

How scientific evidence is used in Australia to inform public policy on the long distance transportation of animals

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Summary

Most Australian livestock are transported at some stage in their lives and the attendant risks must be managed. Like other countries, Australia has location-specific challenges for the land transport of animals that derive from general geography and history, quality of the road and rail systems, design of vehicles and handling facilities, competency and experience of drivers and livestock handlers, and pre- and post-journey management of animals. Australia is a large and sparsely populated country and requires a risk-based approach which builds on equivalent outcomes and performance criteria to ensure good welfare for animals during long distance transport. There are shared responsibilities by owners and service providers along the transport chain. Governments work closely with livestock industries, transporters, stock agents, sale yard operators, abattoir owners, feedlot owners and animal welfare organisations to develop and then apply sustainable animal welfare standards and appropriate regulations. The Australian Animal Welfare Strategy sets out a broad and inclusive forum for this to occur in a consultative and cooperative manner and with the necessary input from science. Animal welfare is protected through a combination of codes of practice, appropriate transport standards, industry quality assurance programmes and the enforcement of laws and regulations.

Keywords

Animal, Australia, Long distance, Public policy, Science, Transport, Welfare.

Come vengono utilizzate le evidenze scientifiche in Australia per istruire una politica pubblica sul trasporto di animali a lunga distanza

Riassunto

La maggior parte del bestiame australiano viene spostato e da questo deriva la necessità di occuparsi della gestione dei rischi che ne derivano. Come altri paesi, l'Australia deve affrontare delle difficoltà locali dovute alla sua peculiare geografia e alla sua storia, alla condizione delle reti ferroviarie e stradali, all'efficienza delle strutture e dei mezzi di trasporto, alla competenza ed esperienza dei conduttori dei mezzi e del personale preposto alla cura degli animali, nonché dalla gestione del pre e post trasporto degli animali. L'Australia è un paese con un territorio molto esteso e con una scarsa densità di popolazione e richiede un approccio risk-based sugli esiti equivalenti e i criteri di performance per assicurare il benessere degli animali nei trasporti a lunga distanza. Durante il trasporto su lunga distanza le responsabilità vanno condivise tra i proprietari e le ditte di trasporto. I governi lavorano a stretto contatto con gli allevatori di bestiame, i trasportatori, venditori, operatori di mercato, proprietari di mattatoi, proprietari di feedlot e le organizzazioni a tutela del benessere animale per sviluppare ed applicare standard sostenibili per il benessere animale e promulgare leggi adeguate. La Australian Animal Welfare Strategy ha proposto un ampio ed esaustivo forum per ricorrere ad un sistema cooperativo e consultativo, ed utilizzare le

informazioni scientifiche. Il benessere animale viene tutelato attraverso l'utilizzo di codici di comportamento pratico, appropriati standard di trasporto, programmi di sicurezza aziendali e l'applicazione di leggi e regolamenti.

Parole chiave

Animali, Australia, Benessere, Lunga distanza, Politica, Scienza, Trasporto.

Introduction

Since European colonisation, Australia's history records the challenges of producing and marketing livestock on an island continent. Australia has a unique fauna and the common types of farm livestock were initially introduced after long sea journeys, mainly from Europe (18). Currently, large numbers of animals of all types are moved over long distances to and from Australia by sea and air and within Australia by road, rail and air and on foot, by droving. Animals are transported for sale or slaughter, for production reasons (e.g. cattle to pasture or feedlot), for sporting or recreational purposes and in times of drought or natural disasters, such as fire or flood. In 2006, for example, 4.1 million market sheep and 635 000 market cattle were exported from Australia (4). These animals were transported mainly by sea, as illustrated by the photograph in Figure 1.



Figure 1
Feeder cattle destined for a port in South-East Asia being transferred from a road train to a specialised livestock ship at Port Darwin in northern Australia

Whether animals are transported by air, sea, rail or road or travel on foot on livestock droving routes, owners, agents and service providers have always had implicit personal and collective duties of care over the animals in their charge. However, the welfare of animals has increased as an important public issue within Australia in recent times and heightened concern has driven a demand for these customary duties of care to be clearly spelled out and properly executed. Conflicting aspirations have come to the fore and have necessitated processes for public policy that lead to balanced and informed decision-making on the issue. Since 2006, the Australian Animal Welfare Strategy (AAWS) (5) has provided a national umbrella framework for making sustainable improvements to animal welfare outcomes. Its background history reveals how general policy on animal welfare has evolved in Australia and can be informed by science and how different policy instruments can be applied to specific matters, such as the long distance transport of animals.

