ግብርና ሚኒስቴር
MINISTRY OF AGRICULTURE

Food and Agriculture Organization of the United Nations

Ministry of Agriculture

Export Abattoirs Inspection and Certification Directorate

Livestock Handling and Transport Guidelines

December, 2021

Addis Ababa

Table Contents

Acronyms

CCPs	Critical control Points
Cm	Centimeter
ECTAD	Emergency Centre for Transboundary Animal Diseases
FAO	Food and Agriculture Organization of the United Nations
Km	Kilo meter
M	Meter
M^2	Square meter
MM	Millimeter
MoARD	Ministry of Agriculture and Rural Development
S/he	She or He
SOPs	Standard Operation Procedures

List of figures

List of tables

Acknowledgements

The first edition of this guidelines document, which served as the basis for the current revised version, was developed by Dr. Wondwosen Asfaw and Dr. Nega Tewolde while the current version was reviewed and updated by Dr. Amsalu Demissie. The contribution of Dr. Hassen Chaka (Coordinator, Improving Sanitary Capacity and Facilitating Export of Livestock and Livestock Products from Ethiopia Project of FAO-ECTAD Ethiopia), Dr. Ayalew Shumet (Director, Export Abattoirs Inspection and Certification Directorate, Ministry of Agriculture), Dr. Wondimagegn Dejene (Director, Quarantine Import Export Inspection and Certification Directorate inspectors, Ministry of Agriculture) and other technical experts of the Ministry of Agriculture including those from the Livestock Identification and Traceability Systems Directorate, for making this document to have its current form by providing insightful comments and suggestions at various stages of the review and revision process is highly appreciated.

Foreword

This technical document entitled “Livestock Handling and Transport Guidelines” is one of the documents in a series of guidelines and Standard Operating Procedures that were developed from 2008 to 2010 by the then Ministry of Agriculture and Rural Development in collaboration with the Ethiopian Sanitary and Phytosanitary and Livestock and Meat Marketing Program.

This Guidelines and Standard Operating Procedures document is at present reviewed and updated by the Ministry of Agriculture in collaboration with the FAO-ECTAD Ethiopia, Improving Sanitary Capacity and Facilitating Export of Livestock and Livestock Products from Ethiopia Project. The main goal of project is to increase exports of meat and livestock to benefit Ethiopian livestock producers and exporters and to promote national economic development.

This document is intended to provide a reference guide on procedures to be applied in handling livestock before, during and after land transport until they are slaughtered in export abattoirs or exported abroad live from quarantine stations. This guideline is expected to be used by all actors involved in all stages of livestock and meat production, transport and export activities particularly export abattoir operators, livestock producers, traders, drivers and inspector veterinarians.

This document highlights on the importance of understanding on major factors that trigger different behavioral and physiological responses by slaughter animals and the operational procedures that should be applied to minimize those unwanted reactions through the understanding and application of the current animal welfare standards set for humane handling practices.

At this point, the Export Abattoirs Inspection and Certification Directorate of the Ministry of Agriculture would like to thank the FAO-ECTAD Ethiopia, Improving Sanitary Capacity and Facilitating Export of Livestock and Livestock Products from Ethiopia Project, for providing the necessary technical and financial support required for reviewing, updating and publishing this guideline.

Ayalew Shumet (DVM, MVSc)

Director, Export Abattoirs Inspection and Certification Directorate, Ministry of Agriculture, Addis Ababa, ETHIOPIA

1. Introduction

Animal welfare is an issue of growing importance in international trade for livestock and livestock products. There is an increasing awareness among regulatory authorities and consumers about the effects that breeding and farming techniques may have on animals on their health and welfare. More and more, consumers claim their right to make informed choice between products, including products produced with different welfare standards. To enable them to make such a choice, they want to be informed about how farm animals are kept, transported and slaughtered.

There is a huge and growing demand for meat at global level. To fulfill the growing demand, large numbers of animals are required to be slaughtered each year. This can result in mishandling and excessive sufferings of animals. In more recent years, the issue of humane treatment of animals is becoming a growing concern in many countries. For this reason, exporting countries are increasingly required to comply with sanitary and welfare standards set by international organizations and specific requirements of importing countries. Humane treatment of animals does not only reduce unnecessary suffering of animals but it also reduces possible loss of foreign exchange earnings that may arise from death and injury of animals, product wastage and loss of consumer demand for products.

Regardless of the presence of huge market potential and demand for the Ethiopian meat and live animals particularly in the Middle East countries, there is one major and consistent complaint raised which relates to presence of rapid meat discoloration and reduced shelf life on Ethiopian meat compared to other countries' products. For this reason, the market share of the Ethiopian meat products in the Middle East is below expectation and the selling prices of Ethiopian meat per unit measure is much lower than the prices paid to meat products coming from other countries.

Stress caused by miss handling and improper treatment of slaughter animals is a known major cause of meat discoloration and overall loss of quality including reduced shelf life of meat. This necessitates the regular review, update and enforcement of appropriate sanitary and animal welfare standards and guidelines that should be practiced in the handling of slaughter animals on every step starting from the collection areas for loading leading up to the point of slaughter in the export abattoirs.

This guideline reflects available scientific knowledge, current global practices and consumer expectations and believed to provide the basis for developing and implementing consistent legislation and enforcement across Ethiopia and guidance for all those responsible for livestock handling and transporting livestock to abattoir facilities, quarantine stations or their point of exit for export markets.

1.1 Objective

The objective of this guideline is to describe current animal welfare standards and operational procedures that should be applied on a day to day basis in handling livestock before, during and after land transport until they are slaughtered in export abattoirs or exported live from quarantine stations with the goal of increasing the quality and acceptability level of the Ethiopian meat products in the export markets.

1.2 Scope

This guideline covers the basic requirements and humane handling practices that should be applied on hoof and vehicle transport of cattle, goats, sheep and camels for the purposes of slaughter in export abattoirs or exporting live from quarantine stations.

2. Understanding behaviors of animals

Livestock behave in various ways, depending on circumstances and, to a large extent, species. The behavior of individual animals or groups of animals will vary, depending on their breed, sex, temperament and age and the way in which they have been reared and handled.

Animal handlers should be experienced and competent in handling and moving farm livestock, and understand the behavioral patterns of animals and the underlying principles necessary to carry out their tasks. Most domestic livestock are kept in groups and follow a leader by instinct. Animals which are likely to harm each other in a group situation should not be mixed at *slaughterhouses/abattoirs*. The desire of some animals to control their personal space should be taken into account in designing facilities.

Domestic animals will try to escape if any person approaches closer than a certain distance. This critical distance, which defines the flight zone, varies among species and individuals of the same species, and depends upon previous contact with humans. Animals reared in close proximity to

humans i.e. tame have a smaller flight zone, whereas those kept in free range or extensive systems may have flight zones which may vary from one meter to many meters. Animal handlers should avoid sudden penetration of the flight zone which may cause a panic reaction which could lead to aggression or attempted escape.

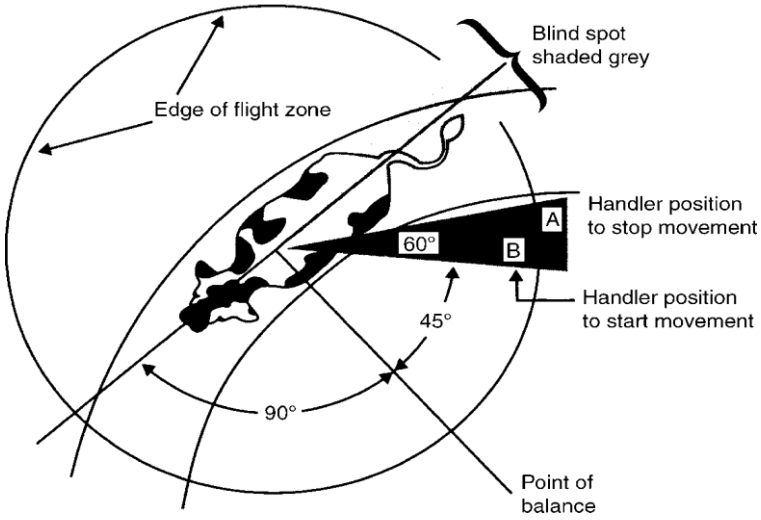

Fig. 1. **An example of a flight zone for cattle**

Animal handlers should use the point of balance at the animal's shoulder to move animals, adopting a position behind the point of balance to move an animal forward and in front of the point of balance to move it backward.

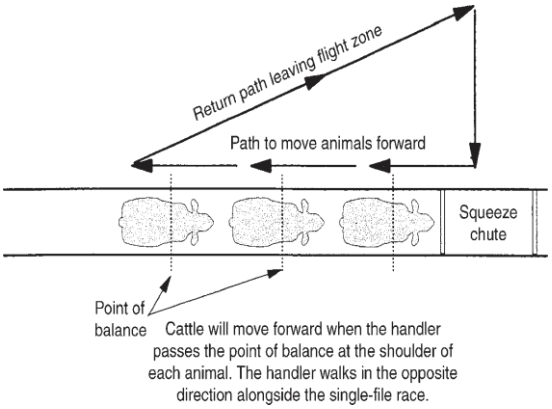

Fig. 2. Handler movement pattern to move cattle forward

Domestic animals have wide-angle vision but only have limited forward binocular vision and poor perception of depth. This means that they can detect objects and movements beside and behind them, but can only judge distances directly ahead. To prevent them from becoming afraid

of distractions outside confines, the holding pens, crowd races, stunning boxes and gates should have solid sides. Although most domestic animals have a highly sensitive sense of smell, they react in different ways to the smells of slaughterhouses/abattoirs. Strange smells, may cause animals to become unsettled and excited. This is noticeable in animals, which are strangers to each other or to surrounding conditions. Pre-mixing of these animals will reduce tension and fighting amongst strangers.

Cattle will hesitate and sometimes refuse to enter a stunning box or restrainer if the ventilation system blows blood smells into their faces. An exhaust fan to suck away smells will facilitate entry into a stunning box. A stress pheromone in the blood of severely stressed animals can be smelt by others and cause excitement. Stress hormones are secreted in the saliva and urine. Cattle tend to avoid objects or places, which are contaminated with urine from a stressed animal.

Animals which are unaccustomed to frequent contact with humans, such as ranched or extensively raised stock, will not allow people to approach or touch them easily. These animals will require more elaborate loading ramps, pens and handling races than tame ones. People loading extensively raised animals need to understand the psychology of the animal in order to prevent injury to either the animal or themselves. On the other hand, those animals raised intensively and animals living in close contact with humans are generally tamer and easier to handle.

Ruminant animals can discriminate between different colors. The ruminant eye is most sensitive to *yellow-green and blue light*. Livestock, particularly cattle are very sensitive to light contrast. This causes them to hesitate at and shy away from gates, and changes from wet to dry or concrete to metal floors. Therefore, lighting should be even and diffuse and harsh contrasts of light and dark should be avoided. Animals have a tendency to move from a darker to a lighter place. Extra, indirect lighting may help in moving animals in pens. Adding a light to illuminate a race entrance or removing a lamp to eliminate a sparkling reflection will often improve animal movement. Animals will shy at moving things, as well as darkness and they may refuse to enter a dark place.

All species of animals may hesitate and refuse to move when they see things in the race that scare them, such as sparkling reflections, dangling chains, moving people or equipment, shadows or water dripping. A calm animal will stop and look right at the distraction that scares it. If air is

blowing towards the animal this should be changed. If animals hesitate, the distraction that causes this should be removed instead of increasing the force used to move them. Rapidly moving objects scare animals. Forcing them to quickly approach a vehicle, pen or building may cause them to panic.

Domestic animals can hear over a greater range of frequencies than humans and are more sensitive to higher frequencies. They tend to be alarmed by constant loud noise and by sudden noises, which may cause them to panic. Reducing noises from equipment and people will improve animal movement, reduce stress and the risk of injury. People should not yell, whistle or make loud noises. Clanging and banging of equipment will unsettle animals and can be reduced by installing rubber stops. Hissing air is one of the worst noises but also easy to eliminate.

