



**Australian Livestock Export Corporation**

**Submission to Productivity Commission**

**Inquiry into the Australian Government  
Research and Development Corporation Model**

**25 June 2010**

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## Executive Summary

- LiveCorp firmly believes that the current RDC model is fundamentally sound, and while it will always evolve and adapt to changing stakeholder needs, there are essential elements of the model that must be preserved:
  - (i) A strong relationship with supply chain partners, but separate governance arrangements for each sector paying levies to fund collective RD&E: and
  - (ii) A strong industry-government partnership supported by government funding that at least matches industry's contribution to RD&E.
- Separate governance arrangements are critical in maintaining support for compulsory levies in the live export sector of the meat and livestock supply chain as they ensure full consultation with levy payers and provide strong accountability back to levy payers ensuring that RD&E funds are used in the best interests of livestock exporters.
- While the partnership with MLA provides many benefits, separate RDCs for livestock producers and livestock exporters are essential to ensure that the interests of each levy paying sector are fully met. Livestock exporters will remain willing to pay levies and invest in RD&E provided they retain strong linkages to the RD&E projects their levies fund. Experience from years prior to 1998 when live export RD&E was managed by the Meat Research Corporation (MRC) taught them that such linkages are only assured by maintaining their own separate RD&E organisation. This was one of the primary reasons for the formation of LiveCorp in 1998. Such separation also improves the chances of a whole of supply chain focus for RD&E and improves the adoption by exporters of RD&E outcomes.
- Matching Government funding for collective RD&E is essential because the majority of live export RD&E funding is for research that addresses a societal issue – the concern of the Australian public for the welfare of livestock exported from Australia. In fact that has been further evidenced by the additional Government funding provided, over the past 5 years and committed for the following two years, for non R&D post arrival animal welfare activities.
- Each year a high percentage of live export RD&E funds are spent on projects aimed at improving the welfare and management of livestock during export. For example in the 2009-10 fiscal year 57% of the RD&E budget has been allocated to animal welfare projects. These projects aim to improve animal welfare outcomes all along the supply chain – in feedlots before embarkation, during shipment, at discharge, and during feedlotting, transportation and processing in the country of destination. Livestock producers and exporters have been prepared to fund the RD&E and incur increased costs almost entirely to address

a societal issue – the concern of the Australian public for the welfare of livestock exported from Australia.

- LiveCorp has in place comprehensive and effective governance arrangements to oversee the live export RD&E program. These arrangements comprise:
    - Oversight by the LiveCorp Board
    - An R&D Management Committee
    - The Livestock Export R&D Advisory Committee
    - Strategic and annual operating planning processes
  
  - Almost all livestock exporters are members of LiveCorp and their peak council, allowing a highly effective consultative process that ensures both input from industry on research priorities and a high level of awareness of research outcomes.
  
  - LiveCorp has assessed the value of the livestock trade to the national and regional economies, the value that LiveCorp and the LEP deliver, and the benefits delivered by a number of individual RD&E projects.
  
  - A study completed in 2006, and currently being updated, estimated that for the beef cattle sector, live exports increase farm gate prices by over 9 cents per kilogram live weight improving Gross Value of Production (GVP) by \$330 million per annum. For the sheep sector, live exports increase farm gate prices for sheep by nearly 17 cents per kilogram and lamb prices by 7 cents per kilogram live weight, improving sheep and lamb sector GVP by \$220 million per annum. In addition the study estimated that in the five years to June 2006, the live export industry contributed the following to the national economy:
    - 12,924 jobs
    - Wages and salaries totalling \$987 million annually
    - \$1.80 billion to gross domestic product per annum.
  
  - An independent review of the benefits from the overall program of support for the livestock export industry provided by LiveCorp and the LEP was recently completed by the Centre for International Economics. This program includes RD&E, market access and market support activities. At a broad level benefits were identified in three areas:
    - Securing a social license to continue to export for the industry
    - Productivity gains.
    - Market access
- LiveCorp and the LEP delivered a total benefit of \$430 million from the \$30.9 million invested in the RD&E and marketing programs.
- LiveCorp is improving the systematic evaluation of RD&E projects to ensure that livestock exporters and the Government are getting value from the funds they contribute to the live export RD&E program. A number of evaluation projects have been undertaken to demonstrate

the value of live export RD&E and the favourable ratio of benefits to costs. For projects evaluated, returns of approximately \$18 were generated for each \$1 invested. This compares favourably with the average RDC returns of \$10-11.

- Livestock exporter RD&E levies from LiveCorp are matched by MLA with livestock producer RD&E levies that together attract matching Australian Government R&D funding. In this way all who benefit from live export RD&E – producers, exporters, and the general public – jointly fund the research. LiveCorp operates in partnership with MLA, with each of the parties equally responsible for the management and outcomes of the live export RD&E program. LiveCorp takes advantage of the economies of scale that MLA, one of the largest RDCs, provides by effectively outsourcing to MLA the administration of the live export RD&E program. LiveCorp is able to take advantage of MLA's project and financial management systems and its arrangements for contracting research providers, publishing research results, and protecting intellectual property. This enables LiveCorp, the smallest RDC, to ensure that the costs of administering the live export RD&E program are kept at a level able to be achieved by one of the largest RDCs.

In summary, LiveCorp provides strong governance and a vital link with the livestock export industry to ensure efficient and effective investment in live export RD&E. It is able to operate highly effectively along the supply chain from livestock producers to customers in export markets. The live export RD&E program delivers a high level of benefits, both economic and social, for its funding partners, livestock exporters, producers and the Australian Government.

## Introduction

This submission focuses on those issues where LiveCorp can provide a unique perspective from its experience in providing R&D for the livestock export industry. Broader cross-industry issues – for example the market failure arguments in the context of the RDC model – are addressed in the submission by the Council of Rural Research and Development Corporations (CRRDC) that LiveCorp jointly funded.

Following a brief description of LiveCorp and its role this submission will focus on four areas of relevance to the Productivity Commission's inquiry:

1. Essential elements of the current rural RDC model;
2. The governance arrangements in place for live export R&D;
3. The consultative arrangements in place to ensure the live export R&D program addresses the needs and priorities of the stakeholders funding the program; &
4. The benefits delivered, cost effectively, by the live export program,

LiveCorp was established in 1998 as part of a restructuring of institutional arrangements for the Australian meat and livestock industry. In 2005 the Australian Government commenced collection of a compulsory levy on livestock exports to fund LiveCorp activities, and the company formally became a marketing and R&D organisation under the Australian Meat and Livestock Industry Act, 1997. Notably, the introduction of a compulsory levy to fund live export RD&E and other activities was a key recommendation of an inquiry initiated by the Australian Government following the Cormo Express incident in 2003.

LiveCorp, unlike most rural RDCs does not directly access matching Australian Government R&D funding. Livestock exporter R&D levies from LiveCorp are matched by Meat & Livestock Australia (MLA) with livestock producer R&D levies that together attract matching Australian Government R&D funding.

LiveCorp delivers, for the benefit of livestock exporters, the Livestock Export Program (LEP). The LEP is a well integrated suite of marketing and R&D initiatives:

- Research and development, aligned with the National Research and Development Priorities and with livestock export industry stakeholders' needs
- Livestock management and welfare
- Market access and development
- Industry capability and technical support
- Industry communication including issues management

The integration of marketing and RD&E within the one organisation is highly beneficial. It ensures RD&E is strongly market and customer focussed. Much of the RD&E that has improved livestock

management and welfare along the supply chain was initiated by information from LEP staff operating domestically and in key live export markets in the Middle East and Asia.