Australia's land transport system recognises the need for a risk-based approach that covers the entire transport chain, from farm to destination. Journeys must be planned and contingencies considered. The experience and competence of animal handlers and vehicle drivers is paramount to successful outcomes. The authors outline how animal welfare during long distance transport is protected in Australia by addressing key components of the transport sequence, namely: the selection and preparation of animals and their fitness to travel, the handling and management of animals undergoing transport and the infrastructure for transport. General policy for animal welfare within Australia's system of government forms a background to this outline and points to where and how scientific evidence can inform decisions. The discussion concentrates on processes for bringing science, i.e. organised knowledge, to bear on policy and does not deal with the science itself.

The general management of animal welfare in Australia

Australia's system of government

Like many other countries, Australia is a federation and the division of powers between its Commonwealth and State governments is specified in the Australian constitution. In short, the duties of the Commonwealth government lie in matters such as foreign policy and defence, whereas those of the States and Territories lie in matters such as justice, education, health and internal transport. Accordingly, animal welfare is a responsibility of State and Territory governments. Cohesion and harmony among Australia's governments is sought through the Council of Australian Governments (COAG) and its system of State-Commonwealth Ministerial Councils and expert committees.

Early approaches to animal welfare in Australia

Laws for the protection of animals existed in the Australian States before Australia's federation in 1901 and remained the dominant policy instrument for animal welfare until the 1980s. These laws were directed against cruelty which was depicted as the wilful or wanton infliction of pain, suffering or death upon an animal or the intentional or malicious neglect of an animal. Prevention of Cruelty to Animals Acts were revised regularly to keep pace with the times. However, it became apparent in the latter half of the twentieth century that these anti-cruelty acts provided insufficient protection against all sources of poor animal welfare.

Livestock farming in Australia commenced a major transition in the 1950s as new forms of extensive and intensive husbandry were implemented according to the prevailing management wisdom of that time. Little attention was given to the need for deliberate processes to evaluate the welfare impacts of innovation. In some instances, implementation occurred with faulty design, deficient planning, inadequate competency, defective knowledge and a lack of consideration for

animals. Some high-profile and successful prosecutions fuelled community perception that there had been no proper scientific and ethical evaluation of changed systems of husbandry and certainly no public consultation. Experience showed that animal cruelty laws required support from other and innovative means for delivering of good welfare to animals. It also became apparent that there was no recognised forum for the constructive exchange and development of ideas around animal welfare.

The Senate Select Committee on animal welfare and its aftermath

An organised forum for public discussion of animal welfare came in late 1983 with the establishment of the Senate Select Committee on Animal Welfare in Australia's Commonwealth Parliament. A statement introducing this Committee recognised animal welfare as a highly charged issue in which emotion was often confused with facts. The task of the Committee was to report on the facts as they stood at that time.

The Senate Select Committee was a turning point for the issue of animal welfare in Australia. It provided a meeting place for all points of view and allowed for structured debate and the emergence of ideas in an understandable way. The comprehensive reports of the Committee covered animals in science, in extensive and intensive forms of agriculture, those being exported, involved in racing, and those in the wild. These reports combined the philosophical, socio-political and scientific aspects of animal welfare as they were known up until the time of writing. The reports also set forth recommendations for further action.

Several important developments occurred, either in parallel with or in the aftermath of the Senate Select Committee on Animal Welfare. Australia's States set up animal welfare advisory committees to underpin consultative processes for the development of animal welfare policy within their jurisdictions. A Sub-Committee on Animal Welfare (SCAW) was established in 1980 within the system of ministerial councils of the Council of

Australian Governments. The remit of this Sub-Committee was to find ways of harmonising the approach to animal welfare among Australia's jurisdictions. SCAW has undergone many transformations and is now called the Animal Welfare Working Group within the Primary Industries Ministerial Council.