Generally, it is obvious that noise increases physiological stress levels. This refers also to pre-slaughter handling and handling at point of slaughter. Slaughter in a small, quiet abattoir produces less stress hormones in animals compared to a large, noisy commercial plant. If an animal becomes agitated and frenzied during slaughter handling, subsequent animals often become agitated as well and an entire slaughter day can turn into a continuous chain reaction of excited animals. The next day, after the surrounds and equipment have been washed, the animals will be calm.

3. Animal welfare and handling

3.1 Welfare principles

Animal welfare is the physical and mental state of an animal in relation to the conditions in which it lives and dies. An animal experiences good welfare if the animal is healthy, comfortable, well nourished, safe, is not suffering from unpleasant states such as pain, fear and distress, and is able to express behaviors that are important for its physical and mental state. Good animal welfare requires, among other things, disease prevention and appropriate veterinary care, shelter, management and nutrition, safe environment, humane handling and humane slaughter or killing.

The general principles for the welfare of animals in livestock production systems include:

- Animals chosen for introduction into new environments should be suited to the local climate and able to adapt to local diseases, parasites and nutrition.
- The physical environment, including the walking surface, resting surface, etc., should be suited to the species so as to minimize risk of injury and transmission of diseases to animals.
- The physical environment should allow comfortable resting, safe and comfortable movement and the opportunity to perform types of natural behavior.
- Social grouping of animals should be managed to allow positive social behavior and minimize injury, distress and chronic fear.
- For housed animals, air quality, temperature and humidity should support good animal health.
- Animals should have access to sufficient feed and water, suited to the animals' age and needs.
- Diseases and parasites should be prevented and controlled as much as possible through good management practices. Animals with serious health problems should be isolated and treated promptly or killed humanely if treatment is not feasible or recovery is unlikely.
- The handling of animals should not cause injury, panic, lasting fear or avoidable stress.
- Owners and handlers should have sufficient skill and knowledge to ensure that animals are treated in accordance with these principles.

3.2 Relevance of and principles of humane animal handling practices

Livestock handling during loading, transport to the market, quarantine stations or slaughterhouses, off-loading, holding and moving for slaughter involve recurrent operations that may lead to unnecessary suffering, injury and loss of production of slaughter animals. There are many advantages to improving conditions for livestock destined for slaughter. These will have the benefit of improvements in livestock productivity, quality, welfare and personnel safety.

Humane treatment of slaughter animals' increases income through:

- reduced carcass damage and waste due to less bruising and injury;
- decreased mortality of slaughter animals;
- improved quality of meat by reducing animal stress;

- increased quality and value of hides and skins.

Improving animal welfare is necessary to reduce suffering of animals there by satisfying the requirements of different governments, non-governmental and international organizations, and consumers, who are becoming more concerned with welfare of food animals. Moreover, better conditions of livestock operations will also improve safety of personnel who work in the livestock and meat industries. Following rough handling, it takes up to 30 minutes for an animal to calm down and return to normal.

The following principles should be followed when trekking, loading, transporting, unloading, holding, etc of animals at all times.

- Animal handling staffs should be trained on importance and methods of implementing humane handling practices for animals.
- Handle animals gently and humanely at all times to avoid injury or extra stress.
- Keep animals calm in the crowd areas, so that they will be calm coming into the facility. Move them slowly and quietly.
- Refrain from yelling, screaming, or making sudden movements near animals.
- Never beat animals with a stick, rods, pipe, whip or stone, and avoid painful procedures such as tail twisting, etc.
- Never throw or drop or drag animals by body parts such as their tail, head, horns, ears, limbs, etc.
- Animals should have adequate access to feed and water.
- Stock pens and other enclosures used for feeding, watering, and resting should have sufficient space for all animals to lie down at the same time.
- Prior to moving animals, inspect the fences, pens, and working facility to ensure proper care and ease of handling. Make all necessary repairs and remove protruding bolts, nails, etc.
- Look for all surfaces which have tufts of hair or shiny surfaces since they are bruise points and need to be avoided.
- Maintain a clean and dry environment and ensure sufficient ventilation to minimize exposure of animals to dust and toxic gasses e.g. ammonia etc.

4. Principles related to the transport of livestock

Transport can be stressful to livestock if effective management practices are not put in place to minimize any possible risks to welfare. Livestock can be transported more effectively and with lower risk to welfare if:

- the preparation before transport is adequate for the intended journey
- competent selection of livestock is done before loading
- livestock are handled correctly using well-designed and maintained facilities
- livestock are managed and handled by competent livestock handlers
- road transport facilities and vehicles are designed and maintained for safe transport of livestock
- the journey is planned to ensure appropriate timing of arrival and prompt delivery of livestock
- consideration is given to feed and water requirements, provision of adequate shelter, and protection from injury and diseases.

The risk of adverse livestock welfare outcomes is related to:

- competency of personnel involved in any phase of livestock transport
- selection and preparation of the livestock for the journey
- journey duration, feed and water-deprivation time
- timing of water, feed and rest before transport and at unloading
- species and class of the livestock being transported
- road conditions, terrain and weather conditions
- vehicle and facility design and maintenance
- space allowance on the vehicle
- ability to observe the livestock and take action to remedy any problem.

At all times, livestock should be handled to prevent injury and minimizes stress. These risk factors can be cumulative and they apply across all stages of land transport from assembly before the journey to unloading at the destination.

5. Methods of livestock transport

Methods used to move animals are on hoof, by vehicle, by rail, on ship and by air. Transport of livestock is the most stressful and injurious stage in the chain of operations between farm and slaughterhouse and contributes significantly to poor animal welfare and loss of production and quality.

5.1 Trekking (on hoof transport)

Only cattle, camel, sheep and goats can be successfully moved on hoof. Moving cattle on the hoof is suitable only where road does not exist, or when distances from farm to destination are short. This method is slow and fraught with risks to the welfare and value of the animals.

For moving livestock on hoof, the following measures should have to be considered:

- The journey should be planned, paying attention to the distance to be travelled, opportunities for grazing, watering and overnight rest.
- Animals should be walked during the cooler times of the day.
- If animals are moved some distance to a vehicle or rail transport, they should arrive with sufficient time to be rested and watered from 12-24 hours before loading.
- The maximum distances that these animals should be trekked depend on various factors such as weather, body condition, age etc., but the distance given in the table below should not be exceeded when trekked.

Table 1. Maximum distances for trekking animals

Species	One day journey	More than one day		Remarks
		First day	Subsequent days/day	
Cattle	30 km	24 km	22 km	
Sheep/goats	24 km	24 km	16 km	
Camel	48	48	48	Desert camels can travel about 48 km per day for many days with comfort

5.2 Vehicle transport

Poor transportation can have serious deleterious effects on the welfare of livestock and can lead to significant loss of quality and production.

Table 2. Major effects of mismanaged livestock transport

Mismanagement practice on animal	**Effect on meat**
Stress	leading to meat discoloration and reduced shelf life
Bruising	the most insidious and significant production waste in the meat industry
Trampling	this occurs when animals go down due to slippery floors or overcrowding
Suffocation	this usually follows on trampling;
Bloat	restraining ruminants or tying their feet without turning them will cause this
Dehydration	animals subject to long distance travel without proper watering will suffer weight loss and may die;
Exhaustion	may occur for many reasons including heavily pregnant animals or weaklings;
Injuries	broken legs, horns;

5.2.1 Livestock trucks and facilities

Livestock transport vehicles and facilities for holding, loading and unloading should be constructed, maintained and operated to minimize risks to livestock welfare. Livestock facilities should have a collecting area and loading ramps which are designed and constructed to take into account the amount of slope, none-slippery surfaces and absence of sharp projections, etc. The following guidelines should be applied on transporting of livestock on vehicle:

- Transport vehicles should be dedicated for livestock transport.
- The vehicle(s) should be appropriate to contain the species to be transported

- Before each journey, trucks should be thoroughly cleaned using chemicals approved by the federal regulatory authority (e. g. 2% Sodium hydroxide or Potassium hydroxide or 4% Sodium carbonate).
- Transport vehicles should have sufficient vertical clearance for livestock to minimize the risk of injury.
- Transport vehicles should never be totally enclosed and they should be well ventilated. Lack of ventilation will cause undue stress and even suffocation, particularly if the weather is hot. Poor ventilation may cause accumulation of exhaust fumes in road vehicles with subsequent poisoning. Free flow of air at floor level is important to facilitate removal of ammonia from the urine.
- All vehicles used to transport animals should have non-slip floors in order to reduce the risk of animals falling. A grid of cross slating made from wood or metal that may be removed when required, is suitable for this purpose.
- Internal sheeting should be smooth to reduce the risk of pressure points and bruising.
- The insides of the vehicle should be padded at hip level, for example, with old tyres to reduce bruising of animals. There should also be no gaps between the pads through which a leg might protrude and be broken.
- All vehicles should be free from internal protrusions and other objects that could cause injury
- Additional balance for animals should be provided by partitioning the interior of the vehicle with either wood or metal poles or solid boards for use when travelling in hilly or high-traffic areas or when carrying small numbers of livestock, to prevent livestock being thrown around or injured. Partitions should also be used for segregation when required.
- Vehicle floors should be level with off-loading platforms to avoid injuries as a result of climbing off or manhandling, when being unloaded.
- Broken floors should be avoided as they cause injuries.
- The sides of vehicles should be high enough to prevent animals from jumping out and injuring themselves.
- Railings on ramps and raceways should be of appropriate height, with the gaps sufficiently narrow at the bottom to prevent livestock being caught, slipping through or becoming injured.
- Ramps need to be wide enough to ensure easy movement and should be of an appropriate slope for the species and class of livestock.

- A transport vehicle should have a roof to protect animals from exposure for hours in the hot sun.
- Vehicles should be fitted with a portable ramp to facilitate emergency offloading in case of prolonged breakdowns along the route.
- Materials used in the construction of vehicles, crates and containers should be able to be cleaned effectively.
- There should be a cleaning program for livestock crates and containers between journeys
- Vehicles should have at least two doors for loading and unloading animals on opposite sides and sufficient openings to ensure proper ventilations.
- Vehicle gates and facilities should be sufficiently wide to ensure easy movement of livestock and to minimize injuries.
- Vehicle exhaust gases should not significantly pollute the livestock crate
- The livestock crate should be designed to ensure that livestock can rise from lying in a normal manner without contacting overhead deck structures
- The floor of multi-deck vehicles should be constructed and maintained in a way that prevents the soiling of livestock on lower decks.
- Appropriate bedding should be provided for certain classes of livestock.
- For livestock that are susceptible to cold (such as young livestock), transport vehicles should have either fully enclosed fronts or the ability for the vehicle front, roof or canopy to be covered to prevent wind chill and cold stress
- Solid yard extensions should be used to cover any gaps between the loading ramp floor and the floor of the vehicle through which an animal or part of an animal might go down
- Avoidable visual or noise distractions to livestock should be removed or reduced.
- Livestock require sufficient floor space so that they can stand comfortably without being overcrowded.

Figure 3. Specially designed livestock transport truck

5.2.2 Transport planning

Adequate planning needs to be carried out and contingency measures are in place to minimize risks to livestock welfare. For this, people responsible for the care and management of livestock at all stages of the livestock transport process need to be identified and are made aware of and accountable for their responsibilities.

5.2.2.1 Responsibilities of people who plan journeys

These may include owners, agents, transport companies and drivers, feedlot and livestock processing plants. The people responsible for planning journeys have the following responsibilities:

- Should take into consideration the nature of the intended journey; the class and condition of livestock; the weather and road conditions anticipated; the time that livestock are deprived of feed and water and planned rest stops and spells
- make sure that a sufficient number of personnel are available for each stage of the journey and at the planned time
- Ensure that livestock are transported to their destination as quickly as possible and via the most suitable route within legal limits
- Ensure availability of suitable water and feed as appropriate and needed for the species, age, and condition of animals, as well as the duration of the journey, climatic conditions, etc.
- There should be planning for the resting of animals at resting points at appropriate intervals during the journey.

- Ensure fulfilment of required travel documentations including animal health certificates or movement permits as may be required.
- As animal transport is often a significant factor in the spread of infectious diseases, journey planning should take into account that animals get appropriate vaccinations against major diseases to which they are likely to be exposed along the travel route and at their destination.

