# Review of the regulatory capability of the Department of Agriculture and Water Resources in the regulation of live animal exports

2019 Implementation progress report

October 2019



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## 

## Introduction

Australian Government policy supports the international trade in live animals. To do this effectively, the government requires the The Department of Agriculture (the department) to have the required powers, regulatory capabilities, investigative capacity and culture to ensure animal welfare standards are met, export markets remain open and community expectations of the trade are upheld.

In April 2018, then Minister for Agriculture and Water Resources, the Hon. David Littleproud MP initiated an [independent review into the capability and culture of the Department of Agriculture and Water Resources (now Department of Agriculture) in relation to the regulation of live animal exports](http://www.agriculture.gov.au/animal/welfare/export-trade/independent-review-of-regulation) (the Moss Review). This was in response to the receipt of video footage, provided to the department, showing unacceptable conditions for animals on a ship carrying live sheep to the Middle East.

Mr Phillip Moss AM was commissioned to undertake the review and provided his final report to the Minister Littleproud on 27 September 2018. The Moss Review as well as the Australian Government and department’s responses were released on 31 October 2018.

At a high level, the Moss Review found there was a need for the department to improve its regulatory framework and practices—to prevent non-compliance, to respond to non-compliance in an effective way, and to deliver strong animal welfare outcomes to support a sustainable live animal trade.

The department supported or supported in principle the 31 recommendations of the Moss Review and, as result, has focussed on:

* organising for a strong regulatory practice
* ensuring a transparent and well-engaged regulator
* delivering a regulator with the necessary skills and systems
* ensuring animal welfare is integral to its regulatory approach.

Significant progress has been made responding to the recommendations. As at 18 October 2019, 20 recommendations have been fully implemented or are now considered ongoing / business as usual. Key deliverables over the past 12 months are outlined below.

### Inspector-General for Live Animal Exports

On 18 March 2019, Mr Ross Carter commenced as the [Interim Inspector-General of Live Animal Exports](https://www.iglae.gov.au/) and, on 3 October 2019, the *Inspector-General of Live Animal Exports Act 2019* came into effect.

This role has been established to:

* promote continual improvements in the regulatory practice, performance and culture of the department in its role as the regulator of live animal exports
* provide an additional layer of accountability and assurance over the regulation of live animal exports
* ensure that live animal exports officials consider the welfare of animals when performing their functions and exercising their powers.

An indicative [three-year work program](https://www.iglae.gov.au/work-program) was provided to Minister for Agriculture, Senator the Hon. Bridget McKenzie in June 2019. The first review, examining the effectiveness and efficiency of the department’s requirements, and management of, monitoring and reporting during livestock export voyages by sea, commenced in August 2019.

### Animal welfare regulations

Good progress has been made in delivering science-, evidence- and international best practice-based animal welfare standards and outcomes.

* The [Review of the Australian Standards for the Export of Livestock](http://www.agriculture.gov.au/animal/welfare/export-trade/review-asel) (ASEL) commenced in July 2017, with the [Sea voyage review](http://www.agriculture.gov.au/animal/welfare/export-trade/review-asel/sea-voyages) released in March 2019 and the [Air journey review](http://www.agriculture.gov.au/animal/welfare/export-trade/review-asel/air-voyages) released in October 2019. The review was conducted by a Technical Advisory Committee comprising an independent chair and experts in animal health and welfare, regulatory design and the livestock industry. Based on this work, ASEL is currently being updated and a new version (v3) is expected to be released in 2020. A discussion paper on the [Implementation of ASEL Sea Review Recommendations](https://haveyoursay.agriculture.gov.au/50218/documents/118208) was released on 18 October 2019.
* Significant work has been undertaken to consider live sheep exports to the Middle East.
  + The [Independent review of conditions for the export of sheep to the Middle East during the Northern Hemisphere Summer](http://www.agriculture.gov.au/SiteCollectionDocuments/biosecurity/export/live-animals/mccarthy-report.pdf) (the McCarthy Review) was commissioned to advise on conditions and any changes to the administration of ASEL and/or any actions that would be required to assure the health and welfare outcomes for sheep being transported as part of this trade. The final report was provided to Minister Littleproud in May 2018, prior to the release of the Moss Review.
  + Following the McCarthy Review, the department undertook consultations and tested key factors impacting the live sheep export trade, including the development of a welfare-based approach to heat stroke risk assessment. A reference group comprising experts in animal welfare, heat stress and animal science was established to undertake this work and the [final report](http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/history/review-northern-summer) was released in May 2019.
  + In March 2019, the department published [new northern summer exporter requirements](http://www.agriculture.gov.au/about/media-centre/media-releases/sheep-exports-northern-summer), including suspending trade from June to August, with the suspension later being extended to 22 September 2019.
  + A draft [Regulation Impact Statement](https://haveyoursay.agriculture.gov.au/middle-east-sheep-exports), analysing the economic and regulatory impacts of policy options for the future regulation of live sheep exports to, or through, the Middle East, was released for consultation on 27 September 2019.
  + The department continues to analyse data from a variety of sources, including climatological data provided by the Bureau of Meteorology, voyage reports, Independent Observer (IO) reports and environmental data and observations, to inform its policies.
* From April 2018 (prior to the release of the Moss Review), IOs have been placed on voyages to provide additional assurance of the effectiveness of exporter arrangements in managing animal welfare. A mobile device app has been developed for IOs to capture and share information about voyage conditions and progress with officers at the department. This is combined with monitoring devices, which are currently being trialled, to monitor wet bulb temperature and other conditions on-board livestock vessels, with measurements matched to visual recordings.

### Governance and cultural change

In October 2018, the Animal Welfare Branch was re-established and the Secretary of the Department of Agriculture appointed the department’s first Principal Regulatory Officer. The Animal Welfare Branch is responsible for the ongoing development of ASEL, systems verification and broad stakeholder engagement. It also provides ongoing support for the effective regulation of animal welfare standards for live animal exports. The Principal Regulatory Officer helps connect all parts of the regulatory chain to the wider regulatory practice in the department. Both of these roles are expected to expand over time, including to renew and refine a collaborative, national approach to animal welfare; and work with other areas of the department to apply a professional regulatory culture across all of the department’s regulatory functions.