The LEP is co-funded by LiveCorp and MLA and both have management and operational responsibility for delivery of agreed projects under the Strategic and Annual Operating Plans. Staff employed within LEP are employed on either a LiveCorp or MLA employment contract, which also determines whether they are located in either the LiveCorp or MLA office. As all LEP employees are co-funded by both organisations they have a reporting responsibility to both organisations.

Figure 1 below illustrates the relationship between LiveCorp, MLA, their respective key stakeholders, and the LEP.

LiveCorp is specifically excluded from becoming involved in industry agri-political activity, a role that is fulfilled by the peak industry body - the Australian Livestock Exporters Council (ALEC).

## **1. Essential Elements of the Current Rural RDC Model**

LiveCorp firmly believes that the current RDC model is fundamentally sound, and while it will always evolve and adapt to changing stakeholder needs, there are essential elements of the model that must be preserved:

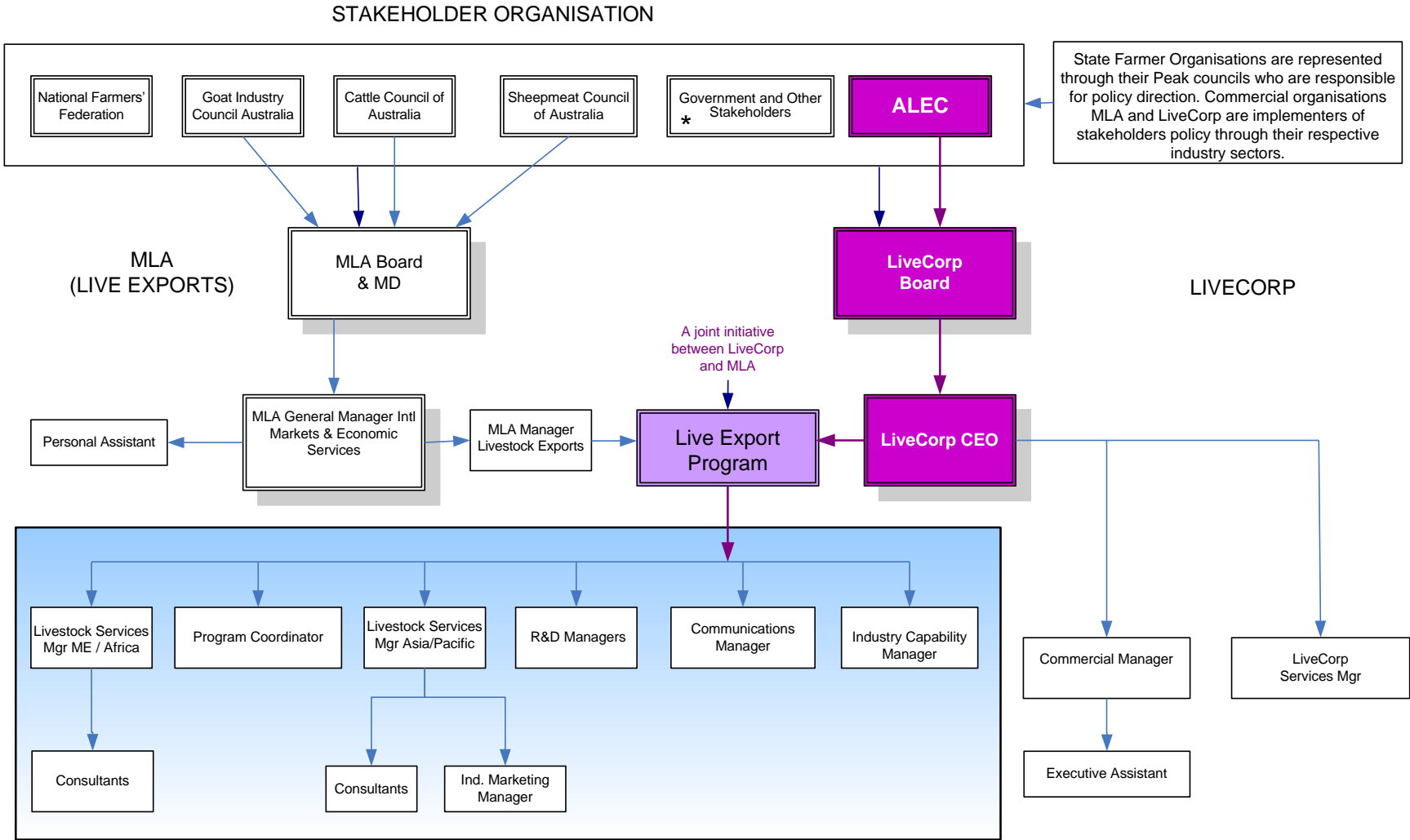
- (i) A strong relationship with supply chain partners, but separate governance arrangements for each sector paying levies to fund collective RD&E: and
- (ii) A strong industry-government partnership supported by government funding that at least matches industry's contribution to RD&E.

### **Separate Governance Arrangements**

Since it was established in 1998 LiveCorp has worked in partnership with MLA, the RDC representing livestock producers that supply cattle, sheep and goats to the live export industry. This collaborative arrangement maximises the delivery of an integrated whole of supply chain approach while at the same time limiting duplication of effort and ensuring significant administrative efficiencies are achieved.

While the partnership with MLA provides many benefits, separate RDCs for livestock producers and livestock exporters are essential. Livestock exporters will remain willing to pay levies and invest in RD&E provided they retain strong linkages to the RD&E projects their levies fund. Experience from years prior to 1998 when live export RD&E was managed by the Meat Research Corporation (MRC) taught them that such linkages are only assured by maintaining their own separate RD&E organisation. Without separation the livestock export sector's interests are swamped by those of

**FIGURE 1. The relationship between LiveCorp, MLA, their respective stakeholders and the LEP**



State Farmer Organisations are represented through their Peak councils who are responsible for policy direction. Commercial organisations MLA and LiveCorp are implementers of stakeholders policy through their respective industry sectors.

\* INCLUDE: DAFF, AQIS, AMSA, LIVESHIP, LIVEAIR, AVA, ADF, ALPA, ALTA, FODDER SUPPLIERS, PRE EMBARKATION OPERATORS

the much larger livestock production, meat processing and feedlotting sectors. This was one of the primary reasons for the formation of LiveCorp in 1998. Such separation also improves the chances of a whole of supply chain focus for RD&E and improves the adoption by exporters of R&D outcomes.

Separate governance arrangements through LiveCorp ensure full consultation with livestock exporters and provide strong accountability back to both exporter and government stakeholders. This ensures that RD&E funds are used in the best interests of those providing the funds, thus maintaining support for a compulsory RD&E levy

### **Matching Government Funding**

Each year a high percentage of live export RD&E funds are spent on projects aimed at improving the welfare and management of livestock during export. For example in the 2009-10 fiscal year 57% of the RD&E budget has been allocated to animal welfare projects. These projects aim to improve animal welfare outcomes all along the supply chain – in feedlots before embarkation, during shipment, at discharge, and during feedlotting, transportation and processing in the country of destination.