5.2.2.2 Contingency arrangements

As part of the planning for each journey, arrangements to manage any delay, breakdown or other emergency should be established to minimize risks to livestock welfare during all transport. Contingency arrangements may involve written arrangements, journey plans, and details on consignment sheets or arrangements that are in place for rest stops, particularly for long-distance journeys.

- For all journeys, the transport company and driver should have the relevant contact details of owners or agents and customers at the origin and destination
- If unexpected delays occur, such as vehicle breakdown, the driver should make every reasonable effort to minimize the delay and ensure that water is provided within the times specified in the guidelines.
- Essential mechanical maintenance during the journey of a routine nature should be possible to prevent undue delays and minimize the risk to the welfare of livestock.

5.2.3 Responsible bodies for livestock transport

Land transport of livestock is a process that begins before the physical journey and only ends sometime after this physical journey is completed. Managing the risk factors is a shared responsibility between all the people involved, including regulatory authorities, owners, managers, handlers, agents and drivers. All people involved in planning a journey and shouldering, assembling, handling, selecting, loading and transporting livestock have a responsibility for livestock welfare. They should communicate effectively to support those with key responsibilities, and should ensure that management systems are in place to minimize risks to livestock welfare. From a livestock welfare perspective, the stages in the transport process and the responsibilities of persons can be described clearly, as follows:

5.2.3.1 Responsibilities of the regulatory authority

The Ministry of Agriculture through the Quarantine Import Export Inspection and Certification Directorate and Export Abattoirs Inspection and Certification Directorates is responsible for ensuring proper implementation of these guidelines and other relevant legal provisions by assigning veterinary inspector(s) that conduct a regular inspection and certification activities both in export abattoirs and livestock quarantine stations. The regulatory directorates have also a responsibility in facilitation and delivery of short training programs for all relevant public service and private personnel. Moreover, the regulatory directorates have also a responsibility in facilitation and delivery of short-term training programs for all relevant public and private personnel on subjects related to basic livestock welfare and humane handling principles and practices outlined in relevant national guidelines.

5.2.3.2 Responsibilities of livestock consignors (suppliers)

The pre-transport phase has an important impact on the successful management of livestock during transport. The livestock consignor is responsible for the livestock until they are to be loaded onto the transport vehicle. This responsibility should include but is not restricted to:

- Assembling and inspecting livestock to make sure that they are identified and fit for the intended journey
- providing feed, water and rest before curfew or loading, as appropriate
- providing suitable holding and loading facilities that do not predispose livestock to injury
- handling livestock according to these guidelines
- communicating feed, water provision times and other relevant information to the driver
- acquire required documentation accurately for each livestock consignment that may include:
    - Journey travel plan, with period of rest, and access to feed and water,
    - number of animal handlers on board and stocking density estimate for each load in each truck;
    - time, date and place of loading, unloading, rest, etc.
    - The journey log format – where daily inspection and important events, including morbidity and mortality and actions taken, climatic conditions, rest stops, travel time and distance, feed and water offered, medication provided, and mechanical defects are to be recorded with.
    - When required, veterinary certification and/ or livestock movement permits.
- making sure that any livestock that are unsuitable for loading following preloading inspection at the assembly point are appropriately managed, treated or humanely destroyed.

5.2.3.3 Responsibilities of drivers and transporting companies

The driver or transporting company is responsible for the livestock from the point of loading to the point of unloading and notifying the receiver of the livestock at the destination. This responsibility should include but is not restricted to:

- be competent in their tasks and key activities to meet the provisions of these guidelines
- provide dedicated livestock trucks which is thoroughly cleaned using chemicals approved by the federal regulatory authority.
- taking action to determine the time that livestock were deprived of water from the previous owner or person responsible, including time without water during assembly, holding, loading or previous transport
- inspecting and assessing livestock at loading to ensure that they are fit for the intended journey
- inspecting livestock during the journey as required and taking action if a problem arises
- making sure that the management and care of any livestock that are judged as weak, ill or injured during the journey is appropriate
- informing the livestock consignor and receiver of any problem encountered during the journey in relation to the welfare of the livestock
- acquire required travel documentations from the consigner
- completing required documentation accurately for each livestock consignment transported, including journey plans, as specified in these guidelines
- making sure that the plan for the journey takes into consideration the condition, species and class of the livestock, nature of the journey, weather conditions and the provisions in these guidelines, such as water deprivation time, spelling and loading density
- driving in a manner that minimizes impact on the welfare of the livestock, including appropriate driving techniques for the road conditions, managing livestock during weather that may predispose livestock to heat or cold stress, and considering rest-stops and the nature of the journey

- recording and communicating to the person(s) responsible when there are inappropriate holding, loading or unloading facilities at the property of origin or destination, so that corrective action can be taken
- having the contact details of owners or agents and customers at the source and destination for assistance as required
- avoid mixing of animals of different health status and sources at resting points
- notifying and transferring the responsibility for livestock to the responsible person at the destination on unloading.
- If a person in charge reasonably expects the journey time to exceed 24 hours, the transporter should possess a record which is accessible at the road side and that specifies:
    - the date and time that the livestock last had access to water;
    - the date and time of livestock inspections and any livestock welfare concerns and actions taken;
    - emergency contacts
- A person in charge who is transferring responsibility for livestock to be further transported for a total journey time of longer than 24 hours should provide a record with this information to the next person in charge.

5.2.3.4 Responsibilities of livestock receivers

The person at the destination is responsible for the livestock from the point of notification and unloading of livestock being received. This responsibility should include but is not restricted to:

- providing drivers, transport companies or agents with contact details of relevant personnel at the destination
- communicating with the transport company or driver and providing effective instructions on the practices and arrangements for unloading and managing livestock if arriving out of working hours
- providing suitable unloading or loading and holding facilities that do not predispose livestock to injury

- handling and managing livestock in accordance with the provisions specified in these guidelines
- providing water, feed and other requirements during holding as required
- informing the transport company, driver and livestock consignor of any adverse impacts on livestock welfare from the journey that are first observed after arrival
- making sure that any livestock that are weak, ill or injured at unloading are identified, managed, treated or humanely destroyed at the first opportunity.

5.2.4 Stock-handling competency

Persons responsible for handling, managing or transporting livestock need to be competent.

Elements of competency for each phase of the livestock transport process should include:

- understanding responsibilities for livestock welfare
- planning journeys that satisfy the humane livestock handling and transport guidelines and address contingencies that may arise, with consideration of extremes of weather, nature of the journey, class and condition of livestock, and time off feed and water
- contingency procedures and the ability to carry out the activities required to maintain the welfare of livestock during delay, breakdown or other emergencies
- maintaining records and taking action to determine the time livestock were deprived of water and feed and calculating total time off for water and feed
- livestock handling and, where necessary, using handling aids and other equipment appropriately
- inspecting and assessing livestock for their fitness for the intended journey, and determining whether livestock meet the specified requirements
- identifying weak, injured or ill livestock and other behavioral signs of distress, that are relevant for assessment as being fit for the intended journey and taking the appropriate remedial action as relevant
- humane destruction by the choice of appropriate methods or the actions that need to be taken to contact or advise people who are competent
- vehicle operation and basic maintenance.

❖ Supporting evidence of competency should include the following:

- records of on-the-job training on basic principles of animal behavior, current animal welfare and humane handling practices and available relevant national guidelines and procedures
- relevant experience on livestock handling and transport
- supervisor sign-off for specific tasks.

6. General requirements for vehicle transport

6.1 Pre-transport selection of livestock

Selection of fit livestock is a responsibility shared between the consignor and the driver.

The following guidelines should be followed:

❖ Pre-mixing of livestock leads to greater familiarity and these animals travel better than animals that are strangers. Livestock should be mixed in a pen 24 hours before loading.

❖ Animals should be fed and watered before they are transported.

❖ Animals of different species and animals with and without horns should not be mixed together and transported.

❖ Young animals should be separated from older or larger ones.

❖ The consignor should only supply animals that are fit for the intended journey

❖ Livestock should be assessed as fit for the intended journey at every loading by a person in charge. If the animal is not fit to travel, it should not be loaded onto the truck.

❖ An animal is not fit for a journey if it is:

- unable to walk on its own by bearing weight on all legs; or
- severely emaciated; or visibly dehydrated; or
- showing visible signs of severe injury or distress; or
- suffering from conditions that are likely to cause increased pain or distress during transport; or blind in both eyes; or
- known to be, or visually assessed to be near (within two weeks) parturition unless time off water and journey is less than four hours duration to another property

❖ A person in charge should not load, nor permit to be loaded, animals that are not fit for the intended journey except under veterinary advice

- If an animal is assessed to be not fit for the intended journey before loading, a person in charge should make appropriate arrangements for the care, treatment or humane destruction of the animal at the first reasonable opportunity
- Before loading livestock, the consignor should notify the driver of any concerns about fitness of livestock to be transported. Any special requirements for a livestock consignment should be agreed between the consignor of the livestock and the driver.
- Pre-transport spell (water and rest) periods should be provided for the following classes of livestock if the travel time is expected to be of a long duration and approaching the maximum water-deprivation time for the livestock class:
    - livestock that are unaccustomed to handling
    - livestock that are stressed or fatigued from handling
    - livestock that are weak or immature
    - livestock that are pregnant or lactating
- Pre-transport spell (water and rest) periods should be provided if the travel time is expected to be of a long duration and approaching the maximum water-deprivation time for the livestock class or if the condition of animals has become poor during the collection period:
- A minimum acceptable pre-transport four hours of access to water and feed with space to lie down and rest is recommended for the best welfare of the livestock.
- Where water is provided, it should be easily accessible to all livestock and livestock should be able to drink with normal posture.
- Livestock should be monitored to determine whether they are drinking as expected and, if they are not drinking, action should be taken to encourage water intake by ensuring livestock can access the water facilities (e.g. through stocking density, trough size and space)
- Where feed is provided, it should be of adequate quality and amount for the species.
- Where feed offered during the transport process is different from normal rations, feed intake should be encouraged during a period of familiarity training

6.2 Loading livestock

- In hot weather, it is important to transport animals in vehicles during the cooler mornings and evenings or even at night

- ❖ Prior to loading animals, inspect vehicles to ensure that the interior compartment of each vehicle is smooth with no sharp protrusions
- ❖ A transporter should ensure that the ramp and the vehicle are properly aligned, and that any gap between the ramp and the vehicle is sufficiently narrow to minimize the likelihood of injury to livestock during loading and unloading
- ❖ Ramps need to be wide enough to ensure easy movement and should be of an appropriate slope for the species and class of livestock
- ❖ The transporter or driver should inspect and assess livestock at loading to ensure that they are fit for the intended journey
- ❖ Livestock should be loaded and unloaded from the transport vehicle in a calm and quiet manner.
- ❖ Painful procedures including whipping, use of sticks, stones, pipes, metal roads or tail twisting, etc should not be used to move animals. Instead, other droving aids such as flat straps and rattles should be used
- ❖ Animals should be loaded without unnecessary noise, harassment or force, and that untrained assistants or spectators are not impeding the process.
- ❖ As much as possible, loading should be carried out in day light
- ❖ Loading of animals should be conducted by trained animal handler(s).
- ❖ The driver and animal handler(s) should ensure that limbs of the livestock are not protruding from the crate before each departure
- ❖ The driver should segregate livestock by sufficient internal partitions to minimize risk to the welfare of other livestock by considering species, class, size, level of aggression, general health status of the animals and nature of the intended journey.

6.3 Loading density

- Livestock should not be loaded either too loosely or too tightly because this may increase the risk of injury. The numbers per pen or container should be sufficient to provide stability for the class of livestock and the intended journey (loading densities and segregation arrangements are defined in species specific requirements of this guideline)
- The driver should assess the loading density for each pen or division in the livestock crate or each container and have a final say based on average live weight of the intended livestock

loading, predicted climatic conditions, presence or absence of horns, nature of the intended journey, design and capacity of the vehicle.

6.4 Livestock handling

Livestock should be handled in a manner that minimizes stress.