The department and the Australian Maritime Safety Authority (AMSA) have established a more collaborative relationship, including formalising information sharing arrangements on matters such as media releases, incidents, regulatory changes and ship clearance delays. Arrangements have also been finalised to ensure the safety and well-being of the department’s IOs, with communication protocols to ensure these officers can contact the department or vice versa.

A number of working arrangements have been established across the department and with other stakeholders, to drive reforms and formalise communications channels. Of note, the department:

* Has re-established the Live Export Animal Welfare Advisory Group (LEAWAG) to provide a forum for strategic consultation between stakeholders and the department about live animal exports animal welfare practices, standards and legislation. The committee is comprised of representatives from industry (including exporters and cattle and sheep producers), animal welfare groups, academics and Australian, state and territory government agencies.
* Meets with state and territory livestock animal exports and animal welfare regulators to share information, clarify roles and responsibilities and better understand jurisdictional responsibilities along the live animal exports supply chain.
* Has established a Live Export Animal Welfare Collaborative Working Group to regularly liaise with stakeholders specifically on animal welfare matters.
* Is continuing to meet with exporters monthly to discuss matters relating to the daily operation of live animal exports, as well as the regulation of the trade more broadly.
* Is utilising a range of other forums, such a LiveCorp and the Australian Livestock Exporters’ Council (ALEC) annual conference, LIVExchange, to meet with exporters individually and collectively to discuss regulatory reforms.
* Continues to meet or engage with other stakeholders as and when required.

Significant work has also been undertaken, particularly in the Live Animal Exports Division, to improve the department’s regulatory culture.

* A regulatory training framework has been developed to identify the skills and capabilities necessary to regulate live animal exports. This has included identifying the training and level of knowledge required to perform particular roles; determining where it is necessary or beneficial to recruit staff with particular qualifications, such as a veterinary science degree; and delivering training courses to provide the necessary skills to staff.
* A draft *Regulatory Practice Framework* has been developed to support a strengthened regulatory posture by outlining the department’s approach to its regulatory responsibilities and providing principles to help guide regulatory staff in performing their duties. Internal consultation on this framework is now underway.
* All new staff in the Live Animal Exports Division participate in an induction training program to provide a high-level understanding of the work of the division, the legislation and regulatory framework, responsibilities as a regulator, the industry more broadly, and other relevant topics.
* The Live Animal Exports Division has established improved governance arrangements to deliver greater accountability, including an internal Project Board, Management Committee (with officers from Biosecurity Operations Division), and Management Review Committee (with senior executives from Biosecurity Operations and Compliance divisions).
* Decision making templates are being developed and rolled out to relevant officers involved in the regulation of live animal exports. Officers are also participating in defensible decision making training.
* All staff are now required to undertake mandatory integrity training and communications material has been developed and distributed in Canberra and across the regions to support integrity and an open culture. This includes educating staff about the department’s [whistleblower hotline](http://www.agriculture.gov.au/export/from-australia/whistleblower).
* Other communications activities have been instigated to support an improved regulatory culture, including weekly newsletters to highlight best practice and provide a regular overview of priority work. Regular discussion forums on regulatory practice and animal welfare are also being conducted to improve general understanding of the department’s work in this field and facilitate a sharing of ideas and concerns.

The department is committed to ensuring its regulatory systems are effective and efficient. It continues to work with those participating in the trade to ensure they understand and comply with their regulatory obligations; and takes appropriate and proportionate action when non-compliance is suspected or detected in order to provide assurance to the ongoing integrity of the live animal export regulatory system.

A full progress report outlining the department’s progress implementing all recommendations is provided at **Chapter 2**.

## Implementation progress

Reform activities are not, and cannot, be static. The department is focussed on continuous improvement and its work to deliver a more professional regulatory environment will continue for the foreseeable future. Cultural change, in particular, takes time, however significant effort will continue to ensure an ongoing commitment to improving animal welfare, delivering robust decision making, and basing decisions and making policies based on sound evidence, science and best practice.

The following table outlines progress against all Moss Review recommendations.

