These MoUs have also served to manage animal welfare risk up until the point of discharge.

MLA and LiveCorp do not have the regulatory authority to either enforce ASEL in Australia or impose conditions in export destinations.

Currently the Australian Government and industry are developing a regulatory framework that will ensure exported Australian livestock are directed through supply chains that meet internationally recognised animal welfare standards, after discharge in the export destination, up to and including the point of slaughter (see chapter 8).

5 Animal welfare in livestock export markets

5.1 Factors affecting animal welfare in livestock export destinations

There are four vital factors that affect animal welfare in livestock export destinations:

1. People
2. Infrastructure
3. Environment
4. Peak demand periods

Each of these factors is discussed below.

5.1.1 People

Throughout the Middle East/North Africa most feedlots and abattoirs are staffed by labour primarily originating from Nepal, India, Pakistan, Bangladesh and Egypt. These are poor countries with low levels of literacy and education among their workforce. The workforce used in the Middle East/North Africa is often itinerant and only employed for a few years before returning home or moving to higher paid employment in construction.

In Indonesia, labour is often sourced from local villages or communities that also have low levels of literacy and education. Often they will have no livestock experience and are given little training.

The majority of people handling Australian livestock are not familiar with the behavioural patterns of Australian livestock (which have a large flight zone – the area surrounding the animal that will cause alarm and escape behaviour when encroached upon) compared to the local livestock (which are generally comfortable with human contact and being led rather than herded). However, Australian livestock often quieten while in the feedlot as they become accustomed to the regular contact with feedlot staff.

5.1.2 Infrastructure

Infrastructure plays a critical role in ensuring suitable animal welfare outcomes are met. Having in place adequate and well constructed equipment allows for animals to be moved, housed, fed, watered and processed appropriately.

Livestock infrastructure throughout Australia's livestock export markets ranges from traditional and old structures to the very modern.

In the Middle East/North Africa (MENA) region, there are 20-year-old feedlots and abattoirs in some of the major importing countries, but also brand new facilities that are equipped with modern livestock restraining and meat processing equipment. Abattoirs are often designed around traditional slaughter methods.

In Indonesia, there are over 700 abattoirs overseen by provincial government authorities, commonly referred to as RPHs (Rumah Potong Hewan or house of animal slaughter) and likely thousands of community abattoirs, referred to as TPH's

(Tempat Potong Hewan or place of animal slaughter), known by local government officials but not licensed or monitored. These facilities are spread throughout the entire country with a concentration around major population centres where Australian livestock are generally supplied. Facilities have varying levels of management with it being often the case that multiple butcher groups have access to the facilities usually under direction from those who purchase the cattle. The privately owned facilities range from clean, structured, well run organisations using excellent animal handling practices and using stunning to facilities with limited infrastructure or investment.

There are four critical areas of infrastructure through the livestock export chain:

- Port – port discharge facilities play a crucial role in ensuring the movement of animals from the ship to trucks for transport to feedlots. They allow animals to be quickly and humanely moved from the vessel to trucks.
- Transport – Trucks transporting animals must be suitable for such purposes. In many countries the trucks are multi purpose and the drivers are not dedicated livestock truck drivers.
- Feedlot – Having well designed and managed feedlots is essential to delivering suitable animal welfare outcomes. Feedlot infrastructure requirements include adequate discharge ramps, well designed lanes for low stress stock movement, suitable drafting and handling equipment, and well designed pens with access to feed and water.
- Point of slaughter – Ensuring appropriate infrastructure is in place to handle and manage livestock at the point of slaughter is crucial. There must be appropriate discharge ramps, lairage design for access to feed and water, lanes and race ways to the slaughter floor and adequate restraint equipment to humanely manage livestock.

5.1.3 Environment

Understanding the environmental factors that affect animal welfare assists operators in livestock export markets to manage livestock appropriately. Climatic conditions have a major effect on welfare outcomes. The climatic conditions in livestock export markets range from dry hot conditions in the Middle East to wet tropical conditions in South East Asia. Environmental factors are best overcome through:

- the selection of appropriate animals for the in-market conditions
- ensuring the infrastructure at feedlots is adequate for the environmental conditions
- putting in place effective operational systems to manage the environment.

Heat stress is one of the greatest risk areas in both the Middle East and South East Asia if the above factors are not addressed adequately.

5.1.4 Peak demand periods

Demand for livestock in our major markets generally peaks around key religious festivals. Islam, the predominate religion in the Middle East and Indonesia, generally marks these religious events through celebrations centred around meals with family and friends.

Eid al Adha represents one of the most important celebrations in the Islamic calendar and is celebrated at the end of the Hajj (the annual pilgrimage to Mecca).

This period is a peak time for meat and livestock purchases and single animal sales from feedlots and souqs increase significantly. Sales start to rise a week before Eid and peak over the three days of celebration.

Individuals purchase animals which are either slaughtered in a local abattoir, taken home for private slaughter or are slaughtered immediately near the souq (or livestock market).

Key animal welfare issues arise during this period as many of the people buying animals have limited animal handling experience and do not have appropriate transport to move the sheep. Animal welfare issues include:

- Poor handling, animals having their limbs tied, being carried on people's backs, dragged, walked by pulling or pushing by limbs and dragged by ears, horns or wool.
- Inappropriate transport, including animals being loaded into car boots, trussed in the back of utes or trucks and being overstocked for transport.
- Slaughter outside licensed slaughter houses, taking place in public locations, often by unskilled slaughter and stock related people.

Key issues in peak demand periods are the increase in public sales to individuals, the volume of sheep sold and the associated slaughter capacity in each country. Slaughter capacity is rarely adequate during this period. Compliance capacity with optimal handling and slaughter processes is therefore limited.

5.1.5 Conclusion

Identifying and understanding the above key factors is critical to MLA and LiveCorp's work in export markets. The actions MLA and LiveCorp have taken to respond to these issues are discussed in the next chapter and in Appendix C.

6 MLA and LiveCorp actions and effectiveness in improving animal welfare in livestock export markets

6.1 The role of MLA and LiveCorp in improving animal welfare standards in livestock export markets

MLA and LiveCorp have taken a responsive and proactive approach to animal welfare. As animal welfare issues are identified, they are prioritised and addressed by engaging with governments, vessel operators, importers, and feedlot and abattoir operators and workers.

6.1.1 Prioritising actions to improve animal welfare

Over the past decade the level of resources (both physical and financial) to improve animal welfare in livestock export markets has been increasing. The industry has recognised for many years the need to improve animal welfare standards for the industry's long term sustainability.

MLA and LiveCorp each have a planning and reporting cycle which facilitates the LEP's development of annual operating plans (AOPs) and program activities within this annual cycle.

Each year the AOP is developed through a process of reviewing the previous year's programs, highlighting priority areas and building programs and budgets to support these priorities. This process is conducted by the managers responsible in consultation with the peak councils, exporters, importers and in some cases, overseas governments. Funds are allocated based on these assessments and requirements of delivering the program. The plans are approved by the Peak Industry Councils and the respective company boards.

The process of reviewing the previous year's projects and prioritising projects for the following year is done initially by staff involved in the LEP, led by the MLA Livestock Export Manager and the CEO of LiveCorp. 'In market' knowledge, understanding and experience have allowed staff to develop a detailed understanding of the key supply chains in each country and the improvements required to drive change.

As part of the planning and prioritising process, applications are developed and are submitted to DAFF for additional funding. These applications describe particular animal welfare issues and concerns of the industry, recommended actions and funding required to deliver the improvements. These plans are reported on to DAFF on a regular basis, both in written reports and through presentations.

The livestock export R&D program is part of the LEP. The following committees have been established to facilitate the management and running of the livestock export R&D program (including overseeing the strategic direction, approving projects and communicating the results to the industry):

- Management Committee – consists of management representatives from MLA and Livecorp and

- Advisory Committee – comprised of representatives from the Peak Industry Councils (Cattle Council of Australia, Sheepmeat Council of Australia and the Australian Livestock Exporters' Council), the northern beef industry, LiveShip, MLA and LiveCorp.

6.2 Ability to influence

As noted in section 4.4.3 of this submission, once the livestock are landed in destination markets, Australian regulations and frameworks do not apply to facilities and operatives in these markets. Also, MLA and LiveCorp have no commercial or regulatory powers to implement change or to drive uptake of animal welfare improvements in export markets.

MLA and LiveCorp's ability to influence change stems from our on-the-ground presence in export markets, developing relationships over time and working with operators, animal handlers and government officers stationed in the various regions on actions to improve animal welfare.

6.3 Collaborative approach to animal welfare

MLA and LiveCorp and the Australian Government take a collaborative approach to animal welfare in livestock export markets. This partnership involves:

- MLA and LiveCorp meeting with government regularly to discuss live export and animal welfare programs (including Annual Operating Plans);
- MLA and LiveCorp hosting Australian government visitors to the markets to show first hand the animal welfare environment, MLA and LiveCorp's activities in the market, and where industry and government funding has been invested.
 - In MENA the LEP has hosted Australian government visits and facilitated access to commercial operations, including ports, feedlots and slaughter houses. This has occurred over the past five years and has included the former Minister for Agriculture, Tony Burke, and senior DAFF officials. Improvements delivered under joint Industry/Government funding have been demonstrated. Facilities in UAE, Saudi Arabia, Bahrain and Kuwait have been made available to various state and federal government visitors including Ambassadors and senior DAFF officials.
 - In Indonesia the LEP has also hosted government visits including from Minister Burke in 2008 who visited a feedlot and an abattoir. Other DAFF officials have also visited the market to view feedlots and abattoirs. The Working Group on Agriculture, Food and Forestry Cooperation (WGAFFC) is co-chaired by DAFF and the Indonesian Ministry for Agriculture to discuss current agricultural issues. At the 2008 WGAFFC meeting DAFF recognised the animal welfare and occupational health and safety benefits of the restraining boxes.
- The Australian Government contributing 50% of the cost (up to a cap) of MLA and LiveCorp Live Export Program R&D projects.
- The Australian Government fully or partially funding programs that expanded or accelerated LEP animal welfare activities in livestock export markets. These programs were the Live Animal Trade Program (LATP) and the Live Trade Animal Welfare Partnership (LTAWP):

- Following the Keniry Review of the livestock export industry in 2003 the Australian Government, through the Department of Agriculture Forestry and Fisheries (DAFF), committed \$1 million per year for four years through the LTAP to assist with improvements in animal handling and welfare practices in overseas markets for Australian livestock. Much of this funding was utilised to expand and accelerate work by MLA and LiveCorp on improving animal handling and welfare in overseas markets. Government funding was also provided during this period for the establishment of a veterinary counsellor position in the Middle East. The key role of this position was to facilitate the signing of MoUs in the region.
- In 2009/10 the LTAWP between MLA, LiveCorp and the Australian Government was established. MLA and LiveCorp and DAFF each committed \$1.6 million for three years to fund this Partnership, with the following objectives:
 - support projects which enable better animal welfare outcomes in the handling, transport and processing of livestock in importing countries
 - support importing countries in their efforts to adopt and implement World Organisation for Animal Health (OIE) animal welfare standards
 - provide other assistance as appropriate to advance the bilateral relationship

6.4 Expenditure by MLA and LiveCorp on animal welfare initiatives

Animal welfare is the largest expenditure component of the Live Export Program (LEP) program, with funds allocated representing 40% of total program spend over the last five years. Of the expenditure on animal welfare in Asia Pacific over the past five years, 75% has been devoted to Indonesia.

Table 6.1: investment in animal welfare related to livestock exports

	05/06	06/07	07/08	08/09	09/10
ANIMAL WELFARE					
R&D	819	744	676	1,129	1,038
Support					
- Asia Pacific	218	338	397	121	323
- Middle East	545	290	761	650	851
LTAWP/LATP					
-Asia Pacific	54	284	199	332	253
-Middle East		246	589	356	359
-Other					
Total Animal Welfare	1,636	1,902	2,622	2,588	2,824

6.5 MLA and LiveCorp in-market animal welfare programs

The Live Export Program (LEP) delivers animal welfare improvements through the following programs (having high regard for the key factors that affect animal welfare discussed in chapter 5):

- Training in animal handling – this has been delivered by raising the awareness and standard of animal handling, transport and processing practices. It has often been delivered in conjunction with infrastructure improvements, including abattoir enhancements and in some cases the trialling of pre-slaughter stunning of sheep and cattle. See **Appendix C** for details on training carried out by MLA and LiveCorp in key livestock export markets.
- Infrastructure improvements – this has been achieved by targeting specific welfare issues in key livestock facilities including ports, feedlots and slaughter houses. See **Appendix C** for details on infrastructure projects carried out by MLA and LiveCorp in key livestock export markets. The major components of this work of the LEP include:
 - Assessment of existing animal handling practices and processing infrastructure
 - Repair and replacement of existing infrastructure
 - Design and construction of new equipment and facilities
 - Better utilisation of improved infrastructure through provision of animal handling training
- Technical support – this is achieved by MLA and LiveCorp and their contractors providing technical advice to operators in a range of areas including abattoir design, livestock nutrition, training the trainer etc.
- Research and development – this is achieved by MLA and LiveCorp undertaking extensive research and development into factors impacting welfare and production (**see Appendix A**).

The delivery of these programs is supported by a range of training materials and support packages. Through the R&D program the following key publications have been developed and refined over a number of years to support the in-market activities:

- Manual for South East Asian Feedlots – this manual covers feedlot design, transport, induction, animal handling, animal health, nutrition, and feedlot management.
- MENA Feedlot Training pack – this support packages covers nutrition, animal handling, health and heat stress management.
- Yard design manuals – covering appropriate yard design concepts and drawings.
- Goat manual – designed for assisting goat feedlots and breeding operations in Malaysia
- Sheep and cattle talkers – these are livestock goads designed to promote low stress stock handling.
- Standard Operating Procedures for the slaughter of cattle which sets out procedures for appropriate slaughter practices.

These programs are discussed in detail below.

6.6 Actions and effectiveness of MLA and LiveCorp to improve animal welfare outcomes

MLA and LiveCorp have actioned a plethora animal welfare activities across the supply chain and across livestock export markets.

The actions and effectiveness of MLA and LiveCorp in improving animal welfare outcomes in the three key livestock export countries/regions –MENA, Indonesia and Malaysia – are discussed below.

Appendix C details the identified animal welfare issues in each major livestock export market and the actions taken and improvements made by MLA and LiveCorp.

6.6.1 Middle East/North Africa

6.6.1.1 Actions taken by MLA and LiveCorp to improve animal welfare outcomes

Each country in the Middle East region is different, requiring the tailoring of MLA and LiveCorp/Government joint activities to improve the handling and welfare of imported Australian livestock for each market. Activities in the Middle East – via education/training programs and infrastructure upgrades – have taken a supply chain approach with activities focussed initially at the ports, then through the feedlotting phase and then making improvements at the point of slaughter.

- Prior to 2006/07 MLA and LiveCorp initiatives to improve the welfare of imported Australian livestock in the MENA region was largely concentrated on improvements in ports of discharge and within feedlots. In many ports improvements were made to unloading facilities so as to reduce discharge times and reduce stress on livestock during the unloading process. Improvements were also made to many of the older feedlots throughout the region; to facilities used during arrival into and departure from the feedlot; to feed and water troughs, and feed rations; and via the provision of shade for livestock in the feedlot.
- In 2006/07 a major effort was made to improve animal handling along the supply chain in a number of the markets for Australian livestock in the Gulf area of the Middle East. Comprehensive training programs were provided to staff from ports, feedlots and abattoirs in Bahrain, Kuwait, Oman, Qatar and Dubai. In addition, one of the first joint MLA and LiveCorp/Australian Government initiatives in the MENA region utilising LTAP was the installation of a restraining box in the abattoir in Jordan where imported Australian cattle are processed. Training was provided for abattoir staff to ensure the box was effectively utilised.
- In 2007/08 joint MLA and LiveCorp/Australian Government activities were concentrated in Kuwait. Significant improvements (ventilation, lighting, water supply, and load out facilities) were made to a large livestock receival shed in the Kuwait port where arriving livestock are held for inspection by Kuwaiti Government veterinarians. Improvements were also made to the races leading from the ship to the shed. These improvements were essential in reducing the time it took to get livestock from a ship back onto feed and water at the feedlot. Also in Kuwait non-slip flooring was installed in ramps in a

- Infrastructure improvements were a focus of joint activities in 2008/09. In Bahrain repairs were made to the discharge trailer, ramps and shading at the port and at the feedlot. Discharge facilities were also upgraded at ports in Israel, Saudi Arabia, and Dubai. Ramps and races were installed to improve movement of livestock in a major abattoir in Qatar. In Bahrain the “In the ute, not the boot” education campaign was launched, aiming to reduce the incidence of inappropriate transport of livestock in the boot of private vehicles.
- In 2009/10 joint MLA and LiveCorp/Australian Government activities in the MENA region were focused on a major upgrading of facilities in Kuwaiti abattoirs and provided training and support for the arrival of Australian livestock in Sudan and Egypt. In two of the five abattoirs in Kuwait, slaughter halls were completely upgraded with races, ramps and flapped gates allowing a controlled flow of sheep from lairage to slaughter tables, avoiding the dragging of sheep and the slaughter of a sheep in the view of those behind it. These upgrades were accompanied by intensive training of abattoir staff, and resulted in significant improvements in animal welfare, through reductions in the time taken to process a day’s quota of livestock. Other activities during 2009/10 included upgrading of yards and races and the replacement of an old restraining box in the commercially-owned abattoir in Doha, Qatar, and infrastructure upgrade with the development of a port discharge trailer and training at feedlots in Saudi Arabia. A project aimed at advancing stunning in Bahrain was conducted. This involved management staff from the abattoir being taken on an educational visit to Jordan, where stunning of livestock has been introduced. A v-restrainer was installed in the Bahrain abattoir in preparation for a trial of stunning. This year also saw the expansion into Qatar, of the “In the ute, not the boot” educational campaign.
- Activities in 2010/11 were focused on improvements to infrastructure and training of staff in abattoirs in Kuwait, Saudi Arabia and Qatar. In Kuwait the sheep slaughter floor in the third of five abattoirs in the country was completely upgraded with new races, ramps, and flapped gates leading into slaughter pens fitted with tables. A Mark IV restraining box was installed in the cattle slaughter floor of this abattoir. The sheep slaughter floors were also upgraded in abattoirs in Saudi Arabia and in Qatar. A cattle restraining box was also installed in the public abattoir in Qatar. Intensive training of abattoir staff accompanied the infrastructure changes in all three countries. October 2010 saw the arrival of the first shipment of Australian cattle in Turkey. Some infrastructure improvements and training had been provided in 2009/10, and support was provided at the time of arrival of the shipment.