As detailed in section 4 below, animal welfare research addresses a societal issue – the concern of the Australian public for the welfare of livestock exported from Australia. There are economic benefits from reduced mortality rates – estimated to total \$11 million from 2003 when mortality rates started to trend down. However most of the economic benefits to livestock producers and exporters arise from the avoidance of the imposition by Government of even tighter constraints on livestock exports. The real beneficiary is society as its animal welfare concerns are addressed.

A further public benefit arises from the live export animal welfare RD&E as the Australian Government utilises results from the research to regulate, through AQIS, livestock exports. The Government has also utilised research results to negotiate MOUs and improve government-to-government relationships so as to secure a sounder basis for the livestock trade to the Middle East. Improved relationships with Middle Eastern and other countries have had flow on benefits beyond the livestock trade.

Australia's standing in the global community is also enhanced by its ability to contribute to global food security. Demand for meat is expected to at least double by 2050, with most of this increase in demand coming from developing Asian economies. Currently northern Australia carries about 30% of the nation's cattle and supplies 80% of live cattle exports, most of which are destined for south east Asia. Northern Australia is well placed to supply the rapidly growing demand for meat, as the middle class grows rapidly in countries such as Indonesia. However the cattle industry in the north will have to achieve very strong productivity growth to double production over the next few decades. The industry believes this is achievable, but it requires an

organisation that is focussed exclusively on providing the RD&E and marketing support to facilitate such growth, and a Government willing to contribute its share of funding to the effort.

There is no doubt that the majority of benefits flowing from live export RD&E are public benefits. The Australian Government has acknowledged this in recent years by allocated significant additional funding beyond matching levy dollars to live export animal welfare RD&E. It is essential that the Government continues to at least match live exporter levies collected for RD&E.

## **2. Governance Arrangements**

LiveCorp has in place comprehensive and effective governance arrangements to oversee the live export RD&E program. These arrangements comprise:

- Oversight by the LiveCorp Board
- The LEP R&D Management Committee
- The Livestock Export R&D Advisory Committee
- Strategic and annual operating planning processes

### **Oversight by the LiveCorp Board**

Strategic and financial oversight of the live export program is provided by the LiveCorp Board. This Board, selected to ensure a balance of skills and industry experience, comprises up to four independent skills based directors (currently there are four) and three representative directors. There are no executive directors and at least one director must be highly skilled and experienced in corporate governance.

An independent selection committee has been established to appoint the skills based independent directors. It ensures that the directors will collectively have an appropriate balance of skills and experience as set out in the LiveCorp constitution.

The Board exercises its oversight of the live export RD&E program through the RD&E strategic plan and the LiveCorp strategic plan and annual operating plan. These plans and associated budgets must be approved by the Board. Additionally any proposed RD&E project with a budget exceeding \$300,000 in total, or \$200,000 in a single year, must be individually approved by the LiveCorp Board. The Board monitors implementation of the strategic and operating plans through regular reports on progress against the KPIs within the plans.

## **LEP R&D Management Committee**

The Management Committee is comprised of:

1. LiveCorp CEO
2. MLA Live Export Manager
3. MLA Animal Health and Welfare Manager
4. Live Export RD&E Manager
5. Chairman of the Live Export R&D Advisory Committee

To assist the Management Committee in carrying out its responsibility to oversight the live export RD&E program, it has established an advisory committee, the Livestock Export R&D Advisory Committee, explained in more detail in the next section.

The Management Committee meets shortly before and after each LERDAC meeting or as required. The role of Management Committee is to:

- Approve all project terms of reference
- Approve contract schedules
- Classify projects as confidential or non-confidential. Advice is sought from LERDAC and the project consultative committee if applicable. Non-confidential projects are listed on the LiveCorp and MLA web sites.
- Approve the release of project information and agree on a media and communications approach for project updates or final reports
- Approve final project reports

The Live Export RD&E Manager is responsible for the day-to-day management of the RD&E program and provides the secretariat for LERDAC. The roles of the RD&E Manager include:

- Development of project terms of reference
- Negotiation of contract schedules
- Participation in project consultative committees
- Monitoring of projects
- Review and acceptance of milestone reports
- Release of approved project information, including results, for non-confidential projects
- Preparation of the stakeholder report following each LERDAC meeting
- Preparation of reports for LiveCorp Board meetings which will include the stakeholder report as well as an operational report covering:
  - Current RD&E issues;
  - Project delays;
  - Abstracts from milestone reports; and
  - Relevant recommendations.
- Recommendations to the Management Committee as to acceptability of final reports, including achievement of contract objectives, overall performance of the project and extension of reports and project results
- Dissemination of project reports and results

- Maintaining and monitoring the RD&E Program budget
- Ensuring the RD&E Program is managed in line with LiveCorp and MLA policies and protocols.

RD&E projects may be initiated either through the planning process for LEP, following a request from stakeholders, or from a proposal from a research provider

Once a project proposal is accepted there are two main contracting “decision points”:

1. The decision by the R&D Management Committee to develop a research schedule. The Management Committee may seek advice from LERDAC. The RD&E Manager may also seek advice from other RD&E managers or scientific reviewers
2. Formal approval of the contract – the requirements of this step vary with the value of the project. Projects over preset levels require increasingly more senior approval, up to LiveCorp and MLA Board level.

In addition, all projects valued at over \$100,000 are required to have a detailed evaluation completed, which includes an ex-ante analysis of the expected adoption and economic impact of the proposed project. Also at this point a proposed project is checked to ensure it meets government criteria for R&D funding.

Generally the Live Export RD&E Manager will interact with research provider project teams through two main reporting mechanisms: milestone reports; and final reports.

Upon receiving a draft final report, the RD&E manager will circulate it for comment to the project consultative committee (should one be appointed) and the R&D Management Committee. The RD&E manager will collate comments and ask the researcher to respond to comments and suggested changes.

Following satisfactory completion of a draft final report a report summary will be prepared by the RD&E manager. The draft final report and summary will be circulated to the R&D Management Committee and LERDAC. LERDAC provides advice to the R&D Management Committee on final acceptance of a project’s final report.

Final payment is not made to the researcher until all comments and / or suggested changes have been satisfactorily addressed and the final report formally accepted. This may take several drafts and may involve further consultation between the RD&E manager, R&D Management Committee and LERDAC.

## **The Livestock Export R&D Advisory Committee (LERDAC)**

LERDAC provides advice to LiveCorp management on the following:

- The strategic direction and principal components of the RD&E program
- The design and management of individual RD&E projects to ensure the full capture of benefits of such projects
- The need for a project consultative committee
- Input into the Strategic and Annual Operating Plans
- Approval for final reports and the communication of results to industry to maximise adoption

LERDAC comprises representatives of exporter and producer stakeholders nominated by the Peak Councils (ALEC, CCA, and SCA) and nominees from LiveCorp and MLA (a senior RD&E executive). There is an independent technical advisor and the Livestock Export RD&E Manager provides the secretariat for the committee. The peak council representatives provide a conduit for dissemination of information on the live export program back through the councils to their exporter and producer members.

Three times a year LERDAC is convened to review detailed project proposals within the RD&E strategic plan, to review responses from RD&E providers to these proposals and recommend the preferred provider, and to review progress reports on commissioned research and recommend acceptance and publication of final reports.