| # | Recommendation | Status | Actions |
| --- | --- | --- | --- |
| 1 | That the department ensure the Australian Standards for the Export of Livestock are reviewed on a regular basis to reflect industry, scientific and regulatory developments and community expectations concerning live animal exports. | In progress | * The [department’s response to the Moss Review](http://www.agriculture.gov.au/SiteCollectionDocuments/export/moss-review-department-response.pdf) committed to three-yearly reviews of ASEL based on consultation, science, evidence and international best practice. * The current [review of ASEL](http://www.agriculture.gov.au/animal/welfare/export-trade/review-asel) commenced in July 2017 to ensure the standards remained fit-for-purpose and continue to be supported by the latest scientific research.   + The review was undertaken by a Technical Advisory Committee comprising an independent chair and experts in animal health and welfare, regulatory design and the livestock industry.   + The review of ASEL (Sea Transport) and ASEL (Air Transport), including the department’s responses, were published in March and October 2019 respectively.   + The department plans to implement ASEL (v3) in 2020. The department is currently consulting on the mew standards and released a discussion paper examining the [Implementation of ASEL Sea Review Recommendations](https://haveyoursay.agriculture.gov.au/50218/documents/118208) on 18 October 2019. A second discussion paper on the Implementation of ASEL Air Review Recommendations will be released shortly. * The [McCarthy Review](http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/history/review-northern-summer), which was commissioned prior to the finalisation of the Moss Review, was provided to Minister Littleproud in May 2018. This review examined the conditions and any changes to the administration of ASEL and/or any actions that would be required to assure the health and welfare outcomes for sheep being transported to the Middle East during the northern hemisphere summer. The department supported the recommendations of this review and is continuing to implement findings, in conjunction with Moss Review findings. |
| 2 | That the department undertake to clarify the interaction between the *Export Control Act 1982* and the Australia Standards for the Export of Livestock (ASEL) and the operation of state and territory animal welfare laws regarding live animal exports. | In progress | * The department is working with representatives from state and territory government agencies to map and clarify responsibilities across the live animal exports chain. This work will identify regulatory activity undertaken by Australian, state and territory regulation of livestock exports and animal welfare. It will clarify jurisdictional and operational arrangements, and inform further work to identify any risks and gaps. * See also recommendations 26 and 27. |
| 3 | That the department work with the live animal exports industry to develop comprehensive animal welfare indicators relating to every point of the export supply chain and for those indicators to become part of the regulatory framework. | In progress | * Under the industry’s [Livestock Export Program](http://www.livecorp.com.au/programs), LiveCorp and Meat & Livestock Australia (MLA) are jointly funding a research project to establish a set of animal welfare indicators for every point of the export supply chain. This work began in 2017 and is being undertaken by researchers at Murdoch University. Components completed so far include [a survey of stakeholders about animal welfare indicators and a review of the literature on available indicators suitable for the live animal exports industry](http://www.livecorp.com.au/LC/files/41/4183eb87-54b5-4e4e-b564-eb08b3a235ed.pdf). * The department engages regularly with industry, LiveCorp and MLA through the Live Export Animal Welfare Collaborative Working Group, which includes reporting on research on animal welfare indicators a standard agenda item. * Environmental monitoring and video records and reporting from IOs on northern summer sheep export voyages may be used to help validate or re-calibrate the *Hotstuff* heat stress risk modelling program used by exporters to create their heat stress risk plans. * See also recommendation 24. |
| 4 | That the department take steps to have the Australian Standards for the Export of Livestock prescribed as regulated standards, with appropriate penalties, for the purpose of strengthening the regulatory framework and encouraging compliance. | In progress | * The department has investigated regulatory options available within the existing framework and through the specific prescription of standards relating to animal welfare. * The department determined that redrafting ASEL with more enforceable language provided a better approach for the regulator and industry. This approach will ensure that animal health and welfare requirements can be met while also allowing for a more flexible regulatory framework that can readily facilitate continuous improvements. * See also recommendation 1. |
| 5 | That the department as the regulator of live animal exports adopt a dynamic forward looking posture to its regulatory responsibilities. | Ongoing | * The department has introduced a number of measures to ensure it takes a forward looking posture and more effective use of its regulatory powers. This includes:   + Conducting a [Regulation Impact Statement](http://haveyoursay.agriculture.gov.au/middle-east-sheep-exports) (RIS) process to analyse the economic and regulatory impacts of policy options for the future regulation of live sheep exports to, or through, the Middle East.   + Finalising an *Export of Livestock Compliance Statement,* to be published on the department’s website shortly.   + Developing a draft *Regulatory Practice Framework* to support a strengthened regulatory posture by outlining the department’s approach to its regulatory responsibilities and providing principles to help guide regulatory staff in performing their duties. Consultation on this framework is currently underway across the department.   + Commencing the development of a *Regulatory Information Management System* for live animal exports to support the transfer of information to relevant areas across the department.   + Establishing a *Regulatory Training Framework*, including delivering ongoing training in regulatory decision making and integrity. * See also recommendation 1, 2, 4, 6, 13, 21, 22, 23 and 31. |
| 6 | That the department adopt an approach which fosters and incorporates scientific best practice to ensure continual improvements in animal welfare outcomes for live animal exports. | Complete | * The department has initiated an enduring, more robust, science-based approach to regulating live animal exports. For example:   + The [ASEL review](http://www.agriculture.gov.au/animal/welfare/export-trade/review-asel) was undertaken by a Technical Advisory Committee, comprised of members with science, animal health and welfare, regulatory and industry expertise. This was to ensure the breadth and skills relevant to the standards in order to facilitate equitable consideration of issues and sound advice to the department. The review was completed based on consultation, science, evidence and international best practice.   + The review of [Heat stress risk assessment for the export of sheep to the Middle East](http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/history/review-northern-summer) was undertaken by an expert panel comprising experts in animal welfare, heat stress and animal science more generally. Their role was to provide advice on the science of heat stress in sheep. The report is being used to inform a [RIS for live sheep exports to the Middle East](http://haveyoursay.agriculture.gov.au/middle-east-sheep-exports). * The inclusion of a veterinarian-led analysis team in the Animal Welfare Branch has amplified the department’s access to evidence-based and up-to-date decision-making tools to ensure policy and regulation are responsive to changes in animal welfare outcomes. * Data from the May 2019 sheep export voyages, including environmental monitoring and IO-collected videos and observations, has helped inform policy advice relating to the timing of the resumption of the sheep export trade in September 2019. The analysis of IO reporting of sheep export voyages in May, September and October 2019 will help inform the RIS process for future live sheep exports. * See also recommendation 1. |