A key task of SCAW was to oversee the preparation of so-called model codes of practice for the welfare of animals which were intended as a model to enable Australia's States to develop their own codes to meet their own particular circumstances. In their early form, model codes were to be revised to 'take account of advances in the understanding of animal physiology and behaviour and their relationship to the welfare of animals'. The Australian Agricultural Council endorsed model codes for road and rail transport in early 1983 (1, 2) and model codes for sea and air transport in 1986 (3, 10). There are model codes for the transport of cattle (14), horses (12), poultry (15) and pigs (13). Transport of sheep is covered in model code for the general care of that species (16). A set of working principles was put forward late in 2005 for the development and revision of model codes (6).

Model codes of practice for the welfare of animals can be regarded as a significant advance in public policy on animal welfare in Australia because they went beyond what could be achieved with anti-cruelty laws alone. Model codes outlined what could reasonably be expected for the delivery of good welfare from the design of the physical, nutritional and social environment of animals and the competency and knowledge of animal carers. In doing so, they limited the opportunity for pleas of ignorance and provided courts of law with benchmarks. Model codes were also important because they set a framework for the application of advances in science to animal care. There was an implicit rather than demonstrable link between what was written in model codes and the body of scientific knowledge represented either in the scientific literature or through reliably recorded field experience.

Initiatives also came from Australia's Commonwealth Government, which has a role in national coordination. A National Consultative Committee on Animal Welfare (NCCAW) was established within the agriculture portfolio in 1989. This Committee was deliberately designed for consultation to ensure that views of animal welfare and animal rights groups and the users of animals were heard. Its establishment recognises the important role of civil society in developing sustainable and workable animal welfare policies. In a sense, the NCCAW provided a counterbalance to SCAW, which was composed of government regulators driven by a need to address immediate problems within their particular jurisdictions.

The NCCAW has a wide sphere of activity and has produced position statements on welfare matters ranging from pet shops and caged birds, the humane control of feral animals to slaughter methods for poultry. Position statements have no official standing. However, they have influenced subsequent policy by describing general aspirations for animal welfare. The NCCAW has provided an opportunity to consider animal welfare on a broad basis and to explore what was required for progress. The NCCAW commenced work on an overarching national animal welfare strategy early in its history. This task required time and patience and eventually resulted in the Australian Animal Welfare Strategy. The NCCAW is to be retained as an advisory committee until mid-2009 when the Australian Animal Welfare Strategy is expected to be fully in place (9).

The Australian Animal Welfare Strategy

The Australian Animal Welfare Strategy (AAWS) underwent accelerated development in 2004 as a result of an incident in the long distance sea transport of sheep and the strategy was launched in 2005. The AAWS is now the major national driver to improve animal welfare outcomes in Australia. Policies and practice for animal transportation are one of its key preoccupations.

The animal transportation incident that brought AAWS forward occurred in late 2003 and is described elsewhere (39). It involved the *MV Cormo Express* and a shipment of 57 000 live sheep that were refused disembarkation in Saudi Arabia, a refusal that imperilled their welfare until a safe haven was found for them in Eritrea. The *MV Cormo Express* incident demonstrated that animal welfare is indeed a shared responsibility and that untoward incidents in one branch of animal-

based agriculture have repercussions on all parts of animal-based agriculture and, indeed, for the Australian community as a whole.

The AAWS was brought forward for its potential for exerting strong pressure for good welfare from all animal interest groups and the Australian community. It sets out a working partnership between government and civil society and can be regarded as central to a contemporary model of the public policy cycle (19), as shown in Figure 2.

