

Indian Standard

TRANSPORT OF LIVESTOCK

(पशुओं का परिवहन)—

CODE OF PRACTICE

(रीति संहिता)

भारतीय मानक
पशुओं का परिवहन — रीति संहिता
(पहला पुनरीक्षण)

Indian Standard
TRANSPORT OF LIVESTOCK —
CODE OF PRACTICE
(*First Revision*)

ICS 03.220.01; 65.020.30

© BIS 2007

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Livestock Feeds, Equipments and System Sectional Committee had been approved by the Food and Agriculture Division Council.

Animals are transported in large numbers by rail, road, air and sea. These animals are transported for a variety of purposes such as breeding, dairy production, slaughter, other agricultural purposes, etc. This Code is aimed to facilitate a workable balance between the best interests of the animals and the transportation industry. Transportation can be one of the most stressful situations an animal experiences and can cause a number of physiological and behavioural changes. This Code recognizes the basic principle that humaneness towards animals is the prime consideration in animal transportation and that animals which are treated well and protected from stress arrive at their destination in far better physical and mental condition. This translates into significant benefits and economic advantages no matter what the reason for transport.

This Code is aimed to serve as a guide to commercial transporters, producers, hobbyists and industries that utilize animals in assessing their facilities, equipment and practices with regard to livestock transportation and may provide guidance for improvement in deficient areas.

This Code has been revised to take into account changes in practices of animal management and knowledge of animal welfare. Earlier there were three standards on transport of livestock: IS 4157 (Part 1) : 1981 'Transport of Equines (horses, ponies, mules, and donkeys) by rail, road, air and sea', IS 4157 (Part 2) : 1968 'Transport of cattle by rail and road', and IS 4157 (Part 3) : 1983 'Transport of sheep and goats by rail and road'. It was decided to amalgamate them into one standard making it more comprehensive and user-friendly and also to update the standard during formulation of this Indian Standard. With the publication of this standard the above mentioned standards shall be withdrawn.

This Code is voluntary. All provincial and federal acts and regulations take precedence. This Code, in general, is intended for use as a guide and educational tool in promoting sound animal transportation and welfare practices.

In the preparation of this standard, due consideration has been given to the *Prevention of Cruelty to Animals Act*, 1960 and the Rules framed thereunder. However, it is subject to the restrictions imposed under this Act, wherever applicable.

The Committee responsible for the formulation of this standard is given at Annex E.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TRANSPORT OF LIVESTOCK — CODE OF PRACTICE

(*First Revision*)

1 SCOPE

This standard prescribes the conditions for the transport of livestock (cattle, sheep, goat and equines) by rail and road, of live domesticated animals (cattle, buffalo, deer, camelids, sheep, goats, pigs, equines and others) by sea, and of various species of animals by air. The recommendations contained herein do not claim to be comprehensive for all circumstances but attempt to define high standards for livestock transportation on a species by species basis.

2 TERMINOLOGY

For the purpose of this Code the following definitions shall apply.

2.1 Animal, means any cattle, sheep, goats or horses in the case of road and rail transport; cattle, buffalo, deer, camelids, sheep, goats, pigs, equines and others in the case of sea transport; and horses, cows, deer, reindeer, sheep, goats, pigs and any other species the Code can be applied to.

2.2 Animal Handler, means a person directly in charge of the welfare of the animal who is responsible for the humane handling and care of the animals during the journey.

2.3 Assembly Centre, means a place such as a holding, collection centre, shandy or market at which animals from different holdings are grouped together to form consignments.

2.4 Buying Agents or Selling Agents, means a buyer and seller of animals who may act as a middleman between the owner and the buyer.

2.5 Cattle, includes any cow bull/bullock, buffalo bull/bullock, cow, buffalo, *mithun*, yak or calf.

2.6 Competent Authority, means the central authority of a government competent to carry out checks on animal welfare, set animal welfare and training standards or any authority to which it has delegated that competence.

2.7 Dead Air Space, means an unventilated area where no air circulates.

2.8 Exporter, shall mean any person responsible for sending animals from one country to another.

2.9 Exporting Country, means a country from which the animal is sent to another country.

2.10 Goads, shall mean any device used to encourage animals to move.

2.11 Horse, includes any hinny, ass, pony, mule or donkey.

2.12 Journey, means the entire transport operation from the place of departure to the place of destination including any unloading, accommodation and loading occurring at intermediate points in the journey.

2.13 Importing Country, means a country that is the final destination to which animals are sent.

2.14 Livestock Containers or Container, means any crate, box receptacle or other rigid structure used for the transport of animals by road, rail, sea or air which is not a means of transport.

2.15 Long Haul Journey, means a journey that will not be completed within 10 hours, including loading and unloading, and a journey that will extend over more than 1 day of travel, including rest periods.

2.16 Master of Vessel, shall mean the person who is responsible for general administration and navigation of the vessel.

2.17 Means of Transport, means vehicles used for the transport of animals.

2.18 Managers, shall mean any person who is authorized to exercise discretion on and oversee the day-to-day operations of any facility that handles animals.

2.19 Official Veterinarian, means the veterinarian appointed by the competent authority.

2.20 Open Containers, shall mean the containers that are not closed from the top.

2.21 Owners, shall mean any person with possession of the animal.

2.22 Place of Departure, means the place at which the animal is first loaded onto a means of transport provided it has been accommodated there for at least 48 hours prior to the time of departure. An assembly centre may be considered a place of departure if

animals have been accommodated with bedding, un-tethered if possible, fed and watered prior to the time of departure.

2.23 Place of Destination, means the place at which an animal is unloaded from a means of transport and is either accommodated for at least 48 hours prior to a time of departure or is slaughtered.

2.24 Place of Rest or Transfer, means any stop during the journey which is not a place of destination, including a place where animals have changed the means of transport with or without being unloaded.

2.25 Transport, means the movement of animals effected by one or means of transport and the related operations including the period immediately before loading, including any waiting periods, loading, transfer, rest periods and unloading at the place of destination.

2.26 Restraining Nets Container, shall mean and include containers with nets made of suitable materials.

2.27 Transporter, means any person transporting animals on his own account, or on the account of another party.

2.28 Keeper, means the owner of the animal or other person having custody of the animal.

2.29 Vehicle, means a means of transport, which in the case of road and rail is fitted with wheels, which is propelled or towed.

2.30 Veterinary Authority, means a veterinarian or veterinary service appointed by the competent authority.

3 ANIMAL WELFARE PRINCIPLES

3.1 General

3.1.1 This Code strives to promote acceptable standards of animal husbandry and handling of animals undertaking a journey by road, rail, air or sea. This Code is intended as a guideline for the people who are involved in transport of animals.

3.1.2 This Code takes account of following principles:

- a) That there is a critical relationship between animal health and animal welfare.
- b) That the use of animals carries with it an ethical responsibility to ensure the welfare of such animals to the greatest extent practicable.
- c) That the internationally recognized 'five freedoms' (freedom from hunger, thirst and malnutrition; freedom from fear and distress; freedom from physical and thermal discomfort; freedom from pain, injury and disease; and freedom to express normal

patterns of behaviour) provide valuable guidance in animal welfare.

3.1.3 All animal transport creates some degree of stress; therefore unnecessary transport should be avoided. Any transport that is necessary shall be carried out in a way that minimizes stress, pain and suffering. In particular the following conditions shall be complied with:

- a) All necessary arrangements must be made in advance to minimize the length of the journey and meet the animal's needs during the journey;
- b) Animals must be fit for the intended journey;
- c) Means of transport as well as the loading and unloading facilities must be designed, constructed, maintained and operated so as to avoid injury and suffering and ensure the safety of the animals;
- d) People that handle animals must be trained and competent as appropriate for this purpose and must carry out their tasks without using violence or any method likely to cause unnecessary fear, injury or suffering;
- e) Transport must be carried out without delay to the place of destination and the welfare conditions of the animals must be regularly checked and appropriately maintained;
- f) Sufficient floor area, height and other spacing requirements must be provided for the animals, appropriate to their size and the intended journey; and
- g) Water, feed and rest must be offered to the animals at suitable intervals and should be appropriate in quality and quantity to their species, size and age.

3.2 Minimizing Stress

3.2.1 Stress is a cumulative response of an animal to its surroundings and may result in severe behavioural and physiological effects. Animals of different species and breeds may vary in their susceptibility to stress as may individuals of the same species or breed due to their temperament and past experiences.

3.2.2 Animals being transported are subjected to a number of stressors which may include:

- a) gathering and handling;
- b) deprivation of, or changes in quantity or the quality of food and water;
- c) extremes of temperature or change in climatic conditions;
- d) the grouping of animals strange to each other both within and between species;
- e) separation from others of the animals' own kind;

- f) unfamiliar surroundings, noises and sensations;
- g) overcrowding or isolation;
- h) fatigue; and
- j) exposure to disease.

3.2.3 Animals may be stressed by being gathered together and held ready for transport and those unaccustomed to handling, are likely to be the most severely affected.