A list of identified OIE animal welfare risk areas in the MENA region and other livestock export markets and the actions taken and improvements achieved by MLA and LiveCorp can be found in Appendix C.

6.6.1.2 Effectiveness of MLA and LiveCorp actions

Since 2008 the MLA and LiveCorp LEP has commissioned an annual independent assessment of 14 feedlots in eight countries across the Middle East and North Africa

(MENA) region. These feedlots are where the majority of Australian livestock are fed in the Middle East and where MLA and LiveCorp has actively delivered training.

The assessment examines 36 areas across five categories and includes areas covered by both the OIE guidelines and Terrestrial Animal Health Code (2010). These areas include:

Animal health: clinical examination, disease control and disease prevention

Feeding management: feed delivery, feed trough management, feedlot cleanliness, induction procedure, pen density, quality of feed allocation, quantity of feed allocation, ration design and water trough management.

Feedlot infrastructure: dispatch facilities, feed trough design, pen design, perimeter fencing, processing facilities, receival facilities, shade, suitability of facilities for cold weather, suitability of facilities for hot weather, truck driving, truck repair and maintenance and water trough design.

Handling livestock: handling mobs/flocks in close yard work, loading animals onto trucks, moving individual animals, moving mobs/flocks within feedlot, noise levels, restraining of individual animals, unloading animals from trucks and use of goads.

Quality systems: checklists, feeding, public health records and records of staff training.

The assessment scores are allocated between 0 and 5 where 5 is the maximum possible score. The results indicate a continuous improvement since 2008, with the average score increasing by 29 per cent between 2008 and 2011 (see chart 6.1 and table 6.1).

Figure 6.1
Average MENA assessment score results

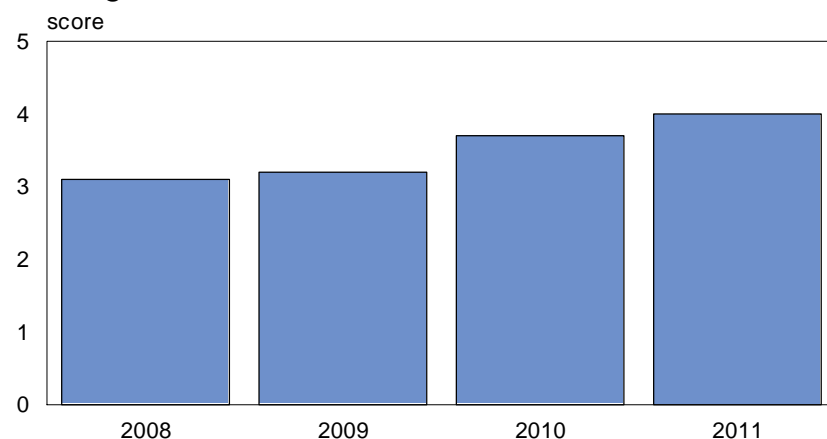


Table 6.1: average MENA assessment scores by category for the year 2011 and the change in score since 2008

Category	Average in 2011	Change in the average since 2008
Animal health	4.1	+1.4
Feeding management	4.2	+0.6
Feedlot infrastructure	4.1	+0.5
Handling livestock	3.5	+0.8
Quality systems	3.1	+1.4

Over the past two years, assessments of abattoirs in the MENA region have been conducted based on guides and assessment protocols defined by Temple Grandin (2003 and 2010) and include areas covered by both the OIE guidelines and Terrestrial Animal Health Code (2010).

The five major critical control points for monitoring welfare at slaughter plants defined by Grandin (2003) are:

- (i) animals stunned correctly on the first attempt;
- (ii) animals remain insensible throughout the slaughter process;
- (iii) animals that vocalize during handling or stunning
- (iv) animals that slip or fall during handling or stunning; and
- (v) whether animals are prodded or goaded.

Ten abattoirs where Australian livestock are commonly processed are assessed on the above principles in six countries: United Arab Emirates, Qatar, Egypt, Kuwait, Jordan and Bahrain. The scoring, outlined in Grandin (2010) for the years 2010 and 2011 showed a small increase from an average score of 3.8 in 2010 to 4.0 in 2011.

MLA and LiveCorp provide technical assistance and support to processing facilities to address identified areas of weakness to underpin continuous improvement.

6.6.2 Indonesia

6.6.2.1 Actions taken by MLA and LiveCorp to improve animal welfare outcomes

Indonesia has been the most important market for Australian live cattle over the past decade. As such, a majority of the joint MLA and LiveCorp/Government effort to improve animal welfare in South East Asian markets has been directed at this market.

From the late 1990s it was identified that animal welfare improvements were needed in abattoirs in Indonesia because of the widespread use of traditional slaughter practices. This led to the commencement of the restraining box program (see box 6.1 for an overview of the restraining box program in Indonesia and box 6.2 for a case

study of the Karawaci abattoir highlighting the situation before and after the installation of two restraining boxes and use of stunning).

MLA and LiveCorp have also worked with ports, transport operators and feedlot operators to improve animal welfare in Indonesia. Key developments since the start of the joint MLA and LiveCorp/Australian Government program in 2005/06 were:

- In 2005/06 an animal welfare taskforce was established jointly with the Indonesian beef producer and lotfeeders association (APFINDO), the members of which supply Australian cattle to the abattoirs. The role of the taskforce was to systematically identify abattoirs processing Australian cattle and prioritise the installation of restraining boxes. The taskforce was also tasked with identifying, prioritising and implementing improvements to holding facilities, races, and other areas of abattoir operations where changes could be implemented to improve the welfare of cattle prior to slaughter. At this time a team of up to four specialists was contracted to install the restraining boxes, train the butchers in their use, make other structural changes at each abattoir as needed, and regularly check that previously installed boxes were being properly operated and maintained.
- Between 2005/06 and 2009/10 the program ran under the arrangements outlined above. During this period 109 restraining boxes have been installed as part of the restraining box program.
- In 2008/09 MLA and LiveCorp funded the construction and installation of port trailers at six Indonesian ports as the previous trailers were ageing or inadequate.
- In 2008/09 a comprehensive set of Standard Operating Procedures (SOPs) was developed to provide a formal foundation for training abattoir staff. The SOPs cover the proper handling of cattle from arrival at the abattoir, management in the lairage, preparation and operation of the restraining box, through to proper slaughter technique. It was developed by the Bristol University Animal Welfare Training Unit and was reviewed and updated in 2010/11.
- Over 2009/10 and 2010/11 a detailed program of abattoir reviews and standard operating procedure training was delivered.
 - In 2009/10 we conducted 67 reviews at 52 abattoirs (some were re-assessed following training) and carried out 49 SOP training workshops with 860 attendees
 - In 2010/11 we conducted 78 reviews at 50 abattoirs (some were re-assessed following training) and carried out 62 SOP training workshops with 760 attendees
- MLA and LiveCorp have worked with Indonesian lotfeeders on a range of programs including providing technical advice on nutrition and technical assistance with treating injured and sick animals and ensuring animals are managed appropriately with respect to heat stress, pen logistics and provision of shade. This work has been supplemented with the publishing of the *Manual for South East Asian feedlots* in 2009 which is a user-friendly practical reference, assisting managers of feedlots and their staff with key management areas such as feedlot design, animal management, nutritional requirements and overall feedlot management. Throughout 2009 and 2010 MLA and LiveCorp also carried out animal handling training workshops for feedlot operators.

- In early 2010 MLA established a representative office in Indonesia and appointed a full time animal welfare manager responsible for delivery of the animal welfare program. In addition three Indonesian veterinarians have been employed to assist in the delivery of training programs and program coordination. This increase in resources reflected the need to place a greater focus on improvements in abattoirs and increase the delivery of training.
- In 2010/11 a project was initiated to increase the use of stunning in abattoirs. Five relatively large modern, privately run, abattoirs in Indonesia, that account for approximately 8% of Australian cattle imports, have been stunning for some years, but a target project was required to increase the number of facilities stunning outside the core group of five. This project was designed to address the regulatory requirements to allow the importation and supply of stunning equipment and resulted in an additional two abattoirs to commencing stunning in the first half of 2011. Recently one importer has taken the concepts trialled by MLA and LiveCorp in these locations and implemented them in a further ten locations.
- As at the 30 June 2011, 112 restraining boxes have been installed as part of the restraining box program. As noted above, recently twelve Mark I boxes were converted to stunning boxes and three have been replaced with Mark IV boxes, leaving a total of 97 Mark I boxes in abattoirs.

A list of identified OIE animal welfare risk areas in Indonesia and other livestock export markets and the actions taken and improvements achieved by MLA and LiveCorp can be found in Appendix C.

Box 6.1: The restraining box program in Indonesia

Traditionally in an Indonesian abattoir, cattle are led by halter onto the slaughter floor, manhandled onto their side on the ground (casting) where they are slaughtered and processed by the butcher. This method has significant negative animal welfare outcomes.

In order to deliver improved animal welfare outcomes, a series of restraining boxes have been designed by MLA and LiveCorp. The design of these restraining boxes had to take into account a number of constraints imposed by the operating environment of an abattoir in Indonesia:

- Labour is cheap and readily available while capital is not.
- Equipment must be simple to operate and maintain by poorly educated abattoir staff.
- There are a large number of abattoirs processing a relatively small number of cattle.
- Many abattoirs have an unreliable power supply.
- Many abattoirs are not secure so valuable items (such as small electric motors) would be quickly stolen.

In 2000 the first restraining box (Mark I) was designed and built. It was manually operated and took into account the constraints of an Indonesian abattoir listed above. An animal is walked up the race into the box and a front and back leg is roped and tied off. The door of the box is then opened allowing the animal to fall on its side down the slope of the cement plinth. A butcher ropes and/or holds down the head of the animal to prevent an animal from regaining its feet. Slaughter and butchering then takes place.

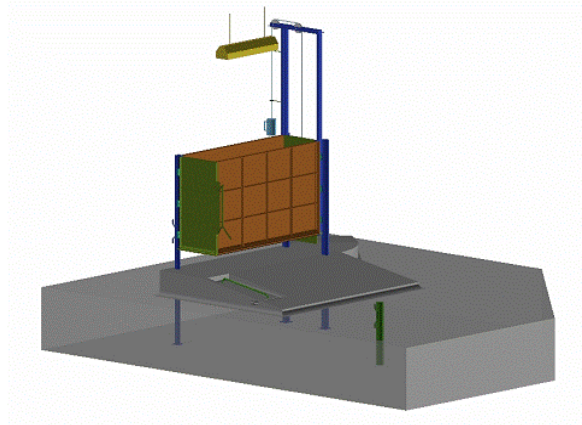


Figure 6.1: Mark I restraining box

The Mark I box has always been considered a significant improvement on traditional slaughter practices, however, the need to develop improved designs has also been recognised.

An enhanced Mark II box was trialled in 2009. The difference with the Mark II version of the box is that the side of the box rotates with the animal's fall controlled through the use of a counterweight (see figure 6.2). While it worked well for some cattle, the counterweight mechanism was not flexible enough to accommodate cattle of significantly varying weights.

Figure 6.2: Mark II restraining box



Further designs were developed to deliver greater control over the casting process with the Mark III box (see figure 6.3). This new design overcame the counter weight issues associated with the Mark II design.

Prior to progressing further with additional designs or trials, an independent review of Mark I, II, and III was conducted in June 2009 by Paul Whittington from the animal welfare unit at the University of Bristol (UK) and Leisha Hewitt from Murdoch University (Perth, W.A.) (Whittington & Hewitt, 2009). The objective of the review was to assess the designs and the animal welfare impacts of the boxes. The review also included an assessment of the welfare benefits of the Mark I box compared to traditional slaughter methods.

Following are the main conclusions of the review:

- use of a restraining box improves the aesthetics of the casting process and is likely to improve animal welfare
- All three designs of restraining box had the potential to work well when operated by skilful stockmen
- The Mark I box represents a simple addition to the process that can improve animal welfare, though there may be some variation in the acceptability of the casting process due to the fact that it is relatively uncontrolled once the animal leaves the box
- The Mark II and III restraining boxes control the process to a greater extent, though do not replace the requirement for skilled stockmen. The Mark II and III boxes may also have higher maintenance requirements due to the addition of more moving parts

Figure 6.3: Mark III restraining box

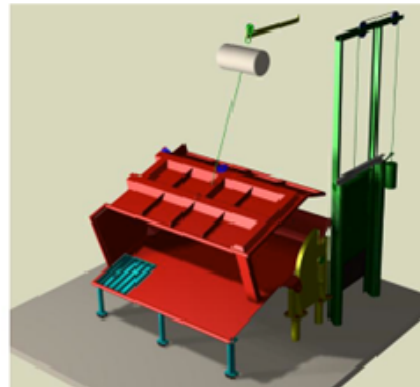
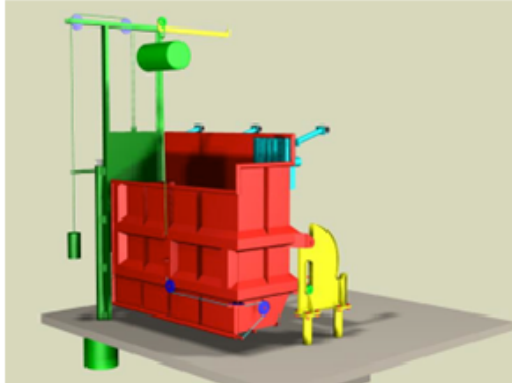


Figure 6.4: Mark IV restraining box



In 2010 a box was designed to greater control the animal and obviate the need to rope the legs. This Mark IV box (figure 6.4) is a much more sophisticated design using a squeeze mechanism with the entire box rolling over to present the animal for slaughter. The box was designed to use hydraulics that are powered by an electric motor, or manually operated via a hand pump. An animal enters the box and the hydraulics restrain it and tilt the box to present the animal with its head in place for efficient slaughtering. However, the cost and complexity of the Mark IV box will limit its use to larger abattoirs.

Box 6.2: Restraining box and stunning case study - Karawaci Abattoir, Tangerang, Jakarta, Indonesia

The Karawaci abattoir is an important beef processor in Tangerang, Jakarta where around 100 Australian cattle are processed per night. The abattoir is a major supplier of beef for the wet markets in that area and for the production of Bakso balls (meat balls that are widely consumed by the Indonesian population). The abattoir is well set up with a holding facility for 1,000 cattle and an effluent treatment plant.

The abattoir has a long history and MLA and LiveCorp have developed an effective working relationship with this company over many years.

In the later 1990s and early 2000s the abattoir used traditional methods to process cattle: a ring in the floor was used to tie down Australian cattle and then process them. MLA consultants initially worked with Karawaci to assist their processing and in 2001/2002 two Mark I restraining boxes were installed, bringing improved control to the slaughter floor and increased efficiency in processing.

At Karawaci there are two processing lines on the slaughter floor. One services butchers who take delivery of carcasses from the slaughter floor and in an adjacent room they break them into various cuts and then deliver the product to their wet market customers by early morning. The second line processes cattle for their own Bakso ball production (the company has a Bakso factory a few hundred metres from the abattoir).

During 2010, through its relationship with MLA and LiveCorp, the abattoir was approached to install a Mark IV box to replace a Mark I box.

The management agreed to the installation of a Mark IV box on the line that serves their butcher customers. The introduction of the Mark IV restraining box has been a success with over 40 Australian cattle being processed per night through this box.

In March 2011, MLA and LiveCorp asked Karawaci if it would participate in a trial of pre slaughter stunning. They discussed the proposal with the butchers who purchase beef carcasses from Karawaci for sale to wet market customers. They were nervous about the Halal integrity of the product. After consideration, it was agreed that the trial would take place on the line that processes cattle for their Bakso ball production.

To facilitate stunning, a new stunning box was built to replace the second Mark I box. The new box has a platform from which the slaughterman can administer the stun. Working with an MLA consultant, a stunner and powerloads were then procured and a trial commenced in April 2011. Prior to the start of the trial, Karawaci staff received a week's intensive training at the consultant's facility where stunning is used.

After some initial delays, due to customs requirements and receipt of Halal certification, the trial proceeded from May 2011. Staff are proficient in stunning and the process is working well. The trial has proved to be a success, with 40 to 50 Australian cattle processed each night (in addition to the 40 cattle processed through the Mark IV restraining box). Karawaci have also received a Halal Certificate for this process from MUI.

Processing and hygiene standards are important at Karawaci and their work done to improve animal welfare standards (and therefore meat quality) is seen as a success. This facility is now used to highlight the use of a Mark IV restraining box and the use of stunning.

6.6.2.2 Effectiveness of MLA and LiveCorp actions

The LEP has measured its effectiveness of delivering projects in Indonesia by reporting against AOP KPIs and against delivery milestones detailed in the Australian Government funding deeds. In addition to these regular processes the MLA and LiveCorp commissioned an independent assessment of the Indonesian market place to assess the effectiveness of industry programs and to provide recommendations for improvements.

The welfare assessment was conducted in early 2010 and was based on the internationally recognised OIE codes and standards and an objective approach was ensured through the use of a workbook based on the OIE codes.

The consultant used to lead this independent assessment was one who had previously been appointed by the Government to review animal welfare practices against OIE standards for Australian goats in Malaysia. Panel members were selected on the basis that they demonstrated expertise in one of four particular areas identified as being central to the study. The four areas of expertise required for the study were:

- Animal welfare
- Animal production
- Slaughter processes
- Feedlot management

The professional opinion of various organisations, including the Australian Veterinary Association and the Australian Lot Feeders Association, was sought in compiling an initial list of candidates which was then refined according to independence and experience.

The independent panel concluded that animal welfare of Australian cattle in Indonesia was generally good and that Australian cattle were typically found to be coping well with the conditions to which they were exposed. Some incidents of non-compliance with OIE standards were observed and recommendations were made to address these issues. Three critical aspects were identified by the expert panel as significantly influencing animal welfare. These were:

- Animal management; including handling, nutrition and animal suitability
- Slaughter; including facilities and method of slaughter
- Animal welfare standards and their practical application

The independent panel found that the point of slaughter posed the greatest risk to the welfare of Australian cattle in Indonesia. The panel noted that the Indonesian processing sector is very fragmented and typically rudimentary with little investment in infrastructure. Furthermore, it was noted that workers in the beef processing sector are from a low socio economic group with little formal education.