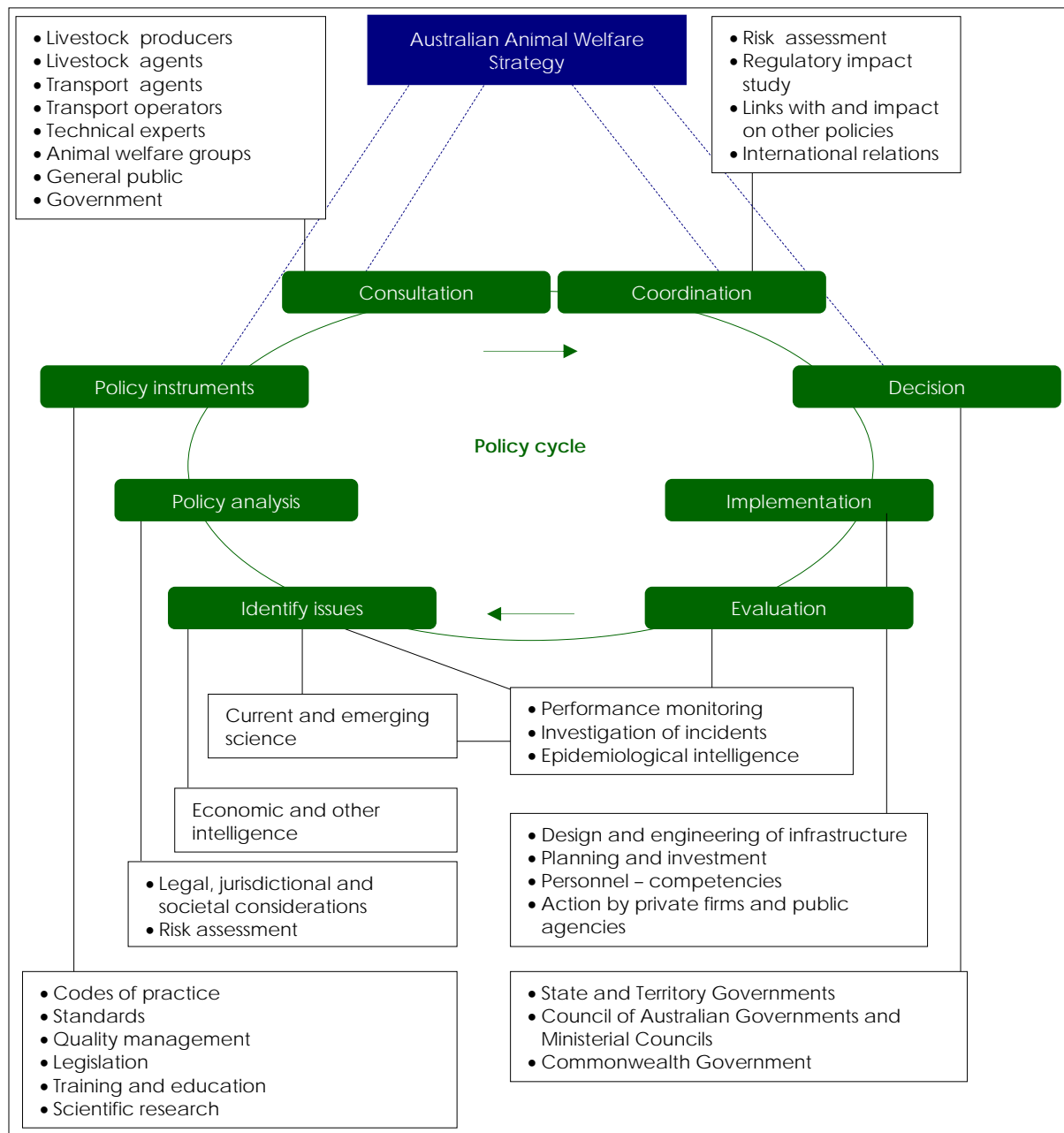


Figure 2
Concept diagram showing the relationship between the Australian Animal Welfare Strategy and a contemporary view of the public policy cycle with its various important inputs

The contemporary model of the policy cycle comprises eight steps which may merge with one another and which may not necessarily occur in the sequence shown. Some policy steps were previously absent or unrecognised in Australia. For example, certain earlier innovations in extensive and intensive animal husbandry had been implemented without an *evaluation* step for their impact on animal welfare. Processes for public *consultation* were underestimated until the creation of the SCAW in the 1980s. Prevention of Cruelty to Animals Acts operated as the only instrument of public policy until codes of practice for animals were introduced in the 1980s. Other policy instruments have been introduced recently and are particularly relevant to animal transportation. Policy instruments are all the means that governments use to achieve their ends.

A full description of the AAWS is available on the Internet (5). The following excerpt describes its essence: 'The Strategy facilitates a national consultative approach to animal welfare that welcomes involvement of broad community, industry and government interests. It seeks to develop community support for the implementation of approved standards. It establishes a framework for sustainable animal welfare outcomes based on scientific evidence, in order to meet the expectations of the whole Australian community with a focus on achieving a balance between education, extension and regulation. It will also provide for greater harmony and consistency across jurisdictions.'