3.2.4 Sensitive and sensible animal handling and care should be practiced in order to reduce stress to individual animals and those nearby.

3.2.5 Animals brought to loading and handling facilities should be moved as carefully as possible so that their condition is maintained for transport.

3.2.6 Extremes of weather will increase the stressful effects of handling and transport.

4 TRANSPORT OF LIVESTOCK BY LAND (ROAD AND RAIL)

4.1 Responsibilities

4.1.1 The welfare of animals during transport by road and rail is the joint responsibility of all people involved.

4.1.1.1 Keepers of animals are responsible for the careful selection of livestock for their fitness for the journey, and their welfare during the journey. They also share responsibility with transporters for ensuring compliance with any required veterinary or other certification and for the presence during the journey of at least one animal handler competent with the species being transported and with the authority to take prompt action.

4.1.1.2 Business agents or buying/selling agents have joint responsibility with keepers for the selection of animals that are fit to travel.

4.1.1.3 Animal handlers shall be responsible for the humane handling and care of the animals, especially during loading and unloading. In the absence of a separate animal handler the driver is considered to be the animal handler.

4.1.1.4 Transporters shall be responsible for planning the journey to ensure the care and welfare of the animals during transport until discharged at the place of destination.

4.1.1.5 Transporters shall be responsible for selection of appropriate vehicles or containers for the species being transported and their maintenance. They are also responsible for ensuring that the animal handlers they use have been properly trained.

4.1.1.6 Transporters shall be responsible for the

preparation of any required documentation including contingency plans in the event of any emergencies and for journey plans for long haul journeys.

4.1.1.7 Transporters have the right to refuse to transport animals. They must refuse to transport any animal they consider unfit and should ask for a veterinary opinion in writing where doubt exists.

4.1.1.8 Drivers and animal handlers shall be responsible for loading animals which are fit to travel and the animals care and welfare during transport.

4.1.1.9 Drivers and animal handlers shall be responsible for frequent inspection of animals during the journey. They must assist distressed or injured animals immediately, as soon as they become aware of a problem affecting the welfare of the animals being conveyed. Should any difficulties arise which are outside the competence of the animal handler assistance, should be sought.

4.1.2 Additional Functions: Owners and Managers of Assembly Centres

4.1.2.1 Owners of assembly centres at the start or end of the journey and at resting points used during the journey shall be responsible for providing suitable premises for loading, unloading, securely holding animals and protecting them from extremes of weather by providing appropriate shade or shelter.

4.1.2.2 Owners of assembly centres shall be responsible for providing appropriate facilities for feeding and watering of animals and are jointly responsible with the manager of the assembly centre for ensuring that animals are provided with water and, where appropriate, fed.

4.1.2.3 Owners and managers of assembly centres shall be jointly responsible for providing competent animal handlers to load, unload, drive and care for animals.

4.1.2.4 Owners and managers of assembly centres shall be jointly responsible for providing appropriate facilities for emergencies including the treatment of sick, injured or diseased animals by a veterinarian or timely euthanasia or slaughter by a veterinarian or suitably trained individual.

4.1.2.5 Owners and managers of assembly centres shall be jointly responsible for minimizing the risk of disease transmission including the provision of facilities for cleaning out vehicles.

4.1.3 Additional Functions: Official Veterinarians of Assembly Centres

4.1.3.1 The official veterinarian must supervise the unloading and arrival of animals at the assembly centre and inspect all animals as soon as possible after arrival and deal appropriately with any that are ill, sick or

injured. The official veterinarian must also make the required checks of the load against the transport documentation provided.

4.1.3.2 The official veterinarian must supervise the transport to the nearest slaughter facility of animals that cannot be unloaded from vehicles because to do so would cause unnecessary pain, distress and suffering.

4.1.3.3 The official veterinarian must treat or supervise the treatment of any animals that, on arrival, are ill, sick or injured in the designated isolation facilities.

4.1.3.4 The official veterinarian must monitor the welfare of all animals within the assembly centre area. When animals become ill, sick or injured whilst in the assembly centre, the official veterinarian must arrange for their treatment *in situ* or move and treat in the designated isolation facility.

4.1.3.5 The official veterinarian must monitor the handling of all animals in the assembly centre and ensure that animals are handled appropriately at all times.

4.1.3.6 The official veterinarian must ensure that all animals are provided with shade, shelter food and water as necessary and that they are tethered securely in a way which does not cause unnecessary discomfort, pain or suffering.

4.1.3.7 The official veterinarian must supervise the loading of animals from the assembly centre and ensure that all animals are fit for the intended journey and provide the necessary veterinary certification.

4.1.3.8 The official veterinarian must carry out checks on the assembly centre facilities to ensure they are properly maintained and there is nothing that is likely to cause injury or unnecessary suffering. Where faults are found, the veterinarian must ensure these are rectified. The results of these checks and the corrective actions taken should be recorded.

4.1.4 *Additional Functions: Official Veterinarians of Slaughter Houses as Place of Destination with Regard to Unloading*

The official veterinarian must supervise the unloading and arrival of animals at the slaughter house and inspect all animals and ensure any that are ill, sick or injured are dealt with appropriately. The official veterinarian must also make the required checks of the load against the transport documentation provided.

4.1.5 *Additional Functions: Transport by Rail*

4.1.5.1 When animals are transported by rail, the Railway Board is considered to be the transporter and should comply with the responsibilities set out in **4.1.1** to **4.1.1.7**.

4.1.5.2 Each loaded wagon should be provided with at least one animal handler to look after the animals. They must have the authority and be able to communicate with the driver of the train to stop or delay the transport in order to care for the animals.

4.1.5.3 The Railway Board is responsible for ensuring fire precautions are strictly observed. No smoking shall be permitted. Fire fighting equipment shall accompany the transport.

4.1.5.4 Animal handlers are responsible for complying with fire safety rules.

4.2 SKILLS

4.2.1 All those handling animals, or who are otherwise responsible for animals during journeys (including farmers, transporters, animal handlers, managers, owners and drivers) should be competent according to their functionalities listed in Section 4. Skills may be gained through formal training and/or practical experience.

4.2.2 The assessment of the skills of animal handlers, drivers and transporters should as a minimum address knowledge, and the ability to apply that knowledge, in the following areas as relevant:

- a) Planning a journey, including appropriate space allowance, feed, water and ventilation requirements;
- b) Responsibilities for animals during the journey, including loading and unloading, adequate separation and provision of sufficient space;
- c) Sources of advice and assistance;
- d) Animal behaviour, general signs of disease, and indicators of poor animal welfare such as stress, pain and fatigue, and their alleviation;
- e) Relevant authorities and applicable transport regulations, and associated documentation requirements;
- f) General disease prevention procedures, including cleaning;
- g) Impact of the motion of transport on the welfare of the animals;
- h) Methods of inspecting animals, managing situations frequently encountered during transport such as adverse weather conditions, and dealing with emergencies;
- j) Species specific aspects of animal handling and care, including feeding watering and inspection; and
- k) maintaining records and completion of documentation.

4.2.3 The skills of animal handlers, drivers and transporters should be demonstrated through a process of training and formal certification. Certification should be by an independent body approved by the competent authority.

4.2.4 Transporters, drivers, animal handlers, veterinarians and others handling animals must meet standards set out by the competent authority for their jobs and undergo any required training developed by the competent authority.

4.3 Documentation

4.3.1 Each consignment of animals shall be accompanied by appropriate documentation or bear a label (in bold letters clearly visible from distance) showing the following particulars:

- a) Name, address and telephone number (when available) of the consignor;
- b) Name, address and telephone number (when available) of the consignee;
- c) Number and types of animals being transported;
- d) Feed provided for the planned journey;
- e) Date and time of loading of first animal;
- f) Date and time of last watering and feeding;
- g) Date and time of next feeding and watering;
- h) Likely date and time of unloading of last animal; and
- j) For road vehicles, the name of driver with address and telephone number (when available).

4.3.2 Animals shall be accompanied by valid veterinary certification issued by an official veterinarian. This should include identification of the animal (description and numbers and identifying brands or marks); health status including test, treatment and vaccination status, statement of fitness to travel and details of any at risk animals.

4.3.3 Where animals are being transported on long haul journeys the documentation should include a travel plan, to include details of estimated transport times, stocking densities, scheduled resting or transfer points and arrangements for feeding and watering. As the journey proceeds a detailed journey logbook should be kept.

4.3.4 Animals shall not be loaded until the required documentation is complete.

4.4 Pre-travel Rest Period/Preparation of Animals

4.4.1 Animals should be exposed to appropriate contact with humans and handling conditions (including methods of restraint) prior to transport to minimize the risk of distress, pain or injury.

4.4.2 If animals are to be provided with a new or novel diet or method of water provision during transport an adequate period of adaptation should be undertaken.

4.4.3 A rest period appropriate to the species, after collection or assembly and before loading is beneficial and should be added to the pre-transport timetable. Where gathering is undertaken over a large area which would subject the animals to excessive stress, animals should be provided with 24 h of rest and access to food and water. Food should be withdrawn for the last 2 - 4 h before transport, appropriate to the species.