The group made a number of recommendations which have been fully accepted by the industry with actions included in plans to address these recommendations.

6.6.3 Malaysia

6.6.3.1 Actions taken by MLA and LiveCorp actions to improve animal welfare outcomes

A range of initiatives have been actioned to improve animal welfare practices in Malaysia – both in breeding and feedlot/slaughter operations.

- In May 2008 MLA and LiveCorp, in conjunction with the Department of Veterinary Services in Malaysia, conducted workshops to goat breeders in eastern Malaysia. The workshops provided breeders with knowledge about nutrition, animal health and managing goats in a tropical environment.
- Following the workshops, the *Australian goat manual for Malaysian farmers* was published (in both English and Bahasa), providing a guide to farmers and importers about how to raise Australian goats in Malaysia. The guide has been distributed through MLA and LiveCorp staff and contractors, importers, exporters and at a tradeshow in Kuala Lumpur.
- Significant amounts of new infrastructure and upgrades/repairs of existing infrastructure were implemented at Kuala Lumpur International Airport (KLIA) (where the majority of Australian goats are air freighted to) in 2009 and 2010. This project was funded through LTAWP. Improvements included:
 - Subdividing the large yard into pens and constructing a raceway for holding and sorting goats after discharge of goats from crates
 - Fixed and portable loading ramps built and put in place
 - The LEP delivering ongoing training at KLIA on the best use of these new facilities.
- Animal handling facility improvements were made at Shah Alam Abattoir (one of the main abattoirs processing Australian goats) in 2010. The project was funded through the LTAWP. Improvements included:
 - Receival ramp
 - Lairage pen – feed and water troughs
 - Race/laneway to slaughter floor
 - Restraining box, table and holding pen
 - The LEP delivering ongoing training at Shah Alam Abattoir on the best use of these new facilities.

- Over recent years MLA and LiveCorp have also made improvements to parts of the supply chain for Australian cattle in Malaysia, Philippines, and Vietnam. These improvements have included the installation of modern discharge ramps in ports receiving Australian cattle and the installation of restraining boxes (with associated training) in key abattoirs in these markets.

A list of identified OIE animal welfare risk areas in Malaysia and other livestock export markets and the actions taken and improvements achieved by MLA and LiveCorp can be found in Appendix C.

6.6.3.2 Effectiveness of MLA and LiveCorp actions

In 2009 the Australian Department of Agriculture, Fisheries and Forestry commissioned a review into the welfare of Australian goats en-route to Malaysia and in-market based on the OIE animal welfare standards. While the animal welfare conditions encountered during the study were observed to be approaching compliance with the OIE standards, several infrastructure and training improvements were recommended.

The recommendations made through this study have led to significant infrastructure upgrades at KLIA and at the government abattoir (see section 6.6.3.1) through which most goats are processed (funded through the Live Trade Animal Welfare Partnership program). Animal handler training is ongoing.

6.7 MLA and LiveCorp monitoring and reporting

6.7.1 Monitoring

Regular monitoring of importing country facilities occurs throughout the year with the higher volume markets and facilities receiving the most visits and attention. This monitoring is conducted by LEP staff or contractors. The approach has been for LEP staff or contractors to identify welfare issues during routine monitoring and training visits; communicate issues back to relevant LEP managers and then through to the Manager Livestock Exports and LiveCorp CEO.

The LEP team also responds to specific requests for assistance from exporters or importers relating to technical advice or animal welfare issues. Following the identification of an issue it is either addressed on the spot, through recommended changes by the LEP staff/contractors, or, for priority issues, an improvement is scheduled to be delivered as a planned program through the LEP development process.

Some monitoring visits are with notice and some involve arriving at slaughter facilities unannounced to gauge what is actually happening without the chance for special preparation and amended practices.

6.7.2 Reporting

Over the years MLA and LiveCorp have recognised the need to regularly review the effectiveness of its animal welfare programs. In 2009 the LEP program conducted a review of its Key Performance Indicators (KPIs). This review evaluated the LEP's KPI's and developed a KPI monitoring and evaluation framework. This framework

allows the program to develop better monitoring and measurement indicators to determine the success of the program deliverables.

In terms of reporting on MLA and LiveCorp's work in the market place, it is important to note that neither MLA nor LiveCorp ever regarded our roles as entailing a policing capacity. Rather our role involved cooperatively working with industry participants in improving animal welfare practices (as well as delivering on the other aspects of the LEP program). This improvement was brought about through training, information and the provision of infrastructure. MLA and LiveCorp's reporting reflected this role i.e. the reporting was on the delivery of programs and projects.

To this end, reporting within the LEP program is reflective of the activities taking place in market. LEP staff and consultants are required to report delivery against AOP KPIs and against contract schedules.

- Training programs – reports are provided on the delivery of content of programs, the number of attendees and observed practice changes. Often attendees are asked to complete surveys to assess their satisfaction with the training and knowledge gained from the training program.
- Infrastructure upgrades - reports are provided by consultants on the delivery of infrastructure improvements. Key areas addressed in the reports are assessments of welfare issues prior to upgrades, suggested infrastructure changes, before and after evidence of the changes and acceptance of the local operators of the changes.
- Monthly reports on program delivery are provided by LEP managers to the MLA Manager Livestock Exports and the LiveCorp CEO. These monthly reports are often summarised and are provided to the respective company boards.
- Annual reporting is conducted at the end of each financial year. These reports provide an overview of the program delivery against the KPIs set out in the Annual Operating Plan (AOP). These reports form part of the MLA AOP report and the Annual Report of each company.

In addition the MLA and LiveCorp provides reports to DAFF on projects delivered under the LATP and LTAWP funding. These reports outline the delivery of activities against Australian Government Funding deeds setting out the welfare issues identified and the activities delivered to address the welfare concerns.

The structure of reporting involves oral and written consultant reports to the manager which are communicated/forwarded onto MLA and LiveCorp senior managers. Communication of issues and subsequent action is determined from a combination of formal and informal monitoring and reporting, depending upon the nature of the issue and its level of priority.

6.7.2.1 Indonesia

The following are the reporting processes/structures used by MLA and LiveCorp in Indonesia:

- Prior to the establishment of the MLA office in Jakarta the animal welfare consultant provided weekly reports and monthly reports on activities and action taken to MLA and LiveCorp Livestock Services Manager Asia Pacific.

- The consultant has also maintained a database recording the restraining box locations, nightly kills and recommendations for repair and maintenance. Recommendations were then actioned with APFINDO Animal Welfare Taskforce which conducted a repair and maintenance program.
- The Chairman of APFINDO Animal Welfare Taskforce also provided a monthly report on the progress of the restraining box installation program to the MLA and LiveCorp Livestock Services Manager Asia Pacific. Review meetings were conducted during regular visits to the market by head office staff from MLA and LiveCorp and visits to some new sites were conducted during such trips.
- After the establishment of the MLA office in 2010 the reporting function became the responsibility of the Indonesian Animal Welfare Manager.
- Individual abattoir reviews and SOP reports were introduced in 2010, such reports cover;
 - Date of visit, abattoir name and restraining box number, purpose of visit, slaughter facility assessment, staff skills, issues needing addressing, corrective action needed and other points of interest.
 - If SOP training is conducted then questions covered a 1-10 point score on key components following the training.
 - In addition to the internal reporting structure each year detailed reports are provided to DAFF outlining the expenditure against Australian Government Funding deeds.

6.7.2.2 Middle East/North Africa

As part of the MENA assessment program (see section 6.6.2.2) each importer receives a detailed report outlining the assessment results. This includes scores on five key categories. As part of this assessment process improvements or changes from the previous year are recognised and any additional technical support required are developed as part of our annual planning process.

7 Encouraging implementation of OIE guidelines

7.1 Overview of OIE guidelines

Prior to 2001 no one international organisation had responsibility for setting animal welfare standards. In the 1990s this lack of a single reference authority on animal welfare was viewed as increasingly problematic. Particularly in advanced western economies there was growing community and political interest in animal welfare practices, including restricting trade on animal welfare grounds. The lack of a single reference authority meant that there was no mechanism for imposing animal welfare standards globally.

By the late 1990s there was growing support amongst the international community for assigning the responsibility of animal welfare standards setting to the Office International des Epizooties (the OIE – The World Organisation for Animal Health).

In 2001 animal welfare was identified as a strategic priority for the OIE and in May 2005 the 178 member countries of the OIE unanimously adopted seven animal welfare standards in the Terrestrial Code, including the:

- transport of animals by land;
- transport of animals by sea;
- transport of animals by air; and
- slaughter of animals for human consumption.

By setting benchmarks accepted by all OIE member countries, the OIE Code points the way forward in terms of establishing minimum welfare standards that can be demanded internationally.

7.2 Encouraging implementation of OIE guidelines

7.2.1 *Encouragement by OIE Regional Animal Welfare Strategy (RAWS)*

It is important to note that the unanimous acceptance by the OIE membership in May 2005 of animal welfare standards in the OIE Code does not mean that all countries currently meet these standards. Indeed, it is clear to even the most casual observer that in some countries (particularly developing countries) the OIE standards are not met in a number of areas.

An important activity, therefore, is implementation of the OIE standards. The Australian Government and industry have actively promoted implementation of the OIE standards internationally and, especially, in the Asia/Oceania region. To this end the Australian Government through DAFF has led the development of the OIE Regional Animal Welfare Strategy: Asia, the Far East and Oceania (RAWS), a strategy that was endorsed by the OIE International Committee in May 2008. Amongst other things, work on this strategy has involved holding three workshops in November 2007, in November 2008 and in April 2010. The Australian live export industry has actively contributed to the RAWS and has participated in each of these workshops.

As noted, by the Director General of the OIE, in the forward to RAWs:

“The challenge now is to ensure the implementation of the adopted guidelines throughout the OIE membership. The OIE recognizes animal welfare as a complex, multifaceted international public policy issue with scientific, economic, religious and cultural dimensions. This is particularly true with the Asia, Far East & Oceanic regions.” (MLA and LiveCorp emphasis).

There is widespread recognition that implementation of the OIE standards internationally is a major challenge particularly in developing countries, including in countries serviced by Australia’s live export trade. The extent of this challenge reflects the environment under which the meat and livestock industries operate in developing countries, as well general societal and political constraints.

The environment under which the livestock and meat markets operate in developing countries has been outlined, amongst other documents, in the World Bank study “Global Reconnaissance of Municipal Live Markets, Slaughterhouses and Waste Systems in Developing Countries”². According to the World Bank study this environment includes the following features:

- Government slaughterhouses are commonly old and are lacking in investment;
- The private sector owns modern and sanitary facilities, but they only operate for high-end markets;
- The unregulated informal sector is extensive;
- Regulatory framework and enforcement is poor;
- Religious and cultural traditions have a significant impact on operations;
- Meat from freshly killed livestock is preferred, requiring night & early morning slaughtering conditions;
- Working conditions are unsanitary;
- Municipal management & capacity is poor;
- Veterinary inspection is inadequate.

Overlaid on this less than ideal environment are numerous societal and political constraints. Key constraints to rapid full implementation of the OIE Animal Welfare Code have been discussed by participants at numerous forums (e.g. at the RAWs Meeting in Thailand in April 2010) and importantly include:

- Lack of political commitment, driven by competing priorities;
- Cultural & religious beliefs;
- Lack of awareness of animal welfare as an issue;
- Poverty; and
- Lack of funding for infrastructure and regulatory improvements generally.

² “Global Reconnaissance of Municipal Live Markets, Slaughterhouses and Waste Systems in Developing Countries”, World Bank Study (Japanese Trust Funded), Nippon Koei Co and ProAnd Associates, Conference on Global Trade and Farm Animal Welfare, Brussels, January 2009, http://ec.europa.eu/food/animal/welfare/seminars/2021012009_conf_global_trade_presentations_en.htm

It must be recognised that in many developing countries the welfare of the human populace requires the significant attention of governments, as well as the welfare of animals. These competing priorities are implicitly recognised in the vision for RAWs which is:

“A region where the welfare of animals is respected, promoted and incrementally advanced, simultaneous with the pursuit of progress and socioeconomic development”. (MLA and LiveCorp emphasis).

It is because of the significant number of issues faced in developing countries, and the significant number of constraints, that it is generally recognised that it will take time to meet the OIE animal welfare standards. This period of time is reflected in the RAWs vision statement which refers to incremental advancement of animal welfare (as opposed to immediately and fully meeting OIE standards). For Asia, the Far East and Oceania the need to meet standards over time is also cited by a publication by A.D.C. Bayvel on the DAFF website, *The globalisation of animal welfare: A New Zealand and Australian Perspective on recent developments of strategic significance*:

*“Progress in the area of animal welfare will, of course, be a case of evolution not revolution, based on the principle of incremental change management. It is vitally important that all such changes be science-based and validated, be implemented over realistic time frames and take account of economic and cultural factors”.*³

The keys to success of implementing animal welfare changes, especially in developing countries, have been elaborated by Gardner Murray, President, OIE Regional Commission for Asia, the Far East and Oceania, in an address to the Conference on Trade and Farm Animal Welfare in Brussels in January 2009⁴. They include:

- Political and high level leadership support
- Active stakeholder involvement
- A demonstration of social and commercial benefit of animal welfare
- Resources and access to technical expertise.

7.2.2 Encouragement by MLA and LiveCorp

Over many years MLA and LiveCorp have used these keys to success in encouraging individuals and organisations to implement improvements in animal welfare. In so doing it must be recognised that MLA and LiveCorp have no direct commercial or regulatory power to implement change or to drive uptake of animal welfare improvements. It must also be recognised that MLA and LiveCorp have relatively limited resources compared to the animal improvements that were required in export markets. Nevertheless, Chapter 6 and Appendix C of this submission contain a plethora of examples where the activities of MLA and LiveCorp have led to animal welfare improvements.

³ http://www.daff.gov.au/animal-plant-health/welfare/aaws/aaws_international_animal_welfare_conference/the_globalisation_of_animal_welfare_a_new_zealand_and_australian_perspective_on_recent_developments_of_strategic_significance

⁴ “The Development of Animal Welfare Strategies in Asia, the Far East and Oceania”, Gardner Murray, Conference on Global Trade and Farm Animal Welfare, Brussels, January 2009, http://ec.europa.eu/food/animal/welfare/seminars/2021012009_conf_global_trade_presentations_en.htm.

The (now) much maligned Mark I box is an example of new technology that had political and high level leadership support, active stakeholder involvement, where there was a demonstrated social and commercial benefit, leading to widespread uptake, and which resulted in animal welfare improvements. MLA and LiveCorp have never disguised the fact that the Mark I box basically took existing methods used in abattoirs in Indonesia (i.e. rope casting of animals) and applied new technology to these methods (i.e. a restraining box) to achieve social, commercial and animal welfare improvements. As DAFF submitted to the Joint Standing Committee on Foreign Affairs and Trade Inquiry into Australia's Relationship with ASEAN in December 2008:

*"Over the past 3 years, over 80 restraining boxes have been installed and commissioned in Indonesia covering a large network of slaughter facilities where Australian livestock are processed. The Mark I restraining box is a simple addition to infrastructure that has enabled improved and less stressful control of the animal prior to slaughter. The use of the box, where it is usual for the animal not to be stunned before slaughter, is a very significant improvement in animal welfare."*⁵

Further information on the rationale for the Mark I box can be found in DAFF testimony to the Australia / ASEAN relationship inquiry:

"I believe funding has been approved for about 90 slaughter boxes for Indonesia. Within that 90 there are only about 10 that are still to be installed. Most of those have been installed over the past 18 months to two years. We have targeted abattoirs which slaughter mainly Australian animals, but of course those abattoirs also slaughter other animals, so in a sense it is beneficial to them as well."

The slaughter boxes are reasonably basic but are a big improvement over what they were doing previously. We have tried to put in infrastructure which will actually be used and which can be maintained within the environment of Indonesia while also improving the slaughter process for the welfare of the animals.

*Interestingly, when we first started putting these slaughter boxes in we had to push them on the abattoirs, but in fact we have found over time that we are having trouble keeping up with demand because they have found that they are a significant improvement in terms of handling animals and in the quality of the meat, because the animal is less stressed. So they are finding real commercial benefits in these boxes, whereas we are obviously keen on the animal welfare benefits."*⁶

But the Mark I box was never viewed as the end of the journey of securing animal welfare improvements in Indonesia. Given the widespread acceptance of the concept of restraining boxes in Indonesian abattoirs, the result of the introduction of the Mark I box, over the past few years MLA and LiveCorp has been actively researching new restraining box designs, culminating in the current trialling of the Mark IV box. The Mark IV box is considerably more sophisticated than the Mark I box and eliminates completely any element of rope casting. In a similar vein, for the past year MLA and LiveCorp has been actively promoting the use of stunning (again, of course, using

⁵ Submission No. 41, Department of Agriculture, Fisheries and Forestry, Answers to Questions on Notice, <http://www.aph.gov.au/house/committee/jfadt/asean1/subs.htm>

⁶ Public Hearings held Melbourne: Thursday 2 October 2008, Legislative Council Committee Room, Parliament House of Victoria, Spring Street, Melbourne, <http://www.aph.gov.au/house/committee/jfadt/asean1/hearings.htm>.

restraining boxes). This involved addressing regulatory issues over use of stunning equipment with an explosive charge, as well as addressing religious issues.

As part of the stunning program, a training video has been delivered which includes Majelis Ulama Indonesia's (MUI - Halal certifying body in Indonesia) endorsement of stunning to Halal standards. Earlier this year MLA and LiveCorp converted two facilities to stunning, and three more were planned, with an objective in 2011 of increasing the percentage of Australian cattle stunned from about 8% to about 15%⁷. To also improve animal welfare outcomes, MLA and LiveCorp have been introducing the concept of SOPs to Indonesian abattoirs⁸.

MLA and LiveCorp have never claimed that animal welfare practices, applied across the board to Australian livestock in overseas countries, are sufficient or that OIE standards are consistently met. Quite the opposite in fact. Numerous reports and other information from MLA and LiveCorp in their reporting to DAFF point to deficiencies in animal welfare practices in countries serviced by Australia's live export trade. The whole reason MLA and LiveCorp (and, for that matter, the Government) had animal welfare programs in these countries was in recognition of these deficiencies. The aim was to continually and incrementally improve these practices, so that over time the practices would reach acceptable levels and OIE standards would be met.