| 7 | That the department strengthen the approved arrangements model for live animal exports by introducing full inspections of consignments on a random unannounced basis. | In progress | * The department will be implementing a program of random, unannounced inspections of consignments as part of the overhaul of its assurance program. The approach will also examine all relevant assurance and audit requirements and activities (including Approved Arrangements, Registered Premises and inspections). * The department is also mapping all regulatory processes to better understand regulatory risks, gaps in the regulations and potential control points throughout the live animal exports supply chain. * Audit results, in conjunction with findings from the end-to-end mapping project, will be used to determine the most appropriate approach to delivering the department’s audit and compliance activities. * The primary focus of the IO program at present is to report on shipboard compliance with ASEL and Approved Arrangements. * A targeted work program is being progressed by a cross-divisional working group comprised of officers from the Live Animal Exports, Biosecurity Operations and Compliance divisions. |
| 8 | That the department adopt a regulatory approach that recognises the contribution of animal welfare organisations in identifying non-compliance with the Australian Standards for the Export of Livestock, the Exporter Supply Chain Assurance System and animal welfare standards | Complete | * The department has formally expanded engagement with industry and the community by re-establishing the Live Export Animal Welfare Advisory Group (LEAWAG). This group provides a forum for strategic consultation between stakeholders and the department about animal welfare practices, standards and legislation in Australia, relating to the livestock export trade. It brings together representatives from industry, animal welfare organisations, academia, and state and territory governments to discuss and facilitate improvements to animal welfare across the industry. * The department has updated its [client service standards](http://www.agriculture.gov.au/about/commitment/client-service-charter/client-service-standards) to incorporate specific requirements for assessing third party reported non-conformances. This provides a framework for meeting client expectations and delivering outcomes within agreed timeframes. * The department continues to meet regularly with animal welfare organisations on specific matters as required. |
| 9 | That the department ensure reportable mortality events and other non-compliance relating to live animal exports, are investigated by staff members with appropriate skills and training who are sufficiently resourced to deliver timely outcomes. | Complete | * A new mortality incident reporting protocol and revised instructional material has been rolled out across the Live Animal Exports Division. * Recent recruitment activities have included a specific focus on skills and expertise, particularly in veterinary and animal science. Officers in the Live Animal Exports Division also work closely with and seek professional advice from officers in the department’s Compliance and Legal and Assurance Divisions, who have specific skills and expertise in legal, investigation, compliance and enforcement matters. * The department has also updated its [client service standards](http://www.agriculture.gov.au/about/commitment/client-service-charter/client-service-standards) to incorporate specific requirements for investigating both self-reported and third party reported non-conformances. * See also recommendation 10, 21 and 22. |
| 10 | That a consolidated investigative capacity or a joint triage system be developed between the departments Live Animal Exports Branch and Enforcement and Sanctions Branch to investigate issues concerning industry non-compliance with the Australian Standards for the Export of Livestock, the Exporter Supply Chain Assurance System and animal welfare standards. | In progress | * A new *Export of Livestock Compliance Statement,* to be released in October 2019, outlines the regulatory approach of the department in ensuring compliance against Commonwealth legislation, animal welfare standards and importing country requirements for the export of livestock. * A strong relationship has been established between the Live Animal Exports Division and Compliance Division (particularly the Enforcement and Sanctions Branch), allowing for joint activities and triaging of issues. * The Office of the Principal Regulator is working with the Enforcement and Sanctions Branch to establish, and deliver against joint priorities for 2020. * See also recommendation 9. |
| 11 | That the department ensure it receives the reporting necessary to assess the health and welfare of livestock during the export process. | In progress | * The department has reviewed current reporting requirements and outputs. * From 2018, IOs have been placed on voyages to provide additional assurance of the effectiveness of exporter arrangements in managing animal welfare. This includes providing information to the department on ASEL compliance. [Summary reports](http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/regulatory-framework/compliance-investigations/independent-observations-livestock-export-sea) are published for each voyage. * The live animal exports [client service standards](http://www.agriculture.gov.au/about/commitment/client-service-charter/client-service-standards) have been updated to include requirements for the reporting and assessment of third party and self-reported non-conformances. * The department is working with LiveCorp to ensure training for stockpersons includes reporting requirements and animal welfare information. * The Australian Meat and Live-stock Industry (Export of Sheep by Sea to the Middle East) Order 2018 also requires exporters to display posters with information about the [whistleblower hotline](http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/information-exporters-industry/whistleblower-hotline) at all registered premises, embarkation ports and vessels. * The [ASEL review](http://www.agriculture.gov.au/animal/welfare/export-trade/review-asel) has also identified additional areas for reporting, including additional information in daily reports, end of voyage and end of journey reports, and registered premises mortality reports. The department is working to build these into the [Tracking Animal Certification (TRACE)](file:///\\ACT001CL01FS05\AQISData$\LAE%20Division\Principle%20Regulatory%20Office\Moss\Implementation\Annual%20progress%20report\trace.agriculture.gov.au) application and approval system, as well as improving access and analysis capabilities within its systems. * See also recommendation 17. |
| 12 | That the department make arrangements to enable on-board Australian Government accredited veterinarians and independent observers to contact the department at all times, including when necessary through the Australian Maritime Safety Authority response centre. | Complete | * The department has formalised arrangements with the AMSA to support the safety and well-being of IOs during deployment. * AMSA has advised that there are established communication protocols in place for direct communications between the IOs and the department. * Australian Government Accredited Veterinarians (AAVs) and IOs keep in contact with the department daily, submitting their daily reports via email. * IOs are also provided with satellite phones as a communication back-up if or when shipboard internet or mobile phone coverage is inadequate. |
| 13 | That the roles and responsibilities within the department performed by Exports Division, Compliance Division and Biosecurity Operations Division be clarified to develop a common sense of purpose, identity and alignment in relation to live animal exports. | Complete | * New governance arrangements have been established in the Live Animal Exports Division to ensure a shared sense of purpose and clear allocation of activities. Details on this are provided to all new starters through the division’s induction program. * A Management Review Committee, comprised of senior executives from the Live Animal Exports, Biosecurity Operations and Compliance divisions, has been established to formally discuss and agree on ways to address issues of common interest or concern and discuss areas of emerging risk. * A Live Animal Exports Management Committee has also been established, comprised of officers in the Live Animal Exports and Biosecurity Operations divisions to design, develop and implement national initiatives in line with the strategic objectives set by the Live Animal Exports Division. * Regular communication on key issues is continuing between relevant officers and areas of the department, including the Biosecurity Operations, Compliance and Assurance and Legal divisions. |