4.4.4 Behaviour modifying compounds (such as tranquilizers) should not be used prior to or during transport. Such compounds should only be administered when a problem exists in an individual animal, and should only be administered by a veterinarian or other person who has been instructed in their use by a veterinarian. Any treatment and by whom administered must be included in accompanying transport documentation.

4.5 Fitness to Travel

4.5.1 General

4.5.1.1 Owners of animals or their agents have a responsibility to select only fit and healthy animals for transport and those best suited to cope with the distance and the nature of the journey. The following points should be taken into account when selecting animals for transport:

- a) Body condition,
- b) Clinical evidence of disease or parasitism,
- c) Injuries or other physical defects,
- d) Stage of pregnancy, and
- e) Age.

4.5.1.2 An animal which is unfit shall not be transported. In particular animals which are new born (where the navel has not healed), diseased, emaciated, lame, fatigued, or having given birth during the preceding 72 h or likely to give birth during transport shall not be transported.

4.5.1.3 Animals shall be able to stand and bear weight on all four limbs. To bear weight means that the animal must be able to take weight on all four limbs without suffering unnecessary pain or distress to stabilize itself during transport.

4.5.1.4 An animal with any leg broken shall not be transported except under the supervision of a veterinary surgeon to a place of further treatment or slaughter.

4.5.1.5 Animals, blind in one eye, that are otherwise fit to travel may be transported provided they travel

with another animal from an established social group and will not suffer unnecessary distress. Animals which are blind in both eyes are unfit to transport.

4.5.1.6 Transporters have a responsibility for animals that are accepted for transport and shall refuse to transport animals they consider to be unfit to travel. A written veterinary opinion should be obtained where any doubt exists about the fitness of any animal to travel.

4.5.1.7 Veterinary officials shall at least follow the requirements laid down in Annex A when determining whether an animal is fit to travel.

4.5.1.8 Proper arrangements should be made by the owner or agent for the handling and care of animals rejected at loading as unsuitable for transport. Where an animal is not fit to travel and is experiencing pain, suffering or distress immediate veterinary assistance must be obtained for the animal or it must be humanely destroyed without delay as described in **4.5.3.3**.

4.5.2 *Emergency Transport*

4.5.2.1 There will be occasions where an animal that would not normally be selected for transport may be transported in an emergency for further treatment or slaughter in order to relieve pain, suffering and distress.

4.5.2.2 Animals requiring emergency transport must only be handled on to the vehicle in a way which causes no significant or lasting pain, injury or distress; where possible under veterinary supervision. The following points should be considered while taking a decision to transport an animal in an emergency:

- a) Animal should arrive at the destination in a state similar to that when loaded,
- b) There should be little likelihood that transport will cause the animal significant additional pain, suffering or distress,
- c) Nature and duration of the journey should be taken into account (it should be as short as possible), and
- d) Need for separation, bedding and/or padding and any other appropriate supportive treatment should be considered.

4.5.3 *Sick or Injured Animals in Transit*

4.5.3.1 When animals become ill or are injured during transport, they should be separated from others and receive appropriate treatment as soon as possible.

4.5.3.2 Veterinary first-aid equipment, with an attendant trained in rendering first-aid, shall accompany all batches of animals.

4.5.3.3 When euthanasia or slaughter is necessary at any point during transportation or at a rest stop or

assembly centre it should be carried out by a veterinarian or suitably trained individual.

4.6 *Means of Transport*

4.6.1 *Provisions for All Means of Transport*

4.6.1.1 Means of transport shall be designed, constructed, maintained and operated so as to avoid injury and suffering to and ensure the safety of the animals. They shall be appropriate for the species, size and weight of the animals to be transported, maintained in good mechanical and structural condition and shall not be used to transport any other goods or merchandize during the transport of animals.

4.6.1.2 Means of transport shall be designed, constructed, maintained and operated so that animals can be safely loaded and unloaded without the use of unnecessary force or risk of injury from falling or being dragged, lifted or thrown.

4.6.1.3 Where required, to separate animals or limit movement, vehicles shall be fitted with internal divisions such as breast bars or partitions. Any internal divisions shall be strong enough to withstand the weight of animals and fitted to permit quick and easy operation.

4.6.1.4 Any external doors and internal gates shall be large enough to permit animals to pass through easily without bruising or injury. Special attention should be paid to the avoidance of injury to animals through the use of secure, smooth fittings free from sharp protrusions. Floors of animal areas should be non-slippery.

4.6.1.5 Means of transport shall be designed, constructed, maintained and operated so that animals cannot fall out or escape and no part of an animal can protrude in a way that might cause injury.

4.6.1.6 In order to minimize the risk of spread of disease, means of transport shall be designed to permit thorough cleansing and disinfection.

4.6.1.7 Provision should be made for the drainage and/or absorption of urine. Means of transport should be designed so that the faeces or urine from animals on upper levels does not soil animals on lower levels, nor their feed or water.

4.6.1.8 Means of transport shall provide protection from inclement weather, extreme temperatures and adverse changes in climatic conditions.

4.6.1.9 Where animals are to be fed, watered and rested on the means of transport it must be suitably designed and equipped for the purpose.

4.6.1.10 The means of transport shall have sufficient access and, if used during the hours of darkness, a means of lighting to permit animals to be inspected and cared for.

4.6.1.11 Sufficient space shall be provided inside the animal compartments and at each level to ensure that there is adequate ventilation and enough room overhead to enable animals to travel in a natural position without risk of injury.

4.6.2 Additional Provisions for Transport by Rail

4.6.2.1 Animals should be transported by passenger trains only. In areas where such trains do not operate, animals may be transported by goods trains provided that special precautions are taken.

4.6.2.2 The Railway Board must ensure that wagons are suitable for the species of animals being transported. In particular horses shall be transported in EH or EHH horse boxes.

4.6.2.3 In order to limit the risk of fire, animal wagons shall not be attached immediately after the engine.

4.6.2.4 The Railway Board should establish effective liaison with experts on animal husbandry and welfare and consult routinely on the appropriate design and construction and modification of existing or new rolling stock, animal assembly yards and other facilities.

4.6.3 Additional Provisions for Transport in Containers

4.6.3.1 Unless livestock can be seen easily from outside the containers, every container used to transport animals shall have a sign or symbol to indicate that it contains live animals and to show its upright position.

4.6.3.2 During transport and handling containers shall always be kept upright and severe jolts or shaking shall be minimized.

4.6.3.3 Containers used for transporting animals shall be securely placed, and if necessary fixed on vehicles to prevent them from moving during the journey.

4.7 Loading and Unloading

4.7.1 General

4.7.1.1 Loading has been shown to be one of the most stressful parts of the transport process for the animals; in order to protect their welfare it should be carefully planned.

4.7.1.2 Loading and unloading should be carried out or supervised by experienced animal handlers. They must ensure animals are handled quietly and without any unnecessary noise, harassment or force and that untrained assistants or spectators do not impede the process.

4.7.1.3 The facilities for loading and unloading (collecting areas, races and ramps) should be designed and constructed to take into account the needs and abilities of the animals with regard to dimensions, slopes, floor surfaces and the absence of holes, gaps,

sharp edges or projections which might injure animals.

4.7.1.4 Ramps should be positioned to present the minimum possible incline to the animals. They should be fitted with a system such as foot battens which ensures that animals can climb up or go down without risk or difficulty. The width of any ramp should be suitable enough for animals to safely use and the top shall be level with the floor of the vehicle. The ramps should have side protection and non-slip floors. Ramps shall be aligned so that there are no gaps where an animal might become trapped and injured.

4.7.1.5 Where purpose built ramps or platforms are not available, improvised ones should be used for loading and unloading.

4.7.1.6 Loading and unloading facilities should be properly lit to allow animals to be seen by the animal handlers and encourage the animals' forward movement. Uniform lighting should be provided directly over the approaches to sorting pens, raceways, and ramps as animals may balk or stop at contrasting shadows, bright spots, and changes in floor surface.

4.7.1.7 Where animals are to be transported in hot or humid conditions loading should take place in the coolest part of the day to reduce the risk of heat stress.

4.7.1.8 Animals shall be unloaded as soon as possible after arrival at the place of destination with sufficient time allowed for unloading to proceed quietly and without any unnecessary noise, harassment or force.

4.7.1.9 At the destination there should be appropriate facilities and equipment, such as a sturdy drag mat, for the humane unloading of animals that are not able to walk due to fatigue, injury or sickness. These animals shall be unloaded in a manner which causes the least amount of pain, distress or suffering. After unloading these animals shall be penned separately and given appropriate care by the animal handler or other responsible person.

4.7.2 Additional Requirements for Rail

4.7.2.1 In the case of a railway wagon, when the loading and/or unloading is done from the platform the dropped door of the wagon may be used as ramp. In such cases bales or bags of hay should be placed on either side of the dropped door to prevent the animals' legs becoming trapped between side of the wagon and the platform edge.