Figure 2 illustrates the comprehensive process of review and recommendation provided by LERDAC for the live export RD&E program.

### **Strategic and annual operating planning process**

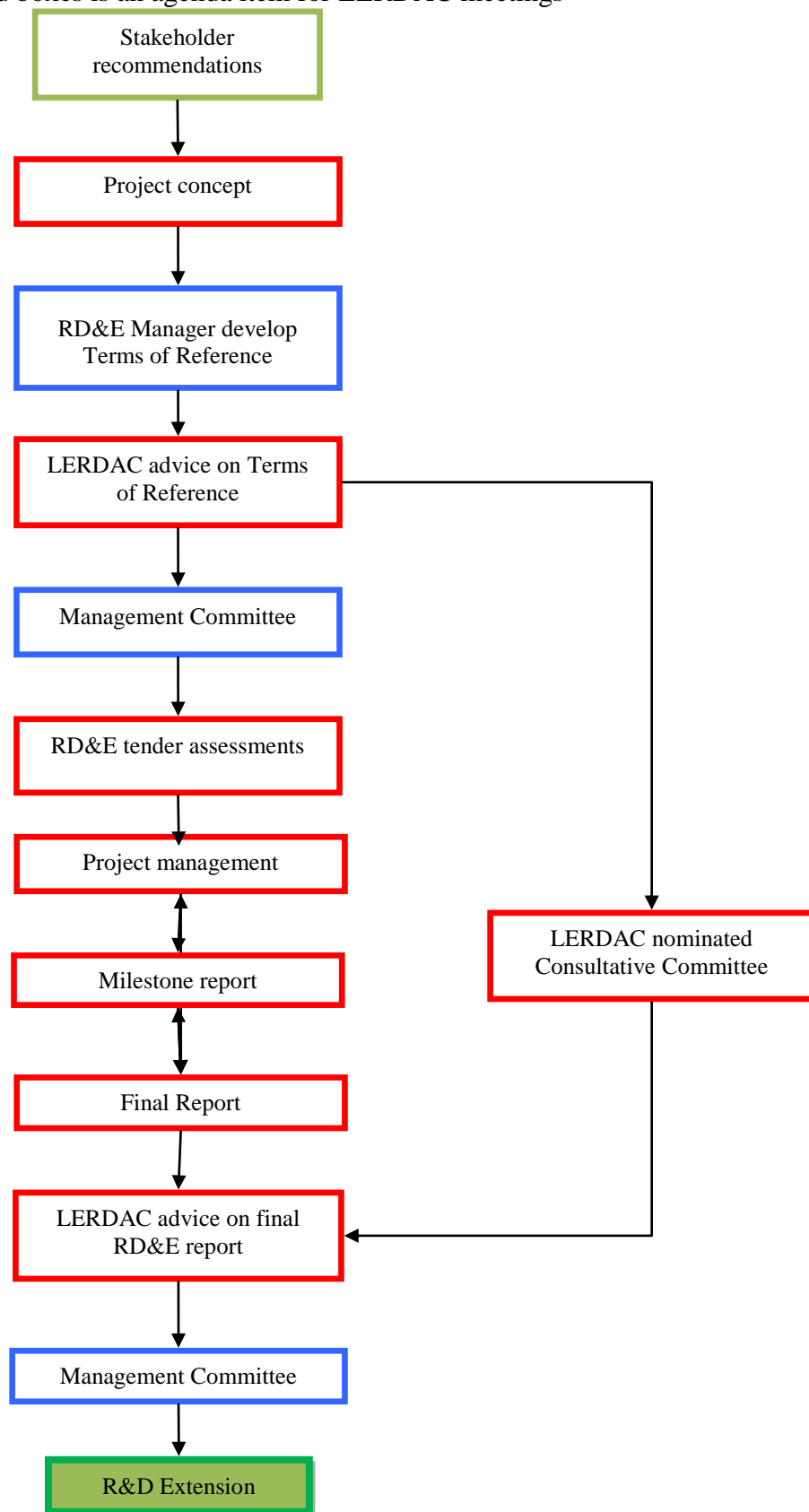
Each year LiveCorp reviews and updates its rolling four year strategic plan, and develops an annual operating plan for the forthcoming fiscal year. LiveCorp's Statutory Funding Agreement with DAFF sets out the content of these plans, and LiveCorp undertakes intensive consultation with stakeholders in the development of the plans.

Most importantly, this planning process ensures that LiveCorp's RD&E and marketing strategies and programs are closely integrated.

The strategic plan sets out LiveCorp's mission, the objectives it aims to achieve over the forthcoming four years, the strategies that will be adopted to achieve these objectives, performance indicators that enable progress towards the objectives to be monitored, and a broad allocation of expenditure to strategies over the planning period. The plan also includes an analysis of LiveCorp's operating environment, a corporate governance statement, an assessment of the alignment of LiveCorp's objectives with the Government's national and rural RD&E priorities, and a list of the stakeholders consulted during preparation of the plan.

**FIGURE 2. Live Export RD&E project review and approval process**

NB: Each of the red boxes is an agenda item for LERDAC meetings



Much more detailed activity plans, budgets and KPIs for the forthcoming fiscal year are then provided in the annual operating plan. All plans clearly distinguish planned expenditure on RD&E from that planned for marketing activities.

KPIs are a key element of each level of plans, providing the essential basis for the monitoring and accountability of management for delivery of results to funding stakeholders. Project KPIs are carefully aligned with AOP KPIs that are in turn aligned with Strategic Plan KPIs to ensure cascading top to bottom accountability.

The planning process includes extensive consultations with all stakeholders, as detailed below.

### **3. Stakeholder consultations**

Extensive consultations with stakeholders are undertaken as part of the process of development of LiveCorp's strategic and annual operating plans. These consultations are able to be efficiently and effectively undertaken because of the structure and nature of the livestock export trade:

- Of the 57 levy paying livestock exporters licensed by AQIS, 50 are members of LiveCorp, whereas the larger RDCs often have only a minority proportion of levy payers registered as members eligible to vote and in receipt of regular company communications
- The livestock trade is highly concentrated with seven exporters accounting for over 80% of annual livestock shipments and a large proportion of exporters based in Perth, Brisbane or Darwin
- Almost all livestock exporters are members of the peak council for livestock exporters, Australian Livestock Exporters' Council (ALEC), either directly or via the state associations, making it highly representative of their views
- The partnership with MLA, and strong links with the peak councils representing cattle and sheep producers, facilitates consultations with producers supplying the livestock trade

In the lead up to the development of its strategic plan LiveCorp convenes a strategic planning conference with senior representatives from all stakeholder groups, including DAFF. This conference establishes an industry strategic framework within which LiveCorp planning proceeds. At critical points during the development of plans, consultative meetings are held with ALEC, with each state livestock exporter association, and with a number of individual exporters. MLA undertakes a parallel process of consultations with the producer peak councils and other key producer stakeholders (e.g. the Northern Territory Cattlemen's Association). Under the red meat industry memorandum of understanding, both LiveCorp and MLA are required to obtain the formal approval of their respective peak councils for their strategic and annual operating plans.