- Livestock with no room to move should not be forced, prodded, pushed or excessively handled.
- In each consignment, trained animal handler should be in attendance to spot downer animals. In such cases, the vehicle should be stopped and animals lifted up.
- Excessive yelling, noise making and sudden movements should be avoided
- Livestock should not be lifted by only the head, ears, horns, neck, tail;
- Livestock should not be lifted off the ground by a single leg, except in the case of sheep, and goats if they are less than 15 kilograms live weight;
- Livestock should not be thrown or dropped;
- Livestock should not be struck in an unreasonable manner, punched or kicked;
- Animals which are unable to stand should not be dragged,
- During transportation animals should not be tied up by their feet
- Livestock handlers should ensure that bystanders or items that may cause livestock to baulk do not impede the smooth loading and unloading of livestock. Avoidable distractions should be minimized
- Calves, lambs, and weak or injured livestock may be carefully lifted and placed on or off the vehicle.
- Most herd livestock have a strong following instinct and all livestock have a ‘flight zone’ that should be understood and used for efficient livestock handling
- Handling aids for moving livestock should be used with care and may include polypipes, flappers, backing boards, rattlers, hand, arm or body of the stock handler
- The transporter and livestock attendant should:
    - inspect the livestock immediately before departure, to ensure that doors are closed and secured; and
    - take reasonable steps to notify a receiver of the arrival of the livestock at the destination.

- inspect the receival yard immediately before unloading, to ensure that there is free access and sufficient space for the livestock intended to be unloaded; and

❖ To minimize slipping and soiling, and ensure the health of animals, urine and feces should be removed from floors when animals are offloaded. Likewise, disposal of a dead animal during the journey should be carried out in compliance with relevant legislation of the country

6.4.1 Segregation during transport

❖ Mixing unfamiliar groups and aggressive livestock should be avoided, unless appropriately managed through handling and segregation arrangements.

❖ Animals of different species and animals with and without horns should not be mixed together and transported. Young animals should be separated from older or larger ones.

❖ Livestock that are particularly susceptible to disease, stress or injury, or that are being transported for veterinary treatment, should be penned separately on the vehicle, and either loaded last or first,

6.5 Driving management

❖ Drivers should use smooth driving techniques, without sudden turns or stops, to minimize excessive movements of livestock and to prevent injuries, bruising, slipping and falling of livestock

❖ Airflow should be appropriate at all times, including when the vehicle is stopped

❖ Where there is any road accident involving the transport vehicle, all livestock should at the first opportunity be assessed, in the standing position if possible, removed for treatment or humane destruction

❖ No other commodities or goods should be loaded and transported along with animals

❖ Where possible, journeys should be short and direct, without any stoppages.

❖ Livestock should not travel for more than 36 hours and should be offloaded after 24 hours for feed and water, if the journey is to take longer than that.

6.6 Weather conditions

❖ Weather conditions should be considered when transporting or during a stop and actions taken to ensure livestock are not subject to heat or cold stress

❖ In hot weather, the journey should be conducted during the cooler parts of the day, not stopping, and providing shade and other cooling strategies

- In extremely hot or humid weather, careful attention should be paid to the airflow of the transport unit; the speed of travel; the number, location and conditions of planned stops; loading density; and the condition of the livestock being carried

6.7 In-transit inspections

- The transporter(driver) or the livestock attendant should inspect livestock:
  - on the vehicle before departure; and
  - within the first hour of the journey and then at least every three hours or
  - as soon as practical after any unusual or difficult road or weather conditions
  - at each driver rest stop, and at unloading
- Upon identifying a distressed or injured animal at an inspection, a person in charge should provide or seek assistance at the first reasonable opportunity. Weak, ill or injured livestock should be identified to the person receiving the livestock
- The receiver of livestock should make arrangements at the first reasonable opportunity for separating weak, ill or injured livestock for rest and recovery, appropriate treatment, or humane destruction and disposal
- A source of lighting should be available to carry out inspections at night or in poor light

6.8 Feed, water, rest, stops and spells during or after the journey

- Drivers and transport companies should be flexible when determining timing and length of stops and spells in transit, to achieve the best possible welfare outcomes
- During a voluntary water stop, livestock should be unloaded, allowed access to water and space to lie down, if this is not able to be provided on the vehicle. Feeding is not recommended during short water stops of less than 12 hours.
- Water should be easily accessible to all livestock and they should be able to drink with normal posture
- During spells, livestock should be monitored to determine whether they are drinking as expected, and if they are not drinking, action should be taken to encourage water intake
- When resting requires unloading of animals and the rest stops do not have feed and water, separate transporting trucks should be available to carry sufficient hay and water for animals.
- Livestock should be inspected for fitness for the remainder of the intended journey before reloading

- ❖ Where livestock have been transported for extended periods, or are special classes of livestock, longer spell periods should be provided.
- ❖ Where there is doubt about an animal's fitness to resume a journey, the spell period should be extended, veterinary advice sought, and action taken to care for any livestock that are rejected

Note:

- *A spell is the provision of water, feed and space to lie down to rest for the minimum time periods specified in the guidelines for each species and class of animal and is a mandatory requirement when maximum time off water is reached, before starting a further journey*.
- *Driver rest stops are different from voluntary water stops. During a driver rest stop, livestock are generally not unloaded and no water provision time. Livestock are inspected on the vehicle*.

6.9 Unloading livestock

- ❖ Persons at destination are responsible for receiving the livestock; they may include owners, operators and staff of properties, feedlots and livestock-processing plants.
- ❖ Before unloading, the driver should check the condition of the receival area including presence of unloading ramp(s), none-slippery surfaces and absence of sharp projections and make sure appropriate pens and water supplies are available.
- ❖ When possible, un-loading of animals should be carried out in day light to avoid injuries and allow animals to be easily inspected.
- ❖ At night, lighting should be positioned to give even illumination over ramps, races, yards and inside the transport vehicle, and should not shine into the eyes of livestock moving in the desired direction
- ❖ When inspecting the yard at night or where light is insufficient, a portable source of lighting should be available.
- ❖ Unloading of animals should be conducted by trained animal handler(s)
- ❖ At unloading, if the facility is unmanned or out-of-hours arrangements are to be followed, drivers should make sure that unloaded livestock have access to water
- ❖ Sufficient time should be allowed for unloading that livestock be allowed to walk quietly and calmly off the vehicle. Particular care should be taken during unloading as livestock will be fatigued from the journey.
- ❖ Non-ambulatory animals due to fatigue, injury or sickness should be unloaded in a manner that causes the least amount of suffering and should be isolated and appropriately treated.

- Trucks used to transport animals should be cleaned before re-use through physical removal of manure and bedding, such as scraping, washing and flushing with water and then be disinfected with chemicals approved by the regulatory authority (such as 2% sodium or potassium hydroxide or 4% Sodium carbonate). (*Note: Requirements relating to handling, loading facilities and inspections apply to the unloading of livestock.)*

7. Specific requirements for the vehicle transport

Apart from the general guidelines outlined above that also apply to all livestock, some species-specific travel requirements that minimize risks to the welfare of livestock are indicated below.

7.1 Camel

Conditions that could adversely affect camel welfare during transport and should be considered in the assessment of fitness for the intended journey might include lethargic camel, and camels with chronic diarrhoea, disease, or wounds. A decision to transport a camel with the above conditions should be made after considering the welfare of the animal concerned and the treatment and management options.

7.1.1 Spelling requirements for camel

A person in charge of camels of the class described in column 1 of the table below should provide the camels with a spell for at least the minimum spell period, at the earlier of:

- the end of any transport process; or
- when the maximum journey time or the maximum time off water is reached,
- before another transport process can commence.

Table 3. Maximum time of water and minimum spelling time in hours for camel

Class	**Maximum journey time**	**Maximum time off water**	**Minimum spell period**
Camels known or visually assessed to be more than 12 months pregnant	4	4	36
Camels known or visually assessed to be between 9- 12 months pregnant	24	24	12
Lactating camels with un-weaned camels less than 6 months old	24	24	12
Camels less than 6 months old	24	24	12
Camels more than 6 months old	48	48	36

7.1.2 Extension of maximum journey time for camels

A person in charge of camels during a journey may allow the maximum journey time to extend up to 72 hours if each of the following conditions is satisfied:

- the camels should be more than 6 months old,
- the camels should not be known or visually assessed to be more than 53 weeks pregnant,
- the camels should be provided with access to water and feed on the vehicle at least every 24 hours,
- each camel should have sufficient space to lie down on its sternum,
- the camels should have a spell for at least 24 hours before another transport process can commence.

A person in charge of camels being transported in a crate should ensure that when camels are standing at rest there is a minimum of 100 millimeters clearance between the top of the hump of the camel and the crate. A person in charge of camels to be transported should ensure that male camels in rut are segregated during transport.

7.1.3 Feed and water

- ❖ Camels should be fed and watered as soon as possible after unloading.
- ❖ Camels should be trained by progressive extension of water-deprivation time before going without water for longer periods
- ❖ Camels should be monitored carefully when reintroducing them to water following transport. Severely dehydrated camels should rehydrate over several hours

7.1.4 Loading density

The following space allowances should be provided for camels based on their live weight

Table 4. Loading density for camel transport

Mean live weight (kg)	12.2 m x 2.4 m (deck)a	Remark
Less than 250	30	*Resting hump height clearance for vehicle transport is 100 mm. When moving, the highest part of the camel is the fat-filled hump, the head is generally lowered. Hump height will lower by 100 mm to 200 mm between the rest and walking state. Hump height is easily measured at rest by pre-marked levels in a race*
250-300	28	
300–350	26	
350–400	24	
400–500	20	
500–600	18	
600–700	16	

This minimum area requirement is calculated based on standing room only. However, camels need additional space to sit down with their legs folded underneath them on long journeys as camels will travel best if they can sit whether it is a short or long journey. For this reason, the person in charge of assessing and managing loading density for camels should consider other factors indicated under general requirements above for the best of the welfare of animals

7.1.5 **Vehicles and facilities**

- Yards should have race walls with a height of 1.8 meter, and metal loading races should be covered with dirt to avoid excessive noise and foot damage. Yards should be large enough to allow all camels to sit down on their sternums at the same time
- Camels should spend as little time as possible on hard surfaces that can cause injury to foot pads, or that wear the pedestal and kneeling pads of the animal. Cross cleats should either be removed from trucks or totally covered with a generous layer of hay, straw or sand. Surface bedding should be checked during a long trip
- Camels should be loaded up ramps with solid earthen floors. The incline should be as low as possible, preferably 10–20 degrees. Hollow-sounding ramps make camels disinclined to load. Camels are best end-loaded into a truck. Side loading of camels can also be difficult because they do not perceive that there is enough room to enter or move in the crate
- Livestock crate floors should be smooth and free from tread mesh to facilitate sternal recumbency. Carpet or damp sand is recommended as a floor covering for long-distance transport
- Livestock crate walls should have small gaps to prevent entrapment of foot pads
- Camels under 12 months old should not be transported in the same pen as adult camels
- Livestock crates should allow a resting hump clearance for land transport of 100 mm. When moving, the highest part of the camel is the hump, while the head is generally lowered. Walking hump height is 100 to 200 mm lower than resting hump height. The gates and stays may be lower than the bows of a crate, provided that hump height clearance is appropriate.
- Large camels should be transported in single-deck vehicles or a crate with a vertical clearance of two meters, unless the crate construction allows for hump height clearance as specified above.
- Yearling camels may be transported in double decks provided they do not contact overhead structures

7.1.6 Handling

- ❖ Camels should be left on the vehicle during rest or watering stops and should be parked under shade in hot conditions, where possible
- ❖ Camels may be temporarily tied in sternal recumbency to prevent injury. If camels are to be tied in sternal recumbency, they should be released and allowed to stand at least every four hours
- ❖ Camels should not be tied to trees or other structures by ropes or halters that are attached to the neck unless sufficient rope and low tying of the rope is provided. Camels tied to structures by ropes should not be left unattended.

7.2 Cattle

A decision to transport cattle with one of the conditions including lethargy, profuse diarrhoea, disease, wounds or abscesses should be made after considering the welfare of the animal concerned and the treatment and management options.

7.2.1 Spelling requirement

A person in charge of cattle of the class described in column 1 of the table should provide the cattle with a spell for at least the minimum spell period, at the earlier of:

- the end of any transport process; or
- when the maximum journey time or the maximum time off water is reached,
- before another transport process can commence.