| 14 | That the department re-establish an Animal Welfare Branch and place animal welfare at the centre of its regulatory activities in relation to live animal exports. | Complete | * The Animal Welfare Branch was established in October 2018. * The branch is responsible for the ongoing development of ASEL, systems verification and broad stakeholder engagement. It also provides ongoing support for the effective regulation of animal welfare standards for live animal exports. * The inclusion of a significant number of positions requiring veterinary degrees has greatly increased the internal veterinary technical expertise available to support the department’s focus on animal welfare. * ASEL (v3), which includes review recommendations formed on the basis of animal welfare considerations, is expected to be released in 2020. The Live Animal Exports Division is working with the [department’s Export Legislation Taskforce](http://www.agriculture.gov.au/market-access-trade/improving-export-legislation) to provide a suitable vehicle for improving ASEL’s enforceability, for example, via greater clarity on responsibilities, actions and requirements. * A key function of the Inspector-General of Live Animal Exports (see recommendation 15) is to ensure that live animal exports officials consider the welfare of animals when performing their functions and exercising their powers. |
| 15 | That an independent external entity, known as the Inspector-General of Live Animal Exports, oversee the department as the regulator of live animal exports. | Complete | * On 18 March 2019, Minister Littleproud appointed Mr Ross Carter as [Interim Inspector-General of Live Animal Exports](http://www.iglae.gov.au). * The Inspector-General of Live Animal Exports Bill 2019 passed both houses of the Parliament on 18 September 2019, with legislation coming into effect on 3 October 2019. * Mr Carter provided a [three-year indicative work program](https://www.iglae.gov.au/work-program) to Minister McKenzie in June 2019. The first review into [monitoring and reporting during livestock export voyages](https://www.iglae.gov.au/sites/default/files/2019-08/monitoring-reporting-livestock-export-voyages_0.pdf) commenced in August 2019. * An information sharing protocol has been established to formalise interactions between the Inspector-General and the Live Animal Exports Division. |
| 16 | That full cost recovery be accepted by the live animal export industry as underpinning the model of regulation and that the department ensure that the model operates effectively. | In progress | * The department has commenced work to develop a sustainable funding model for live animal exports. * Preliminary work has started to develop a new Cost Recovery Implementation Statement and the department will work closely with the industry to ensure the model operates effectively. |
| 17 | That the department implement fully integrated information sharing between the divisions and branches that regulate live animal exports when developing its client relationship management system and other information technology. | In progress | * A *Regulatory Information Management System* is in the early stages of development, and aims to support the transfer of information from exports and to/from relevant areas across the department. * A mobile device app has been developed for IOs to capture and share information about voyage conditions and progress with officers at the department. A beta version of the app was tested on a number of voyages, with positive feedback, and the full version of the app is now being rolled out. * Further work is underway to identify analytical platforms that could assist in meeting live animal exports information and business needs. |
| 18 | That the department develop a system to ensure that any issues and concerns raised by staff members in the context of live animal exports are addressed in a transparent and timely manner. | Ongoing | * The importance of raising issues is routinely discussed with staff in Canberra and across the regions. * A [whistleblower hotline](http://www.agriculture.gov.au/export/from-australia/whistleblower) was established in April 2018. Information about the hotline is available on the department’s website and can be used both by staff and the public. The Australian Meat and Live-stock Industry (Export of Sheep by Sea to the Middle East) Order 2018 also requires all exporters to display posters with information about the whistleblower hotline at all registered premises, embarkation ports and vessels. Incoming referrals are managed by the Enforcement and Sanctions Branch of the department’s Compliance Division. * The use of the department’s internal *Biosecurity and Export Risk Tool* (BERT) and *Non-Compliance Reporting System* has been promoted to staff. BERT is a supported online system for staff to contribute to the detection, prioritisation and response to biosecurity and export risks. |
| 19 | That the department require Australian Government Accredited Veterinarians and authorised officers to make a declaration each year of any personal conflict of interest. | Complete | * The department has requested material interest statements from all AAVs. Responses are being assessed for any conflicts of interest and the department is working with AAVs to address these where required. * The department is also considering further policy options to strengthen AAV independence. It is working with AAVs and exporters to determine the most appropriate approach. A consultation paper is expected to be released in the first half of 2020. |
| 20 | That the department establish the position of Principal Regulatory Officer to enable its staff members engaged in the regulation of live animal exports to develop a culture of being professional regulators, an approach which would also apply to the department’s other regulatory activities. | Complete | * Dr Melissa McEwen was appointed by the secretary as Principal Regulatory Officer on 22 October 2018. * The office currently provides oversight of the regulation of live animal exports and supports the implementation of the department’s *Regulatory Practice Framework*. This role is expected to expand over time. * See also recommendation 5, 21, 22 and 31. |
| 21 | That the department engage in a cultural shift in its role as a regulator of live animal exports and ensure that its staff members understand the need for and implications of this change. | Ongoing | * The Live Animal Exports Division is continuing to deliver activities to promote integrity and support a more open and accountable culture:   + All new starters (including those commencing from other areas of the department) participate in induction training. This includes specific training on how to raise issues and the mechanisms to make public interest disclosures.   + Senior executives have undertaken regional visits to meet with staff and reemphasise the department’s (and individual officers’) role in delivering professional regulatory services.   + Decision-making templates are being developed and rolled out across the department to all officers working on live animal exports.   + Communications material has been developed and distributed to all staff outlining current arrangements to support integrity and an open culture.   + A staff survey on divisional communication preferences and methods has been completed and findings are being used to inform future activities.   + Weekly newsletters have been introduced to highlight best practices and provide a regular overview to staff of priority work, external meetings, achievements, etc.   + New governance arrangements have been established to deliver greater accountability, including an internal Project Board, Management Committee (with officers from Biosecurity Operations Division), and Management Review Committee (with senior executives from Biosecurity Operations and Compliance divisions).   + A monthly informal forum (‘Brown Bag Lunches’) to discuss regulatory practice has been established. Discussions to date have included roles and responsibilities and the department’s role as a regulator. A separate seminar series has also been established to educate staff about animal welfare related matters. * See also recommendations 5, 9, 13, 18, 22 and 31. |
| 22 | That the department identify the skills and experience necessary to enhance its regulatory capability in relation to live animal exports and employ people with relevant skills and experience. | Complete | * A *Regulatory Training Framework for Live Animal Exports* has been developed. The framework identifies the skills and capabilities necessary to regulate live animal exports, and sets out the training and level of knowledge required to regulate and ensure compliance with live animal exports and animal welfare standards.The framework:   + is consistent with competencies outlined in the Australian Public Service Commission’s Integrated Leadership System   + outlines relevant department-wide training modules, whole-of-APS training courses, and other training delivered by other agencies and the livestock industry   + identifies where it is necessary or beneficial to recruit staff with relevant tertiary qualifications – for example, a veterinary degree. * Recent recruitment activities have included a specific focus on skills and expertise relevant for the regulation of live animal exports, including tertiary qualifications in veterinary and animal science. * Training in integrity and administrative decision making, amongst other areas, has been progressively delivered to staff. |