The policy cycle in Figure 2 shows an essential link with international relations. The AAWS reproduces for Australia the guiding principles for animal welfare that have been adopted by the World Organisation for Animal Health (*Office International des Épizooties*: OIE) (41). This anchor point will allow for alignment between Australia's animal welfare policies and the standards and guidelines for animal welfare that result from deliberation within the OIE.

Managing the welfare of animals during long distance transportation

A concept diagram of the policy instruments or the means used in Australia to protect the welfare of animals during long distance transportation is shown in Figure 3. These focus on sheep, cattle and goats, but similar approaches apply to poultry, pigs and horses, which have their own codes of practice for transport (12, 13, 15). In short, policy instruments are selected to suit different stages of the transport chain and are directed at the selection and preparation of animals for transport, the quality of animal care, the quality of transport infrastructure (transport vehicles, loading and loading facilities, etc.) and the competencies and knowledge of the people involved.

Responsibilities and obligations are central to the management of animal welfare during transport. The OIE sets the scene with its clear and unequivocal statement that 'once the decision to transport the animals (by sea, by land etc.) has been made, the welfare of the animals during their journey is the paramount consideration and is the joint responsibility of all people involved' (41). The OIE *Terrestrial animal health code* goes into detail about individual responsibilities.

Support from science

According to Ritchie-Calder (36), scientific endeavour divides into four categories. First is pure or academic research that pursues knowledge for its own sake. This creates a framework for the biological knowledge that can be applied to the welfare of animals during long distance transportation. In Australia, much of the scientific endeavour into the long distance transport of animals fits within Ritchie-Calder's second and third categories. The second category is oriented fundamental research that seeks to extend knowledge and understanding within a frame of reference. The third category is applied research where the target is specified and a yield is expected.