Table 5. Maximum time off water (hours) and minimum spell duration (hours) for cattle transport

Class	**Maximum journey time**	**Maximum time off water**	**Minimum spell period**
Cattle known or visually assessed to be more than 9 months pregnant	4	4	24
Cattle known or visually assessed to be 6 months pregnant	24	12	12
Lactating cattle with un-weaned calves	24	24	12
Calves between 1- 6 months old	24	24	12
Cattle over 6 months old	48	48	36

7.2.2 Feed and water

- Cattle should be fed and watered as soon as possible after unloading.
- Feeding hay or dry feed to hungry cattle may reduce the risk of indigestion.

7.2.3 Loading density

The following space allowances should be provided for cattle vehicle transport:

Table 6. Loading density for cattle transport

Mean live weight (kg)	Minimum floor area (m2/head) standing	Number of head per 12.25 m x 2.4 m deck
100	0.31	94
150	0.42	70
200	0.53	55
250	0.77	38
300	0.86	34
350	0.98	30
400	1.05	28
450	1.13	26
500	1.23	24
550	1.34	22
600	1.47	20
650 and above	1.63	18

7.2.4 Vehicle and facilities

Ramps for adult cattle and calves should be designed so that animal welfare is not compromised. Ramp slopes for adult cattle should be 20 degrees and for calves should be 12 degrees

7.2.5 Handling

Cattle have a high level of herding instinct; therefore, handling techniques should use strategies to make best use of this fact for low-stress stock handling.

7.3 Goat

The general requirements set in this guidelines document also apply to minimize risks to the welfare of goats during transport. A decision to transport a goat with one of the following conditions should be made after considering the welfare of the animal concerned and the treatment and management options. The conditions include lethargy, profuse diarrhoea, disease, wounds or abscesses. Weak goats should be transported directly to the nearest available destination.

7.3.1 Spelling requirement

A person in charge of goats of the class described in column 1 of the table below should provide the goats with a spell for at least the minimum spell period, at the earlier of:

- ❖ the end of any transport process; or
- ❖ when the maximum journey time or the maximum time off water is reached,
- ❖ before another transport process can commence.

Table 7. Maximum time off water and minimum spell duration (hours) for goat transport

Class	Maximum journey time	Maximum time off water	Minimum spell period
Goats known or visually assessed to be more than 19 weeks pregnant	4	4	24
Goats known or visually assessed to be between 14 and 19 weeks pregnant	24	24	12
Lactating goats	28	28	12
Goats less than 6 months old	28	28	12
Goats above 6 months old	48	48	36

7.3.2 Feed and water

- ❖ All goats particularly lactating and weak goats should be fed dry hay or fibre before transport, allowing for curfew periods as appropriate, to sustain them for the journey
- ❖ Goats to be transported longer than 24 hours should be fed and watered within five hours before loading
- ❖ Between assembling and loading, water and feed should be provided for goats if:
    - goats are to remain in the yards for more than 24 hours
    - goats are expected to be off water for 24 hours or more during travel
    - goats are weak, lactating, pregnant or with kids at foot
    - goats are fatigued from trekking long distance or subjected to some other stressful situations
- ❖ Goats should be fed and watered as soon as possible after unloading

- Unmanaged goats should be kept in yards or paddocks for at least 3–4 days, and should be fed water and hay, so that they become accustomed to lot-feeding before transport to a feedlot or depot

7.3.3 Loading densities

The following space allowances should be provided for goats traveling on vehicle:

Table 8. Loading density for goat transport

Mean live weight (kg)	Minimum floor area (m2/head)	Number of head per 12.5 m x 2.4 m deck
20	0.15	200
30	0.17	176
40	0.22	136
50	0.25	120
60	0.28	107

7.3.4 Vehicles and facilities

Ramp slopes for goats should ideally be 20 degrees. Inclines should be no more than 30 degrees for permanently installed ramps, and 45 degrees for portable or adjustable ramps.

7.3.5 Handling

- Goats should be handled in small groups
- Goats should be picked up by supporting the whole body
- Bucks should be segregated from does and young stock with groups of bucks penned separately from all other animals

7.4 Sheep

General requirements outlined above in this guideline also apply to minimize risks to the welfare of sheep during transport. A decision to transport a sheep with one of the following conditions should be made only after considering the welfare of the animal concerned and the treatment and management options. The conditions include unwell, lethargy, profuse diarrhoea, disease, wounds, abscesses.

7.4.1 Spelling requirement

A person in charge should ensure time off water does not exceed the time periods given below for each class of sheep:

A person in charge of sheep of the class described in column 1 of the table below should provide the sheep with a spell for at least the minimum spell period, at the earlier of:

- the end of any transport process; or
- when the maximum journey time or the maximum time off water is reached,
- before another transport process can commence.

Table 9. Maximum time off water and minimum spell duration (hours) for sheep transport

Class	Maximum journey time	Maximum time off water	Minimum spell period
Sheep known or visually assessed to be more than 19 weeks pregnant	4	4	24
Sheep known or visually assessed to be between 14 and 19 weeks pregnant	24	24	12
Lactating sheep	28	28	12
Sheep less than 4 months old	28	28	12
Sheep more than 4 months old and not in the above classes	48	48	36

7.4.2 Feed and water

- Sheep should be fed dry hay or fibre before transport to sustain them for the journey.
- Between shouldering and loading, taking into account curfew requirements, water and feed should be provided for sheep if:
    - sheep are to remain in the yards for more than 24 hours
    - sheep are expected to be off water for 24 hours or more during travel
    - sheep are fatigued from shouldering, have been shouldered over a long distance from pastoral areas,
- Sheep should be fed and watered as soon as possible after unloading. Feeding hay or dry feed to hungry sheep may reduce the risk of indigestion.

7.4.3 Loading densities

The following minimum space allowances should be provided for sheep traveling in vehicle:

Table 10. Loading density for sheep transport

Mean live weight (kg)	Minimum floor area (m^2/head)	Number of head per 12.5 m x 2.4 m deck
20	0.17	176
30	0.19	157
40	0.22	136
50	0.25	120
60	0.29	103

Care should be taken to ensure that an adequate number of sheep are included in each pen so as to provide an appropriate level of stability throughout the journey and reduce the likelihood of injury due to movements of the vehicle.

7.4.4 Vehicle and facilities

Ramp inclines should be no more than 30 degrees for permanently installed ramps, and 45 degrees for portable or adjustable ramps

7.4.5 Handling

Sheep have a high level of herding instinct and handling techniques should use this behavior to handle sheep with minimal stress.

Figure 4. Flat strap for driving livestock

8. Pre-slaughter handling and abattoir facilities

There is a need to ensure the welfare of food animals during pre-slaughter and *slaughter* processes until they are dead.

8.1 Abattoir personnel

- Persons engaged in the unloading, moving, lairage, care, restraint, stunning, slaughter and bleeding of animals play an important role in the welfare of those animals. For this reason, there should be a sufficient number of personnel, who should be patient, considerate, competent and familiar with the recommendations outlined in this guideline and their application.
- The management of abattoirs and the Export Abattoirs Inspection and Certification Directorate should ensure that slaughterhouse/abattoir staff are competent and carry out their tasks in accordance with the principles of animal welfare

8.2 General welfare considerations

The following principles should apply for unloading animals, moving them into holding pens, lairage pens, out of the lairage pens up to the slaughter point:

- Ramps should be used for the *loading* and *unloading* of animals where there is a difference in height or a gap between the floor of the *vehicle* and the *unloading* area. Unloading ramps should be designed and constructed so as to permit animals to be unloaded from *vehicles* on the level or at the minimum gradient achievable. Lateral side protection should be available to prevent animals escaping or falling. They should be well drained, with secure footholds and adjustable to facilitate easy movement of animals without causing distress or injury.
- The conditions of the animals should be assessed upon their arrival for any animal welfare and health problems.
- Injured or sick animals, requiring immediate slaughter, should be killed humanely and without delay.
- Animals should not be forced to move at a speed greater than their normal walking pace, in order to minimize injury through falling or slipping.
- Animals for slaughter should not be forced to walk over the top of other animals.
- Animals should be handled in such a way as to avoid harm, distress or injury. Under no circumstances should animal handlers resort to violent acts to move animals, such as crushing or breaking tails of animals, grasping their eyes or pulling them by the ears.
- Animal handlers should never apply an injurious object or irritant substance to animals and especially not to sensitive areas such as eyes, mouth, ears, anogenital region or belly.
- Animal handlers should never throw or drop animals, or lift or drag by body parts such as their tail, head, horns, ears, limbs.
- Animals of one species should be penned separately from animals of other species.
- Pen separately animals which might injure each other (i.e. fractious animals, bulls and horned cattle) or which are vulnerable to injury from others (younger animals, sick or disabled animals).
- Aggressive animals with horns capable of injuring other animals should be penned separately.
- Slaughter animals should be adequately rested for a minimum of three days for animals coming from distant areas by keeping them in holding pens before their transfer to lairages during which injured, victimized and sick animals could be identified and isolated. However,

for animals coming from recognized feedlot facilities and farms found within about 100 kms radius from the slaughter abattoirs, may be shortened up to 24 hours depending on their physical conditions.

- Animals which are sick, weak, injured or showing visible signs of distress should be isolated and treated or humanely destroyed immediately.
- Potable drinking water should always be provided to all animals kept both in holding pens and lairages, including those kept in the isolation or suspect pens.
- Feed should be provided to all animals kept in holding pens.
- After rest period, animals will be moved to lairages to stay there for additional 12 hours and conduct of final antemortem inspection before slaughter
- When ready for slaughter, animals should be driven to the stunning box in a quiet and orderly manner without undue stress and noise.

When using goads and other aids, the following principles should apply:

- Animals that have little or no room to move should not be subjected to physical force or goads and other aids which compel movement. Prods should only be used in extreme cases and not on a routine basis to move animals. The use and the power output should be restricted to that necessary to assist movement of an animal and only when an animal has a clear path ahead to move.
- Goads and other aids should not be used repeatedly if the animal fails to respond or move. In such cases it should be investigated whether some physical or other impediment is preventing the animal from moving
- Useful and permitted goads include panels, flags, plastic paddles, flappers (a length of cane with a short strap of leather or canvas attached), plastic bags and metallic rattles; they should be used in a manner sufficient to encourage and direct movement of the animals without causing undue stress.
- Painful procedures (including whipping, kicking, tail twisting, use of nose twitches, pressure on eyes, ears or external genitalia), or the use of goads or other aids which cause pain and suffering (including large sticks, sticks with sharp ends, lengths of metal piping, fencing wire or heavy leather belts), should not be used to move animals.

- Excessive shouting at animals or making loud noises (e.g. through the cracking of whips) to encourage them to move should not occur, as such actions may make the animals agitated, leading to crowding or falling.
- Animals should be grasped or lifted in a manner which avoids pain or suffering and physical damage (e.g. bruising, fractures, dislocations). In the case of sheep and goats, manual lifting by a person should only be used in animals of up to 15 kg body weight and in a manner appropriate to the species.
- Grasping or lifting of animals only by their feet, neck, ears, tails, head, horns, limbs causing pain or suffering should not be permitted, except in an emergency where animal welfare or human safety may otherwise be compromised.
- Conscious animals should not be thrown, dragged or dropped.
- Any risk of compromising animal welfare, for example slippery floor, should be investigated immediately and the defect rectified to eliminate the problem.

Provisions relevant to *restraining* animals for *stunning* or *slaughter* without *stunning*, to help maintain *animal welfare*, include:

- provision of a non-slippery floor;
- avoidance of excessive pressure applied by *restraining* equipment that causes struggling or vocalization in animals;
- equipment engineered to reduce noise of air hissing and clanging metal;
- absence of sharp edges in *restraining* equipment that would harm animals;
- avoidance of jerking or sudden movement of *restraining* device.

Methods of *restraint* that should not be used in conscious animals include the following:

- suspending or hoisting animals by the feet or legs;
- indiscriminate and inappropriate use of *stunning* equipment;
- mechanical clamping of the legs or feet of the animals as the sole method of *restraint*;
- breaking legs, cutting leg tendons or blinding animals in order to immobilize them;
- severing the spinal cord, to immobilize animals using electric currents except for proper stunning.

8.3 Distractions and their removal

Distractions that may cause approaching animals to stop, baulk or turn back should be designed out from new facilities or removed from existing ones.