| 23 | That the department invest in its information technology systems to achieve enhanced information management in relation to live animal exports. | Ongoing | * The department continues to monitor and improve its IT infrastructure (as resources allow) to ensure it is fit-for-purpose and supports improved regulatory practice. * See recommendation 17. |
| 24 | That the department work with the live animal exports industry and the Australian Maritime Safety Authority to develop automated monitoring of animal welfare indicators on-board vessels. | In progress | * Environmental monitoring devices (loggers) have been trialled by the department’s IOs with good success. The devices monitor wet bulb temperatures (which takes account of temperature and humidity) and other conditions on-board livestock vessels, with measurements matched to visual recordings. * Exporters have been directed to deploy multiple loggers per deck for the sheep voyages during the northern summer period and report the data to the department. Analysis of results will inform decisions regarding their possible deployment on future voyages. * The department is rolling out a mobile device app for IOs (see recommendation 17) to capture and share information about voyage conditions and progress, which will assist in improving consistency of reporting. * Work is being conducted by industry and the department relating to the on board monitoring of other welfare issues such as ammonia levels. * The department continues to liaise with LiveCorp and MLA to explore further possible approaches to improve animal welfare on voyages. It is also liaising with and learning from the Australian Lot Feeders’ Association, which has undertaken extensive research into heat stress in cattle, and developed a comprehensive heat load management toolbox through MLA. |
| 25 | That instructional material relating to live animal exports be updated in consultation with operational area to reflect current policy and operational requirements. | Ongoing | * The live animal exports *Instructional Material Library* is undergoing a rolling program of review as part of business as usual. This continues as new policies and operational requirements are developed and implemented, and changes to live animal exports legislation and policies are introduced. |
| 26 | That the department work with the states and territories to review jurisdictional and operational arrangements between the department and relevant state and territory authorities. | In progress | * The department has met with state and territory livestock exports and animal welfare regulators to share information, clarify roles and responsibilities and better understand jurisdictional responsibilities along the live animal exports supply chain. * Options are also being explored to renew and refine a collaborative, national approach to all animal welfare issues. * [Live animal exports related matters were discussed](http://www.agriculture.gov.au/about/media-centre/communiques/ag-ministers-forum-feb-2019) at the February 2019 meeting of the Agriculture Ministers’ Forum, including findings of the ASEL Review and Heat Stress Risk Assessment, and continue to be discussed at the Agriculture Senior Officials Committee meetings. * See also recommendations 2 and 27. |
| 27 | That the department engage with the states and territories and other stakeholders to develop national animal welfare coordination to improve animal welfare outcomes in relation to live animal exports. | Complete | * The department has established formal and informal mechanisms to engage with industry, state and territory government and other stakeholders groups.   + See recommendation 8 regarding LEAWAG.   + See recommendation 26 regarding interactions with state and territory animal welfare regulators. * The department also continues to engage with stakeholders individually as and when requested or required. * See also recommendations 28 and 30. |
| 28 | That the department engage with the live animal export industry to demonstrate joint unequivocal commitment to animal welfare standards. | Complete | * The department meets with live animal exporters monthly to discuss matters related to the daily operations of live animal exports, as well as the regulation the trade more broadly. * The department utilises a range of other forums, such as LiveCorp and ALEC’s annual conference, LIVEXchange, to meet with exporters individually and collectively to discuss regulatory changes and improvements, including as they relate to animal welfare. * The department continues to engage with stakeholders individually as and when requested or required. In particular, the department works closely with representative bodies, such as ALEC, when developing new policies and procedures. * The department has established the Live Export Animal Welfare Collaborative Working Group to regularly liaise with stakeholders specifically on animal welfare issues. * See also recommendations 26, 27 and 30. |
| 29 | That the department and the Australian Maritime Safety Authority, in their respective regulatory roles, develop and maintain a collaborative relationship for the effective regulation of live animal exports. | Complete | * Formal information sharing arrangements between the department and AMSA were established through an exchange of letters in May 2019. * The agreement includes consistent information exchange on matters such as media releases, incidents and regulatory changes that affect live animal exports. AMSA is also required to advise the department promptly about ship crews and cabin availability to assist in managing IO deployment and vessel clearance delays. Live animal exports staff also attend biannual AMSA and stakeholder meetings and departmental executives meet with AMSA regularly. |
| 30 | That the department establish appropriate forums to consult with stakeholders and assess community expectations. | Complete | * See recommendations 8 and 27 regarding the establishment of LEAWAG. * The department has also introduced an online consultation portal, [Have Your Say](http://haveyoursay.agriculture.gov.au), which enables stakeholders and the community to present their views on issues being considered by the department, including in relation to live animal exports and animal welfare. * Since the release of the Moss Review, the department (and Interim-Inspector-General for Live Animal Exports) has utilised *Have Your Say* to seek input on several matters relating to live animal exports, including:   + [Live sheep exports to the Middle East](https://haveyoursay.agriculture.gov.au/middle-east-sheep-exports)   + [Monitoring and reporting during livestock export voyages](https://haveyoursay.agriculture.gov.au/iiglae-review-livestock-export)   + [Implementing Australian Standards for the Export of Livestock Review](https://haveyoursay.agriculture.gov.au/asel-review-recommendations)   + [Australian Standards for the Export of Livestock](https://haveyoursay.agriculture.gov.au/review-asel)   + [Export of sheep to the Middle East during September and October](https://haveyoursay.agriculture.gov.au/sep-oct-2019-sheep-exports)   + [Format of the Australian Standards for the Export of Livestock](https://haveyoursay.agriculture.gov.au/asel-format)   + [Heat stress risk assessment for the export of sheep to the Middle East during the northern hemisphere summer](https://haveyoursay.agriculture.gov.au/hsra-review)   + [Draft Export Control Bills Package.](https://haveyoursay.agriculture.gov.au/export-control-bills-package-2019) |
| 31 | That the department strengthen its regulatory capability and culture, including in relation to live animal exports, by developing its whole-of-department integrity measures. | Complete | * Increasing integrity awareness is a high priority for the department and updating integrity policies and processes is an ongoing task. * The department’s integrity framework identifies that all officers have a critical role in upholding integrity through their decision making processes and by using good judgement. It outlines the department’s commitment to limit integrity risks and build capabilities and capacity to maintain trust. It focusses on key themes, including privacy, unacceptable behaviour, fraud and corruption, misuse of IT, conflicts of interest and security. * In 2018, the department commenced a national training program to ensure all staff understand how positive integrity practices impact their work. Increasing awareness is part of the department’s longer term plan to improve the way its people work, how they deal with challenging integrity issues, and supporting those who need to manage difficult integrity situations. Integrity awareness sessions have continued in 2019. * See also recommendation 18. |