For RD&E, depth is added to the consultative process by LERDAC. This committee ensures regular interaction with livestock exporters to both make them aware of R&D results to accelerate adoption, and to obtain input into the future R&D program. LERDAC holds its meetings in varying capital city locations, inviting exporters to meet with it. The committee also convenes a biennial R&D conference facilitating interaction between exporters and the researchers involved in the live export RD&E program.

In addition to consultations during the planning process and through LERDAC, the LiveCorp Chairman and CEO meet with key stakeholders on a regular basis throughout the year. These meetings include attendance of ALEC board meetings and meetings of state exporter associations, attendance of producer peak council meetings, meetings with individual exporters and meetings with departmental and ministerial staff in Canberra.

Feedback from stakeholders is also obtained from a survey of stakeholders that is part of an independent triennial review of LiveCorp's performance. A review was most recently completed in March 2010, and surveys will provide feedback annually in future.

#### **4. Benefits delivered, cost effectively, by the live export program**

In this section evidence is provided of the benefits delivered to stakeholders by the live export RD&E program, of the particularly high level of social benefits delivered because of the high proportion of animal welfare research undertaken, and the efficiencies delivered by the partnership with MLA.

LiveCorp has assessed the value of the livestock trade to the national and regional economies, the value that LiveCorp and the LEP deliver, and the benefits delivered by individual RD&E projects. These assessments are made by independent researchers and results are published on the LiveCorp website to ensure all stakeholders can assess LiveCorp's performance. These assessments are summarised below.

#### **Contribution of the livestock export industry to the Australian economy**

In 2009 954,153 Australian cattle were exported live, earning export income of \$662 million. Live cattle exports accounted for 11% of total adult cattle turnoff in 2009. Live sheep exports totalled 3,567,609 head, valued at \$323 million. Live sheep exports accounted for just over 10% of total sheep and lamb turnoff in 2009. In addition in 2009, 97,621 goats were exported live valued at over \$11 million.

LiveCorp commissioned an independent assessment of the value of livestock exports to the national and regional economies in 2000 and again in 2006. This assessment is currently being updated. Following is a summary of the assessment carried out in 2006.

This study provides a quantitative and qualitative assessment of the value of the livestock export industry to the national economy and to regional communities reliant on the industry. Live export is a significant industry that

has a diverse range of interconnected services and it also underpins domestic markets.

The study includes an assessment of the:

- Value chain for the live sheep and live cattle export industries
- Multiplier effects of live sheep and cattle exports on the national economy, including the impact on regional economies
- Employment generated by live sheep and cattle exports
- Emerging goat and dairy livestock exports
- Value of the industry to domestic producers in the sheep and cattle industries
- Future value of exports over the next five years

Live sheep and cattle exports are a major sector of the Australian livestock industry, earning an average of \$830 million annually between 2001 and 2005.

The 4.2 million sheep exported live in 2005 represented 12% of the total sheep and lamb turn-off. The 573,000 cattle exported live in 2005 represented 7% of the total cattle turn-off. The prosperity of Australian sheep and cattle producers is linked to the live export trade as domestic prices are underpinned by the trade.

The live export beef cattle industry is centred on ports in the north of Western Australia and from the Port of Darwin in the Northern Territory. The live sheep export industry is centred on Fremantle, Western Australia. The export of dairy cattle is sourced from southern Australia, in particular, Victoria.

Using the Global Meat Industry economic model, this study measured the consequence of a closure of both cattle and sheep export trades on the wider domestic market in the medium term. The model calculated the price impacts across the entire national market and was based on data for the three years 2002 - 2004.

For the beef cattle sector, farm gate prices for cattle would have been over 9 cents per kilogram live weight less and across the sector Gross Value of Production (GVP) would have been approximately \$400 million less in the first year after any total closure of the trade and \$330 million less each year thereafter.

For the sheep sector, farm gate prices for sheep would have been nearly 17 cents per kilogram live weight less and lamb prices 7 cents less without the live sheep export trade. The loss of sheep and lamb sector GVP would be \$220 million per year, after closure of the live export trade.

Based on these estimates a closure of the live export trade in cattle and sheep would cause an ongoing reduction in the GVP of Australia's sheep and beef cattle industries in the order of \$550 million per annum. This loss is a 6% reduction in the 2004 gross value of the entire cattle and sheep meat industry for 2004.

The livestock export industry value chain is complex and relatively long. Up to 30 separate business types, each generating additional value and employing people in both urban and regional Australia have been identified. The businesses that are involved in the industry are often specific to the live export industry, or generate the vast majority of their revenues from live export activity. It is often the foundation of a business which supplies other requirements in remote areas.

The National Institute of Economic and Industry Research (NIEIR) found that over the past 5 years the live export industry contributed the following to the national economy:

- 12,924 jobs
- Wages and salaries totalling \$987 million annually
- \$1.80 billion to gross domestic product per annum.

This employment number is based on general equilibrium modelling, which estimates the effect of expenditure along the value chain on other sectors of the economy.

The effect of any significant change to the livestock export industry would fall disproportionately on regional areas. In addition, the short to medium term impacts would be felt by all livestock producers across Australia, as livestock prices would fall in response to additional supply on the domestic market.

## **Evaluation of the Livestock Export Program**

In 2009/10 the Centre for International Economics (CIE) applied the comprehensive evaluation framework it has developed to the Livestock Export Program (LEP), a program jointly funded by LiveCorp, MLA and the Australian Government to develop and sustain a competitive livestock export industry. LEP comprises:

- RD&E aligned with the National Research and Development Priorities and with livestock export industry stakeholders' needs
- livestock management and welfare
- market access and development
- industry capability and technical support
- industry communication including crises, issues and emergency management

The evaluation framework is based on the Department of Finance and Administration framework for accountability to Government. It utilises general equilibrium models of the global meat industries and the Australian economy. The evaluation covers the period 2002-03 to 2008-09.

At a broad level, the benefits are in three areas:

- Securing a social license to continue to export for the industry.
  - The Australian government faced considerable pressure from the wider community as a result of Cormo incident.
  - It would have been likely that all long-haul live exports of slaughter cattle and sheep would have closed down after the Cormo incident as a result of the Australian Government refusing to issue export licences.
- Productivity gains.
  - Training in best practice, in loading and feeding and QA activities have brought forward productivity gains and animal welfare benefits by a number of years compared to the baseline case.
- Market access.
  - Related to the first area of benefit, concerted action by the industry through LiveCorp may have kept some individual markets open or improved access through the reduction in compliance costs at port.

Quantification of the benefits was based on observed and projected export volumes of cattle and sheep over the period 2004 to 2014 versus a baseline of export volumes that would have occurred in the absence of the LEP.

The benefits from a higher level of live exports and reduced mortality are partly, but not solely, attributable to the investment by LiveCorp and MLA in LEP. At the urging of LiveCorp there has been concurrent action and investments undertaken at various levels of government and throughout the live export industry to achieve these ends. Whilst it is estimated that around \$24.6 was invested by LiveCorp and MLA into the LEP, it is difficult to ascertain the full extent of investments by Government and the live export industry.

The assessment of the relative contribution in terms of investment costs and investment outcomes is difficult to assess. The inputs by LiveCorp, MLA, the government and industry have each played their role in achieving the observed outcome – generating the observed scenario from the baseline scenario where in the absence of investments undertaken by these three parties there would be minimal long haul transportation of live exports. In the baseline scenario, the Australian government is expected to have prevented almost all long distance animal transportation from occurring due to concerns for animal welfare, providing licenses to individual carriers separately only after establishing operator compliance with AQIS requirements.