Table 11: Examples of common distractions and methods for eliminating them

Type of destruction	Methods to avoid
Reflections on shiny metal or wet floors	move a lamp or change lighting
Dark entrances to chutes, races, stun boxes or conveyor restrainers	illuminate with indirect lighting which does not shine directly into the eyes of approaching animals or create areas of sharp contras
Animals seeing moving people or equipment up ahead	install solid sides on chutes and races or install shields
Presence of dead ends	avoid if possible, by curving the passage, or make an illusory passage
Chains or other loose objects hanging in chutes or on fences	remove them
Uneven floors or a sudden drop in floor levels at the entrance to conveyor restrainers	avoid uneven floor surfaces or install a solid false floor under the restrainer to provide an illusion of a solid and continuous walking surface
Clanging and banging of metal objects	install rubber stops on gates and other devices to reduce metal to metal contact
Sounds of air hissing from pneumatic equipment	install silencers or use hydraulic equipment or vent high pressure to the external environment using flexible hosing
Air currents from fans or air curtains blowing into the face of animals	redirect or reposition equipment.

8.4. Inspection

The condition and state of health of animals kept in a holding pen and lairage should be inspected by meat inspector as specified in the “Ante-mortem Inspection Guidelines for Export Abattoirs”.

8.5 Holding pen and lairage

Holding pens are physical structures erected within in the export abattoirs premises next to lairages where by animals coming for slaughter are rested for three days before moved to lairages. However, the resting period for animals coming from recognized feedlot facilities and farms

found within about 100 kms radius from the slaughter abattoirs, may be shortened to 24 hours depending on their physical conditions. Animals in holding pens will be provided with sufficient, clean and non-slippery resting space required for each species. Animals will also be supplied with sufficient drinking water and feed at all times. Animals will be inspected while they arrive and once every day for any sign of disease, injuries and presence of excessive dirt.

Lairages are also physical structures erected within in the export abattoirs premises next to holding pens for the purpose of keeping slaughter animals for 12 hours before slaughter and conduct final antemortem inspection before letting them move for slaughter. Animals in lairages will be provided with water but for halal slaughter animals, feed may be provided as well.

In order to permit operations to be conducted as smoothly and efficiently as possible without injury or undue stress to the animals, the holding pen and *lairage* should be designed and constructed so as to allow the animals to move freely in the required direction, using their behavioral characteristics and without undue penetration of their flight zone.

8.5.1 Design of holding pen and lairage

The holding pen and *lairage* should be designed to allow a one-way flow of animals from *unloading* to the point of *slaughter*, with a minimum number of abrupt corners to negotiate. In export *abattoirs*, *pens*, *passageways and races* should be arranged in such a way as to permit inspection of animals at any time, and to permit the removal of sick or injured animals when considered to be appropriate, for which separate appropriate accommodation should be provided.

Each animal should have room to stand up and lie down and, when confined in a pen, to turn around, except where the animal is reasonably restrained for safety reasons (e.g. fractious bulls). Fractious animals should be slaughtered as soon as possible after arrival at the *abattoir* to avoid welfare problems.

The holding pen and *lairage* should have sufficient accommodation for the number of animals intended to be held to allow as many animals as possible to stand or lie down against a wall. Drinking water should always be available to the animals kept in holding pens and lairages, and the method of delivery should be appropriate to the type of animal held. Water troughs should be designed and installed in such a way as to minimize the risk of fouling by faeces, without introducing risk of bruising and injury in animals, and should not hinder the movement of animals.

Feed troughs in holding pens and also in lairages (in cases of Halal slaughter) should be sufficient in number and feeding space to allow adequate access of all animals to *feed*. The *feed* trough should not hinder the movement of animals. Where tethers, ties or individual stalls are used, these should be designed so as not to cause injury or distress to the animals and should also allow the animals to stand, lie down and access any food or water that may need to be provided.

Passageways and races should be either straight or consistently curved, as appropriate to the animal species. Passageways and races should have solid sides, but when there is a double race, the shared partition should allow adjacent animals to see each other. For sheep, passageways should be wide enough to enable two or more animals to walk side by side for as long as possible. At the point where passageways are reduced in width, this should be done by a means which prevents excessive bunching of the animals. *Animal handlers* should be positioned alongside races and passageways on the inside radius of any curve, to take advantage of the natural tendency of animals to circle an intruder.

Where one-way gates are used, they should be of a design which avoids bruising. Races should be horizontal but where there is a slope, they should be constructed to allow the free movement of animals without injury. In *abattoirs* with high throughput, there should be a waiting pen, with a level floor and solid sides, between the lairage (where animals are being kept for the last 12 hours before slaughter) and the race leading to the point of *stunning* or *slaughter*, to ensure a steady supply of animals for *stunning* or *slaughter* and to avoid having *animal handlers* trying to rush animals from the lairages. The waiting pen should preferably be circular, but in any case, so designed that animals cannot be trapped or trampled.

8.5.2 Holding pen and lairage construction

Holding pens and lairages should be constructed and maintained as per the specifications of "Export Abattoirs Construction Guidelines and Meat Inspectors' Guidelines for Regulating Export Abattoirs Operations".

8.6 Care of animals in holding pens and lairages

Animals in holding pens and *lairages* should be cared for in accordance with the following guidelines:

- As far as possible, established groups of animals should be kept together and each animal should have enough space to stand up, lie down and turn around.
- Depending on the size of the animals and the duration of time that the animals will be penned, the penning floor area should not be less than:
    - In holding pens, area of about 3.25 m^2 per head of cattle and 0.55 m^2 per head of sheep and goats is required. For camel, 100 m^2 for one camel plus 50 m^2 for each additional camel may be required.
    - In lairages, the minimum area should not be less than 1.8 m^2 per head of cattle, 2 m^2 for camel and 0.55 m^2 per head of sheep and goat
- Animals hostile to each other and aggressive horned animals should be penned separately.
- Fractious animals should not be penned with other animals.
- Where tethers, ties or individual stalls are used, they should allow animals to stand up and lie down without causing injury or distress.
- Where bedding is provided, it should be maintained in a condition that minimizes risks to the health and safety of the animals, and sufficient bedding should be used so that animals do not become soiled with manure.
- Animals should be kept securely in the holding pens and *lairage*, and care should be taken to prevent them from escaping and from predators.
- Potable drinking water and feed should always be provided to all animals in kept in holding pens including those kept in the isolation or suspect pen.
- Once animals are transferred to lairage, feed and water supply should continue for those animals which are to be slaughtered using halal methods but those animals to be slaughtered using non-halal methods, only water can be provided.
- The holding pen and *lairage* areas should be well lit in order to enable the animals to see clearly without being dazzled. During the night, the lights should be dimmed. Lighting should also be adequate to permit inspection of all animals.
- The condition and state of health of the animals in holding pens should be inspected at least every morning and evening by a meat inspector. Animals which are sick, weak, injured or showing visible signs of distress should be separated, and veterinary advice

should be sought immediately regarding treatment or the animals should be humanely killed immediately if necessary.

- Final antemortem inspection should be conducted in animals moved to lairages within 12 hours before slaughter.

8.7 Stunning

During the slaughter process, an animal should be rendered unconscious for long time so that bleeding results in death of the brain as a result of lack of oxygen. This eliminates pain, discomfort and stress in slaughtered animals. Failure to follow the procedure causes not only suffering in animals but also produces inferior quality of meat. It should be noted that method of stunning may depend on religious edicts.

The competence of the operators, and the appropriateness, and effectiveness of the method used for stunning and the maintenance of the equipment are the responsibility of the management of the slaughterhouse/abattoir, and should be checked regularly by the veterinary inspector.

Persons carrying out *stunning* should be properly trained and competent, and should ensure that:

- the equipment used for stunning is maintained and operated properly in accordance with the manufacturer's recommendations, in particular with regard to the species and size of the animal;
- backup stunning devices are available for immediate use if the primary method of stunning fails.
- the animal is adequately restrained;
- animals in restraint are stunned as soon as possible;
- the equipment is applied correctly;
- stunned animals are bled out (slaughtered) as soon as possible;
- animals are not stunned when slaughter is likely to be delayed; and
- such persons should be able to recognize when an animal is not correctly stunned and should take appropriate action.

8.7.1 Stunning methods

If animals are to be slaughtered by using religious slaughter methods such as Halal (a slaughter method practiced based on Muslim religion teachings), stunning practices may not be required or the stunning methods that will not lead to the death of the animal (reversible stunning methods such as by using mushroom bolt stunning gun) can be used. But for animals that are to be slaughtered by using non-religious or non-halal methods, the inspector veterinarian should ensure that animals be stunned incompliance with the procedures outlined as follows:

- A stunning box is the most common method of restraining cattle. The size of the box should be just wide enough to prevent an animal from turning around. Similarly, a properly constructed metal stunning box can be used for sheep and goats. However, sheep and goats can be restrained manually quite satisfactorily.

- Slaughter animals should be properly restrained before stunning or bleeding. This ensures stability of the animal for the stunning operation to be carried out precisely and appropriately.
- Animals should never be left in a stunning box or restraint device and they should be stunned or ritually slaughtered immediately after they enter the box/device. A lamp should be used to illuminate the entrance into the stunning floor and it should provide indirect lighting.
- Block the animal's vision so that they do not see people or suddenly moving objects by installing metal shields around the animal's head.

- Animals tend to panic when they lose their footing and if they feel like they may fall. Therefore, restraining devices should fully support the animal’s weight and have non-slip footing. They should also hold sensible animals in a comfortable and upright position.

- Restraining devices should not have sharp edges that dig into the body of the animal. Parts that contact animals should have smooth, rounded surfaces and be designed so that uncomfortable pressure points are avoided. Therefore, the entrance to the restraining device should be inspected often for broken parts with sharp edges.

To stun camels over six months old — firearm or captive bolt can be used in stunning camels by the poll or frontal methods as indicated below. Trained camels should be sat down before

stunning. For mature bull camels and especially bulls in rut, the captive bolt, if used, should only be applied to the poll position as bulls in rut develop thick glands at the top of the head that prevent the effective use of the captive bolt by the frontal method.

To stun adult cattle — firearms or captive bolt can be used. The frontal position should be employed. This is the intersection of imaginary lines connecting the outer canthus of each eye with the opposite ear. People who use a captive bolt pistol for stunning cattle should know where to stand. The operator should never stand in front of the animal, as it will jerk its head away when the pistol is aimed. The best position for the operator is just behind the animal's head. When it looks up, the pistol can be quickly brought into position and fired. A light above the stunning box encourages the animals to look up.

To stun goats and sheep over six months old — firearm, captive bolt or bleeding-out can be used. A shot aimed at the crown of the head and pointing straight down should be used in preference to the poll position. Where the poll position should be used because of the presence of horns, the shot should be placed immediately behind the base of the horns and aimed towards the mouth. Alternatively, a low voltage alternating electric current can be applied by means of two electrodes to stun sheep or goats.

Using mushroom bolt stunning gun, unconsciousness is achieved through percussion by strong blow to the skull. The brain is not penetrated, and as the animal is not killed, it is a method that is acceptable in many countries for Halal slaughter.

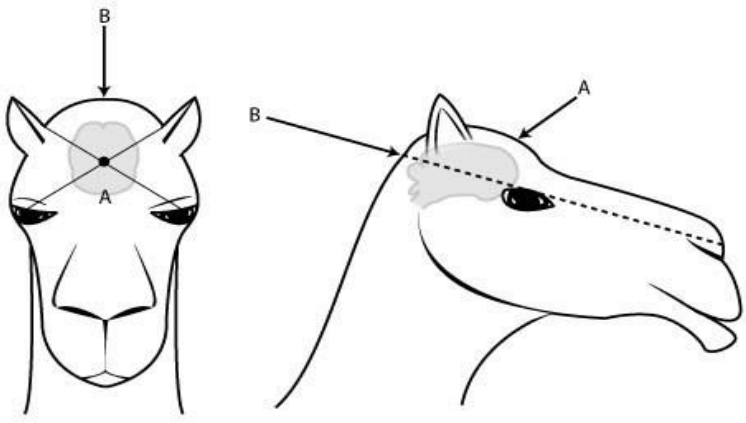

Fig 5. Camel stunning points (poll and frontal methods) of the captive bolt method

Note: (A) indicates the frontal method and (B) indicates the poll method. The arrows indicate the direction of aim for the positions.