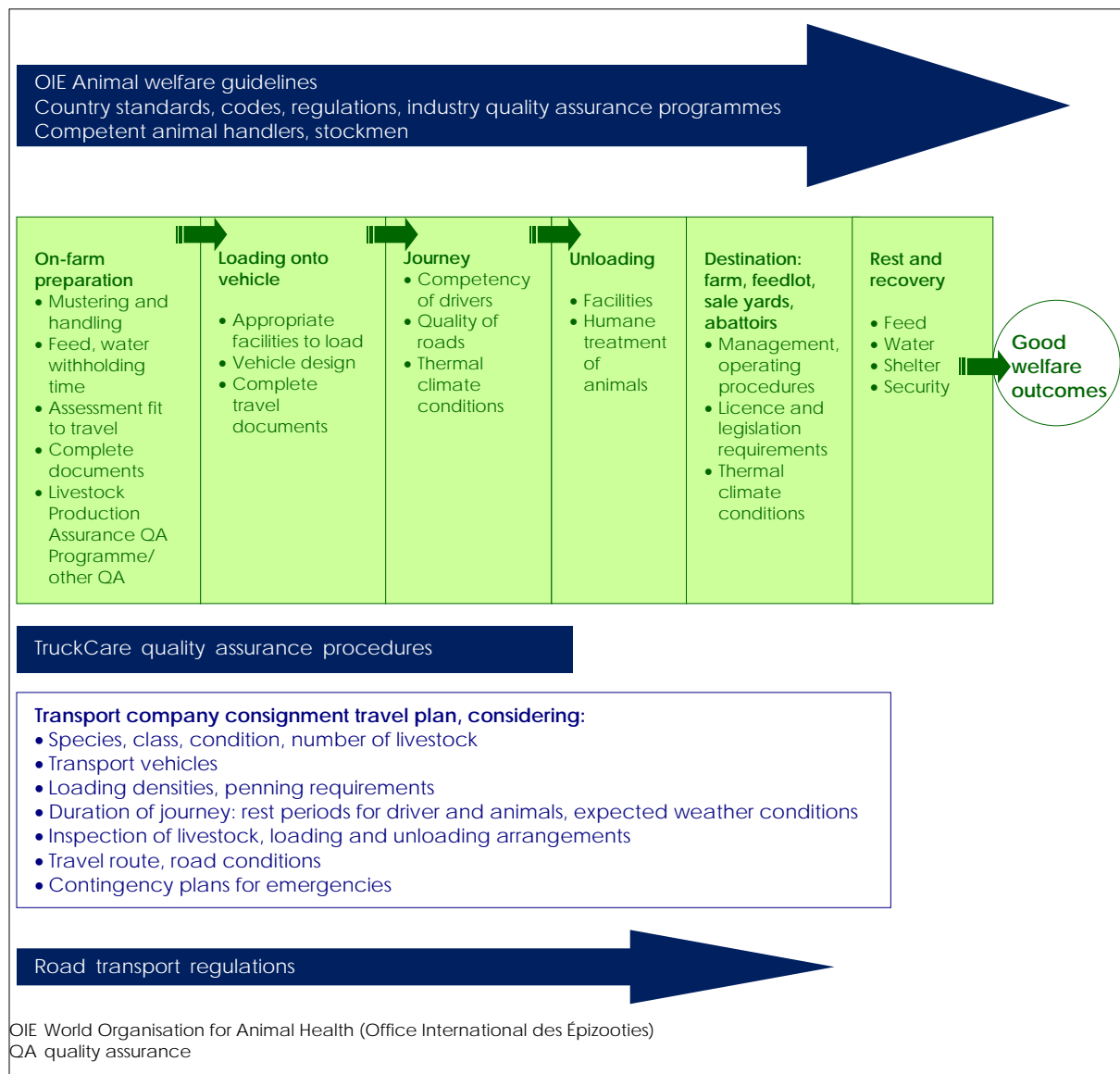


Figure 3
 Concept diagram showing how various policy instruments contribute to the management of animal welfare during long distance transport and apply at different parts of the transport chain

Australian examples in oriented fundamental research are studies on mechanisms for maintaining water balance in cattle (32, 33). Published examples in applied research relate to the health of calves during road transport (20) and the impact of road and sea transport on cattle (30, 31, 38) and sheep (21, 22, 26, 27, 28, 29, 35, 40).

There is, however, a body of work that has great influence on the protection of animal welfare of during long distance transport in Australia, which is absent from the refereed scientific literature. The reason for this absence is that the work falls predominantly within

Ritchie-Calder’s fourth category of scientific endeavour, development, which seeks the implementation of scientific knowledge through technology. The work in question is contained the reports of applied research commissioned by Meat and Livestock Australia. These are publicly available on the Internet (www.mla.com.au/TopicHierarchy/Search/default.htm). At least 17 reports were identified with relevance to long distance transport of livestock. They include reports on the management of heat stress and the exploration of innovative methods for assessing welfare.

Long distance transportation within Australia

Within Australia, the ownership of livestock during transport changes at the destination (e.g. another farm, sale yard, feedlot or abattoir) and not at the farm gate. Owners or managers are responsible for animal welfare until animals are loaded onto a transport vehicle. Animals then become the responsibility of transporters until unloading. This occurs under guidance from the model codes of practice and the *Australian Standards for the Export of Livestock, Standard 2: Land transport of livestock* (8). Lastly, the National Livestock Identification System (NLIS), National Vendor Declarations (NVDs) and the Livestock Producer Assurance (LPA) programme create an information network that is used to protect animals during transport.

The NLIS is Australia's system for identifying and tracking beef and dairy cattle, sheep and goats (23). It assists in the management of animal disease and food safety issues and has an important application to animal welfare during long distance transport. The NLIS became mandatory for cattle in 2005 and for sheep in 2006. It is a permanent whole-of-life identification system, which uses machine-readable radio frequency identification devices (RFID) in the form of an ear tag or rumen bolus or both to identify cattle and ear tags to identify sheep. There is a central NLIS database for maintaining lifetime traceability of animals based on PICS (property identification codes).

The NVDs (24) are a key tool that ensure safe food from Australian livestock. They are supported by so-called 'waybills', which are travel documents or 'animal passports' that contain information on animal movements. NVDs and waybills function to protect the welfare of animals during long distance transport. Their overarching management occurs through SAFEMEAT, an industry and government partnership responsible for managing meat safety and hygiene issues. Livestock producers use NVDs and waybills to transmit information on the food safety status

of their livestock and buyers and food processors rely on NVDs and waybills for accurate information on their livestock purchases. NVDs and waybills are supported by the force of fair-trading and consumer protection laws in Australia's States and false or misleading information attracts heavy penalties.