4.7.2.2 Where animals are loaded on the top deck of multi-deck transport units or containers, particular care needs to be taken to ensure that animals cannot rear up above the height of the deck or container sides. Animals must not be loaded on the top deck, if there is any risk of animal striking their heads on low bridges or other obstructions.

4.7.2.3 Animals shall be loaded parallel to the rails, facing each other.

4.8 Handling

4.8.1 General

4.8.1.1 In a new situation or location, all normal, healthy animals whilst being alert and inquisitive may behave very differently to how they would normally within familiar surroundings. Animals should be handled by competent people who understand basic animal behaviour and are able to apply it practically when they handle and care for animals.

4.8.1.2 Animals should not be rushed when being moved, loaded or unloaded.

4.8.1.3 Painful procedures (including whipping, tail twisting, use of nose twitches, pressure on eyes, ears or external genitalia) or the use of sticks with sharp ends, lengths of metal pipe or leather belts shall not be used.

4.8.1.4 Animals shall not be lifted or dragged by their tail, head, horns, ears, limbs, wool or hair. Manual lifting of small animals is permitted provided it is done in a way that causes no pain, distress or suffering. Animals shall not be thrown, dropped.

4.8.1.5 Any goad, stick or other handling aid shall only be used where animals have refused to move forward when there is room for them to do so. The use of electric prods is discouraged for all species; should only be used on the hindquarters of adult cattle and shall not be applied to the head, genitalia or any other sensitive part of the body.

4.8.1.6 Permitted handling aids such as flags, bags or sacks should be used in a way that is sufficient to encourage and direct forward movement but without physical contact with the animal. Rump straps (easy-loaders) can be used for animals that are reluctant to load.

4.8.1.7 Injurious objects or irritant substances shall not be applied to any part of the animal as a means of getting the animal to move.

4.8.2 Handling of Sick and Injured

4.8.2.1 All animals must be inspected by the official veterinarian at the point of unloading. Signs of health are:

- a) Head up, alert with clean eyes and a moist nose;
- b) No discharges from the eyes or nose or excessive drooling from the mouth;
- c) Excreta is of fairly thick consistency and free from blood;

- d) Urine is straw coloured;
- e) Animals walk easily without sign of lameness or staggering;
- f) No coughing or wheezing with a normal quiet breathing pattern;
- g) Active interest in immediate surroundings;
- h) No groaning, teeth grinding, kicking belly, arching back;
- j) No abnormal lumps, lesions, sores, bruises, welt marks or open wounds;
- k) Dry, clean, shiny coat or healthy fleece and healthy pink skin and gums; and
- m) No signs of heat stress (panting, sweating, restlessness, salivation, exhaustion, collapse).

4.8.2.2 Sick or injured animals that can move unaided off the vehicle must be moved to the designated isolation/treatment area without delay at the assembly centre or destination point.

4.8.2.3 Sick or injured animals which cannot walk must only be manually moved off the vehicle, if the animal can be lifted easily by two people (small calves, goats or sheep).

4.8.2.4 Larger animals that cannot walk and cannot be lifted easily by two people must be moved by means of a board, sled or mat that is specifically provided for the purpose and then only by persons trained in its use.

4.8.2.5 Where an animal, because of the extent of the injuries or its size, cannot be moved by a board, sled or mat without causing significant pain, distress or risk of further injury it must be immediately treated where it lies by the official veterinarian, euthanized or slaughtered by a qualified butcher. Alternatively, if on the vehicle, the animal must be transported direct to where it can be slaughtered.

4.8.2.6 Sick or injured animals must never be lifted or dragged by the head, horns, ears, feet, tail, or any other part of the body which might cause unnecessary suffering.

4.8.2.7 Transporters and animal handlers must inform the veterinary official in attendance of any sick or injured animals that arrive or are on the premises of assembly centres or at destination.

4.8.2.8 Handling of sick or injured animals at assembly centres shall at least comply with the requirements laid down in Annex B.

4.8.2.9 Handling of sick or injured animals at places of slaughter shall at least comply with the requirements laid down in Annex C.

4.9 Separation

4.9.1 Wherever possible animals reared together should

be maintained in that social group for transport or compatible groups established at least one week prior to the journey. Animals with a strong social bond should be transported together.

4.9.2 The following animals shall be transported separately:

- a) Animals of different species;
- b) Animals of significantly different size or age, with the exception that dam and offspring should be transported together;
- c) Adult breeding stallions;
- d) Sexually mature males from females;
- e) Sick or injured animals, when transported for treatment;
- f) Animals which are hostile to each other;
- g) Animals with horns should not be mixed with animals without horns; and
- h) Tied animals with untied animals.

4.9.3 Points above need not apply where animals have been reared in compatible groups, are accustomed to each other, where separation will cause distress or where females are accompanied by dependent young.

4.9.4 Separation of animal groups on the vehicle shall be achieved by the use of partitions or by tying compatible groups together.

4.10 Leading, Tying and Tethering

4.10.1 Animals must be led, tied and tethered during handling and transport in a way that does not cause them unnecessary pain, injury or distress. Methods of leading, tying or tethering should be appropriate to the species, previous training and past experience of the individual animal.

4.10.2 Animals should not be tethered within an assembly centre if they have not been used to tethers, but should instead be penned with sufficient space for each animal to get up, turn around and lie down without difficulty. When animals are tethered the ties should be such that animals can get up and lie down without difficulty and there is a minimum risk of the animals becoming entangled. They must be tied so that they can have an access to water and food provided.

4.10.3 When cattle are tied during transport the ropes or ties used need to be strong enough not to break during normal transport conditions; allow the animals to travel in a normal upright position; tied in such a way as to eliminate any danger of strangulation or injury and allow animals to be quickly released.

4.10.4 Cattle should only be tied by the nose in exceptional circumstances where, because of their size and temperament, they might injure handlers, other

animals or themselves. There must be tools available to be able to release tethered animals in the event of an emergency. Sheep and goat must not be tied by the nose.

4.10.5 Animals shall not be hobbled or tied by the legs within an assembly centre or for transport.

4.10.6 Sheep and goat must not be tied but instead must be transported in a secure vehicle with adequate ventilation and from which they cannot fall out or escape.

4.11 During Transport

4.11.1 Animals should be transported from point of origin to final destination by the safest route available. Transportation should be completed as soon as possible.

4.11.2 Animals shall be inspected frequently during the journey to ensure their safety and welfare.

4.11.3 Means of transport shall be provided with sand, saw dust, straw bedding or other suitable material to absorb faeces and urine; provide insulation for young animals, protect animals from injury from hard flooring and prevent slipping of animals. The layer of saw dust or sand shall not be less than 3 cm thick and the thickness of straw bedding not less than 10 cm.

4.11.4 Means of transport shall be padded with suitable material where there is risk of animals being rubbed, bruised or injured by coming into contact with the sides of the vehicle or internal partitions.

4.12 Space Allowance

4.12.1 The number of animals which should be transported and their allocation to different compartments should be determined before the means of transport is loaded.

4.12.2 No animal shall be caused unnecessary pain, suffering or distress because of the amount of space allocated to it and shall not be forced into an unnatural position. All animals shall have sufficient space to stand normally. Animals must not be caused pain or injury as a result of being stocked too tightly; in particular through impact or rubbing against the vehicle side.

4.12.3 The space requirement for the animal will depend on whether or not the animals need to lie down or stand. When animals lie down, they should all be able to adopt a comfortable, normal lying posture which allows necessary thermoregulation. When animals are standing, they should have sufficient space to adopt a balanced position.

4.12.4 When cattle are tied standing either forward or backwards in the direction of travel they must have sufficient space to stand independently and adopt a

balanced position. Cattle must be placed onto the vehicle in orderly rows.

4.12.5 When cattle are tied across the direction of travel they must have sufficient space to stand independently and adopt a balanced position. There should be some clear space in front and to the rear of the animal when the vehicle is stationary and the animal is standing in a normal position.

4.12.6 Sheep and goat must have room to lie down, particularly during long journeys.

4.12.7 An animal handler must be able to comfortably move through sheep and goat. If this is not possible, it must be considered that the compartment/container is overcrowded.

4.12.8 The space allowances will need to be adjusted to take into account the design of any means of transport; length of journey need to provide food and water; journey quality or 'ride' and expected weather conditions.

4.12.9 Space allowances shall at least comply with the figures laid down in Annex D.

4.13 Temperature and Ventilation

4.13.1 General

4.13.1.1 Extreme weather conditions are hazardous for animals undergoing transport and require the use of appropriate design to minimize risks. Special precautions need to be taken for animals that are not acclimatized or which are unsuited to extreme hot or cold conditions. In some circumstances, transportation during the night may reduce the risk of heat stress. In some extremes of heat or cold, animals should not be transported at all.

4.13.1.2 Adequate airflow throughout the vehicle or container must be provided to keep the animals comfortable. Warming and cooling can predispose animals to severe respiratory problems. Weather conditions should be monitored and ventilation adjusted accordingly. Monitoring of the livestock environment inside the means of transport can be accomplished by careful animal observation.