The Government has been well aware that hitherto OIE standards have not been universally met in overseas markets importing Australian livestock. Apart from the reports referred to above, statements like:

"Over 90% of Australian cattle slaughtered in Indonesia are processed through facilities with appropriate infrastructure"

in the 2010/11 LiveCorp Annual Operating Plan implies less than 100% success rate. Up to now, implicitly, an objective of continual improvement towards acceptable, OIE consistent, animal welfare practices has been deemed appropriate by industry and government. This policy of continual improvement has allowed the industry to work more widely in developing countries on improving welfare, including working in areas with significant numbers of local livestock. The alternative would have been to invest heavily in a limited number of supply chains to ensure they meet OIE standards and funnel all Australian livestock into these chains.

Notwithstanding the general objective of MLA and LiveCorp animal welfare programs being one of continual improvement, increasingly, the need to meet OIE standards has been emphasised in MLA and LiveCorp planning documents. MLA's AOP recognises the imperative to improve animal welfare in livestock export markets. Also, the 2010-2014 LiveCorp Strategic Plan had the following objective:

"Invest in human capacity, science, technology and infrastructure to facilitate the ongoing improvement in animal welfare outcomes (including the transfer of such skills and technologies into key markets to assist them meet OIE standards) and efficiency".

⁷ This planning, of course, significantly preceded the recent public interest in livestock slaughter in Indonesia - see LiveCorp Annual Operating Plan 2010/11 and Indonesian Animal Welfare Summary Action Plan, May 2011.

⁸ Previously these concepts had only been common in modern, privately run abattoirs in Indonesia.

Similarly, the 2010/11 LiveCorp Annual Operating Plan had as a KPI: *“Progression towards OIE standards in post arrival markets”*.

Outside these formal planning documents, at MLA and LiveCorp’s behest, the assessment of animal welfare standards in Indonesia in 2010 by the Independent Panel of animal welfare specialists was conducted using the OIE Code, as was the Australian Government’s assessment of live goat export supply chains to Malaysia. Furthermore, the SOPs for Indonesian abattoirs, drawn up by MLA and LiveCorp, use the OIE Code as their base.

Finally, the “Strategic Vision for In-market Animal Welfare” released by MLA, LiveCorp, Cattle Council of Australia, Sheepmeat Council of Australia, Australian Livestock Exporters’ Council and the National Farmers’ Federation in May 2011, after a number of months of discussion, contained many references to the OIE Code. One of the key goals in this Strategic Vision was:

“Supply chain standards based on OIE (World Organisation for Animal Health) guidelines are adopted for the transport, handling and processing of Australian livestock in all markets.”

The Strategic Vision foreshadowed the development and implementation of a program in each market for the *“adoption of processing standards consistent with the OIE Terrestrial Animal Health Code Chapter 7.5 – Slaughter of Animals”*, with a desired outcome being *“From 2015, Australian livestock will only be supplied into facilities where supply chains meet relevant sections of the OIE standards”*.

Another objective of this Plan is: *“Annual increases in the number of cattle slaughtered using stunning”* even though under the OIE Code non-stun, humane, slaughter is allowed.

MLA and LiveCorp accepts that the Australian Government objective has now changed to immediate and full implementation of OIE standards in all supply chains involving Australian livestock. Plans to achieve this objective are discussed in the following chapter.

7.3 Compliance with OIE guidelines in livestock export markets

A series of independent assessments have been carried out on the compliance of livestock export markets with OIE standards. These assessments are:

- *Independent study into animal welfare conditions for cattle in Indonesia from point of arrival from Australia and slaughter* (prepared for DAFF as part of the joint funding agreement with MLA and LiveCorp)
- *Study into animal welfare aspects for goats in Malaysia from point of arrival from Australia to slaughter* (prepared for DAFF as part of the Livestock Sub Working Group of the Malaysia-Australia Agricultural Cooperation Working Group)
- Middle East/North Africa Assessments on feedlots and abattoirs (commissioned by MLA and LiveCorp).

These assessments are summarised in sections 6.6.1.2 (MENA), 6.6.2.2 (Indonesia) and 6.6.3.2 (Malaysia).

Appendix C identifies the OIE animal welfare risk areas in each major livestock export market.

8 Looking ahead

8.1 Developing controlled supply chains

8.1.1 *The Industry / Government Working Group Process*

MLA and LiveCorp accept that Australian Government policy has now changed to immediate and full implementation of OIE standards for the live export trade to Indonesia – with extension expected in the short term to all markets. Following a meeting with Minister Ludwig on 10 June 2011 an Industry/Government Working Group (IGWG) was established to create a framework to meet this new policy, starting with Indonesia. The IGWG first met on 13 June and by 19 June had a draft framework to the Minister which was, in turn, presented to the Indonesian Minister for Commodities and Agriculture on 20 June. A further, refined, version of the new IGWG framework was presented to Minister Ludwig on 27 June and on 6 July a new Export Order was issued which included the new arrangements for Indonesia.

Devising a new framework to fit the changed policy settings within such a short time frame would not have been possible without very significant input from many senior DAFF staff, the live export sector (including the Australian Livestock Exporters' Council), producer PICs (the Cattle Council of Australia, the Sheepmeat Council of Australia and the Goat Industry Council of Australia) and MLA and LiveCorp. Whilst abiding by a general set of instructions provided by Conall O'Connell (the Secretary of DAFF), both MLA and LiveCorp played significant roles in the development of the IGWG plan:

- MLA co-chaired the subgroup of the IGWG dealing with supply chain assurance, drafting large sections related to traceability provisions and other aspects of implementing a controlled supply chain.
- LiveCorp co-chaired the subgroup of the IGWG dealing with operationalising the OIE Code and establishing an audit checklist.

8.1.2 *Consignment monitoring and reporting*

The IGWG plan outlines the extent to which monitoring is required for each consignment of livestock in a manner that ensures accurate and transparent reporting to the Australian Government on the condition of the livestock from departure from Australia up to and including the point of slaughter in the country of destination.

Major elements of the IGWG plan for Indonesia are:

- Onus is placed on the exporter to have in place a “controlled” supply chain, in terms of animal welfare practices, from discharge to slaughter. Securing a permit to export livestock will depend on the exporter providing evidence of this controlled supply chain.
 - The exporter will be required to demonstrate “control” of the livestock throughout the supply chain (from the time the animals are discharged from the ship to the point of slaughter) in terms of acceptable animal welfare practices being applied. This control could be demonstrated

- If demonstrated via contractual arrangements these arrangements must bind the importer/lotfeeder into applying acceptable animal welfare practices. These contractual arrangements must also bind the importer/lotfeeder into including similar contractual provisions when these livestock are on-sold to other parties.
- Not only must contracts be binding in terms of acceptable animal welfare practices being applied, they must also be binding in terms of through chain traceability provisions being applied.
- The contractual relationships will need to be documented in export documentation, such as the Notice of Intention (NOI) and the Consignment Risk Management Plan (CRMP).
- Traceability - all animals in an export consignment must be identifiable and able to be located at critical points along the export supply chain from the Australian registered premises through to the overseas abattoir. The system of identification is at the discretion of the exporter but it must allow for the reconciliation of animals at each point of the supply chain and be capable of providing reports on individual animals and for consignments as a whole.
- All elements of the supply chain must meet, at a minimum, the standards established in the OIE Code. These have been operationalised in a checklist titled “Guidance on meeting OIE animal welfare standards” developed by the IGWG (the “animal welfare checklist”). The checklist includes the following components:
 - Handling of livestock
 - Land transport of livestock
 - Feedlot
 - Lairage
 - Slaughter with stunning
 - Slaughter without stunning
 - Slaughter of pregnant livestock
- The controlled supply chain must be subjected to regular third party audits. These audits must be conducted by an independent, qualified and experienced auditor, be evidence based, transparent, impartial, ethical and professional and consistent with international audit standards. The following are suggested minimum criteria:
 - Auditors must be certified by an internationally recognised certification organisation.
 - That the auditing firm operate in more than one country.
 - Be non-government.
 - Have more than 10 years experience certifying to an international standard.

The frequency of audits should be determined with reference to existing AQIS procedures for export licensing. Audits would be more frequent in the early stages of supply chain implementation and where instances of non-compliance occur.

Although the focus for initial application of this new framework is Indonesia, it is envisaged that nearly all elements are applicable to Australian slaughter and feeder live exports to all markets - whether these be cattle, sheep or goats. The major exception will be the traceability provisions – which will need to be made consignment based, rather than relate to individual animals, for sheep and goats.

8.2 MLA and LiveCorp activities to assist in implementing controlled supply chains in Indonesia

Given the new conditions for export that are emerging, the major challenges are to implement these conditions across a range of supply chains. For Indonesia MLA and LiveCorp have identified the following sets of activities to assist in the implementation of the new conditions:

8.2.1 Development of standards and assessment procedures

As noted above, part of the IGWG work involved creating a checklist against OIE compliance (the 'animal welfare checklist'). This checklist has largely been organised by type of activity (e.g. handling of livestock, lairage). MLA and LiveCorp are reorganising this list by stage in the supply chain and adding other information to it to create a series of "assessment templates". It is intended that these assessment templates be used to identify gaps between current practices (including documentation of these practices) and practices necessary to achieve third party auditor endorsement of compliance against the OIE Code. In addition, MLA and LiveCorp have created standardised SOPs for use at various stages along the supply chain in Indonesia that comply with the 'animal welfare checklist'. Having SOPs, covering all stages in the supply chain, will be necessary to pass 3rd party audits.

The feedlot assessment templates and standardised SOPs will cover animal welfare conditions from discharge of the cattle from the ship in Indonesia, trucking to the feedlot and in the feedlot itself. In particular the assessment templates and standardised SOPs will address management procedures and structural design elements that affect welfare outcomes. Lotfeeders will need to ensure they have SOP's in place for training, maintenance, feed programs, receival procedures, etc. It is expected that individual feedlots will want to tailor the standardised SOPs developed by MLA and LiveCorp for their own operations.

A set of assessment templates and standardised SOPs have also been developed for abattoir operations. These are scheduled to be trialled during July 2011. Each abattoir will need to develop a procedure for the management of the animals and processing practices. They will be required to demonstrate they have procedures in place to regularly train staff, maintain equipment, manage cattle, correctly handle and process, etc. MLA and LiveCorp will assist in these areas. It is expected that individual abattoirs will want to tailor the standardised SOPs developed by MLA and LiveCorp for their own operations.

8.2.2 *Assisting with the assessment process*

MLA and LiveCorp staff and contractors are assisting supply chains in compiling necessary documents to meet the new conditions. These activities involve:

- Explaining the OIE guidelines - highlighting the key chapters that relate to animal welfare during transport and at point of slaughter.
- Discussing the 'animal welfare checklist' and the role it will play in assessing OIE compliance.
- Assisting in the conduct of desktop reviews of supporting documentation of critical supply points through the supply chain to demonstrate compliance.
- With the supply chain, reviewing critical control points against the 'animal welfare checklist'. The critical control points in the supply chain are:
 - The discharge procedure
 - Transport to feedlot
 - Management in feedlot
 - Transport to abattoir
 - Management at abattoir
 - Method of slaughter
- MLA and LiveCorp will provide feedback to the relevant supply chain on its observations of reviews conducted. The observations will be documented in the 'animal welfare performance target and measurements checklist' created by the IGWG. This checklist outlines the OIE performance and measurement targets. Each stage of the supply chain will be assessed as being acceptable or not against the checklist and corrective actions recommended on non conformity. If MLA and Livecorp are working within a supply chain and find that the recommendations from previous assessments have not been acted on resulting in repeated non conformance of acceptable animal welfare outcomes, MLA and Livecorp will withdraw future assistance for that supply chain.

8.2.3 *Training to meet the new requirements*

To support the establishment of controlled supply chains, in terms of consistently applying OIE animal welfare standards, MLA and LiveCorp have been building a team of Australian animal welfare support staff that will perform training, monitoring and review activities, with a particular focus on point of slaughter operations. The size of this team over the next 12 months will be determined by how quickly controlled supply chains are developed and the needs of these supply chains.

Under the IGWG plan ultimately the responsibility for implementing appropriate animal welfare standards rests with Australian exporters, working with their Indonesian importers. It is expected that this will require Indonesian lotfeeders to take a greater role in Indonesian abattoirs. From March this year lotfeeders are already moving in this direction by employing increased numbers of Animal Welfare Officers (AWOs) – that is, Indonesian animal welfare personnel currently employed by Indonesian lotfeeders.

MLA and LiveCorp have already delivered training to the AWOs to underpin the move to apply international standards at all stages in the supply chain – and are committed to providing ongoing training programs. The training program covers animal handling, Halal slaughter practices, standard operating procedures, hygiene, stunning and butchering skills. This training has included the involvement of regional provincial livestock departments and MUI (Halal regulators) representatives to ensure local official and cultural engagement. The upskilling of these AWOs is a key to consistent application of OIE animal welfare standards.

8.2.4 Traceability system

A Government requirement for reopening of the trade is that individual cattle be traceable throughout the supply chain.

Currently, 70% of cattle destined for Indonesia are fitted with an NLIS RFID tag and exporters have committed to placing an NLIS RFID tag on all cattle exported from 1 July. Given this, it makes sense for supply chains to use this device in tracing animals. Under the IGWG plan, however, use of the NLIS device is not required, and supply chains may choose to implement other traceability systems.

MLA and LiveCorp will assist in the implementation of any traceability system. In terms of those supply chains that may choose to use the NLIS system, MLA and LiveCorp are in the process of making required database changes and will provide help desk and technical support. MLA and LiveCorp will also redesign web interfaces, etc, into the Bahasa language.

8.2.5 Infrastructure requirements and abattoir design

The Australian Government has indicated to industry that, in its view, the Mark I box, the installation of which in many facilities was funded jointly by Government and industry, does not comply with OIE standards. There will be a need to design and install new restraining boxes for use in Indonesia, as well as make further changes to infrastructure in some Indonesian abattoirs. As noted in Chapter 6, previously over 100 Mark I boxes were installed in Indonesian abattoirs, but the new arrangements will involve focussing on a more limited number of facilities. A consultation process, involving the Australian industry, the Indonesian industry and Indonesian Government, will be essential before this limited list of abattoirs is finalised. MLA and LiveCorp, Australian exporters, the Cattle Council of Australia and APFINDO have discussed a priority list of about 34 abattoirs.

In conjunction with supply chains, MLA and LiveCorp are willing to assist with the upgrading of a number of abattoirs to meet the new standards. The industry is committed to increasing the use of stunning in Indonesia and a focus for MLA and LiveCorp funds will be to achieve this aim. MLA and LiveCorp will provide particular assistance and specialised support to those supply chains that want to progress stunning.

A particular issue requiring resolution, and Government assistance, is the use of stunning equipment that is reliant on explosive charges. This equipment is cheaper, less complicated and easier to use than stunners that rely on a pneumatic device. There are difficulties in both importing and using stunning equipment in Indonesia that relies on explosive charges.

Finally, as requested by the Indonesian Director General of Livestock Services (DGLS), an abattoir design project has been developed to provide a modular abattoir that will allow for the construction of standard sized facilities.

8.2.6 Ongoing liaison with the Indonesian Government and stakeholders

An important task has been, and will be, to consult with, and inform, Indonesian Government officials (e.g. Ministry of Agriculture, Coordinating Ministries and Indonesian Parliamentary Commission IV) and the trade (e.g. APFINDO) of the changes proposed – their input must be taken into account when devising and implementing animal welfare improvement programs. Religious authorities (e.g. the MUI), also need to be kept up to date. This represents a continuing role for MLA and LiveCorp, in conjunction with Australian Government officials.

8.3 MLA and LiveCorp activities to assist in implementing controlled supply chains across other markets

DAFF and the Government have signalled that the new framework devised by the IGWG for Indonesia will be soon applied across all live export markets. Just as there are challenges in applying the IGWG framework to Indonesia, there are challenges also in applying the framework to other markets and to other species.

MLA and LiveCorp have conducted a preliminary assessment of the ability to apply the IGWG framework to other markets and this is detailed in **Appendix C**. Three challenges are highlighted in the work embodied in Appendix C:

- In some markets (e.g. Saudi Arabia, Oman, Turkey) there are multiple sale and distribution points making the concept of controlled supply chains difficult to implement. The issue of multiple sale points becomes amplified during the festival period of Eid al Adha.
- Traditionally during Eid al Adha families would purchase sheep and then attend to their slaughter outside an abattoir environment. In some Middle East countries there is now acceptance of slaughter within an abattoir, but often the purchaser wants to be associated with the slaughter even if done in an abattoir – this means the purchaser wants to accompany the sheep into an abattoir. This can lead to a problem with slaughter capacity in some countries.
- In some countries there may be difficulties in third party auditors gaining good access to all facilities.

The stark reality is that the industry is unlikely to be able to continue to supply large portions of some key markets under the new arrangements.

Although the implementation steps in markets other than Indonesia have yet to be worked through in detail, they will be similar in design to those outlined for Indonesia. Indeed, in some markets implementation of the new arrangements will be easier than for Indonesia. For example, in many Middle East markets there are a very limited number of supply chains (one to three is common). Furthermore, there are cases where ownership of the livestock remains in the same hands from the registered premises in Australia to past the point of slaughter overseas.

Following suspension of the trade to Indonesia, MLA and LiveCorp contacted importers of Australian livestock in the Middle East pointing out the implications of new arrangements likely to emerge – namely, that:

- Australian livestock should only be sold when there was knowledge that these livestock would be properly handled in accordance with OIE animal welfare standards. It was pointed out that practices such as sheep being put into car boots, represented significant contraventions of the OIE Code.
- Australian livestock should only be sold when there was knowledge that they would be slaughtered in a proper facility compliant with OIE animal welfare guidelines.
- Under arrangements likely to emerge there should be no private sales of livestock to individuals when the conditions under which these livestock will be slaughtered is unknown. MLA and Livecorp further pointed out that there would be no exception for Eid al Adha.

Some supply chains in the Middle East have reacted positively to the MLA and LiveCorp approaches outlined above. Other supply chains have pointed out the cultural challenges in meeting the new arrangements and expressed an inability to comply.