The LPA programme is the final component of the information network for livestock during long distance land transport. It operates in the grass-fed sector of the red meat industry as an on-farm integrity system to verify and ensure the food safety status and other quality attributes of livestock. The LPA programme was developed in accordance with International Organization for Standardization (ISO) 9002:1994 (37) and is inspired by the principles of hazard analysis critical control points (HACCP). Random and targeted independent audits are conducted to maintain the programme's integrity. Other livestock industries have developed similar quality assurance programmes.

Figure 3 shows that quality management programmes and driver training and competencies transport are part of the package for protecting the welfare of animals during long distance transport. Information on training and competencies for the transportation of livestock is available through Australia's National Training Information Service (www.ntis.gov.au/). This service provides access to the training packages and to training providers.

The predominant quality assurance programme is *TruckCare*, which was developed by the Australian Livestock Transporters Association (11) and meat and livestock industries for livestock transportation, as described elsewhere (17). The programme seeks to maximise the welfare of animals, the quality of meat and the safety of food. *TruckCare* was launched in June 2007 and the LPA programme mentioned earlier will stimulate its uptake.

A final important point concerns road safety for animals, transport personnel and other road users during long distance transportation

of animals. Road accidents undo all other actions for the welfare of animals. A major factor in road accidents is driver fatigue which increases with the time and distance of transport. An advisory paper noted that customary prescriptive approaches were not fully effective and may be inconsistent with requirements under occupational health and safety (25). The paper detailed a proposed regulatory regime that was adopted with amendments throughout Australia early in 2007. One of Australia's states will exclude a 'reasonable steps' defence for drivers and operators charged with driver fatigue offences. Successful prosecutions have been mounted under work safety and health laws for breaches against fatigue guidelines.

Long distance transportation from Australia

The provisions for animal welfare during long distance transport from Australia extend upon those operating for long distance transportation within Australia. They are outlined in the *Australian position statement on the export of livestock* of November 2006 (7), which provides a framework for the development of standards and other policy instruments to protect the welfare of animals across the entire livestock export chain, from planning the export consignment of animals to events at destination during and after unloading.

The position statement sets out guiding principles and the responsibilities of those involved in the export of live animals. Guiding principles describe animal welfare as a primary consideration for all concerned. They also require competencies and transparency in activities and demand a commitment to progressive improvement. Responsibilities and accountabilities are set out for livestock exporters, government, livestock organisations, accredited stockpersons, accredited veterinarians and live export chain service providers. The position statement outlines reporting and monitoring requirements which are important for the evaluation step in the policy cycle. Sea voyages with unacceptable mortalities are investigated by the Australian Quarantine

Inspection Service (AQIS), the Australian Maritime Safety Authority (AMSA) and the Australian Livestock Export Corporation (LiveCorp).

Version 2.1 of the *Australian standards for the export of livestock* sets the basic standards for the conduct of the livestock export trade (8). The standards are referenced in the laws that govern the licensing of exporters. They cover the six major components of the export chain, namely:

- sourcing and on-farm preparation of livestock
- land transport of livestock for export
- management of livestock in registered premises
- vessel preparation and loading
- on-board management of livestock during sea transport
- air transport of livestock.

The standards cover cattle, sheep, goats, buffalo, deer and camelids (camels, llama, alpaca and vicunas).

Accountability for the good welfare of animals during export from Australia starts with the *Australian standards for the export of livestock*. Then follows licensing, a system of export permits, the regulation of ships for their safety, anti-cruelty laws and industry quality assurance schemes and operational plans along the live export chain. Finally, there is formal training for stockpersons who accompany live animals during export (34).

All exporters of live animals from Australia must be licensed under legislation administered by AQIS. In addition, all consignments of live animals must have an export permit from AQIS which is granted when animal welfare requirements and the requirements of the importing country are met. A notice of intention to export and a consignment risk management plan are prerequisites for this step. The consignment risk management plan is part of a formal risk management system for the live export of animals. Risk management has been a valuable innovation that has resulted in reduced mortality rates during the transport of animals from southern Australian ports (39).

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