4.13.1.3 A temperature that is normally comfortable for animals shall be maintained during transportation. No animal shall be transported where there is a risk that animals will be exposed to temperatures out of their thermal comfort zone. In particular small lambs, recently shorn sheep and animals in poor condition must be protected from climatic extremes, particularly heat or combinations of cold, wind and rain.

4.13.1.4 In hot and humid climatic conditions animals should be transported at night or during the coolest parts of the day.

4.13.2 Additional Requirements for Transport by Road

4.13.2.1 Adequate ventilation shall be ensured. Ventilation should be adjustable from the outside of the vehicle in response to temperature changes during a trip. The use of adjustable weather panels is an effective way to achieve this.

4.13.2.2 In hot weather, the animals' environment can be regulated by the flow of air produced by the movement of the vehicle. In hot weather the duration of journey stops should be minimized and vehicles parked under shade, with maximal ventilation.

4.13.2.3 In hot, wet and humid (monsoon) conditions, vehicles that are covered to protect animals from the wet must still have sufficient openings (front, side and rear) to allow sufficient airflow/ventilation for the animals.

4.13.3 Additional Requirements for Transport by Rail

4.13.3.1 To provide adequate ventilation the upper door of one side of the wagon shall be kept open and properly fixed. This door of the wagon shall have a sufficiently fine wire mesh fixed to it to prevent burning cinders from the engine entering the wagon and leading to the outbreak of fire.

4.13.3.2 In extreme, high summer temperatures, water shall be sprinkled over the wagons by the railway authorities to bring down temperature. Ice slabs in specially made containers may be placed inside the wagon, if recommended by veterinarian.

4.14 Water and Feeding Intervals, Journey Times and Resting Periods

4.14.1 General

4.14.1.1 Deprivation of food and water or changes in the quantity or quality of food and water will compound the stress associated with transportation and may result in metabolic disturbances or an increase in the numbers of pathogenic organisms in the gut.

4.14.1.2 In planning the need for, and provision of food and water, account must be taken of the total transport time from initial gathering and assembly prior to the start of the journey until unloading at the final destination, including all transit rest periods.

4.14.1.3 Unweaned calves, lambs, kids and foals which are still on a milk diet should, after 9 h of transport be unloaded, rested, fed and watered for a period of at least 15 h.

4.14.1.4 Adult cattle, sheep and goats should after 12 h of transport be unloaded, rested, fed and watered for a period of at least 12 h.

4.14.1.5 When there has been unavoidable delay and

when it is in the interest of the animals the journey times in 4.14.1.3 and 4.14.1.4 may be extended by 2 h, if the final destination can be reached in that time.

4.14.1.6 Adult horses may be transported for a maximum period of 24 h. During the journey they must be given liquid and if necessary fed every 8 h.

4.14.1.7 Clean drinking water should be provided for all animals while being held prior to loading. Water should be provided in troughs so that all ages and classes of animals can drink. It is acceptable to withdraw feed 2-4 h before transport.

4.14.1.8 On a long haul journeys, arrangements shall be made for the provision of adequate feed and water. Watering arrangements en route shall be made. Small quantities of water should be carried for emergency. Feed should be of appropriate quality and composition for the species and age of the animals.

4.14.1.9 If feeding and watering is to be carried out on the vehicle during the journey there should be adequate space for all animals to have access to the feed and water sources and due account be taken of the likely competition for feed.

4.14.1.10 On long haul journeys animals should be rested at resting points at appropriate intervals during the journey. The type of transport and species being transported should determine the frequency of rest stops and whether the animals are unloaded. There should be planning for water and feed availability during rest stops. Where possible and practical, animals at rest stops should be given sufficient freedom and space to exercise, move and stretch their limbs as appropriate to the species or individual.

4.14.1.11 Any animals in milk, without suckling young at foot, should be milked at least every 12 h.

4.14.2 Additional Provisions for Transport by Rail

4.14.2.1 The loaded wagons should be labelled as per direction in 4.3. The time of feeding and watering to the animals should be pre-planned to coincide with the halt at a railway station where such facilities are available.

4.14.2.2 Rations for the journey shall be carried in the middle of each wagon where animals are held.

4.15 Driving

4.15.1 General

4.15.1.1 Drivers and animal handlers should check immediately before departure to ensure that the animals are properly loaded. Animals should be checked again early in the journey and at regular intervals thereafter.

4.15.1.2 To reduce the risk of injury to animals', road

and rail vehicles carrying animals must be driven steadily, avoiding rapid acceleration and braking as far as possible. Corners must be rounded at an appropriate speed to reduce the centrifugal force as much as possible. Drivers of road vehicles should practice defensive driving by ensuring that adequate space is available should an emergency require an unexpected stop.

4.15.1.3 Drivers must be made aware that sudden braking can subject animals to horizontal loads as high as 33 percent of their own weight. Sudden acceleration and rapid cornering can cause horizontal forces of up to 20 percent of the animals' weight. Such loads will cause stress and may result in falls and injuries.

4.15.2 Additional Requirements for Transport by Rail

4.15.2.1 Care needs to be taken while shunting and connecting locomotives that animals are not subjected to sudden movement.

4.16 Assembly Centres

4.16.1 All places where animals are temporarily assembled for sale, show, feed, water and rest, prior to or during any journey, must have adequate facilities for the care and safe loading, unloading, handling, holding, feeding and watering of animals.

4.16.2 Assembly centres should provide appropriate shelter for animals from heat, wind and cold. Young animals, goats, recently shorn sheep and stock in poor condition must be protected from climatic extremes, particularly combinations of cold, wind and rain. Shelter for mature, healthy sheep, cattle, horses and goats from heat, wind and cold must be provided in extreme climatic conditions.

4.16.3 Assembly centres should allow for transport and/or social groups to be maintained and provide an environment safe from hazards including predators and disease.

4.16.4 Areas where animals are housed and handled must have sufficient lighting during normal operations to allow the animals to be easily inspected by the handler and to allow the animals' ease of movement at all times.

4.16.5 Provided that animals needs for feed, water and rest have been met, animals should be moved through assembly yards as quickly as possible to minimize the overall length of time in transport.

4.17 Control of Disease

4.17.1 Animal transport is often a significant factor in the spread of infectious disease, transporters must ensure the means of transport is adequately cleansed and disinfected at appropriate points in the journey.

4.17.2 All means of transport shall be visibly clean before loading any animals. They should be properly disinfected and sprayed with a solution of a reliable disinfectant before loading.

4.17.3 During any long haul journey the place occupied by the animals shall be kept clean and free from decaying fodder. Dung should be removed as frequently as possible.

4.17.4 At assembly centres the mixing of animals from different sources should be minimized. Wherever possible animals should be vaccinated against diseases to which they are likely to be exposed at their destination.

4.17.5 Once animals have been unloaded at a place of rest or transfer or the place of destination the means of transport should be thoroughly cleansed and if possible disinfected before animals are reloaded or any other consignment of animals is carried.

5 TRANSPORT OF ANIMALS BY SEA

5.1 Responsibilities

5.1.1 Once the decision to transport animals by sea has been made, the welfare of animals during their transport is paramount and shall be the joint responsibility of all people involved. These guidelines may also be applied to the transport of animals by water.

5.1.2 Exporters, owners of animals and managers of facilities shall be jointly responsible for the general health of the animals and their fitness for the journey.

5.1.3 The exporter has overall responsibility—including for the organization, carrying out and completion of the journey, regardless of whether duties are subcontracted to other parties during transport. The exporter is also responsible for ensuring that equipment and medication are provided as appropriate for the species and journey, and for the presence during the journey of enough animal handlers and veterinarians competent for the species being transported to be suitable for the numbers of animals being transported. The exporter is also responsible for ensuring compliance of the animals with any required veterinary certification and, in the case of animals for export, any other requirements of the importing country and the exporting country.

5.1.4 Business or buying/selling agents have a joint responsibility with owners for the selection of animals that are fit to travel. They have a joint responsibility with masters of vessels and managers of facilities at the start and at the end of the journey for the availability of suitable facilities for the assembly, loading, transport, unloading and holding of animals, and for emergencies.

5.1.5 Animal handlers are responsible for the humane handling and care of animals, especially during loading and unloading. To carry out these responsibilities, they should have the authority to take prompt action.

5.1.6 The exporter, the shipping company and the master of the vessel are jointly responsible for planning the journey to ensure the care of the animals, including:

- a) choosing appropriate vessels and ensuring that competent animal handlers and veterinarians are available for loading, unloading and caring for animals throughout the journey;
- b) ensuring that only animals fit for transport are permitted on ship;
- c) ensuring that any animals on boardship are provided comfortable and secure accommodation;
- d) developing and keeping up to date contingency plans to address emergencies (including adverse weather conditions) and minimize stress during transport;
- e) correct loading and unloading of the ship, regular inspections during the journey and for appropriate responses to problems arising; and
- f) disposal of carcasses according to international law.

5.1.7 To carry out these responsibilities, the people involved should be competent regarding transport regulations, equipment usage, humane handling and the care of animals.