Whilst the full costs incurred by government and industry are uncertain, there is also an absence of a clear case for one of these parties generating a disproportionate share of the benefits. Therefore, to be conservative in

attributing the benefits of LEP, the methodology adopted is to equally apportion the benefits across the LiveCorp and MLA investment in LEP, the government and the live export industry. Given that LiveCorp and MLA each contributed roughly 50 per cent to the investment costs, the benefits associated with LEP will be equally distributed.

The table below shows the present values of benefits over the evaluation period from the LEP - worth around \$1.12 billion. Around 57 per cent of the benefits accrue to cattle industry (including producers who supply the live trade) and the remainder to the sheep meat industry.

#### Present value of benefits and attribution of the LEP

<b>Contributor</b>	<b>Cattle</b>	<b>Sheep</b>	<b>Live</b>	<b>Total benefits</b>	
	<b>industry</b>	<b>industry</b>	<b>exporters</b>	<b>\$m</b>	<b>%</b>
LiveCorp	112	84	19	215	17
MLA	112	84	19	215	17
Industry	218	163	36	418	33
Government	218	163	36	418	33
Total benefits	661	494	111	1 265	100

Net present value of benefits 2003 to 2015 in 2008-09 terms at a discount rate of 5 per cent.

Source: GMI model and CIE calculations.

Based on the logic of the attribution, the benefits attributable to each of LiveCorp and MLA are worth \$196 million – while benefits to industry and government each are worth \$380 million.

The following table shows the bottom line for the LEP program. In total, the benefit cost ratio is estimated to be 14.6 to 1 for LiveCorp and 11.3 to 1 for MLA.

#### Final benefit cost for LEP

	<b>Total benefit</b>	<b>Total costs</b>	<b>Benefit-cost ratio</b>
	<b>\$m</b>	<b>\$m</b>	
LiveCorp	215	13.5	16.0
MLA	215	17.4	12.3
Total LiveCorp and MLA	430	30.9	13.9

Net present value of benefits 2003 to 2015 in 2008-09 terms at a discount rate of 5 per cent.

Source: GMI model and CIE calculations

#### Assessing the cost: benefit of R&D projects

The CRDDC has completed two reports of an ongoing evaluation of the impacts, effectiveness and returns on investment by Australian rural research and development corporations. The reports document the high return on investment from the random sample of programs assessed across the RDCs. Across a large number of projects average returns of \$10-11 were generated for every \$1 invested.

It is rarely, if ever, possible to separate and measure the environmental and social benefits that are generated by the research undertaken by rural RDCs. Additionally, private benefits realised immediately flow on to longer term public benefits

The CRRDC evaluations describe a broad suite of environmental and social benefits arising from RDC investments. As these benefits were not able to be quantified the calculated returns on investment outlined above understate the true value of benefits delivered by RDC investments.

Australian agriculture is innovative and consistently out-performs most other sectors of the Australian economy in total factor productivity growth. Domestic rural RD&E is a major driver of this performance, which is a further demonstration of the effectiveness such research.

A number of evaluation projects, specifically in relation to the live export RD&E program have been undertaken to demonstrate the value of live exports and the favourable ratio of benefits to costs for live export RD&E. An extensive random sample of projects from the live export RD&E program has not been evaluated. However in the examples outlined below the returns of approximately \$18 for each \$1 invested compares favourably with the average RDC returns of \$10-11.

LiveCorp is committed to a more regular assessment of the benefits derived from individual RD&E projects and has been selected to be part of the next round of CRRDC project evaluations.

Results from an assessment of two live export RD&E projects are summarised below:

### **“Saudi Arabia Live Sheep Trade Resumption Trial”**

The project was designed to re-open the Saudi Arabian market for live sheep by addressing the issues that led to closure of the trade in 1990 and by testing the industry’s capacity to comply with orders and guidelines sought by the Saudi authorities. The project initially took the form of several trial shipments performed between January and July 2000. Performance of the trial shipments was measured in terms of compliance costs and difficulties associated with sourcing and preparing the consignment, the mortality rate during shipment, and the proportion of the consignment found to have scabby mouth on arrival at the discharge port

A total of \$164,168 was invested in the project over a three-year period 1999/00 to 2001/02.

At the end of the trial period the industry had in place a suite of measures that enabled the livestock trade to Saudi Arabia to be re-opened:

- Quality assurance measures
- A network of trained and accredited vaccinators

- Vendor and vaccinator instructions and declarations
- An ear tagging system that allowed trace-back to the accredited vaccinator and property of origin

The principal economic benefit to stem from re-opening of the trade would have been more competition among exporters for supplies, which in turn adds value to the sheep industry. Hassall and Associates (2000) estimated the total value added by the live export industry to be \$8.75 per head of sheep exported. The Saudi market added materially to total exports before and after the 1990s – the period during which the Saudi market was closed.

The principal environmental benefit from the live export trade is minimisation of drought impacts due to an improved capacity to reduced sheep numbers on-farm. In WA in particular, the live export market can facilitate a rapid and significant reduction in flock size in drought-affected areas by virtue of its size. Along similar lines, the trade generates large social benefits in remote areas through demand for services. Vaccination of sheep for scabby mouth tends to be a task performed by contractors who live and work in rural areas. Finally, the turn-off of relatively young and healthy sheep (demanded by the Saudi live export market) has had positive implications for on-farm productivity and animal welfare.

Other factors were also influential in opening the trade. Clearly development of the scabby mouth vaccine was pivotal as were initiatives taken by the Saudis themselves. Assuming that 10% of the total value added by live exports (\$8.75/head) amount can be directly attributable to this live export R&D project, the benefit is about 90 cents per extra sheep exported to Saudi Arabia. The added value from live sheep exports has been applied to the extra sheep exported due to the Saudi market re-opening (shown in the 4<sup>th</sup> column of the table below).

The trade recommenced in 2000 and grew strongly until 2004 when trade ceased completely following the *Cormo Express* incident. Following this incident new initiatives were needed to re-open the trade. It was assumed therefore that benefits accruing in the three years of trade from 2000/01 could be attributed to the project.

Live Sheep Exports to Saudi Arabia, the World and Assumed Additional Exports due to the Saudi Market

<b>Year</b>	<b>Sheep to Saudi *</b>	<b>Total exports</b>	<b>Assumed extra live sheep sales due to Saudi market reopening (25% of total export numbers)</b>
1999/00	640,506 (11.8%)	5,421,408	0
2000/01	2,140,851 (31.4%)	6,811,565	1,702,891
2001/02	1,873,041 (30.9%)	6,062,923	1,515,730
2002/03	1,411,195 (41.9%)	4,742,227	1,185,556
2003/04	0 (0%)	3,397,140	0
2004/05	1,072,089 (25.6%)	4,184,938	0

\* The figures in parenthesis are sheep exports to Saudi Arabia as a proportion of the total and indicate the economic importance (but volatility) of this market.

In summary, the three key assumptions in the investment analysis are:

- The additional live sheep exported over three years due to the re-opening of the Saudi trade (up to 25% of the total exported)
- The added value of live sheep exports of \$8.75 per head
- The attribution factor of 10% to the contribution of the trials to the re-opening of the trade.