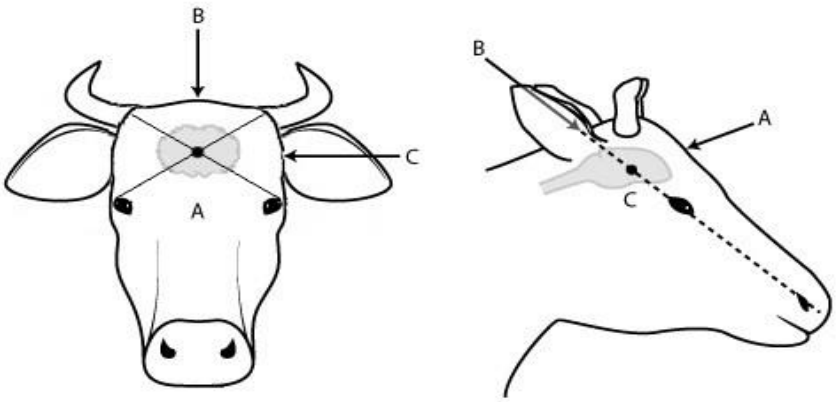

Fig. 6: Stunning points for horned cattle of the captive bolt method

Note: (A) indicates the frontal method, (B) indicates the poll method and (C) indicates the temporal method. The dots indicate the point of aim and the arrows indicates the direction of aim for the positions. Position A and B for firearms and captive bolt, position C for firearms only.

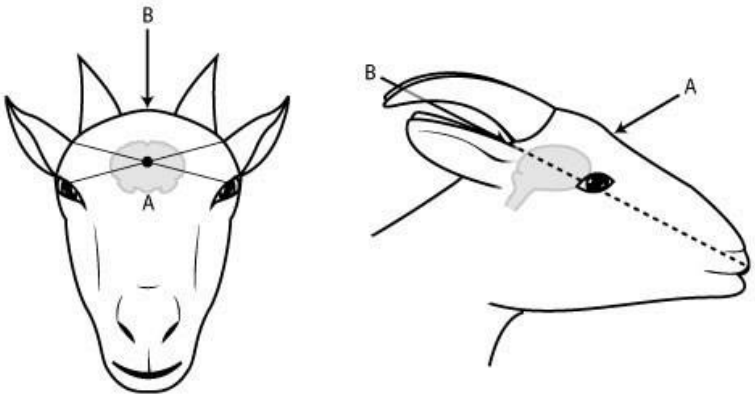

Fig. 7: Stunning points for goats of the captive bolt method

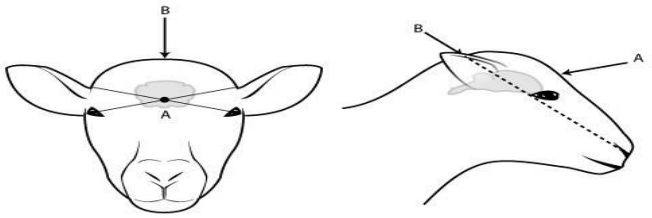

Fig. 8: Stunning points for sheep of the captive bolt method

Methods of restraint causing avoidable suffering should not be used in conscious animals because they cause severe pain and stress:

- suspending or hoisting animals by the feet or legs;
- indiscriminate and inappropriate use of stunning equipment;
- mechanical clamping of the legs or feet of the animals as the sole method of restraint;
- breaking legs, cutting leg tendons or blinding animals in order to immobilize them;
- severing the spinal cord, to immobilize animals using electric currents except for proper stunning.

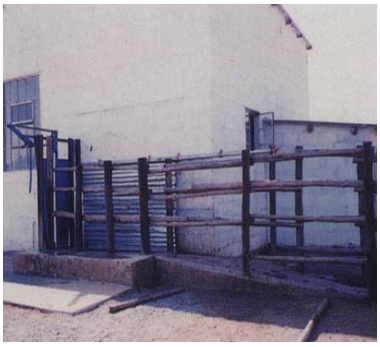

Figure 9. Simple, effective race

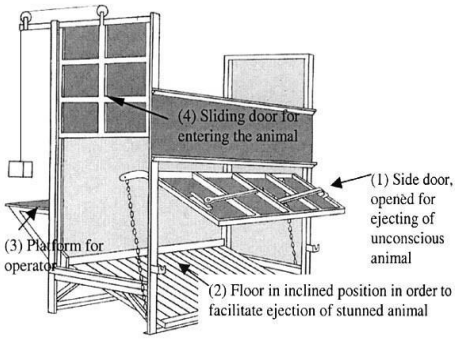

Figure 10. Cattle stunning box neck crush for cattle restraint

Figure 11. Sheep/goat stunning box

Figure 12. Cattle waiting at the end of raceway and in front the stunning box

8.8 Bleeding

All animals should either be instantaneously slaughtered or stunned by means of instruments capable of instantaneously rendering the animal insensible to pain until death supervenes. Bleeding is the part of the slaughter process where the main blood vessels of the neck are severed in order to allow blood to drain from the carcass, resulting in the death of the animal. Animals which are stunned with a reversible method should be bled without delay (within 60 seconds after stunning). Maximum stun-bleed interval depends on the parameters of the stunning method applied, the species concerned and the bleeding method used. The abattoir operator should set up a maximum stun-bleed interval that ensures no animals recover consciousness during bleeding.

Delayed bleeding will result in more convulsions and subsequent increase in blood pressure and rupture of blood vessels. This causes muscle hemorrhage with an extra blood in the tissue causing the meat to decompose more quickly, resulting in waste of meat. All animals should be bled out by incising both carotid arteries, or the vessels from which they arise (e.g. chest stick).

Incisions should be swift and precise. For this reason, the bleeding knife should continuously be sharpened. A blunt knife will prolong the incision and damage the cut ends of the blood vessels. This may cause premature clotting and blockage of the vessels. This delays bleeding and animals may come out of unconsciousness and insensitivity. It should be possible for staff to observe,

inspect and access the animals throughout the bleeding period. Any animal showing signs of recovering consciousness should be re-stunned.

After incision of the blood vessels, no carcass treatment or dressing procedures should be performed on the animals for at least 30 seconds, or in any case until all brain-stem reflexes have ceased.

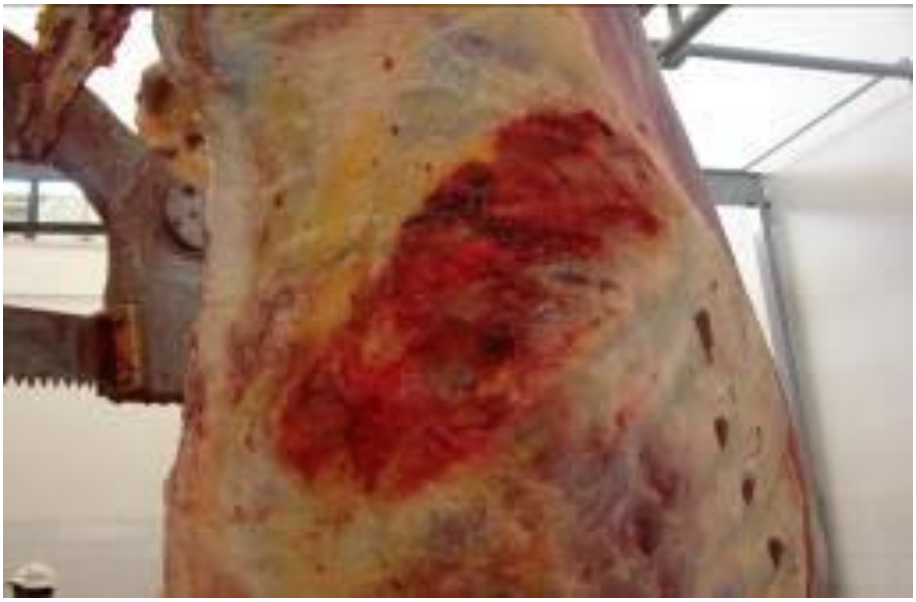

Figure 13. Carcass bruises due to animal miss handling

9. References

1. AHA (2013): Cattle standards and guidelines – Beef feedlots, discussion paper. Animal Health Australia.

2. AHA (2020): Australian industry welfare standards and guidelines for goats. Animal Health Australia.

3. AHA (2016): Australian Animal Welfare Standards and Guidelines for Sheep, Edition One, Version One. Animal Health Australia.

4. CFIA (2016): Meat Hygiene Manual of Procedures, Canadian Food Inspection Agency, Canada.

5. CFIA (2019): Food-Specific Requirements and Guidance, Guidelines for Stunning Techniques of Mammalian Food Animals, Canadian Food Inspection Agency, Canada.

6. Commonwealth of Australia and each of its States and Territories (2006): Model Code of Practice for the Welfare of Animals, the Camel, 2nd edition Primary Industries Standing Committee, Australia.

7. Department of Agriculture, fisheries and Forestry (2012): Australian Animal Welfare and Standards and Guidelines, Land Transport of Livestock.

8. Flavey, J. L. (1985): An Introduction to Working Animals, Melbourne, Australia.

9. FAO (2001): Guidelines for Humane Handling, Transport and Slaughter of Livestock, Food and Agriculture Organization of the United Nations, Rome, Italy.

10. MoARD (2008): Animal Handling Guideline, Ministry of Agriculture and Rural Development, Animal and Plant Health Regulatory Directorate.

11. New Zealand (2013): The Prevention of Cruelty to Animals, Land Transport of Livestock) Standards 2013 No 2. New Zealand.

12. OIE (2018): Slaughter of Animals, Terrestrial Animal Health Code, World Organization of Animal Health, Paris, France.

13. OIE (2021): Animal welfare, Terrestrial Animal Health Code, Section 7.
14. Sinai Travel Guide, 2004, Camels - www.allsinai.info/sites/fauna/camel.htm, Egypt.

15. Temple Grandin (2005). Recommended Animal Handling Guidelines and Audit Guide. American Meat Foundation, USA.

16. Temple Grandin (2007): Livestock Handling and Transport, 3rd Edition, USA.

17. UK (2006): Animal Welfare Act Chapter 45, England, United Kingdom.

18. USDA (1996): Animal Welfare Act and Regulations. The Animal Welfare Information Center, United States Department of Agriculture, USA.

19. Victoria (2021): Code of Accepted Farming Practice for the Welfare of Sheep. Animal Welfare , Revision Number 3.

Annexes:

Annex I. Standard operational procedures for cattle handling

The "flight zone" of an animal is the area surrounding the animal that will cause alarm and escape behavior when encroached upon. If a person enters the flight zone of an animal, the animal will move away. The following points need to be considered and applied:

- The size of the flight zone depends upon the tameness of the animal. Tame animals have no flight zone; that is, they will allow a person to approach and touch them. Wild and feral animals can have very large flight zones. To keep animals calm and move them easily, the handler should work on the edge of the "flight zone".

- The handler should penetrate the flight zone to make animals move and back up to stop them moving. Deep penetration of the flight zone should be avoided. Animals become upset when a person is inside their personal space and they are unable to move away. Animals turn back in an attempt to get away from the handler.

- If cattle turn back and run past the handler while they are being driven down a drive alley in the stockyard, overly deep penetration of the flight zone is a likely cause. If animals start to turn back, the handler should back up and increase the distance between himself and the animals. Backing up should be done at the first indication of a turn back.

- The handler should avoid the blind spot behind the animal's rear. The blind spot is area of an animal that cannot be seen while looking behind.

- If a group of animals balk or hesitate at a smell or a shadow up ahead, be patient and wait for the leader to cross the shadow. The rest of the animals will follow.

- If cattle rear up in a loading chute, back away from them, do not touch them or hit them. They are rearing in an attempt to increase the distance between themselves and the handler. They will usually settle down if they are left alone.

- Cattle will move forward if the handler stands behind the point of balance or the animal's shoulder. They will back up if the handler stands in front of the point of balance. Many handlers make the

mistake of standing in front of the point of balance while attempting to make an animal move forward in a chute.

- Groups of cattle in a chute will often move forward without prodding when the handler walks past the point of balance in the opposite direction of each animal in the chute.
- It is not necessary to prod every animal. If animals are moving through the chute by themselves, leave them alone.