5.1.8 Managers of facilities during loading, journey and unloading of the animals are responsible for:

- a) providing suitable premises for loading the animals;
- b) providing suitable facilities for unloading the animals onto transport vehicles for immediate movement or securely holding the animals in lairage, with shelter, water and feed, when required, for transit;
- c) ensuring that only animals fit for transport are permitted on ship;
- d) ensuring that animals on boardship are provided with comfortable and secure accommodation;
- e) providing competent animal handlers to load, unload and handle the animals in a manner that causes minimum stress and injury;
- f) minimizing the opportunities for disease transmission;
- g) providing appropriate facilities for emergencies;

- h) providing facilities for veterinary treatment and veterinarians; and
- j) providing veterinarians or competent animal handlers capable of killing animals humanely when required.

5.1.9 Veterinarians are responsible for ensuring the humane handling and treatment of animals during the journey and upon unloading, including providing medical treatment to animals and euthanasia if necessary. To carry out these responsibilities, they should have the authority to act and report independently. The official veterinarian should meet with the Master, Chief Officer and the senior animal handler on a daily basis.

5.1.10 There must be enough veterinarians on board during the journey to adequately care for any animal in need.

5.1.11 Masters, managers, owners and exporters must refuse to transport sick, injured, wild, or unmanageable animals.

5.1.12 Veterinarians must have the authority to refuse an animal on board that is sick, injured, wild or unmanageable. Animal handlers must alert masters, managers, owners, exporters or veterinarians to any animal that should be refused transport.

5.1.13 Arrangements must be made by the owner or agent for the humane handling and care of any animal rejected as unfit to travel, including any veterinary care or euthanasia, if required, by a qualified veterinarian or other suitably trained person.

5.2 Skills

5.2.1 All people handling animals or who are otherwise responsible for animals during journeys, should be competent according to their responsibilities listed in 5.1. Competence may be gained through formal training when required by the competent authority and/or practical experience.

5.2.2 Assessment of competence for animal handlers should at a minimum address knowledge, and ability to apply that knowledge, in the following areas:

- a) responsibilities for animals during the journey;
- b) sources of advice and assistance;
- c) animal behaviour, general signs of disease, and indicators of poor animal welfare such as stress, pain and fatigue, and their alleviation;
- d) relevant authorities and applicable transport regulations, and associated documentation requirements;

- e) general disease prevention procedures, including cleaning;
- f) appropriate methods of animal handling during transport and associated activities such as assembling, loading, and unloading;
- g) methods of inspecting animals, managing situations frequently encountered during transport such as adverse weather conditions, and dealing with emergencies;
- h) species-specific aspects of animal handling and care, including feeding, watering and inspection; and
- j) appropriate record keeping and journey logbook.

5.2.3 Assessment of competence for exporters should at a minimum address knowledge, and ability to apply that knowledge, in the following areas:

- a) Planning a journey, including appropriate space allowances, and feed, water and ventilation requirements;
- b) Relevant authorities and applicable transport regulations, and associated documentation requirements;
- c) Appropriate methods of animal handling during transport and associated activities such as cleaning and disinfection, assembling, loading, and unloading;
- d) Species-specific aspects of animal handling and care, including appropriate equipment and medication;
- e) Sources of advice and assistance;
- f) Appropriate record keeping and journey logbook; and
- g) Managing situations frequently encountered during transport, such as adverse weather conditions, and dealing with emergencies.

5.3 Planning the Journey

5.3.1 General Conditions

5.3.1.1 Adequate planning is a key factor affecting the welfare of animals during a journey.

5.3.1.2 Before the journey starts, plans should be made in relation to:

- a) type of transport vessel required;
- b) route, taking into account distance, expected weather and sea conditions;
- c) nature and duration of journey;
- d) daily care, management and feeding of the animals;
- e) avoiding the mixing of animals from different sources in a single pen group;

- f) provision of appropriate equipment and medication for the numbers and species carried; and
- g) emergency response procedures.

5.3.1.3 Pre-conditioning may be required. Animals should be exposed to appropriate contact with humans and handling conditions prior to transport to minimize the risk of distress, pain or injury. If animals are to be provided with a new or novel diet or method of water provision during transport an adequate period of adaptation should be undertaken.

5.3.1.4 Where there is a potential for spread of infectious disease, and when requested by the veterinary authority of the importing country, animals should be vaccinated against diseases to which they are likely to be exposed at their destination.

5.3.1.5 There should be planning for water and feed availability during the journey. Feed should be of appropriate quality and composition for the species, age, condition of the animals, etc.

5.3.1.6 Extreme weather conditions are hazardous for animals undergoing transport and require appropriate vessel design to minimize risks. Special precautions should be taken for animals that have not been acclimatized or which are unsuited to either hot or cold conditions. In months of excessive heat or cold, animals must not be transported at all.

5.3.1.7 Behaviour-modifying or other medication should not be used routinely during transport. Such medicines should only be administered when a problem exists in an individual animal, and should be administered by a veterinarian or other person who has been instructed in their use by a veterinarian. Treated animals should be placed in a dedicated area.

5.3.1.8 There should be an emergency management plan that identifies the important adverse events that may be encountered during the journey, the procedures for managing each event and the action to be taken in an emergency. For each important event, the plan should document the actions to be undertaken and the responsibilities of all parties involved, including communications and record keeping.

5.3.1.9 The requirements of 4.11.4 to 11.2 shall apply for the transportation of animals by sea.

5.3.2 Vessel and Container Design and Maintenance

5.3.2.1 Vessels used for the sea transport of animals should be designed, constructed and fitted as appropriate to the species, size and weight of the animals to be transported. Special attention should be paid to the avoidance of injury to animals through the use of secure smooth fittings free from sharp

protrusions and the provision of non-slip flooring. The avoidance of injury to animal handlers while carrying out their responsibilities should be emphasized.

5.3.2.2 Vessels should be designed to permit thorough cleaning and disinfection without adding unnecessary stress to the animals. The vessel must be kept clean and there must be routine and adequate removal of faeces and urine during the journey.

5.3.2.3 Vessels should be maintained in good mechanical and structural condition.

5.3.2.4 Vessels should have adequate ventilation to meet variations in climate and the thermo-regulatory needs of the animal species being transported. The ventilation system should be capable of operating when the vessel is stationary and the air flow should be adjustable.

5.3.2.5 The feeding and watering system should be designed to permit adequate access to feed and water appropriate to the species, size and weight of the animals, and to minimize soiling of pens.

5.3.2.6 Vessels should be designed so that the faeces or urine from animals on upper levels do not soil animals on lower levels, or their feed or water.

5.3.2.7 Loading and stowage of feed and bedding should be carried out in such a way to ensure protection from fire hazards, the elements and sea water.

5.3.2.8 Where appropriate, suitable bedding, such as straw or saw dust, should be added to vessel floors to assist absorption of urine and faeces, provide better footing for animals and protect animals (especially young animals) from hard or rough flooring surfaces and adverse weather conditions.

5.3.2.9 The above principles apply also to containers used for the transport of animals.

5.3.2.10 The vessel must have secure pens.

5.3.3 Special Provisions for Transport in Road Vehicles on Roll-On/Roll-Off Vessels or for Containers

5.3.3.1 Road vehicles and containers should be equipped with a sufficient number of adequately designed, positioned and maintained securing points enabling them to be securely fastened to the vessel.

5.3.3.2 Road vehicles and containers should be secured to the ship before the start of the sea journey to prevent them being displaced by the motion of the vessel.

5.3.3.3 Vessels should have adequate ventilation to meet variations in climate and the thermo-regulatory needs of the animal species being transported, especially where the animals are transported in a secondary vehicle/container on enclosed decks.

5.3.3.4 Good management is important to the welfare of animals carried by sea. Where a road vehicle is transported on a vessel, the driver is still responsible for the care and welfare of animals on the vehicle while at sea.

5.4 Space Allowance

5.4.1 The number of animals which should be transported on a vessel and their allocation to different pens on the vessel should be determined before loading.

5.4.2 The amount of space required, including headroom, depends on the species of animal and should allow the necessary thermo-regulation. Each animal should be able to assume its natural position for transport (including during loading and unloading) without coming into contact with the roof or upper deck of the vessel. When animals lie down, there should be enough space for every animal to adopt a comfortable, normal lying posture.

5.4.3 No animal shall be caused unnecessary pain, suffering or distress because of the amount of space allocated to it and shall not be forced into an unnatural position. Animals must not be caused pain, injury or discomfort as a result of being stocked too tightly.

5.4.4 The space allowances will need to be adjusted to take into account the design of any means of transport; length of journey need to provide feed and water; journey quality or ride and expected weather conditions.

5.4.5 Calculations for the space allowance for each animal should be carried out, using the requirements of relevant national and international animal sea transport document as a minimal standard. The size of pens will affect the number of animals in each.

5.4.6 The same principles apply when animals are transported in containers.

5.5 Ability to Observe Animals en route

5.5.1 Animals should be positioned to enable them to be observed regularly during the journey to ensure their safety and good welfare.