An active program is currently underway to deliver upon the new expectations and in the period leading up to the Farmer Review recommendations, some MENA importers are assessing their capacity to adjust and have made some major changes to their sales and distribution processes. They are much tighter, standards have already improved and further actions are planned. All aspects of handling and slaughter are far from perfect in the MENA region, but genuine improvement and better systems are well underway.

8.4 Conclusion

The new arrangements obviously place very significant increased regulatory burden on the live export trade. One advantage, however, is that, hopefully, never again will a trade be completely suspended, as was the case with the Indonesia trade on 7 June. The complete suspension of this trade not only inflicted uncertainty and hardship on cattle producers in northern Australia and on livestock exporters, it also caused questions to be raised by some about Australia as a food supplier.

The reforms for Indonesia, now endorsed by the Government, place the responsibility for ensuring animal welfare standards are met on the Australian exporter. Not only must appropriate animal welfare standards be applied on the vessel to point of discharge (which was previously the case), but right along the supply chain, including in Indonesian abattoirs. Under the reforms ongoing improvements in animal welfare standards are no longer sufficient, improvements which are recognised to have occurred⁹. Rather, a complete and immediate application of OIE animal welfare standards right along the supply chain is required before animals can be supplied. It

⁹ Minister Ludwig, for instance, on 13th July in a media statement stated "Over time welfare outcomes for animals in the live export industry have improved". The Minister went onto note, however, that "The footage aired by Four Corners demonstrated that they have not improved far enough or fast enough".
http://www.daff.gov.au/ludwig/media_office/media_releases/media_releases/2011/july/media_statement.

is expected that, in the future, the new arrangements will mean that only non-compliant supply chains will be closed, rather than a whole trade.

The Minister has stated that “this is the most significant reform of the live export trade by any government”¹⁰. MLA and LiveCorp would agree with this assessment and would not just restrict interpretation of the phrase “any government” to any Australian government, but to any government anywhere in the world. As has been emphasised in this submission the industry does not oppose this reform – and was moving in this direction. But the immediacy and wide sweeping nature of these reforms does provide the industry and our overseas customers with significant challenges.

MLA and LiveCorp are committed to assisting the Government and industry comply with the new regulations. It will do so by disseminating information on the new regulations, by liaising with Government and industry over their implementation and by providing services to individual supply chains involving:

- assisting supply chains to assess current practices against OIE guidelines;
- supplying templates on OIE compliant operational practices;
- providing technical support on facility design and on other issues (such as animal nutrition); and
- training staff involved in supply chains on animal handling.

MLA and Livecorp have already invested heavily in improving animal welfare practices in overseas markets, being the only industry to invest in this area outside its borders. Although the new regulations place responsibility for ensuring OIE compliance on the exporters, given the activities listed above, it is anticipated that the investment by in animal welfare, in the short term at least, may have to increase further.

¹⁰ http://www.daff.gov.au/ludwig/media_office/media_releases/media_releases/2011/july/media_statement.

Bibliography

AgEconPlus, EconSearch, Warwick Yates and Associates, 2007, *The Live Export Industry: Assessing the Value of the Livestock Export Industry to Regional Australia*, Project Live.326, prepared for Meat & Livestock Australia, <http://www.mla.com.au/CustomControls/PaymentGateway/ViewFile.aspx?VOHbBS5XcEL7KfYrWv3HCHcAOoGGq1/NgzFFoNbaroNYjKc5ANgEZ30SIP4hoZdT3EYMKKAfsht7d1Tnt3BqiA==>

Alliance Resource Economics, 2006, *World Livestock Export Standards: A comparison of development processes, systems and outcomes achieved*, Project Live.316, prepared for Meat & Livestock Australia, <http://www.mla.com.au/CustomControls/PaymentGateway/ViewFile.aspx?A+q6hZrKOiH0cfNH6pGFr4asKWNlifyd3h9HuLVVrl/ukOBSOdvltU8+jAl0H2bA3EYMKKAfsht7d1Tnt3BqiA==>

Australian Bureau of Agriculture and Resource Economics (ABARE), 2007, *Live Cattle Export Trade: Importance to Northern and Southern Australian Beef Industries*, Canberra, Prepared by Peter Martin, Thuy Can Mellor and Stephen Hooper.

Australian Bureau of Agriculture and Resource Economics (ABARE), 2008, *Live animal exports: a profile of the Australian industry*, research report 08.1, February, http://adl.brs.gov.au/data/warehouse/pe_abarebrs99001420/liveexports.pdf

Australian Bureau of Agriculture and Resource Economics (ABARE), 2009, *Financial Performance of Beef Producing Farms 2006-07 to 2008-09*, June, prepared by Stephen Hooper and Sarah Crooks.

Australian Standards for the Export of Livestock (version 2.3, 27 April 2011), produced by DAFF www.daff.gov.au/livestockexportstandards

Bayvel ADC *The globalisation of animal welfare: A New Zealand and Australian Perspective on recent developments on strategic significance* http://www.daff.gov.au/animal-plant-health/welfare/aaws/aaws_international_animal_welfare_conference/the_globalisation_of_animal_welfare_a_new_zealand_and_australian_perspective_on_recent_developments_of_strategic_significance

CIE 2011, *The Contribution of the Australian live export industry*, prepared for LiveCorp and MLA, July.

CIE 2009, *Review of LiveCorp's Key Performance Indicators*, prepared for Meat & Livestock Australia and LiveCorp, May.

Grandin T 2003 "Livestock Handling and Transport", 2nd Ed, CABI, Chapter 20 *Handling and Welfare of Livestock in Slaughter Plants*

Grandin T 2010 *Recommended Animal Handling Guidelines Audit Guide: A Systematic Approach to Animal Welfare*, 2010 edition, American Meat Institute Foundation

Hassall and Associates, 2006, *The Live Export industry: Value, Outlook and Contribution to the Economy*, Project Live.314, prepared for LiveCorp and Meat and Livestock Australia, July,

<http://www.mla.com.au/CustomControls/PaymentGateway/ViewFile.aspx?zj6ruA8UZUcKxd130i0ydAlstJJy7a2ZHKUT9SU2YwFq7T+CO1jcxP4jdnGmtnjK3EYMKKAfsht7d1Tnt3BqiA==>

Hewitt, L and Whittington, P (2009). *W.LIV.0371 Review of the mark I, II and III cattle restraining boxes*, Meat & Livestock Australia, NSW, ISBN 9781741915525.

LiveCorp, *Annual Operating Plan 2010-11*

OIE 2010 *Terrestrial Animal Health Code*

NFF, SCA, CCA, ALEC, MLA, LiveCorp, 2011, *Strategic Vision for In-market Animal Welfare*, May www.mla.com.au/files/fdfa90f0.../Strategic-Vision-for-Animal-Welfare.pdf

Study into animal welfare aspects for goats in Malaysia from point of arrival from Australia to slaughter 2009 prepared for Malaysia-Australia Agricultural Cooperation Working Group, October

World Bank study *Global Reconnaissance of Municipal Live Markets, Slaughterhouses and Waste Systems in Developing Countries*

http://www.fao.org/fileadmin/user_upload/animalwelfare/Presentation_Cointreau.pdf

Appendix A: schedule of MLA and LiveCorp livestock export R&D

Schedule of MLA and LiveCorp livestock export related R&D

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
1998/99	SBMR.001	Research into cattle deaths and illness during sea	All	Ship	Welfare	Reduction in mortality - heat stress
1998/99	SBMR.004	Shipboard mortality study - phase II	All	Ship	Welfare	Reduction in mortality - heat stress
1998/99	SBMR.004A	Phase III: Research into cattle deaths and illness	All	Ship	Welfare	Reduction in mortality - heat stress
1999/2000	LIVE.101	Controlling Scabby Mouth in the live sheep trade	Sheep	All	Market Access	Market Access - Saudi
1999/2000	LIVE.102	Best practice standards for the preparation & husbandry of cattle for transport from Australia	Cattle	Prep	Welfare	Improved husbandry and welfare - Pre export
1999/2000	SBMR.002A	Investigation of ventilation efficacy on livestock vessels	All	Ship	Welfare	Reduction in mortality - heat stress
2000/01	LIVE.105	Quality assurance for live goats exports to Saudi Arabia	Goats	All	Market Access	Market Access - Saudi
2000/01	LIVE.104A	Influence of pre-delivery management on livestock performance: desk top study	All	Prep	Supply Chain	Improved husbandry and welfare - Pre export
2000/01	LIVE.104B	Use of electrolytes to alleviate stress: desk top study	All	Ship	Welfare	Improved husbandry and welfare - On board
2000/01	LIVE.108	Desk top study of electrolyte products	All	Ship	Welfare	Improved husbandry and welfare - On board
2000/01	LIVE.204	Identifying current best practice in the export of young cattle to Israel	Cattle	ME	Welfare	Improved husbandry and welfare - On board
2001/02	LIVE.110A	Improving Saudi sheep and goat protocol	Sheep and goats	ME	Market Access	Market Access - Saudi
2001/02	LIVE.109A	Addressing HGP usage-workshop	All	All	Market Access	Improve Market Access
2001/02	LIVE.107	Workshop on the ventilation of livestock vessels	All	Ship	Welfare	Reduction in mortality - heat stress
2001/02	LIVE.208	The best practice management of pregnant dairy cattle on long haul voyages	Dairy	Ship	Welfare	Improved husbandry and welfare - On board

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2001/02	LIVE.211	Practical ventilation measures for livestock vessels	All	Ship	Welfare	Reduction in mortality - heat stress
2001/02	LIVE.111	Evaluation and cost/benefit analysis of Rhinogard® vaccine in preventing Bovine Respiratory Disease in export cattle	Cattle	All	Welfare	Reduction in mortality - BRD
2001/02	LIVE.206	National mortality recording system for export	All	Ship	Welfare	Improve market access
2001/02	LIVE.207	Identifying best practice in the export beef cows	Cattle	All	Welfare	Improved husbandry and welfare - On board
2002/03	LIVE.217	Investigating premature lactation in pregnant dairy females	Dairy	Ship	Husbandry	Improved husbandry and welfare - On board
2002/03	LIVE.113	Ringworm in live export dairy cattle	Cattle	All	Husbandry	Improved husbandry and welfare - On board
2002/03	LIVE.213A	Investigations into reducing odour emissions from partly loaded sheep vessels while in port	Sheep	Ship	Supply Chain	Market access
2002/03	SBMR.002	Shipboard ventilation project	All	Ship	Welfare	Reduction in mortality - heat stress
2002/03	LIVE.112	Salmonellosis control and best-practice in live sheep export feedlots	Sheep	All	Welfare	Reduction in mortality - Salmonella / inanition
2002/03	LIVE.215	Minimising mortality risks during export of live goats by sea from Australia	Goats	Ship	Welfare	Reduction in mortality - Salmonella / Inanition
2002/03	LIVE.216	Mortality and morbidity risk factors for livestock during sea transport from Australia	All	Ship	Welfare	Reduction in mortality - Salmonella / Inanition
2002/03	LIVE.214	National livestock export industry shipboard performance report 2002	All	Ship	Welfare	Building industry statistics
2003/04	LIVE.114	Best Practice in the use of veterinary chemicals and drugs in exporting livestock	All	All	Husbandry	Improved husbandry and welfare - On board
2003/04	LIVE.118	Investigating Bluetongue Virus persistence in sheep	Sheep	Aust	Market Access	Improve market access
2003/04	LIVE.310	Development of an R&D Strategic Plan for the Livestock Export Program	All	All	Monitoring and evaluation	R&D internal planning
2003/04	LIVE.221	Characteristics and volume of effluent produced by livestock vessels	All	Ship	Supply Chain	Building industry statistics

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2003/04	LIVE.116A	Development of a Heat Stress Risk Management Model-training	All	Ship	Welfare	Reduction in mortality - heat stress
2003/04	LIVE.007A	Review proposal to register salmonella vaccine for sheep	Sheep	All	Welfare	Reduction in mortality - Salmonella / inanition
2003/04	LIVE.006	Odour, ammonia and electrolytes workshop	All	Ship	Welfare	Improved husbandry and welfare - On board
2003/04	LIVE.007	Salmonellosis consultation	Sheep	All	Welfare	Reduction in mortality - Salmonella / inanition
2003/04	LIVE.209C	Workshop to review LIVE.209 final report	All	Ship	Welfare	Improved husbandry and welfare - On board
2003/04	LIVE.210	Physiology of heat stress in cattle and sheep and the efficacy of electrolyte replacement therapy (Consultation with Murdoch University on LIVE.209)	All	Ship	Welfare	Improved husbandry and welfare - On board
2003/04	LIVE.202	Decreasing shipboard ammonia levels	All	Ship	Welfare	Improved husbandry and welfare - On board
2003/04	LIVE.218	Determining critical atmospheric ammonia levels for cattle, sheep and goats - a literature review	All	Ship	Welfare	Improved husbandry and welfare - On board
2003/04	LIVE.116	Development of a Heat Stress Risk Management Model	All	Ship	Welfare	Reduction in mortality - heat stress
2003/04	LIVE.212	Investigation of ventilation efficacy on live sheep vessels	All	Ship	Welfare	Reduction in mortality - heat stress
2003/04	LIVE.117	Review of Australian Livestock Export Standards	All	All	Welfare	Internal industry review
2003/04	LIVE.209	Physiology of heat stress in cattle and sheep	All	Ship	Welfare	Improved husbandry and welfare - On board
2003/04	LIVE.209B	Physiology of heat stress in cattle & Sheep (Stage 2)- efficacy of an electrolyte replacement therapy and high roughage diet	All	Ship	Welfare	Improved husbandry and welfare - On board
2003/04	LIVE.220	National livestock export industry shipboard performance report 2003	All	Ship	Welfare	Building industry statistics
2004/05	B.LIV.0334	Live Export R&D Forum 2005	All	All	Capacity building	R&D planning and capacity building

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2004/05	LIVE.115A	Strategic Annual Seroprevalance Survey for bluetongue antibodies in the surveillance zone of the Northern Territory	All	Aust	Market Access	Improve market access
2004/05	LIVE.115B	Strategic Annual Seroprevalance Survey for bluetongue antibodies in the surveillance zone of Queensland	All	Aust	Market Access	Improve market access
2004/05	LIVE.115C	Strategic annual seroprevalance survey for bluetongue antibodies in the surveillance zone of the Pilbara region of Western Australia	All	Aust	Market Access	Improve market access
2004/05	LIVE.309B	Restraint Box Manual	Cattle	Asia	Welfare	Improved welfare point of slaughter
2004/05	LIVE.226	HS software further development to take version 2.2 to version 2.3	All	Ship	Welfare	Reduction in mortality - heat stress
2004/05	LIVE.230B	Independent advice on jetting inclusion in the HS model	All	Ship	Welfare	Reduction in mortality - heat stress
2004/05	LIVE.231	Facilitate meeting on HS and jetting	All	Ship	Welfare	Reduction in mortality - heat stress
2004/05	LIVE.312	HS software training 2004-2005	All	Ship	Welfare	Reduction in mortality - heat stress
2004/05	LIVE.119A	Supporting the registration of a aro-attenuated Salmonella vaccine	Sheep	All	Welfare	Reduction in mortality - Salmonella / inanition
2004/05	LIVE.232	Facilitate meeting on pastoral sheep and lambs	Sheep	Prep	Welfare	Improved husbandry and welfare - Pre export
2004/05	LIVE.219	Wetting of cattle to alleviate heat stress on ships	Cattle	Ship	Welfare	Improved husbandry and welfare - On board
2004/05	LIVE.223	Pilot monitoring of shipboard environmental conditions and animal performance	All	Ship	Welfare	Improved husbandry and welfare - On board
2004/05	LIVE.301	Management of pre-delivery stress in live export steers	Cattle	Prep	Welfare	Improved husbandry and welfare - Pre export
2004/05	LIVE.229A	Opportunities to improve slaughter standards and profitability in Indonesia	Cattle	Asia	Welfare	Improved welfare point of slaughter
2004/05	LIVE.229B	Investigating ways to improve animal welfare in Indonesian abattoirs	Cattle	Asia	Welfare	Improved welfare point of slaughter

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2004/05	LIVE.309	Developing an Improved pre-slaughter restraining box for cattle	Cattle	Asia	Welfare	Improved welfare point of slaughter
2004/05	LIVE.234	Potential benefits of jetting to the HS model	All	Ship	Welfare	Reduction in mortality - heat stress
2004/05	LIVE.007B	Preparation of a business plan on salmonella vaccine for sheep	Sheep	All	Welfare	Reduction in mortality - Salmonella / inanition
2004/05	LIVE.225	National livestock export industry shipboard performance report 2004	All	Ship	Welfare	Building industry statistics
2004/05	LIVE.235	National mortality recording system for the live sheep, goat and cattle export industries	All	All	Welfare	Building industry statistics
2005/06	LIVE.121	Investigating options to modify the aggressive behaviour of entire male livestock	All	All	Husbandry	Improved husbandry and welfare - On board
2005/06	LIVE.010	Production of communication materials- wetting cattle heat stress tips & tools	Cattle	Ship	Welfare	Improved husbandry and welfare - On board
2005/06	LIVE.313	HS update for AQIS	All	Ship	Welfare	Reduction in mortality - heat stress
2005/06	LIVE.233 V1	Investigating stocking densities in pre-export assembly premises and on livestock ships – a literature review	All	Ship and Prep	Welfare	Improved husbandry and welfare - Pre export
2005/06	B.LIV.0120	Identifying live animal condition scores	Cattle	Aust	Welfare	Improved husbandry and welfare
2005/06	LIVE.316	Comparing world livestock export standards	All	All	Welfare	Building industry statistics
2006/07	LIVE.236	Development of yard plans for South East Asian abattoirs	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2006/07	LIVE.236A	Desktop publication of LIVE.236 yard manual	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2006/07	LIVE.125	Evaluation of Diagnostic Assays for Chlamydia abortus in Australian export sheep	Sheep	Prep	Market Access	Improve market access
2006/07	LIVE.314	Updating the value of the livestock export industry to Australia	All	All	Monitoring and evaluation	Building industry statistics
2006/07	LIVE.317	Developing a livestock export market outlook service	All	All	Supply Chain	Building industry statistics
2006/07	LIVE.322	Developing industry risk management tools	All	All	Supply Chain	Internal industry review