All past costs and benefits were expressed in 2005/06 dollar terms using the Consumer Price Index. All costs and benefits were discounted/compounded to 2005/06 using discount rates of 5% and 10%. The resulting investment criteria are shown in the table below.

Investment Criteria for Different Discount Rates

Criterion	Discount rate of 5%	Discount rate of 10%
Present value of benefits (\$m)	4.71	5.72
Present value of costs (\$m)	0.25	0.33
Net present value (\$m)	4.46	5.40
Benefit-cost ratio	18.7 to 1	17.5 to 1
Internal rate of return (%)	Very high	

The resulting investment criteria are all very high despite only 10% of the benefits being directly attributable to the trials. This is understandable given the relatively small size of the investment, the significance of the increased volumes and value added, and the short time period between the initial investment and the realisation of benefits.

### “Development of Heat Stress Risk Management Model”

High mortality incidents in livestock exported to the Middle East over the 2001/02 northern summer highlighted systemic weaknesses in the standards and procedures that had previously applied to animal welfare and mortality risk reduction on such voyages. Unless the industry could demonstrate a capacity to better cope with such incidents, it faced the threat of closure by government decree. Clearly there was a need to bring practices into line with risk management knowledge, which had been documented at about that time.

The principal targeted outputs of the project for sheep and cattle voyages to the Middle East were:

- A clear and transparent method of risk evaluation
- Documented risk parameters
- Software to assist exporters with heat stress risk assessment

The live export RD&E program invested \$244,200 in the project over a two-year period, 2002/03 and 2003/04.

The gross value of this trade over the five years since the model was introduced (or the trade allowed to continue) has exceeded \$2 billion with more than three quarters of this stemming from trade to the Middle East. Of course not all this trade revenue would be foregone if the live export trade were to cease – as most of the turnoff would be processed locally and exported as carton meat. However, such a drastic change would inflict heavy opportunity losses due to market dislocation, reduced competition and ultimately lower prices at the farm gate. The Hassall & Associates (2000) study concluded that the annual value added by the live export trade was \$73 million (\$44 m for sheep and \$29 m for cattle) based on annual livestock export numbers at the time. This value is distributed among producers, transport operators, agents and feed suppliers.

It is assumed that just 10% of the continuance of sheep and cattle exported to long haul destinations since 2003/04 can be attributed to development of the heat stress model

Due to the risky nature of the livestock export trade, whereby interruptions can sometimes occur without rhyme or reason, it is prudent to assume a relatively short life for innovations. In this case, it is assumed that benefits flow for three years from 2003/04 to 2005/06 as trade has actually occurred in these years. It is further assumed that trade continues for the following seven years to 2012/13. However, for these seven years a risk factor of 0.3 is applied to allow for the probability of closure of the trade and hence curtailment of any benefits.

Assuming that the heat stress model has added to the number of live sheep and cattle that could be exported, the next issue to consider is the additional value of these animals to the Australian economy. A study by Hassall & Associates in 2000 concluded that livestock exporting adds \$35/head to cattle exported and \$8.75/head to sheep exported, based on the 1999/2000 year. These figures were updated to \$30/head of cattle and \$4.03/head of sheep for the 2004/05 year (Hassall and Associates, 2006). The 2006 reports (p15) highlights the variability in the value chain as market conditions and prices received alter. Hence it was assumed that the average value of these two point estimates (\$6.39 and \$32.50 per head for sheep and cattle respectively) would provide the best estimate available of value added over the period of benefits assumed.

Application of the Heat Stress Model has imposed new costs on the industry in the form of higher fixed costs per animal shipped. The analysis assumes that any modifications to ships to improve ventilation was borne by the ship owners and all not necessarily passed on to the exporting industry. The table below shows how lower on-board stocking rates have resulted in higher fixed costs per sheep due to the (fixed) cost of hiring a ship.

### Cost Impact With and Without the Heat Stress Model

	<b>Without Heat Stress Model</b>	<b>With Heat Stress Model</b>
Cost of long haul ship hire	\$3,000,000	\$3,000,000
Total shipment (sheep)	77,000	70,000
Fixed cost per sheep	~ \$39	~ \$43

These figures suggest that application of the heat stress model is costing exporters about \$4 per sheep. The extra cost for shipping cattle using the heat stress model is assumed to be \$28 per beast (based on the relativity between sheep and cattle of 1 to 7).

A qualitative summary of the economic, environmental and social benefits stemming from the project is provided in the table below.

#### Summary of the Economic, Environmental and Social Benefits from the Investment

<b>Economic</b>	<b>Environmental</b>	<b>Social</b>
Protection of the live export trade from the threat of closure	Capacity to export livestock despite vagaries of the climate and future changes	Capacity to protect the welfare of animals in the face of long haul climatic risk
Higher export operating costs might be passed back to producers but added value still higher than would be the case without the trade	Reduced risk of mortalities and the associated disposal issues	Continuation of the trade likely to result in less paddock mortality – that might have had negative welfare connotations
Continuation of the trade allows the average age of the flock/herd to be reduced resulting in productivity gains		

The investment criteria were all positive at 5% and 10% discount rates as reported below:

#### Investment Criteria for Total Investment and Total Benefits

	<b>Discount rate</b>	
	<b>5%</b>	<b>10%</b>
Total discounted benefits (m\$)	5.01	4.90
Total discounted costs (m\$)	0.28	0.31
Net present value (m\$)	4.73	4.59
Benefit cost ratio	18.2 to 1	15.6 to 1
Internal rate of return (%)	Very high	

The Heat Stress Model was developed in response to a crisis situation that threatened to stop all long haul voyages of livestock for an undetermined period. While other studies contributed to development of the Heat Stress model and deserve some of the credit, it is obvious that the benefits in this case outweigh the costs by a substantial margin. Thus the Heat Stress Model is an example of a system or innovation that was able to pull together a number of disconnected parts to make a coherent whole, and in the process keep the industry in place.

### **A High Level of Social Benefits Derived from Live Export R&D**

Each year a majority of live export RD&ED funds are spent on projects aimed at improving the welfare and management of livestock during export. For example in the 2009-10 fiscal year 57% of the RD&E budget has been allocated to animal welfare projects. These projects aim to improve animal welfare outcomes all along the supply chain – in feedlots before embarkation, during shipment, at discharge, and during feedlotting, transportation and processing in the country of destination.

While the heat stress project discussed in the previous section, a typical animal welfare project, generated high economic benefits for the live export industry, these benefits accrue almost entirely because trade is able to be maintained, not because the research improves industry productivity. Many animal welfare research projects result in increased costs and reduced industry productivity. In the case of the heat stress project it was estimated that additional costs of \$4 and \$28 per head were incurred for, respectively, sheep and cattle exported using the heat stress model. As a result of the large body of animal welfare research undertaken by the live export RD&E program the costs of exporting livestock has steadily risen in most parts of the supply chain:

- Higher regulatory, feed and veterinary medicine costs and increased screening of livestock during pre-embarkation feedlotting to better pre-condition the livestock and eliminate any unfit to transport.
- Constraints on the type and age of livestock that can be exported at certain times of the year or to particular markets.
- Reduced stocking densities and increased ventilation requirements on board livestock vessels.
- Increased requirements for veterinarians and experienced stockmen accompanying shipments.
- Funding of improvements to discharge, transport and feedlotting infrastructure in export markets.
- Funding of improvements to ensure more humane processing of livestock in export markets.
- Constraints on shipping to certain markets where facilities and practices do not adequately ensure the welfare of livestock exported from Australia.