5.5.2 To allow an adequate inspection of animals en route, it should be possible for each animal to be clearly observed by the animal handler, veterinarian or other responsible person.

5.6 Emergency Response Procedures

Appropriate contingency plans to address emergencies should be prepared in advance.

5.7 Documentation

5.7.1 Animals should not be loaded until the

documentation required to that point is complete.

5.7.2 The documentation accompanying the consignment should include:

- a) Journey travel plan;
- b) Time, date and place of loading;
- c) Journey logbook — a daily record of inspection and important events which includes records of morbidity and mortality, climatic conditions, food and water consumed, medication provided, mechanical defects;
- d) Expected time, date and place of arrival and unloading;
- e) Veterinary certification, when required;
- f) Animal identification to allow traceback of individual animals to the premises of departure, and, where possible, to the premises of origin;
- g) Details of animals at risk;
- h) Number of animal handlers on board, and their competencies; and
- j) Stocking density estimate for each load in the consignment.

5.7.3 Veterinary certification should accompany consignments of animals address and the following:

- a) Cleaning and disinfection of the vessel;
- b) Fitness of the animals to travel;
- c) Animal identification (description, number, etc); and
- d) Health status including tests, treatment and vaccinations carried out, if required.

5.8 Pre-journey Period

5.8.1 General Considerations

5.8.1.1 Before each journey, vessels should be thoroughly cleaned and treated for animal and public health purposes, using chemicals approved by the Competent Authority. When cleaning is necessary during a journey, this should be carried out with the minimum of stress to the animals.

5.8.1.2 In circumstances where animals may require pre-journey assembly, the following points should be considered:

- a) A rest period appropriate to the species, after collection or assembly and before loading is beneficial. Where gathering is undertaken over a large area which would subject the animals to excessive stress, animals should be provided with 24 h of rest and access to feed and water. Feed should be withdrawn for

the last 2-4 h before transport, appropriate to the species.

- b) For animals such as pigs that are susceptible to motion sickness, and in order to reduce urine and faeces production during the journey, a short period of feed deprivation prior to loading is desirable.
- c) When animals will be provided with a novel diet or method of water provision during or after transport, an adequate period of pre-exposure is necessary.

5.8.1.3 Pre-journey holding areas should be designed to:

- a) securely contain the animals;
- b) maintain an environment safe from hazards, including predators and disease;
- c) protect animals from exposure to adverse weather conditions; and
- d) allow for rest, watering and feeding.

5.8.2 Selection of Compatible Groups

5.8.2.1 Compatible groups should be selected before transport to avoid adverse animal welfare consequences. Wherever possible animals reared together should be maintained in that social group for transport or compatible groups established at least one week prior to the journey. Animals with a strong social bond should be transported together.

5.8.2.2 The following animals shall be transported separately:

- a) Animals of different species;
- b) Animals of significantly different size or age, with the exception that dam and offspring should be transported together;
- c) Adult breeding stallions;
- d) Sexually mature males from females;
- e) Sick or injured animals, when transported for treatment;
- f) Animals which are hostile to each other; and
- g) Tied animals with untied animals (though all tying must be avoided on the vessel).

5.8.2.3 Points above need not apply where animals have been reared in compatible groups, are accustomed to each other, where separation will cause distress or where females are accompanied by dependant young.

5.8.2.4 Separation of animal groups on the vessel shall be achieved by the use of partitions and pens.

5.8.3 Fitness to Travel

5.8.3.1 Animals should be inspected before travel and those found unfit to travel by farm staff, animal

handlers or veterinarians should not be loaded onto a vessel.

5.8.3.2 Humane and effective arrangements should be made by the owner or agent for the handling and care of any animal rejected as unfit to travel.

5.8.3.3 Animals that are unfit to travel include:

- a) those that are sick, injured, weak, disabled or fatigued;
- b) those that are unable to stand unaided and bear weight on each leg;
- c) those that are blind in both eyes;
- d) those that cannot be moved without causing them additional suffering;
- e) newborn with an unhealed navel;
- f) females travelling without young which have given birth within the previous 48 h; and
- g) pregnant animals which would be in the final 10 percent of their gestation period at the planned time of unloading.

5.8.3.4 Risks during transport can be reduced by selecting animals best suited to the conditions of travel and those that are acclimatized to expected weather conditions.

5.8.3.5 Animals at risk, and requiring better conditions and additional attention during transport include:

- a) Very large or obese individuals,
- b) Very young or old animals,
- c) Excitable or aggressive animals,
- d) Animals which have had little contact with humans,
- e) Females in the last third of pregnancy or in heavy lactation, and
- f) Hair or wool length needs consideration in relation to the weather conditions expected.

5.9 Loading

5.9.1 Experienced Supervision

5.9.1.1 Loading should be carefully planned as it has the potential to be the cause of poor welfare in transported animals.

5.9.1.2 Loading should be supervised by the official veterinarian and managed by an animal handler(s). Animal handlers should ensure that animals are loaded quietly and without unnecessary noise, harassment or force, and that untrained assistants or spectators do not impede the process.

5.9.1.3 The requirements of **4.8.1** to **4.8.1.7** shall apply for the loading of animals on vessels.

5.9.1.4 Ventilation during loading and the journey

should provide for fresh air, and the suitable removal of excessive heat, humidity and noxious fumes (such as ammonia and carbon monoxide). Under warm and hot conditions, ventilation should allow for the adequate convective cooling of each animal. In some instances, adequate ventilation can be achieved by increasing the space allowance for animals.

5.9.2 Facilities

5.9.2.1 The facilities for loading including the collecting area at the wharf, races and loading ramps should be designed and constructed to take into account of the needs and abilities of the animals with regard to dimensions, slopes, surfaces, absence of sharp projections, flooring, sides, etc.

5.9.2.2 All loading facilities should be properly illuminated to allow the animals to be easily inspected by the animal handler(s), and to allow the animals' ease of movement at all times.

5.9.3 Goads and Other Aids

5.9.3.1 The following principles should apply:

- a) Goads (aids for encouraging animals to move) should not be used on animals that have little or no room to move.
- b) 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 but without physical contact with them.
- c) Unsuitable goads such as large wooden sticks, sticks with sharp ends, lengths of metal piping, fencing wire or heavy leather belts should not be used to strike animals.
- d) The use of goads which administer electric shocks should be discouraged, and restricted to that necessary to assist movement of the animal. If such use is necessary, it should be limited to the hindquarters of pigs and large ruminants, and never on sensitive areas such as the eyes, mouth, ears, anogenital region or belly. Such instruments should not be used on horses, sheep and goats of any age, or on calves or piglets.
- e) The use of well trained dogs to help with the loading of some species may be acceptable.
- f) Manual lifting is permissible for young animals that may have difficulty negotiating ramps, but the lifting of animals by their tail, head, horns, ears, limbs, wool or hair should not be permitted.

5.10 Travel

5.10.1 Inspections

5.10.1.1 Animal handler(s) should check the consignment immediately before departure to ensure that the animals have been loaded according to the load plan. Each consignment should be checked again within 24 h.

5.10.1.2 Adjustments should be made to the stocking density within 48 h of departure and as appropriate during the journey.

5.10.1.3 Each pen of animals should be observed on a daily basis for normal behaviour, health and welfare, and the correct operation of ventilation, watering and feeding systems. There should also be a night patrol. Any necessary corrective action should be undertaken promptly.

5.10.1.4 Suitable and sufficient feed and water must be provided and adequate access to suitable feed and water should be ensured for all animals in each pen.

5.10.2 Handling

5.10.2.1 The requirements of 4.8.1 to 4.8.1.7 shall apply for the handling of animals on vessels.

5.10.2.2 Tying of animals should be avoided and instead, animals must be kept in secure pens.

5.10.3 Sick and Injured Animals

5.10.3.1 Sick or injured animals should be segregated/isolated.

5.10.3.2 Sick or injured animals should be treated promptly and appropriately, and veterinary advice should be sought if necessary. All drugs and products should be used in accordance with the manufacturer's or veterinarian's recommendations.

5.10.3.3 Animal handlers must inform the veterinary official in attendance of any sick or injured animals and veterinarians must actively look out for sick and injured animals and take immediate appropriate action.

5.10.3.4 A record of treatments carried out and their outcomes should be kept.

5.10.3.5 When euthanasia is necessary, it must be conducted by a veterinarian or other person(s) competent in euthanasia procedures. The person responsible for the animals must ensure that euthanasia is carried out humanely, and results in immediate death.

5.10.4 Cleaning and Disinfection

5.10.4.1 Vessels and containers used to carry the animals should be cleaned before re-use through the physical removal of manure and bedding by scraping, washing and flushing vessels and containers with water.

This should be followed by disinfection when there are concerns about disease transmission.

5.10.4.2 Manure, litter and bedding should be disposed of in such a way as to prevent the transmission of disease and in compliance with all relevant health and environmental legislation.

5.10.4.3 Where cleaning or disinfection is necessary during travel, it should be carried out with the minimum stress to the animals.