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2006/07	LIVE.124	Developing an “Is it fit to export?” guide	All	Prep	Welfare	Improved husbandry and welfare - Pre export
2006/07	B.LIV.0240	Assessing a method of incorporating jetting in the HS model and its commercial implications	All	Ship	Welfare	Reduction in mortality - heat stress
2006/07	LIVE.228	Upgrade of biological assumptions and parameters used in the HS risk management model version 2.3.	All	Ship	Welfare	Reduction in mortality - heat stress
2006/07	B.LIV.0241	National livestock export industry shipboard performance report 2006	All	Ship	Welfare	Building industry statistics
2006/07	B.LIV.0242	Assessing the welfare and feeding behaviour of horned and polled sheep and cattle during live export	Cattle and sheep	Ship	Welfare	Improved husbandry and welfare - On board
2006/07	LIVE.222 V3	Developing alternative methods of measuring animal welfare on ships.	All	Ship	Welfare	Improved husbandry and welfare - On board
2007/08	B.LIV.0341	Livestock export traceability system - Egypt	Cattle	ME	Market Access	Market Access – Egypt
2007/08	B.LIV.0340	Live export market reporting service	All	Aust	Market Information	Building industry statistics
2007/08	B.LIV.0356	Training gap analysis	All	All	Monitoring and evaluation	R&D internal planning
2007/08	LIVE.325	Identifying knowledge gaps and research priorities to assist the live export industry to continually improve best practice	All	All	Monitoring and evaluation	R&D internal planning
2007/08	LIVE.326	Assessing the value of the livestock export trade to regional Australia	All	All	Monitoring and evaluation	Building industry statistics
2007/08	LIVE.323	Provision of NLIS-compatible tools for cattle exports	Cattle	All	Supply Chain	Market Access – Egypt
2007/08	B.LIV.0349	Detailed temperature and humidity climatology for Middle East ports	All	Ship	Welfare	Reduction in mortality - heat stress
2007/08	B.LIV.0127	Post discharge induction procedures for sheep in the Middle East	Sheep	ME	Welfare	Improved husbandry and welfare - In market
2007/08	B.LIV.0244	Stocking density in cattle shipments and animal health and performance - an assessment of existing data	Cattle	Ship	Welfare	Improved husbandry and welfare - On board
2007/08	B.LIV.0245	Revision of Veterinary Drug Manual for livestock export	All	Ship	Welfare	Improved husbandry and welfare - On board

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2007/08	B.LIV.0243	Inanition in sheep - a literature review	Sheep	All	Welfare	Reduction in mortality - Salmonella / Inanition
2007/08	B.LIV.0246	National livestock export industry shipboard performance report 2007	All	Ship	Welfare	Building industry statistics
2008/09	W.LIV.0366	Feedlot Design - Development of SE Asian feedlot manual	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2008/09	W.LIV.0367	The Australian production system and supply chain	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2008/09	W.LIV.0368	Animal Health Management - Development of SE Asian feedlot manual	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2008/09	W.LIV.0369	Livestock nutrition and Feedlot breeding - SE Asian feedlot manual	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2008/09	W.LIV.0372	Feedlot Induction and Feedlot Management - SE Asian feedlot manual	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2008/09	W.LIV.0375	Livestock Handling - Development of SE Asian feedlot manual	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2008/09	W.LIV.0351	Investigating Alternative Feedstuffs for Indonesian Feedlots	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2008/09	W.LIV.0359	Improved management packages for tropical and temperate dairy production technology	Dairy	Asia	Husbandry	Improved husbandry and welfare - In market
2008/09	W.LIV.0256	Review of fodder quality and quantity in the live export industry	All	Ship	Husbandry	Improved husbandry and welfare - On board
2008/09	W.LIV.0130	Preparation of goats for export	Goats	Prep	Husbandry	Improved husbandry and welfare - Pre export
2008/09	B.LIV.0126	Review of effluent spillage and animal welfare during livestock transport: a discussion paper	All	Prep	Supply Chain	Improved husbandry and welfare - Pre export
2008/09	W.LIV.0360	Review of the livestock export market outlook reports	All	all	Supply Chain	Building industry statistics
2008/09	B.LIV.0339	Scientific publication on the development of HS risk assessment model	All	Ship	Welfare	Reduction in mortality - heat stress
2008/09	B.LIV.0358	Sheep trolley draft design	Sheep	ME	Welfare	Improved husbandry and welfare - In market

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2008/09	B.LIV.0248	Respiratory disease of export cattle	Cattle	Ship	Welfare	Improved husbandry and welfare - On board
2008/09	W.LIV.0254	Management of bedding during the livestock export process	All	Ship	Welfare	Improved husbandry and welfare - On board
2008/09	B.LIV.0347	Design of a Mark III cattle restraining box meeting Middle East standards	Cattle	All	Welfare	Improved welfare point of slaughter
2008/09	W.LIV.0371	Review of the Mark I, II and III cattle	Cattle	All	Welfare	Improved welfare point of slaughter
2008/09	B.LIV.0249	Revision of the heat stress risk assessment methodology to properly incorporate risk of heat stress while at port	All	Ship	Welfare	Reduction in mortality - heat stress
2008/09	LIVE.224 V1	Electrolyte supplementation of export cattle and further investigations in the heat stress threshold of sheep and dairy cattle	All	Ship	Welfare	Reduction in mortality - heat stress
2008/09	W.LIV.0262	WHITE Review of the livestock export heat stress model	All	Ship	Welfare	Reduction in mortality - heat stress
2008/09	W.LIV.0263	CASEY Review of the livestock export heat stress model	All	Ship	Welfare	Reduction in mortality - heat stress
2008/09	W.LIV.0264	Review of the Livestock Export Heat Stress Risk Assessment Model (HotStuff)	All	Ship	Welfare	Reduction in mortality - heat stress
2008/09	W.LIV.0265	QDPI Review of the livestock export heat stress model	All	Ship	Welfare	Reduction in mortality - heat stress
2008/09	W.LIV.0267	Detailed temperature and humidity climatology for Middle East ports	All	Ship	Welfare	Reduction in mortality - heat stress
2008/09	W.LIV.0132	Investigating the relationship between Salmonella-inanition and property of origin	Sheep	All	Welfare	Reduction in mortality - Salmonella / inanition
2008/09	W.LIV.0133	Determining the feasibility of developing an ovine Salmonella vaccine	Sheep	All	Welfare	Reduction in mortality - Salmonella / inanition
2008/09	B.LIV.0247	Respiratory heat and moisture generation	All	Ship	Welfare	Improved husbandry and welfare – On board
2008/09	W.LIV.0251	Quantitative assessment of cattle behaviours on board livestock ships	Cattle	Ship	Welfare	Improved husbandry and welfare – On board
2008/09	W.LIV.0260	National livestock export industry shipboard performance report 2008	All	Ship	Welfare	Building industry statistics

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2008/09	B.LIV.0348	Preliminary investigation into adapting stunning gun	Cattle	All	Welfare	Improved welfare point of slaughter
2009/10	W.LIV.0259	Development of cattle production extension material	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2009/10	W.LIV.0376	Editing and desktopping - development of SE Asia feedlot manual	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2009/10	W.LIV.0384	Keningau dairy workshop	Dairy	Asia	Husbandry	Improved husbandry and welfare - In market
2009/10	W.LIV.0373	Analysis of potential feed samples for the Indonesian feedlot industry and for inclusion in nutrition models for Indonesian cattle feeding systems.	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2009/10	W.LIV.0152	Finalising the evaluation framework for the live export program	All	All	Monitoring and evaluation	R&D internal planning
2009/10	W.LIV.0153	Ex-post evaluation of LiveCorp and MLA programs	All	All	Monitoring and evaluation	R&D internal planning
2009/10	W.LIV.0361	Detection, identification and treatment of ovine pink eye	Sheep	Prep / Ship	Welfare	Improved husbandry and welfare - On board
2009/10	B.LIV.0346	Upgrade of an existing Mark II cattle restraining box for ritual slaughter	Cattle	All	Welfare	Improved welfare point of slaughter
2009/10	W.LIV.0374	Review of Mark III and development of mark four cattle restraining box	Cattle	All	Welfare	Improved welfare point of slaughter
2009/10	W.LIV.0383	Review of stunning and Halal slaughter	All	All	Welfare	Improved welfare point of slaughter
2009/10	LIVE.123	Investigating mortality in sheep and lambs exported through Adelaide and Portland.	Sheep	All	Welfare	Reduction in mortality - Salmonella / inanition
2009/10	W.LIV.0270	National livestock export industry shipboard performance report 2009	All	Ship	Welfare	Building industry statistics
2009/10	W.LIV.0261	Best practice design of crates for livestock export by air	All	Air	Welfare	Improved welfare – air transport
2009/10	W.LIV.0270	National livestock export industry shipboard performance report 2009	All	Ship	Welfare	Building industry statistics
2009/10	LIVE.237	Development of an aircraft ventilation guide to minimise mortality risk in the international air transport of livestock	All	Air	Welfare	Improved welfare – air transport

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2010/11	W.LIV.0155	CMA - Live export vet student development	All	All	Capacity building	Capacity building
2010/11	W.LIV.0160	Construction of competency units for stockman training course	All	Ship	Capacity building	Improved husbandry and welfare - On board
2010/11	W.LIV.0387	Editing and desktopping – temperate and dairy cattle	Dairy	Asia	Husbandry	Improved husbandry and welfare - In market
2010/11	W.LIV.0389	Editing and desktopping – Beef production manual	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2010/11	W.LIV.0275	Investigating incidence of scabby mouth	Sheep	all	Husbandry	Market Access - Saudi
2010/11	W.LIV.0365	Livestock Export traceability system – Egypt	Cattle	ME	Market Access	Market Access – Egypt
2010/11	W.LIV.0352	Undertaking a Life Cycle Assessment for livestock export industry	All	All	Market Access	Building industry statistics
2010/11	W.LIV.0156	Economic value of the live export industry	All	All	Monitoring and evaluation	Building industry statistics
2010/11	W.LIV.0131	Linking pre-delivery factors to post-delivery performance of Australian cattle exported to Indonesia	Cattle	All	Supply Chain	Improved performance
2010/11	W.LIV.0253	Refining stocking densities	All	Ship	Welfare	Improved husbandry and welfare - On board
2010/11	W.LIV.0269	Upgrade LATSA software	All	Air	Welfare	Improved welfare – air transport
2010/11	W.LIV.0279	National livestock export industry shipboard performance report 2010	All	Ship	Welfare	Building industry statistics
2010/11	W.LIV.0277	HotStuff Version 4.0 – Revised methodology and additional ports	All	Ship	Welfare	Reduction in mortality - heat stress
2011/12*	W.LIV.0274	PhD scholarship - LIV.252 cattle data collection	Cattle	Ship	Capacity building	Capacity building
2011/12*	W.LIV.0161	Veterinary disease investigation course	All	Ship	Capacity building	Improved husbandry and welfare - On board
2011/12*	W.LIV.0390	Training DVD - Management of Australian cattle in Indonesia	Cattle	Asia	Husbandry	Improved husbandry and welfare - In market
2011/12*	W.LIV.0280	Management of premature lactation in dairy cattle	Dairy	Ship	Husbandry	Improved husbandry and welfare - On board

Financial year completed	Project Code	Project Title	Species	Market	Area	Outcome
2011/12*	W.LIV.0252	Developing cattle data collection system	Cattle	Ship	Supply Chain	Reduction in mortality - BRD
2011/12*	W.LIV.0378	Managing heat stress in Middle East feedlots	Sheep	ME	Welfare	Improved husbandry and welfare - In market
2011/12*	W.LIV.0163	Ovine pink eye treatment strategies	Sheep	All	Welfare	Improved husbandry and welfare - On board
2011/12*	W.LIV.0278	Live Export Veterinary Disease Handbook	All	All	Welfare	Improved husbandry and welfare - On board
2011/12*	W.LIV.0162	Veterinary management of reject livestock	All	Prep	Welfare	Improved husbandry and welfare - Pre export
2011/12*	W.LIV.0388	Review and revise a SOP for slaughter of Australian cattle in Indonesia	Cattle	All	Welfare	Improved welfare point of slaughter
2011/12*	W.LIV.0276	Statistical analysis of the HotStuff model	All	Ship	Welfare	Reduction in mortality - heat stress
2011/12*	W.LIV.0392	DVD training – On board livestock management	Cattle and sheep	Ship	Welfare	Improved husbandry and welfare - In market
2011/12*	W.LIV.0396	Indonesian abattoir design concepts	Cattle	Asia	Welfare	Improved welfare point of slaughter
2011/12*	W.LIV.0397	Conversion of Mark I restraining box	Cattle	Asia	Welfare	Improved welfare point of slaughter
2012/13*	W.LIV.0379	Monitoring Middle East feedlot temperature	Sheep	ME	Welfare	Improved husbandry and welfare - In market
2012/13*	W.LIV.0159	Preparation of rangeland goats for live export	Goats	Prep	Welfare	Improved husbandry and welfare - Pre export
2012/13*	W.LIV.0142	Strategies to reduce inanition in sheep	Sheep	All	Welfare	Reduction in mortality - Salmonella / inanition
2012/13*	W.LIV.0393	Indonesian breeding cattle demonstration	Cattle	Asia	Welfare	Improved husbandry and welfare - In market

* in progress

Appendix B: scientific and extension publications relevant to livestock exports

Scientific and extension publications relevant to the livestock export trade based on MLA and LiveCorp R&D.

- Norris, RT and Richards, RB (1989) Deaths in sheep exported by sea from Western Australia – analysis of ship Master's reports *Aust Vet J* **66**: 97-102
- Norris, RT, Richards, RB and Dunlop, RH (1989a) An epidemiological study of sheep deaths before and during export by sea from Western Australia *Aust Vet J* **66**: 276-279
- Norris, RT, Richards, RB and Dunlop, RH (1989b) Pre-embarkation risk factors for sheep deaths during export by sea from Western Australia *Aust Vet J* **66**: 309-314
- Richards, RB, Norris, RT, Dunlop, RH and McQuade, NC (1989) Causes of death in sheep exported live by sea *Aust Vet J* **66**: 33-38
- McDonald, CL, Norris, RT, Ridings, H and Speijers, EJ (1990) Feeding behaviour of Merino wethers under conditions similar to lot-feeding before live export *Aust J Exp Agric* **30**: 343-348
- Norris, RT, McDonald, CL, Richards, RB, Hyder, MW, Gittins, SP and Norman, GJ (1990) Management of inappetant sheep during export by sea *Aust Vet J* **67**: 244-247
- Thomas, KW, Kelly, AP, Beers, PT and Brennan, RG (1990) Thiamine deficiency in sheep exported live by sea *Aust Vet J* **76**: 215-218
- Higgs, ARB, Norris, RT and Richards, RB (1991) Season, age and adiposity influence death rates in sheep exported by sea *Aust J Agric Res* **42**: 205-214
- Norris, RT (1991) Studies of factors affecting sheep deaths during lot-feeding and sea transport PhD Thesis, Murdoch University, Perth
- Richards, RB, Hyder, MW, Fry, JM, Costa, ND, Norris, RT and Higgs, ARB (1991) Seasonal factors may be responsible for deaths in sheep exported by sea *Aust J Agric Res* **42**: 215-226
- Norris RT, Richards RB and Norman, GJ (1992) The duration of lot-feeding of sheep before sea transport *Aust Vet J* **69**: 8-10
- Scharp, DW (1992) Performance of Australian wethers in Arabian Gulf feedlots after transport by sea *Aust Vet J* **69**: 42-43
- Higgs, ARB, Norris, RT and Richards, RB (1993) Epidemiology of salmonellosis in the live sheep export industry *Aust Vet J* **70**: 330-335
- Richards, RB, Norris, RT and Higgs, ARB (1993) Distribution of lesions in ovine salmonellosis *Aust Vet J* **70**: 326-330
- McDonald, CL, Rowe, JB and Gittins, SP (1994) Feeds and feeding methods for assembly of sheep before export *Aust J Exp Agric* **34**: 589-94
- Higgs, ARB, Norris, RT, Baldock, FC, Campbell, NJ, Koh, S and Richards, RB (1996) Contagious ecthyma in the live sheep export industry *Aust Vet J* **74**: 215-220
- Higgs, ARB, Norris, RT, Love, RA and Norman, GJ (1999) Mortality of sheep exported by sea: evidence of similarity by farm group and of regional differences *Aust Vet J* **77**: 729-733
- Norris, RT, Richards, RB, Creeper, JH, Jubb, TF, Madin, B and Kerr JW (2003) Cattle deaths during sea transport from Australia *Aust Vet J* **81**: 156-161

Parker, AJH, Coleman, CJ, Fitzpatrick, LA (2003) Quantitative analysis of acid-base balance in bos indicus steers subjected to transportation of long haul duration. Journal of Animal Science **81**: 1434-1439

Norris, RT, (2005) Transport of animals by sea Rev Sci Tech Off Int Epiz **24**: 673-681

Beatty, DT, Barnes, A, Taylor, E, Pethick, D, McCarthy, M and Maloney, SK (2006) Physiological responses of Bos taurus and Bos indicus cattle to prolonged, continuous heat and humidity J Anim Sci **84**: 972-985

Pines, M, Petherick, JC, Gaughan, JB, and Phillips, CJC (2007) Stakeholders' assessment of welfare indicators for sheep and cattle exported by sea from Australia. Anim. Welf. **16**: 489-498.

Beatty, DT, Barnes, A, Taplin, R, McCarthy, M and Maloney, SK (2007) Electrolyte supplementation of live export cattle to the Middle East Aust J Exp Agric **47**: 119-124

Phillips, CJC, Pines, MK, Latter, M, Muller, T, Petherick, JC, Norman, ST and Gaughan, JB (2010) The physiological and behavioural responses of steers to gaseous ammonia in simulated long distance transport by ship J Anim Sci **88**: 3579-3589

Stockman, CA, Barnes, AL, Maloney, SK, Taylor, E, McCarthy, M and Pethick, D (2011) Effects of prolonged exposure to continuous heat and humidity similar to long haul live export voyages in Merino wethers Anim Prod Sci **51**: 135-143

Australian Government Department of Agriculture, Fisheries and Forestry (2011) Australian standards for the export of livestock (version 2.3) and Australian position statement on the export of livestock

Pines, M, and Phillips, CJC (Submitted) Accumulation of ammonia and other potentially noxious gases on live export shipments from Australia to the Middle East. J. Env. Monitoring.

Phillips, CJC, Pines, M, and Muller, T (2011) The avoidance of ammonia by sheep, with investigation of effects of prior exposure. Journal of Veterinary Behaviour: Clinical Applications and Research, in press.