The following are the Standard Operational Procedures (SOPs) for handling cattle.

Keep cattle calm - Calm animals are easier to move and load. When cattle become agitated, it takes up to 30 minutes for them to calm down.

Move cattle at a walk - Injuries from falls and bruising increases when cattle run into gates and fences.

Reduce noise - Cattle have very sensitive ears and yelling and whip cracking stresses them. Handlers should not crack whips, yell or constantly whistle.

Use Behavioral Principles - Handlers should be trained so that they understand the behavioral principles of flight zone and point of balance.

Make Cattle Flow - Cattle should not be brought up to the loading ramp until the truck is ready to load. Cattle will move up a ramp and onto a truck more easily if they are quietly driven up to the ramp and immediately loaded. Do not allow cattle to stand and turn around in the crowd pen that leads to a loading ramp.

Remove Distractions - If cattle refuse to move up a loading ramp or down an alley, remove distractions that cause them to balk. Some common distractions include seeing people up ahead, reflections off puddles, vehicles parked near the chute, dogs, or a piece of chain hanging down. Painting the facility one color to reduce contrast and installing solid fences on ramps and around pens will often improve cattle movement. Solid sides improve movement because they prevent cattle from seeing distractions outside the fence.

Acclimate Cattle to Handling - Cattle should be accustomed to being moved by a person on foot before it is time to transport them. Acclimating cattle to people moving them on foot also improves road safety for truck drivers and handlers.

Annex II. SOPs on loading and transporting animals

Stocking Densities - Trucks and stock trailers should be loaded per the stocking densities specified under species specific requirements of this guideline. Overloading of trucks will increase the chances of animals going down on a truck. Bruising is also increased when trucks are overloaded.

Vehicle Driving Methods - Careful driving will help prevent bruises and injuries. It will also help reduce weight losses. Rapid acceleration or sudden braking should be avoided because poor driving can cause animals to lose their balance.

Non-Slip Flooring - *A grid of cross slating made from wood or metal that may be removed when required is suitable for this purpose.*

A new aluminum trailer has good non-slip footing but cattle start slipping when the diamond plate floor becomes worn. Slipping can be reduced by welding small bars or aluminum mesh on the floor. To minimize slipping urine and feces should be removed from floors when animals are offloaded.

Reduce Heat Stress - If possible, livestock should be transported at night or in the early morning. Where this is not possible, vehicles should be kept moving because heat builds up rapidly in a parked vehicle.

Checking the load - Drivers and attendants should check the animals to make sure no animals have fallen down every time they stop.

Vehicle Maintenance – The transport vehicle should be kept well maintained.

Vehicle Cleanliness - Vehicles should be washed before and after each load. This is especially important if the truck hauls livestock to many different places.

Prompt Unloading - Trucks should be scheduled so that they can be unloaded promptly when they reach the plant.

Annex III. Critical Control Points for livestock transport trucks

Travel documents: This should be monitored on a per load basis (measure on ***PASS or FAIL*** basis on conditions of the availability of relevant documents accompanying the animals.)

Stocking Density - This should be monitored on a per load basis (measure on ***PASS or FAIL*** basis on conditions of over loading, or loosely loading or proper loading). ***FAIL*** if any one compartment is either overloaded or loosely loaded so that animals can be stressed and injured during driving.

Segregation: This should be monitored on a per load basis (measure on PASS or FAIL basis on conditions of proper segregation or not segregation of the different species and classes of livestock during loading and transport.

Fitness: This should be monitored on a per load basis (measure on **PASS or FAIL** basis on conditions of a presence or absence of single or group of animals that may or may not satisfy the species-specific fit for travel requirements indicated in this guideline.

Driving Methods - Could be audited with electronic equipment that measures braking and acceleration. Electronics can also be used to monitor temperatures inside the trailer which occur both during stops and when the vehicle is moving. Limits for this CCP will have to be developed.

Prompt Unloading at the facility

Prompt unloading can be measured in several different ways. An auditor can spot check it and score the trucks that can be observed in a short period or unloading times can be tallied for all trucks during a week or day.

Excellent	90% of the trucks start unloading within 15 minutes after arrival. No truck waits longer than 20 minutes.
Acceptable	75% of the trucks start to unload within 15 minutes but the remaining trucks have to wait up to 30 minutes.
Not Acceptable	75% of the trucks start to unload within 15 minutes but the remaining trucks have to wait up to and above 60 minutes.
Serious Problem	90% of the trucks wait over 60 minutes.

Cleanliness **-** Send as Acceptable or Not Acceptable, Pass or Fail for each vehicle

Maintenance **-** Scored as Acceptable or Not Acceptable, Pass or Fail for each vehicle

Scores from the CCPs for handling and trucks should be documented and compared with scores for bruising, carcass weight and dark cutters. This will enable the plant and the truckers to make continuous improvements which will improve both animal welfare and meat quality. Merging meat quality and transport data can also be used for determining incentive pay for drivers.

Annex IV. Standard operational procedures for handling non-ambulatory animals

Unfit animals

Animals that are unfit for transport should not be subjected to the additional stress of transport. When an animal is still fit, timely transporting will reduce the incidence of non-ambulatory animals.

Unfit animals include animals that cannot walk, have severe lameness that make walking difficult or are emaciated and weak. Weak animals are more likely to become non-ambulatory. Truck drivers should refuse to transport animals that are unfit.

Procedures upon arrival at the plant

When a truck with a non- ambulatory animal arrives at the plant, the animal should not be dragged off the vehicle while it is still conscious. Dragging a fully sensible and conscious animal should be avoided. However, stunned animals may be dragged. If possible, ante-mortem inspection should be conducted on the transport vehicle before the animal is moved.

Transport of non-ambulatory animals

If a non-ambulatory animal has to be transported, it should be placed in the rear compartment of a double deck trailer near the door. The non-ambulatory animal should be loaded onto the vehicle without being dragged. Dropping a non-ambulatory animal off the back of a truck to ground level is forbidden.

Moving non-ambulatory animals

To move a non-ambulatory animal, it should be transferred into a sled. A sled can be constructed from a wide piece of conveyor belting that has been stiffened on one end with a metal bar. This will prevent the belting from curling when the sled is pulled. The motive force should be attached to the sled, not the animal.

The following SOPs should be followed for handling and transporting non-ambulatory animals:

- Dragging of downed animal should not be practiced.
- Acts of abuse such as beating or sticking any object into a sensitive part of the animal such as the eyes, nose, mouth or rectum is forbidden.
- Dropping the animal from a height is forbidden.

Annex V. CCPs for monitoring animal handling during stunning

Stunning efficacy - the percentage of animals rendered insensible at the first attempt. Captive bolt stunning - correct shooting

Bleed rail insensibility - the percentage of animals that remain insensible before and after bleeding (using the same criteria as above).

Vocalization - the percentage of animals that vocalize (bellow or moo) during adverse events such as missed stuns, excessive pressure from restraint devices, slipping or falling etc. Each animal is scored as a vocalizer or non-vocalizer during handling and stunning (not in the holding pens). Vocalizing scoring is not used on goats as they often do this anyway.

Slipping and falling - the percentage of animals that slip or fall during handling or stunning. Selected stations should be chosen for monitoring.

In general, bruising is a common cause of meat wastage and can be significantly reduced by following the recommended correct techniques of handling, transport and slaughter. Injuries such as torn and hemorrhagic muscles and broken bones, which are caused during handling, transporting and penning, considerably reduce the carcass value because the injured parts or in extreme cases the whole carcass cannot be used for food and are condemned. If secondary bacterial infection occurs in those wounds, it causes abscess formation and septicemia and the entire carcass may have to be condemned.

Annex VI. Travel plan and feedback formats

Form 1. Journey log

<table>
<tr><td colspan="2" rowspan="2">Journey organizer in charge (name and address):</td><td colspan="2">Name and address of the person in charge of the journey:</td></tr>
<tr><td colspan="2">Telephone:</td></tr>
<tr><td colspan="4">Total expected DURATION (hours/days):</td></tr>
<tr><td colspan="2">Place of DEPARTURE:</td><td colspan="2">Place of DESTINATION:</td></tr>
<tr><td>DATE</td><td>TIME</td><td>DATE</td><td>TIME</td></tr>
<tr><td>Species</td><td>No of animals</td><td colspan="2">Veterinary certificate(s) number(s)</td></tr>
<tr><td colspan="2">Estimated total weight (in kg) of the consignment</td><td colspan="2">Total space provided for the consignment (in m²)</td></tr>
<tr><td colspan="4">List of scheduled resting places</td></tr>
<tr><td>Name of the</td><td>ARRIVAL</td><td>Travel Length</td><td>Transporter’s name and License</td></tr>
</table>

places where animals are to be rested	DATE	TIME	(in hours)	No (if different from the organizer)
I, the organizer, hereby declare that I am responsible for the organization of the above-mentioned journey and I have made suitable arrangements to safeguard the welfare of animals throughout the journey in accordance with the provisions of the livestock handling and transport guideline.				
Name and signature of the Organizer				

Form 2. Place of departure (animal keeper)

Animal KEEPER at the place of departure – Name and address		
Date and time of animal loading	Number of animals loaded	Plate No. of the transport vehicle
I, the keeper of the animals at the place of departure, hereby declare that I have been present at the loading of animals. According to my knowledge, at the time of loading the above mentioned animals were fit for transport and the facilities and procedures for handling animals were in accordance with the provisions of the Livestock Handling and Transport Guideline.		
Signature of the keeper at the place of departure		
ADDITIONAL CHECKS AT DEPARTURE		
INSPECTOR VETERINARIAN at the place of departure (name and address)		
I, the inspector veterinarian, hereby declare that I have checked and approved the loading of animals mentioned above. According to my knowledge, at the time of departure, animals were for fit transport and the means of transport and the transport practices were in accordance with the provisions of the Animal Welfare Guideline No.		
Signature of the INSPECTOR VETERINARIAN		

Form 3. Place of destination

KEEPER at the place of destination/INSPECTOR VETRINARIAN – Name and address			
Place/destination/Checking point		Date and time of the check	
Checks Performed		OUTCOME OF THE CHECKS	
		COMPLIANCE	RESERVATION(S)
Transporter License number		☐	☐
Driver No. of driving license		☐	☐
Means of transport Plate No.		☐	☐
Space Allowances: Average space/animal in m^2:		☐	☐
Journey log records and journey time limits		☐	☐
Animals (specify the number for each category)			
Total checked	U (Unfit)	D (Dead)	F (Fit)
I, the keeper of the animals at the place of destination/official veterinarian, hereby declare that I have checked this consignment of animals. According to my knowledge at the time of the check, the abovementioned findings were recorded. I am aware that the competent authorities should be informed as soon as possible of any reservation there may be and each time dead animals are discovered.			
Signature of the keeper at the place of destination/inspector veterinarian			
OFFICIAL STAMP			

Form 4. Declaration by transporter

To be completed by the driver during the course of the journey and to be available to the competent authority of the place of departure within one month of the date of arrival at the place of destination.

Actual itinerary – Resting, transfer or exit points						
Place and address	Arrival		Departure		Length of stop in hrs	Reason
	Date	Time	Date	Time		
Reason for any difference between actual and proposed itinerary/Other observation						Date and time of Arrival at the place of destination
Number and reason for animal injuries and/or deaths during the journey						
DRIVER(S)'s name and signature			Transporter's name, License No.			
As the transporter, I hereby certify that the entries above are correct and I am aware that any incident during the journey that leads to animal death should be declared to the competent authority of the place of departure. Date and place: Transporter's signature:						

Form 5. Anomaly report (to be attached to form No. 4)

DECLARANT'S name, title and address:			
Place where the anomaly was observed			Date and time when the anomaly was observed
TYPE OF ANOMALY(IES)			
Fitness for transport			Space allowances ☐

Means of transport ☐	Transporters authorization ☐
Transportation practices ☐	Driver certificate of competence ☐
Journey time limits ☐	Journey log records ☐
Additional provisions for long journey ☐	Other ☐
Remarks	
I hereby declare that I have checked the consignment of the abovementioned animals and have expressed the reservations detailed in this report concerning compliance with the provisions of the Livestock Handling and Transport Guideline on the protection of animals during transport and related operations.	
Date and time of the declaration to competent authority	Signature of the declarant