Source: Department of Agriculture

## Glossary

| **Term** | **Definition** |
| --- | --- |
| Agricultural Ministers’ Forum (AGMIN) | AGMIN is a cross-jurisdictional forum to collaborate on priority issues of national significance affecting Australia’s primary production sectors, including fisheries and forestry. Membership comprises Australian, state and territory and New Zealand government ministers for responsibility for primary industries. |
| Agriculture Senior Officials’ Committee (AGSOC) | AGSOC supports AGMIN in achieving its objectives. Membership comprises all department heads and CEOs of Australian, state and territory and New Zealand government agencies responsible for primary industries. |
| Approved Arrangements | An approved arrangement is an agreement between the Department of Agriculture and Water Resources and a livestock exporter that allows for a streamlined export certification process. |
| Australian Government Accredited Veterinarian (AAV) | A veterinarian who is accredited by the Australian Government under Part IIA of the *Export Control Act 1982* to conduct duties in relation to the export of livestock, in accordance with relevant Australian and importing country requirements. |
| Australian Livestock Exporters’ Council (ALEC) | The peak industry body representing the Australian livestock export sector. Responsible for setting industry policy, providing strategic direction and representing Australian livestock export trade both nationally and internationally. |
| Australian Lot Feeders’ Association (ALFA) | The peak national body representing the Australian cattle feedlot industry. Responsible for representing and promoting the views of the cattle feedlot industry, directing the expenditure of levies, improving the industry through the development and delivery of standards, training and other member services. |
| Australian Maritime Safety Authority (AMSA) | Australia's national agency responsible for maritime safety, protection of the marine environment, and maritime aviation search and rescue. |
| Australian Standards for the Export of Livestock (ASEL) | The standards that represent the basic animal health and welfare requirements for the conduct of livestock exports, which the Australian Government require exporters to meet. |
| Biosecurity and Export Risk Tool (BERT) | An internal analysis tool developed by the department to help in the detection, prioritisation and response to emerging and existing biosecurity and export risk. |
| Cost Recovery Implementation Statement (CRIS) | A CRIS provides key information on how charging (on a cost recovery basis) for a specific government regulatory activity is implemented. |
| Heat Stress Risk Assessment (HSRA) | A heat stress risk assessment provides a scientific approach for determining the risk of heat stress for export voyages to the Middle East, including estimating any required increase in space allowance for livestock. The model considers historical and recent naval and land-based weather data, vessel configuration, voyage and livestock data. |
| Hotstuff | A computer program developed to assist exporters in calculating their heat stress risk assessment. |
| Independent Observer (IO) | Independent Observers provide additional assurance on livestock export voyages on the effectiveness of exporter arrangements in managing animal welfare. The role of an observer is to monitor, observe and report on activities in approved export programs for the purpose of ensuring the health and welfare of live animals in the course of export activities. |
| Inspector-General of Live Animal Exports | The Inspector-General provides an additional layer of accountability for the regulator of live animal exports. Their role is responsible for reviewing and marking recommendations relating to the department’s administration of the *Export Control Act 1982* and *Australian Meat and Live-stock Industry Act 1997* as they relate to live animal exports. This will increase transparency and provide assurance to the community, trading partners and industry that the live-stock export regulatory system is functioning as intended by government. |
| Live Export Animal Welfare Collaborative Working Group | A working group comprised of representatives from Live Animal Exports Division, ABARES and LiveCorp to discuss animal welfare related research and development. |
| LiveCorp | The not-for-profit industry service provider which works closely with industry stakeholders to continuously improve performance in animal health and welfare, supply chain efficiency and market access through the provision of technical services and research, development and extension. |
| Livestock Export Program (LEP) | A joint program by LiveCorp and MLA to deliver animal welfare improvements in Australia and overseas markets by funding programs in livestock management, health and welfare; market access and development; supply chain improvements; communication and stakeholder relationships; and research and development. |
| Livestock Exports Animal Welfare Advisory Group (LEAWAG) | A forum established by the department to provide a forum for strategic consultation between stakeholders and the department about live animal exports animal welfare practices, standards and legislation. Members include representatives from industry, animal welfare organisations, academia, and state and territory governments. |
| LIVEXchange | LiveCorp and ALEC’s key annual livestock export industry event, which promotes, supports and educates the live animal exports industry and its stakeholders |
| McCarthy Review | The independent [Review of conditions for the export of sheep to the Middle East during the Northern Hemisphere](http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/history/review-northern-summer) |
| Meat & Livestock Australia (MLA) | The declared industry marketing and research and development body for the red meat industry. MLA delivers research and development to contribute to producer profitability, sustainability and global competitiveness; and works to grow demand for red meat in Australia and overseas. |
| Moss Review | The independent [Review of the regulatory capability of the Department of Agriculture and Water Resources in the regulation of live animal exports](http://www.agriculture.gov.au/animal/welfare/export-trade/independent-review-of-regulation) |
| Registered Premises | A property, registered under the *Export Control Act 1982*, for holding or preparing livestock for export. |
| Regulation Impact Statement (RIS) | The process for analysing the most feasible (efficient and effective options available, including the possibility of regulation, to produce the greatest net benefit to society, while simultaneously meeting the needs of government. |
| Wet Bulb Temperature (WBT) | Wet bulb temperature is the lowest temperature to which air can be cooled by the evaporation of water into the air at a constant pressure. This reading is used to assess environmental heat stress and informs exporter’s heat stress risk assessments. |