PhD Thesis

Parker, AJ (2004) *Water, electrolyte and acid-base balance in transported Bos indicus steers*. PhD Thesis, James Cook University, Townsville.

Beatty, DT (2005) Effects of prolonged heat and humidity in cattle. PhD Thesis, Murdoch University, Perth.

Stockman, CA (2006) The physiological and behavioural responses of sheep exposed to heat load within intensive sheep industries. PhD Thesis, Murdoch University, Perth

Makin, K (2011) Investigating mortality in sheep and lambs exported through Portland and Adelaide (Submitted) PhD Thesis, Sydney University, Sydney.

Moore, J (Commenced 2010) Developing data collection systems and investigating mortality of cattle on board ship, Murdoch University, Perth.

Honours Thesis

Fraser, K (2007) Supplying feedlot steers with an electrolyte supplement does not increase extracellular fluid volume, Honours Thesis, University of Western Australia, Perth.

Humphries, P (2008) Causative agents of ovine keratoconjunctivitis in a Western Australian feedlot. Honours Thesis, Murdoch University, Perth.

Surridge, V (2008) Effects of long term grain feeding on core body temperature of cattle. Honours Thesis, Murdoch University, Perth.

Shuard, T (Commenced 2011) Preparation of goats for live export, Murdoch University, Perth.

Appendix C: identified OIE animal welfare risk area, MLA and LiveCorp actions taken, improvements achieved

Indonesia

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling Port trailers maintenance	<ul style="list-style-type: none"> Ongoing training and provision of training materials Develop a maintenance program with exporters and importers. 	Port discharge trailers - 30 May 2008 <ul style="list-style-type: none"> 8 port trailers were built and installed during 2008/09 <ul style="list-style-type: none"> 2 X Tanjung Priok, 2 X Panjang, 1 X Belawan (Medan) 1 X Surabaya 1 X Cilacap 1X Dumai
Transport	Truck crate design Journey management Livestock handling	<ul style="list-style-type: none"> Improvements in create design. Ongoing training and development of best practice guidelines. 	Transport guidelines - June 2010 <ul style="list-style-type: none"> Development of feedlot manual with transport guidelines and stocking densities. Livestock Handling - 2009/2010 <ul style="list-style-type: none"> Through out 2009 and 2010 animal handling training work shops conducted
Feedlot Feeder cattle	Feedlot management Livestock handling	<ul style="list-style-type: none"> Ongoing technical support required around infrastructure, pen management and nutrition. Ongoing training and provision of training materials 	Feeding - 2009/2010 <ul style="list-style-type: none"> Through out 2009 and 2010 technical assistance was provided to many operators. June 2010 - Development of feedlot manual with nutrition guide. Animal Health - 2009/2010 <ul style="list-style-type: none"> Through out 2009 and 2010 technical assistance was provided to many operators. June 2010 - Development of feedlot manual with treatment guides and flip charts. Animal Management -2009/2010 <ul style="list-style-type: none"> Through out 2009 and 2010 technical assistance was provided to many operators.

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
			<ul style="list-style-type: none"> June 2010 - Development of feedlot manual with treatment guides and flip charts.
Feedlot - Intensive breeder	Cow and calf management	<ul style="list-style-type: none"> Increased technical support required for management of intensive breeder operations on. 	<p>Cow management – 2009/2010</p> <ul style="list-style-type: none"> Through out 2009 and 2010 technical assistance was provided to many operators. <p>Calf management – 2009/2010</p> <ul style="list-style-type: none"> Through out 2009 and 2010 technical assistance was provided to many operators.
Livestock Distribution	Fragmented distribution system	<ul style="list-style-type: none"> Greater knowledge by feedlotters as to where their cattle go for slaughter. 	<p>March 2010</p> <ul style="list-style-type: none"> APFINDO members committed to nominating an animal welfare officer to identify where all cattle are being processed.
Abattoirs	<ul style="list-style-type: none"> Inappropriate slaughter practices. Animal handling pre slaughter practices Inappropriate use of stunning equipment 	<ul style="list-style-type: none"> Prevent sales of Australian cattle to facilities using inappropriate slaughter Ongoing training and provision of training materials Adoption of correct stunning procedures. 	<p>Restraining Box Program Developed - Since 2000</p> <ul style="list-style-type: none"> Development of restraining box program delivering infrastructure improvements at the point of slaughter. <p>Animal handling and slaughter practices - Since 2008</p> <ul style="list-style-type: none"> Detailed SOP was developed and has been delivered to facilities receiving restraining boxes and refresher training has occurred regularly. <p>June 2011 New control supply chain requirements implemented by Government</p> <ul style="list-style-type: none"> Development of assessment checklists and SOP's <p>Stunning Project - 2009/2010</p> <ul style="list-style-type: none"> Feasibility study into expanding stunning. <p>Stunning Project - 2010/2011</p> <ul style="list-style-type: none"> Gained registration for the import of non penetrative stunners and power loads. The project has completed an educational DVD as an extension tool that explains the stunning process with local MUI representative endorsing stunning on the Video. A set of training materials outlining correct use and maintenance of

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	
			<p>stunning equipment has been developed and distributed.</p> <ul style="list-style-type: none"> • Training of abattoir staff in correct use of stunning equipment has been delivered. • Designs and refits have been constructed for a conversion of a Mark I box to a stunning box and a dedicated stunning box. • As at 31st May 2011 - 2 abattoirs have implemented stunning as part of their daily slaughtering process.

Philippines

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling <ul style="list-style-type: none"> • Infrequent shipments lead to lack of regularly engaged wharf labour and truck drivers. 	<ul style="list-style-type: none"> • Require monitoring of port facilities to ensure good handling during discharge. • Ongoing training. 	N/A
Transport	<ul style="list-style-type: none"> • Requires further assessment to understand risks. 	<ul style="list-style-type: none"> • Review transport systems. 	Truck guidelines – June 2010 <ul style="list-style-type: none"> • Development of feedlot manual with transport guidelines and stocking densities.
Feedlot	Feedlot management Livestock handling	<ul style="list-style-type: none"> • Ongoing technical support to feedlot operators required • Ongoing monitoring and training to improve animal handling. 	Feedlot management – 2009/2010 <ul style="list-style-type: none"> • Through out 2009 and 2010 technical assistance was provided to many operators. • June 2010 - Development of feedlot manual with nutrition guide has been distributed Livestock Handling – 2009/2010 <ul style="list-style-type: none"> • Through out 2009 and 2010 animal handling training work shops conducted
Livestock Distribution	<ul style="list-style-type: none"> • Unknown number of locations where Australian cattle are going for sale and slaughter 	<ul style="list-style-type: none"> • Work with feedlot operators to better understand distribution and issues 	N/A

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Abattoirs	Animal handling and slaughter practices <ul style="list-style-type: none"> Ongoing training and provision of training materials to improve the handling practices pre slaughter Slaughtering processes. <ul style="list-style-type: none"> Halal slaughter is not required. Cattle are often pithed rather than stunned. 	<ul style="list-style-type: none"> Need government commitment to enforce the use of stunning. Need abattoir management to recognise the improved meat quality and value for money of stunning. Need committed distribution company to service abattoirs with stunning equipment. 	Stunning - March 2008 <ul style="list-style-type: none"> Stunners provided to abattoirs. Training in the proper use of stunners conducted. Consultation with importers of stunners and power loads

Malaysia - Cattle

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Ports	Livestock handling <ul style="list-style-type: none"> Infrequent shipments lead to lack of regularly engaged wharf labour and truck drivers. 	<ul style="list-style-type: none"> Require monitoring of port facilities to ensure good handling during discharge. Ongoing training. 	N/A
Feedlot	Peninsular Malaysia Feedlot management Livestock handling <ul style="list-style-type: none"> Feedlot staff lack experience in low stress handling cattle 	<ul style="list-style-type: none"> Ongoing technical support required. Ongoing monitoring and training required on feeding and animal health. 	Feedlot management – 2009/2010 <ul style="list-style-type: none"> Through out 2009 and 2010 technical assistance was provided to some of the operators. June 2010 - Development of feedlot manual with nutrition guide has been distributed Livestock handling – 2009/2010 <ul style="list-style-type: none"> Through out 2009 and 2010 animal handling training work shops conducted
Cattle Abattoirs	Animal handling and slaughter practices	<ul style="list-style-type: none"> A review of cattle slaughter would need to be conducted to determine issues. Likely need to improve the 	

Supply Chain	Identified OIE animal welfare risk areas	imal	Improvements achieved to date
		handling practices pre slaughter.	

Malaysia - Goats

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Ports	KLIA <ul style="list-style-type: none"> Livestock handling. Eastern Malaysia <ul style="list-style-type: none"> Unknown facilities and handling / distribution procedures. 	<ul style="list-style-type: none"> Training of airport and importers staff for good handling practices on discharge. Monitor and review use of discharge and holding facilities. 	Port Discharge - June 2010 <ul style="list-style-type: none"> Significant amounts of new infrastructure implemented, including: new ramps, feed and water facilities Existing infrastructure (such as yards, laneways and holding areas) repaired and upgraded
Goat farms	Livestock Handling and Management	<ul style="list-style-type: none"> Training of staff on handling and nutrition management. 	Feedlot management – 2009/2010 <ul style="list-style-type: none"> Through out 2009 and 2010 technical assistance was provided to some of the operators. Livestock handling – 2009/2010 <ul style="list-style-type: none"> Through out 2009 and 2010 animal handling training work shops conducted.
Goat Abattoirs – Shah Alam, KL (The majority of slaughter goats are processed at this facility.)	Livestock Handling Slaughter practices Unknown distributions systems	<ul style="list-style-type: none"> Training of staff on handling and processing of goats. Review distribution system. 	Security - June 2010 <ul style="list-style-type: none"> Security Weldmesh (BRC) installed around holding area. Speed of slaughter processing – June 2010 <ul style="list-style-type: none"> New race, ramp and slaughter table installed. Goat Slaughter – June 2010 <ul style="list-style-type: none"> New race, ramp and slaughter table installed. Hygiene – June 2010 <ul style="list-style-type: none"> Training conducted by local LEP consultant

Brunei

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock Handling Infrastructure	<ul style="list-style-type: none"> Monitoring and training needed. 	N/A
Feedlot	Livestock handling <ul style="list-style-type: none"> Feedlot staff lack experience in low stress handling cattle 	<ul style="list-style-type: none"> Ongoing technical support required on nutrition and animal health. 	N/A
Abattoirs	Eid - Korban slaughter <ul style="list-style-type: none"> Poor slaughter processes 	<ul style="list-style-type: none"> A review of cattle slaughter would need to be conducted to determine issues 	N/A

Japan

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	<ul style="list-style-type: none"> No reported issues however potential welfare issues with animal handling associated with inexperienced handlers. 	<ul style="list-style-type: none"> Monitoring and training needed. 	N/A
Feedlot	Livestock handling	<ul style="list-style-type: none"> Ongoing technical support required on feeding and animal health. 	N/A
Abattoirs	<ul style="list-style-type: none"> Little detail known. However, advice is that modern processing using stunning is practiced. 		N/A

Singapore

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Airport - sheep	<ul style="list-style-type: none"> No reported issues however 	<ul style="list-style-type: none"> Monitoring and training 	N/A

Supply Chain		dress OIE animal e risk areas	Improvements achieved to date
	potential welfare issues with animal handling associated with inexperienced handlers	needed.	
Feedlot	<ul style="list-style-type: none"> Inadequate facilities to hold sheep delivered for the Eid sacrifice. 	<ul style="list-style-type: none"> Technical support to feedlotters required. 	N/A
Markets	<ul style="list-style-type: none"> Sheep are distributed to mosques for sacrifice. Poor handling and slaughter practices. 	<ul style="list-style-type: none"> Technical support to feedlotters and market chains required. 	N/A

Vietnam

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	<ul style="list-style-type: none"> No large shipments for many years – potential welfare issues with animal handling associated with inexperienced handlers if market resumes 	<ul style="list-style-type: none"> Monitoring and training needed. 	N/A
Airport	<ul style="list-style-type: none"> No detail on issues 	<ul style="list-style-type: none"> Monitoring required. 	N/A
Feedlot	<ul style="list-style-type: none"> Feedlot built for Australian cattle currently importing from Cambodia, support required if Australian cattle provided 	<ul style="list-style-type: none"> Potential monitoring. 	N/A
Abattoirs	<ul style="list-style-type: none"> Modular abattoir built with restraining box in readiness for Australian cattle Little knowledge of facilities and procedures. Halal slaughter not required 	<ul style="list-style-type: none"> A review of cattle slaughter would need to be conducted to determine issues 	N/A

Bahrain

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Livestock Handling <ul style="list-style-type: none"> Formal in-port training conducted in June 2007 Training conducted on an ongoing basis since 2007 Port discharge trailers – June 2009 <ul style="list-style-type: none"> Port trailer repaired and upgraded including repairs to ramps, chains and panels with shade added
Transport Port to Feedlot	<ul style="list-style-type: none"> Heavy vehicle curfew exists. 	<ul style="list-style-type: none"> Removal of heavy vehicle curfews needed and implementation of discharge procedures required. 	Truck driver training provided <ul style="list-style-type: none"> One contractor does all of the transport from the port to feedlot – ensure maintenance programs are developed. Stock specific transport trailers used
Feedlot	<ul style="list-style-type: none"> Management of feedlot capacity during summer months. 	<ul style="list-style-type: none"> Develop management strategies to address capacity. Ongoing monitoring and training required 	Livestock handling June 2007 <ul style="list-style-type: none"> Targeted livestock handling education and training project conducted with BLC to cover - feedlot management, nutritional advice and animal welfare. Marine yards – June 2009 <ul style="list-style-type: none"> New shade structures built with shade cloth upgraded. New water troughs were installed with load out yards upgraded.
Transport Feedlot to Abattoir / Market	<ul style="list-style-type: none"> Managed appropriately - purpose built livestock trailers 	<ul style="list-style-type: none"> Ongoing monitoring required 	Stock specific transport trailers.
Public Markets	<ul style="list-style-type: none"> Distribution of livestock direct to public for home or public slaughter 	<ul style="list-style-type: none"> Tighter distribution policy for Eid sales from feedlot. Recommend no sales from feedlot to Manama market recommended. 	Basic handling instruction has been provided at this facility

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Abattoir – Sheep	Managed appropriately	<ul style="list-style-type: none"> Government engagement needed. Continue to actively promote benefits of stunning. Facilitate religious leaders visit to Australia with the objective of accepting stunning as Halal. 	Abattoir development – June 2007 <ul style="list-style-type: none"> Animal handler training. Unloading ramps and receival areas improved Stunning – Sheep – June 2010. <ul style="list-style-type: none"> Educational visit to witness stunning in Jordan. Abattoir infrastructure upgrade through installation of v-restrainer to facilitate stunning in the future. Yards upgraded to improve livestock flow to the v-restrainer. Local political sensitivities has stifled progress with acceptance of stunning. Livestock Handling <ul style="list-style-type: none"> Training conducted on an ongoing basis since 2007.
Abattoir – Cattle	Restraining device and method of restraint	<ul style="list-style-type: none"> Review and monitoring of restraining device needed. Training in better use of restraining device ongoing. 	Livestock Handling <ul style="list-style-type: none"> Training conducted on an ongoing basis since 2007.
Eid / Religious Festivals	Unknown distribution systems	<ul style="list-style-type: none"> Tightening of Eid policy compliance & limited private sales. 	Dec 08, Nov 09, Nov 10 <ul style="list-style-type: none"> The LEP has assisted BLC to implement a no car boot policy for private sales. Livestock were only sold to customers with appropriate vehicles. New stricter policy introduced in 2011 – no public sales.