Livestock exporters are well aware of the additional costs that have been imposed on them, largely flowing from animal welfare RD&E that they have co-funded. In the independent performance review of LiveCorp completed in March 2010, as required under the statutory funding agreement between LiveCorp and DAFF, the

reviewer noted “emerging industry concerns that animal welfare RD&E produces negative productivity outcomes.” In addition exporters are well aware that their customers do not share the animal welfare concerns of the Australian public and hence do not see the need for the additional costs imposed by higher animal welfare standards.

Livestock producers and exporters have been prepared to fund the RD&E and incur increased costs in adopting the outcomes almost entirely to address a societal issue – the concern of the Australian public for the welfare of livestock exported from Australia. There are economic benefits from reduced mortality rates – estimated to total \$11 million from 2003 when mortality rates started to trend down. However most of the economic benefits to livestock producers and exporters arise from the avoidance of the imposition by Government of even tighter constraints on livestock exports. The real beneficiary is society as its animal welfare concerns are addressed.

That live export animal welfare RD&E provides a largely societal benefit is reinforced by the preparedness of the Australian Government to allocate significant additional funds to improve the welfare of livestock exported from Australia. Following the Cormo Express incident in 2003 and the subsequent Keniry Review of the livestock export industry the Australian Government, through DAFF, has allocated \$1-2 million per annum, in addition to its co-funding of live export animal welfare RD&E, to projects to improve the welfare of exported Australian livestock. A significant proportion of this funding has been used to ensure the adoption of the results from live export animal welfare R&D projects. For example DAFF funding has accelerated the adoption in abattoirs in Indonesia of boxes designed to more effectively restrain imported Australian cattle during the initial stages of processing. These restraining boxes were developed with live export RD&E funding to suit the low cost/low tech environment of abattoirs in Indonesia and reduce stress on Australian cattle during processing.

A further public benefit arises from the live export animal welfare RD&E as the Australian Government utilises results from the research to regulate, through AQIS, livestock exports. For example the use of the heat stress model is mandated by AQIS for specific markets, for certain times of the year and for certain ports-of-loading. Results of research into feedlot salmonellosis have been used by AQIS to regulate feed trough design and handling and screening of sheep in pre-embarkation feedlots. The Government has also utilised research results to negotiate MOUs and improve government-to-government relationships so as to secure a sounder basis for the livestock trade to the Middle East. Improved relationships with Middle Eastern and other countries have had flow on benefits beyond the livestock trade.

- Support for projects undertaken by PhD students is regularly provided
- Each year two students from each of the seven veterinary schools in Australia are provided with funding to attend a stockman’s training course
- Each year the most successful veterinary student attending a stockman’s training course is provided with funding to undertake a research project.
- Support for the establishment of a chair in animal welfare at the University of Queensland. .

## **Efficient Management of the Live Export R&D Program**

Unlike most other RDCs, LiveCorp does not directly receive Australian Government funding to match its expenditure of livestock exporter levies on RD&E. Rather it operates as a donor company to MLA. Livestock exporter RD&E levies from LiveCorp are matched by MLA with livestock producer RD&E levies that together attract matching Australian Government R&D funding. In this way all who benefit from live export RD&E – producers, exporters, and the general public – jointly fund the research.

Although formally LiveCorp operates as a donor company to MLA, the relationship is very much a partnership, with each of the parties equally responsible for the management and outcomes of the live export RD&E program. The LiveCorp CEO and MLA's Livestock Export Manager provide joint management oversight of the RD&E program on behalf of their respective Boards and stakeholders. LiveCorp minimises the overheads and operational costs incurred by the live export RD&E program by taking advantage of the economies of scale that MLA, one of the largest RDCs, provides by effectively outsourcing to MLA the administration of the live export RD&E program.

LiveCorp is able to take advantage of MLA's project and financial management systems and its arrangements for contracting research providers, publishing research results, and protecting intellectual property. This enables LiveCorp, the smallest RDC, to ensure that the costs of administering the live export RD&E program are kept at a level able to be achieved by one of the largest RDCs.

## **Summary**

The effectiveness of the arrangements underpinning the live export RD&E program, the successes of this program in delivering highly beneficial outcomes for its stakeholders and the high level of social benefits delivered by the program demonstrate the strength of the current RDC model.

LiveCorp firmly believes that the current RDC model is fundamentally sound, and while it will always evolve and adapt to changing stakeholder needs, there are two essential elements of the model that must be preserved:

- I. A strong relationship with supply chain partners, but separate governance arrangements for each sector paying levies to fund collective RD&E
- II. A strong industry-government partnership supported by government funding that at least matches industry's contribution to RD&E.

LiveCorp has in place comprehensive and effective governance arrangements to oversee the live export RD&E program. These arrangements comprise:

- Oversight by the LiveCorp Board

- An R&D Management Committee
- The Livestock Export R&D Advisory Committee
- Strategic and annual operating planning process

Almost all livestock exporters are members of LiveCorp and their peak council, allowing a highly effective consultative process that ensures both input from industry on research priorities and a high level of awareness of research outcomes.

Independent studies have confirmed that livestock exports contribute significantly to the national and regional economies, that the RD&E and marketing programs implemented by LiveCorp has delivered a high level of benefits to all stakeholders funding these programs, and that individual RD&E projects deliver a high benefit to cost ratio.

Each year a majority of live export RD&E funds are spent on projects aimed at improving the welfare and management of livestock during export. Livestock exporters have been prepared to fund the RD&E and incur increased costs in implementing research outcomes almost entirely to address a societal issue – the concern of the Australian public for the welfare of livestock exported from Australia.

Livestock exporter RD&E levies from LiveCorp are matched by MLA with livestock producer RD&E levies that together attract matching Australian Government R&D funding. In this way all that benefit from live export RD&E – producers, exporters, and the general public – jointly fund the research. LiveCorp operates in partnership with MLA with the administration role for the live export RD&E program undertaken by MLA. This enables LiveCorp, the smallest RDC, to ensure that the costs of administering the live export RD&E program are kept at a level able to be achieved by one of the largest RDCs.

While the partnership with MLA provides many benefits, separate RDCs for livestock producers and livestock exporters are essential to ensure that the interests of each levy paying sector are fully met. Livestock exporters will remain willing to pay levies and invest in RD&E provided they retain strong linkages to the RD&E projects their levies fund. Experience from years prior to 1998 when live export RD&E was managed by the Meat Research Corporation (MRC) taught them that such linkages are only assured by maintaining their own separate RD&E organisation. This was one of the primary reasons for the formation of LiveCorp in 1998. Such separation also improves the chances of a whole of supply chain focus for RD&E and improves the adoption by exporters of RD&E outcomes.

In summary, LiveCorp provides strong governance and a vital link with the livestock export industry to ensure efficient and effective investment in live export RD&E. It is able to operate highly effectively in partnership with MLA and along the supply chain from livestock producers to customers in export markets. The live export RD&E program delivers a high level of benefits, both economic and social, for its funding partners, livestock exporters, producers and the Australian Government.

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