## References

### Major reviews

* [Independent Review of the Regulatory Capability and Culture of the Department of Agriculture and Water Resources in the Regulation of Live Animal Exports (Moss Review)](http://www.agriculture.gov.au/animal/welfare/export-trade/independent-review-of-regulation)
  + Moss, P. 2018, *Review of the Regulatory Capability and Culture of the Department of Agriculture and Water Resources in the Regulation of Live Animal Exports*, Department of Agriculture and Water Resources, Canberra, September
  + Littleproud, D. 2018, *Australian Government Response to the Moss Review*, Department of Agriculture and Water Resources, Canberra, October
  + Department of Agriculture and Water Resources 2018, *Review of the regulatory capability and culture of the Department of Agriculture and Water Resources in the regulation of live animal exports: Response of the Department of Agriculture and Water Resources (the regulator)*, Canberra, October
* [Heat stress risk assessment for the export of sheep to the Middle East](http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/history/review-northern-summer)
  + McCarthy, M. 2018, *Independent review of conditions for the export of sheep to the Middle East during the northern hemisphere summer*, Department of Agriculture and Water Resources, Canberra, May
  + Department of Agriculture and Water Resources 2018, *Regulator’s response to the McCarthy Review into the export of sheep to the Middle East during the northern hemisphere summer*, Canberra, May
  + HSRA Technical Reference Panel 2019, *Final report by the Heat Stress Risk Assessment Technical Reference Panel*, Department of Agriculture and Water Resources, Canberra, May
  + Department of Agriculture and Water Resources 2019, [*Media release: Sheep exports for the upcoming northern summer*](http://www.agriculture.gov.au/about/media-centre/media-releases/sheep-exports-northern-summer), Canberra, March
  + Department of Agriculture 2019, [*Middle East sheep exports policy options discussion paper*](https://haveyoursay.agriculture.gov.au/middle-east-sheep-exports), Canberra, September
* [Australian Standards for the Export of Livestock: Review of standards for the export of livestock by sea](http://www.agriculture.gov.au/animal/welfare/export-trade/review-asel/sea-voyages)
  + ASEL Review Technical Advisory Committee 2018, *Review of the Australian Standards for the Export of Livestock: Sea Transport—final report*, Department of Agriculture and Water Resources, Canberra, December
  + Department of Agriculture and Water Resources 2018, *Regulator’s response to the final report on the review of the Australian Standards for the Export of Livestock: Sea Transport,* Canberra, December
  + Department of Agriculture 2019, [*Implementation of ASEL Sea Review Recommendations: Consultation Paper*](https://haveyoursay.agriculture.gov.au/50218/documents/118208), Canberra, October
* [Australian Standards for the Export of Livestock: Review of standards for the export of livestock by air](http://www.agriculture.gov.au/animal/welfare/export-trade/review-asel/air-voyages)
  + ASEL Review Technical Advisory Committee 2018, *Review of the Australian Standards for the Export of Livestock: Air Transport—final report*, Department of Agriculture and Water Resources, Canberra, October
  + Department of Agriculture and Water Resources 2018, *Regulator’s response to the final report on the review of the Australian Standards for the Export of Livestock: Air Transport,* Canberra, October

### Other references

Agriculture Ministers’ Forum 2019, *Communique* [website], [www.agriculture.gov.au/about/media-centre/communiques/ag-ministers-forum-feb-2019](http://www.agriculture.gov.au/about/media-centre/communiques/ag-ministers-forum-feb-2019), accessed 14 October 2019

Department of Agriculture 2018, *Introduction of the Whistleblower Hotline into the Australian Meat and Live-stock Industry (Export of Sheep by Sea to the Middle East) Order 2018* [website], [www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/information-exporters-industry/whistleblower-hotline](http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/information-exporters-industry/whistleblower-hotline), accessed 14 October 2019

Department of Agriculture 2018, *Whistleblower hotline* [website], [www.agriculture.gov.au/export/from-australia/whistleblower](http://www.agriculture.gov.au/export/from-australia/whistleblower), accessed 14 October 2019

Department of Agriculture 2019, *Client service standards* [website], [www.agriculture.gov.au/about/commitment/client-service-charter/client-service-standards](http://www.agriculture.gov.au/about/commitment/client-service-charter/client-service-standards), accessed 14 October 2019

Department of Agriculture 2019, *Have Your Say* [ website], [haveyoursay.agriculture.gov.au](https://haveyoursay.agriculture.gov.au/), accessed 14 October 2019

Department of Agriculture 2019, *Improving agricultural export legislation* [website], [www.agriculture.gov.au/market-access-trade/improving-export-legislation](http://www.agriculture.gov.au/market-access-trade/improving-export-legislation), accessed 14 October 2019

Department of Agriculture 2019, *Independent observations of livestock export voyages by sea* [website], [www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/regulatory-framework/compliance-investigations/independent-observations-livestock-export-sea](http://www.agriculture.gov.au/export/controlled-goods/live-animals/livestock/regulatory-framework/compliance-investigations/independent-observations-livestock-export-sea), accessed 14 October 2019

Inspector-General of Live Animal Exports 2019, [website], [www.iglae.gov.au](http://www.iglae.gov.au), accessed 14 October 2019

Interim Inspector-General and Live Animal Exports 2019, [Monitoring and reporting during livestock export voyages: Project scope](https://www.iglae.gov.au/sites/default/files/2019-08/monitoring-reporting-livestock-export-voyages_0.pdf), Canberra, August

Wickerman, S., Fleming, T., Collins, T. 2017, [*Development and assessment of livestock welfare indicators*](http://www.livecorp.com.au/LC/files/41/4183eb87-54b5-4e4e-b564-eb08b3a235ed.pdf)*,* Meat & Livestock Australia, Sydney, February