Egypt

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port Sokhna	Managed appropriately.	<ul style="list-style-type: none"> Ongoing monitoring required 	<ul style="list-style-type: none"> Commercially developed supply chain
Port Sokhna - laneway to feedlot	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required. Implementation of humane 	<ul style="list-style-type: none"> Commercially developed supply chain

Supply Chain	Identified OIE animal welfare risk areas		Improvements achieved to date
		destruction policy/procedure required.	
Transport Port to Ismailia Feedlot	Livestock handling Transport systems	<ul style="list-style-type: none"> Ongoing monitoring and training required. Review transport system 	<ul style="list-style-type: none"> Commercially developed supply chain
Feedlot Sokhna	Managed appropriately.	N/A	2010 <ul style="list-style-type: none"> Training and awareness of animal welfare standards to a varied audience. Support provided for receipt of first consignment under closed system. Ongoing auditing and training on scanning system to ensure compliance. Monitored as part of closed system.
Feedlot – Ismailia	Managed appropriately.	N/A	<ul style="list-style-type: none"> Monitored as part of closed system.
Transport Feedlot to Abattoir / Market	N/A – No transport required.	N/A	N/A
Public Markets	N/A – Closed System	N/A	N/A
Abattoir Sokhna	Restraining device and method of restraint	<ul style="list-style-type: none"> Review and training in restraining device practices needed. 	Inspection reports provided to DAFF in 2007 Ongoing monitoring and technical advice provided to Sokhna since 2008.
Abattoir Ismailia	Managed appropriately.	N/A	N/A
Eid / Religious Festivals	N/A – Closed System	N/A	N/A

Israel

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling Maintenance of discharge equipment	<ul style="list-style-type: none"> Ongoing monitoring and training required Maintenance program and responsibility for trailer. 	Animal handling training provided in 2008. Port discharge trailer – June 2009 <ul style="list-style-type: none"> Port discharge trailer repaired. Flood lights added to discharge trailer to improve visibility.
Transport Port to Feedlots	Managed appropriately	<ul style="list-style-type: none"> Monitoring of standards of trucks and drivers needed. 	
Feedlots – General	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Livestock handling – June 2008 <ul style="list-style-type: none"> Training and awareness of animal welfare standards to a varied audience Livestock handling – June 2011 <ul style="list-style-type: none"> Training and awareness of animal welfare standards
Feedlot – Ein Ha Shofet	Managed appropriately	<ul style="list-style-type: none"> Ongoing monitoring required 	N/A
Feedlot – Dabach Sheep Farm	Managed appropriately	<ul style="list-style-type: none"> Ongoing monitoring required 	N/A
Transport – Feedlots to Abattoirs / Markets	Managed appropriately	<ul style="list-style-type: none"> Ongoing monitoring required 	N/A
Public Markets	Unknown distributions systems	<ul style="list-style-type: none"> Review of distribution systems needed 	N/A
Abattoir – Cattle	Restraining device and method of restraint	<ul style="list-style-type: none"> Review and training in restraining device practices needed. 	N/A
Abattoir – Sheep	Managed appropriately	<ul style="list-style-type: none"> N/A 	N/A

Eid / Religious Festivals	Unknown distributions systems	<ul style="list-style-type: none"> Review distribution systems needed 	N/A
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Jordan

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling Maintenance of discharge equipment	<ul style="list-style-type: none"> Ongoing monitoring and training required Maintenance program required for trailer 	2008/09 <ul style="list-style-type: none"> Review of discharge ramp conducted - ramp satisfactory. Animal handling training provided in 2009
Transport Port to Feedlots	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	2006/07 H&G trucks inspected Purpose built livestock crates.
Feedlot – Qwiera	Managed appropriately.	<ul style="list-style-type: none"> Ongoing monitoring required 	2006/07 Animal welfare and handling workshops and training completed.
Transport Feedlots to Abattoirs / Markets	Stocking density issues	<ul style="list-style-type: none"> Development of transport guidelines for pen densities needed. 	
Public Markets	Unknown distributions systems No shade in market	<ul style="list-style-type: none"> Review distribution systems 	Madona livestock market – July 2008 <ul style="list-style-type: none"> Shade provided over livestock pens.
Abattoir - Qwiera	Managed appropriately.	<ul style="list-style-type: none"> Ongoing monitoring required 	Animal handling training provided in 2006 and 2007.
Abattoir - Greater Amman – Sheep	Managed appropriately.	<ul style="list-style-type: none"> Ongoing monitoring required 	Sheep Infrastructure - June 2009 <ul style="list-style-type: none"> Installation of new sheep restraining and stunning equipment,

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Abattoir - Greater Amman – Cattle	Restraining device and method of restraint	<ul style="list-style-type: none"> • Training in better use of restraining device needed. 	Cattle Infrastructure June 2007 <ul style="list-style-type: none"> • Installation of a ritual restraining box funded under the Keniry Program. Animal Handling – June 2007 <ul style="list-style-type: none"> • Training workshop conducted.
Abattoir - Madaba-Sheep/Cattle	Inappropriate infrastructure and practices	<ul style="list-style-type: none"> • Infrastructure upgrades needed. • Ongoing monitoring and training required. 	N/A
Abattoir - Salt Cattle	Inappropriate infrastructure and practices	<ul style="list-style-type: none"> • Infrastructure upgrades needed • Ongoing monitoring and training required 	N/A
Abattoir - Irbid-Sheep/Cattle	Managed appropriately.	<ul style="list-style-type: none"> • Ongoing monitoring and training required 	
Abattoir - Mafrag-Sheep/Cattle	Inappropriate infrastructure and practices	<ul style="list-style-type: none"> • Infrastructure upgrades needed • Ongoing monitoring and training required 	N/A
Eid / Religious Festivals	Unknown distributions systems	<ul style="list-style-type: none"> • Review distribution systems 	N/A

Kuwait

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port Quarantine shed	Infrastructure and equipment.	<ul style="list-style-type: none"> Requires importer to take responsibility for maintenance and regular upgrades to shed 	Quarantine shed – 30 June 2008 <ul style="list-style-type: none"> All repairs made to non-functional equipment. 140 fans and 140 troughs fixed, additional fans installed and lighting repaired. Cattle discharge yards redesigned and built from appropriate materials Shed was fully functional following LEP repairs
Port Discharge race	Infrastructure and equipment.	<ul style="list-style-type: none"> Requires importer to take responsibility for maintenance and regular upgrades of race 	Livestock race constructed – 30 June 2008 <ul style="list-style-type: none"> Race was replaced with new panels constructed in Australia from appropriate steel. The lane was installed, with solid permanent fasteners to ground. The new panels are much better and no animals escape when they are used.
Port Discharge ramp	Infrastructure and equipment. Livestock handling	<ul style="list-style-type: none"> Requires importer to take responsibility for maintenance and regular upgrades of race. Ongoing monitoring and training required. 	Sheep discharge trailer – 30 June 2008 <ul style="list-style-type: none"> Newly designed discharge trailer was constructed and installed.
Transport Port to Feedlots	Livestock handling <ul style="list-style-type: none"> Government curfew periods for trucks result in welfare implications for sheep at discharge, particularly through summer. 	<ul style="list-style-type: none"> Ongoing monitoring and training required Negotiation with Kuwaiti Government required on heavy vehicle curfew or manages discharge schedules. 	Livestock Discharge Training – June 2007 <ul style="list-style-type: none"> In-port training conducted at load out bays.
Feedlot – KLTT	Managed appropriately	<ul style="list-style-type: none"> Ongoing monitoring required 	June 2007 <ul style="list-style-type: none"> Targeted livestock handling education and training project conducted with KLTT to cover - Truck driver training, feedlot management, nutritional advice and animal welfare Animal handling training has been provided as part regular LEP programs. 2008-10 <ul style="list-style-type: none"> Numerous issue management reports have been provided to

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	ements achieved to date
			Kuwait management.
Feedlot – GLC	Managed appropriately.	<ul style="list-style-type: none"> Ongoing monitoring required. 	
Transport – Feedlots to Abattoirs / Markets	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	
Public Markets	Unknown distributions systems Livestock handling	<ul style="list-style-type: none"> Engagement of Govt and importers to address issue and change private sales policies. 	<ul style="list-style-type: none"> Continued lobbying for a better sales and slaughter process and improved facilities and practices at existing markets and slaughter houses.
Abattoirs			
Hawally	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	
Shuwaikh General	Livestock handling Infrastructure (loading ramps)	<ul style="list-style-type: none"> Ongoing monitoring and training required Ongoing maintenance required 	30 June 2008 <ul style="list-style-type: none"> Ramps were re-concreted to prevent slipping and injury to livestock.
Shuwaikh Public slaughter hall - Sheep	Livestock handling	<ul style="list-style-type: none"> Infrastructure upgrades needed Ongoing monitoring and training required 	30 June 2008 <ul style="list-style-type: none"> Ramp was modified to include non-slip flooring. This was later modified to include a narrow non-slip race but is now often bypassed. An additional ramp was installed adjacent to the ramp at the hall, mainly for trucks to unload. Around 20 sheep trolleys have been supplied to Shuwaikh. These have been used with success.
Shuwaikh Commercial hall X 2 – Sheep	Livestock handling Incorrect use of equipment	<ul style="list-style-type: none"> Engagement of Government departments and slaughter house operators to enforce required changes with ongoing 	New commercial hall -30 June 2010 <ul style="list-style-type: none"> Proper slaughter bays with ramps, gates and races were constructed and delivered. Each bay consists of a race from the lairage, a holding/forcing

Supply Chain	Identified OIE animal welfare risk areas		
		training. Slaughter house vets must enforce the rules to achieve widespread compliance	pen; ramp with a flap door which leads directly to a slaughter table. Old Commercial Hall - 30 June 2010 <ul style="list-style-type: none"> • Proper slaughter bays with ramps, gates and races were constructed and delivered. • Each bay consists of a race from the lairage, a holding/forcing pen; a ramp with a curtain which leads to a slaughter table.
Farwaniya - Sheep	Livestock handling Incorrect use of equipment Traditional slaughter occurring	<ul style="list-style-type: none"> • Engagement of Government departments and slaughter house operators to enforce required changes. 	30 June 2010 <ul style="list-style-type: none"> • 2 sheep slaughter bays were constructed and delivered. • Each bay consists of a race from the lairage, a ramp with a flap door which leads to the slaughter table. • Training was conducted with significant LEP presence to ensure the local slaughtermen were engaged with the changes
Farwaniya - Cattle	Livestock handling Incorrect use of equipment	<ul style="list-style-type: none"> • Engagement of Government departments and slaughter house operators to enforce required changes 	30 June 2010 <ul style="list-style-type: none"> • Mark 4 restrainer installed for individual, restrained cattle slaughter
Jahra	<ul style="list-style-type: none"> • Ensure correct use of recently installed equipment 	<ul style="list-style-type: none"> • Ongoing monitoring and training required. 	30 Dec 2010 New slaughter equipment built and installed.
Dharah	Livestock handling Traditional slaughter occurring	<ul style="list-style-type: none"> • Engagement of Government departments and slaughter house operators to enforce required changes with ongoing training. 	30 Dec 2010 New slaughter equipment built but not initially accepted by the commercial operator. New equipment being installed July 2011.
Eid Al Adha / Religious Festivals	<ul style="list-style-type: none"> • Public sales occur on a daily basis peaking during Eid periods. 	<ul style="list-style-type: none"> • Engagement of importers and govt to address issue and change private sales policies. 	

Libya

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Misurata port – August 2007 <ul style="list-style-type: none"> A port discharge ramp was transported to the port by the Australian exporter following advice from the LEP.
Feedlot	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Infrastructure – July 2007 <ul style="list-style-type: none"> Work completed on new infrastructure leading to significant improvement in all areas. Sheep handling – June 2008 <ul style="list-style-type: none"> “Sheep talkers” distributed to feedlot operators. Portable sheep drafting yard was constructed and delivered to the feedlot.
Markets	Unknown distribution systems	<ul style="list-style-type: none"> Investigate sales and distribution systems 	N/A
Abattoirs Benghazi Sheep & Cattle	Infrastructure suitability and maintenance.	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Cattle Slaughter – August 2007 <ul style="list-style-type: none"> Installation of two restraining boxes. 1 for Ali Gemel & 1 for Al Medina. Training on the use of restraining boxes provided. Sheep Slaughter – June 2008 <ul style="list-style-type: none"> Installation of sheep race, ramp and slaughter table. Training on the use of sheep race, ramp and slaughter table provided.
Misurata	Traditional slaughter practiced	<ul style="list-style-type: none"> Suitable infrastructure and training needed 	
Tripoli - Tajira Sheep & Cattle	Traditional slaughter practiced	<ul style="list-style-type: none"> Suitable infrastructure and training needed 	

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Tripoli - Al Khadra Sheep & Cattle	Livestock handling Incorrect use of infrastructure	<ul style="list-style-type: none"> Ongoing monitoring and training required 	<p>Cattle Slaughter – August 2007</p> <ul style="list-style-type: none"> Sheep yard, ramp, race and slaughter table constructed. Training on use of new infrastructure provided. <p>Sheep Slaughter – June 2008</p> <ul style="list-style-type: none"> Restraining box installed. The copy box and forcing pen were constructed by the owner. Training on use of new infrastructure provided. <p>General issues – June 2008</p> <ul style="list-style-type: none"> Training provided on identification and eradication of fly breeding areas.

Oman

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	<p>Livestock Discharge Training – June 2007</p> <ul style="list-style-type: none"> In-port training conducted. <p>Port Trailer – June 2008</p> <ul style="list-style-type: none"> New discharge trailer constructed and used in place of old trailer.
	<ul style="list-style-type: none"> Road curfew on trucks during peak traffic periods leading to delays in discharge. 	<ul style="list-style-type: none"> Seek dispensation for livestock trucks on welfare grounds allowing use of roads between 7-9am and 1-3pm. 	<p>June 2011</p> <p>Individual importers to facilitate – LEP to raise with Oman Govt officials</p>
Feedlot	Livestock handling Infrastructure	<ul style="list-style-type: none"> Ongoing monitoring and training required 	<p>Livestock handling – June 2007</p> <ul style="list-style-type: none"> Targeted livestock handling education and training project conducted with importers Truck driver training, feedlot management, nutritional advice and animal welfare animal handling training has been

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	
			provided as part of regular LEP programs.
Markets	<ul style="list-style-type: none"> Unknown number of livestock markets Distribution of livestock direct to public for home slaughter 	<ul style="list-style-type: none"> Complete full assessment of major markets in interior and document standards, practices and facilities. 	
Abattoirs	<ul style="list-style-type: none"> Unknown number of small slaughter facilities and infrastructure standard. 	<ul style="list-style-type: none"> Complete full assessment of slaughter facilities 	
Muscat Municipality	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	
Eid Al Adha sales	<ul style="list-style-type: none"> Distribution of livestock direct to public for home slaughter. 	<ul style="list-style-type: none"> Improved distribution policy for Eid sales required 	June 2011 Discussions with Omani Government

Qatar

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling Infrastructure <ul style="list-style-type: none"> Design of discharge ramp and port design. 	<ul style="list-style-type: none"> Ongoing monitoring and training required Contribute to the design & construction principles for new port discharge system. Liaise regularly with new port consultant team in Doha. 	Livestock Discharge Training <ul style="list-style-type: none"> In-port training conducted. Discharge Trailer - 2008/09 <ul style="list-style-type: none"> Review of discharge ramp conducted. No action taken.
Feedlot	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Livestock handling – June 2007 <ul style="list-style-type: none"> Targeted livestock handling education and training project conducted which covered - Truck driver training, feedlot management, nutritional advice and animal welfare Animal handling training has been provided as part regular LEP.

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Livestock markets	<ul style="list-style-type: none"> Distribution of Australian animals during Eid Al Adha 	<ul style="list-style-type: none"> Change sales policy Limit or stop supply of sheep to public market for Eid No AUS livestock sold in public market from June 2011. 	
Abattoirs Mawashi Commercial – Sheep	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Abattoir development – June 2007 <ul style="list-style-type: none"> Animal handler training. Sheep Slaughter – June 2010 <ul style="list-style-type: none"> Replacement of old V-restrainer with a new one. Sheep lairage area – June 2010 <ul style="list-style-type: none"> Race modified for better sheep flow. New yard configuration.
Mawashi Commercial – Cattle	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	2010/11 <ul style="list-style-type: none"> Installation of Mark 4 restraining box and upgrade of race.
Mawashi Public – Sheep 1	<ul style="list-style-type: none"> Inappropriate infrastructure and practices for Australian animals 	<ul style="list-style-type: none"> Infrastructure upgrades required 	Sheep Hall 1 – June 2009 <ul style="list-style-type: none"> Race and ramp designed to facilitate Eid Al Adha improvements. 2010/11 LTAWP. <ul style="list-style-type: none"> New lairage pens, race and slaughter tables.
Mawashi Public – Sheep 2	<ul style="list-style-type: none"> Inappropriate infrastructure and practices for Australian animals 	<ul style="list-style-type: none"> Prevent Australian animals from being slaughter at facility 	
Mawashi Public – Cattle	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	2010/11 LTAWP. <ul style="list-style-type: none"> Installation of new restraining box, lairage and races.
Eid Al Adha sales	<ul style="list-style-type: none"> Sale of livestock direct to public for home slaughter. Insufficient number of appropriate vehicles for livestock collection. 		June 2011 <ul style="list-style-type: none"> Discussion with Mawashi management Improved sales and distribution policy for Eid period

Saudi Arabia

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Sheep loading ramps – June 2009 <ul style="list-style-type: none"> Replacement of old ramps with four new ones. Sheep Discharge Trailer – June 2010 <ul style="list-style-type: none"> Development and construction of multi-deck port trailer.
Feedlot	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	<ul style="list-style-type: none"> Stock handling training provided. Ration improvements through feed trial.
Livestock markets	Unknown number of distributions	<ul style="list-style-type: none"> Investigate and assess distribution systems 	
Abattoirs	<ul style="list-style-type: none"> Limited understanding of the distribution of livestock and number of abattoirs Expected that most locations practicing traditional slaughter methods. 	<ul style="list-style-type: none"> Investigate and assess distribution systems Implement infrastructure upgrades as required 	2010/11 <ul style="list-style-type: none"> Sheep slaughter equipment installed in Al-Khomra Slaughter House Improved cattle race installed between lairage yards and slaughter house at Palastine Road.

Turkey

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling <ul style="list-style-type: none"> 3 key ports Darinca Port / Istanbul / Izmir Ongoing need to improve the handling & transport vehicles at discharge. 	<ul style="list-style-type: none"> Ongoing monitoring and training required Implementation policy/procedure required. 	
Feedlots	Livestock handling Unknown number of feedlots	<ul style="list-style-type: none"> Ongoing monitoring and training Investigate and assess facilities 	

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
	receiving Australian cattle		
Markets	No understanding of the distribution of livestock. Unknown number of livestock being sold to public	<ul style="list-style-type: none"> Investigate and assess distribution systems 	
Abattoirs	Unknown number of facilities being used.	<ul style="list-style-type: none"> Investigate and assess abattoirs Liaise with importer to confirm locations 	
Point of slaughter cattle	Restraining device and method of restraint	<ul style="list-style-type: none"> Review and training in restraining devices practices needed. 	
Point of slaughter sheep	Traditional slaughter practiced	<ul style="list-style-type: none"> Ongoing monitoring and training required Infrastructure upgrades needed 	
Eid Al Adha	Distribution system unknown	<ul style="list-style-type: none"> Investigate distribution system 	

United Arab Emirates

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
Port	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Livestock discharge Training – June 2007 <ul style="list-style-type: none"> In-port training conducted. Port discharge trailers – June 2009 Port trailer was successfully repaired and upgraded including repairs to ramps, chains and panels with shade added.
Feedlot	Livestock handling	<ul style="list-style-type: none"> Ongoing monitoring and training required 	Livestock handling - June 2007 Targeted livestock handling education and training project conducted to cover - truck driver training, feedlot management,

Supply Chain	Identified OIE animal welfare risk areas	Action to address OIE animal welfare risk areas	Improvements achieved to date
			nutritional advice and animal welfare. Animal handling training has been provided as part of regular LEP programs
Markets Dubai livestock market	Distribution of Australian animals to the public Livestock handling	<ul style="list-style-type: none"> • Prevent sales to livestock market. • This policy implemented June 2011. 	
Abattoirs Dubai municipal	Managed appropriately.	<ul style="list-style-type: none"> • Ongoing monitoring and training required 	Lairage - June 2007 <ul style="list-style-type: none"> • Review of lairage system conducted and advice given on how to speed up the process. Hygiene - June 2007 <ul style="list-style-type: none"> • Copies of OIE Guidelines provided Training workshop on animal welfare conducted
Abu Dhabi	Managed appropriately.	<ul style="list-style-type: none"> • Ongoing monitoring and training required 	<ul style="list-style-type: none"> • MENA Award for processing excellence given in 2010
Eid al Adha	Distribution of livestock to the public	<ul style="list-style-type: none"> • Prevent sales to livestock market. • Policy adopted June 2011. 	