5.11 Unloading and Post-journey Handling

5.11.1 General Considerations

5.11.1.1 The required facilities and the principles of animal handling detailed in 5.9 apply equally to unloading, but consideration should be given to the likelihood that the animals will be fatigued.

5.11.1.2 Unloading should be carefully planned as it has the potential to be the cause of poor welfare in transported animals.

5.11.1.3 A livestock vessel should have priority attention when arriving in port and have priority access to a berth with suitable unloading facilities. As soon as possible after the ship's arrival at the port and acceptance of the consignment by the competent authority, animals should be unloaded into appropriate facilities.

5.11.1.4 The accompanying veterinary certificate and other documents should meet the requirements of the importing country. Veterinary inspections should be completed as quickly as possible.

5.11.1.5 Unloading should be supervised by the official veterinarian and managed by a competent animal handler(s). The animal handlers should ensure that animals are unloaded quietly and without unnecessary noise, harassment or force, and that untrained assistants or spectators do not impede the process.

5.11.2 Facilities

5.11.2.1 The facilities for unloading including the collecting area at the wharf, races and unloading ramps should be designed and constructed to take into account of the needs and abilities of the animals with regard to dimensions, slopes, surfaces, absence of sharp projections, flooring, sides, etc.

5.11.2.2 All unloading facilities should be properly illuminated to allow the animals to be easily inspected by the animal handler(s), and to allow the animals' ease of movement at all times.

5.11.2.3 In case of emergencies, port facilities should provide animals with appropriate care and comfort, adequate space, access to quality feed and clean

drinking water, shelter from extreme weather conditions and veterinary care.

5.11.3 Sick and Injured Animals

5.11.3.1 All animals must be inspected by the official veterinarian at the point of unloading. Signs of health are:

- a) Head up, alert with clean eyes and a moist nose;
- b) No discharges from the eyes or nose or excessive drooling from the mouth;
- c) Excreta is of fairly thick consistency and free from blood;
- d) Urine is straw coloured;
- e) Animals walk easily without sign of lameness or staggering;
- f) No coughing or wheezing with a normal quiet breathing pattern;
- g) Active interest in immediate surroundings;
- h) No groaning, teeth grinding, kicking belly, arching back;
- j) No abnormal lumps, lesions, sores, bruises, welt marks or open wounds;
- k) Dry, clean, shiny coat or healthy fleece and healthy pink skin and gums; and
- m) No signs of heat stress (panting, sweating, restlessness, salivation, exhaustion, collapse).

5.11.3.2 Where animals are non-ambulatory due to fatigue, injury or sickness, the animals must be provided veterinary treatment or, if necessary, euthanized aboard the vessel by a veterinarian or other person suitably trained in euthanasia.

5.11.3.3 If unloading is in the best welfare interests of animals that are fatigued, injured or sick, there should be appropriate facilities and equipment for the humane unloading of such animals. These animals should be unloaded in a manner that causes the least amount of suffering. After unloading, appropriate facilities and treatments should be provided for sick or injured animals.

5.11.3.4 If unloading is in the best welfare interests of the animals that are fatigued, injured or sick, the following conditions should be considered:

- a) Sick or injured animals that can move unaided off the vehicle must be moved to the designated isolation/treatment area without delay at the assembly centre or destination point.
- b) Sick or injured animals which cannot walk must only be manually moved off the vehicle if the animal can be lifted easily by two people (small calves, goats or sheep).

- c) Larger animals that cannot walk and cannot be lifted easily by two people must be moved by means of a board, sled or mat that is specifically provided for the purpose and then only by persons trained in its use.
- d) Sick or injured animals must never be lifted or dragged by the head, horns, ears, feet, tail, or any other part of the body which might cause unnecessary suffering.

5.12 Actions in the Event of a Refusal to Allow Importation of a Shipment

5.12.1 The welfare of the animals should be the first consideration in the event of a refusal to import.

5.12.2 Prior to shipment, it must be ensured that the competent authority of the importing country will make available suitable isolation facilities to allow the unloading of animals from a vessel and their secure holding, without posing a risk to the health of the national herd, if the animals are not allowed to be imported, pending resolution of the situation. The following must be ensured with the competent authority of the importing country prior to shipment and be considered in the following order of priorities:

- a) Competent authority of the importing country should provide urgently in writing the reasons for the refusal;
- b) In the event of a refusal for animal health reasons, the competent authority of the importing country should provide urgent access to an OIE-appointed veterinarian(s) to assess the animals' health status with regard to the importing country's concerns, and the necessary facilities and approvals to expedite the required diagnostic testing;
- c) Competent authority of the importing country should provide access to allow continued assessment of the ongoing health and welfare situation; and
- d) If the matter cannot be promptly resolved, the competent authority of the exporting country and the importing country should call on the OIE to mediate.

5.12.3 The following must also be ensured with the competent authority of the importing country prior to shipment and be considered in the following order of priorities in the event that the animals are required to remain on the vessel:

- a) Competent authority of the importing country should allow re-provision of the vessel with water and feed as necessary;
- b) Competent authority of the importing country should provide urgently in writing the reasons

for the refusal;

- c) In the event of a refusal for animal health reasons, the competent authority of the importing country should provide urgent access to an OIE-appointed veterinarian(s) to assess the animals' health status with regard to the importing country's concerns, and the necessary facilities and approvals to expedite the required diagnostic testing;
- d) Competent authority of the importing country should provide access to allow continued assessment of the ongoing health and welfare situation; and
- e) If the matter cannot be urgently resolved, the competent authorities of the exporting country and the importing country should call on the OIE to mediate.

5.12.4 The OIE's dispute settlement mechanism should be used to identify a mutually agreed solution which will address the animal health and welfare issues in a timely manner.

6 TRANSPORT OF ANIMALS BY AIR

6.1 General Conditions

6.1.1 All animal acceptance carried by air carriers must adhere to the *International Air Transport Association (IATA) Regulations*.

6.1.2 When arranging carriage with the consignor, care must be taken to ensure that the animals can be carried in the aircraft operating the particular service.

6.1.3 Consignments should not be accepted for carriage where lengthy delays are likely to occur *en route* unless special and suitable arrangements have been made by the consignor for immediate collection on arrival and care of the animal during any transit stops.

6.1.4 The airport/office that desiring to send the consignment must send details of the consignment to the destination office/airport and any transshipment airports prior to shipment and await their acknowledgment before sending the consignment. Once received or processed, the transshipment airports and destination/office airport must inform the sender that it has been received.

6.2 Livestock Containers

6.2.1 Design

6.2.1.1 The container should:

- a) conform to the size of the standard pallet of the aircraft that will be used to transport animals. The common sizes are: 224 cm × 318 cm (88 in. × 125 in.) and

244 cm × 318 cm (96 in. × 125 in.);

- b) not be constructed of material that could be harmful to the animals' health or welfare;
- c) allow observation of the animals and be marked on opposite sides with the IATA symbols which indicate animals and the upright position;
- d) allow emergency access to animals;
- e) allow the animal to stand in its normal position without touching the roof of the container or, in the case of open containers, the restraining nets, and provide at least 10 cm (4 in.) clearance above the animal's head when standing in its normal position;
- f) in the case of horses, provide sufficient space above the horses head (21 cm, 8 in. recommended) to allow for the movement required to maintain the horses balance;
- g) protect the animals from adverse weather;
- h) ensure animals stand on a suitable floor to prevent slipping or injury;
- j) have adequate strength to ensure the safety of the animals and to prevent the animals from escaping;
- k) ensure doors can be opened and closed easily, but be secured so that they cannot be opened accidentally;
- m) be free of any nails, bolts and other protrusions or sharp edges that could cause injuries;
- n) be designed to minimize the risk of any opening or space entrapping any portion of the animals body;
- p) if reusable, crates should be constructed of impermeable material that is easily cleaned and disinfected;
- q) ensure faeces and urine cannot escape from the crate—this requires a minimum upturn of 20 cm but it must not block any ventilation openings;
- r) if designated for stacking be stable, not block any ventilation space and prevent urine and faeces from leaking into the containers below when stacked; and
- s) allow for a facility for provision of water and possibly feed during transportation of longer than 6 h duration.

6.2.2 Ventilation

6.2.2.1 The container design should:

- a) Provide adequate ventilation taking into consideration the species stocking density, maximum temperature and humidity of the

points of departure, destination, and any interim technical stops;

- b) Allow the normal resting or sleeping position to be assumed for certain species and juvenile animals;
- c) Ensure there is no dead air space in the container;
- d) Provide ventilation openings on the walls equal to at least 16 percent of the wall area—this may be reduced if the container has an open top;
- e) In the case of two-tiered containers, ventilation in the sides should be for cattle equivalent to not less than 20 percent of the floor area of each deck, and for pigs and sheep up to 40 percent of the floor area of each deck;
- f) Have ventilation openings on all four sides of the crate except that two walls may have reduced ventilation space and the other walls have increased space where required by the positioning of the crates during transportation and/or the ventilation pattern of the aircraft;
- g) Ensure that any internal supports or dividers do not block the cross ventilation;
- h) Not have a solid wall above the height of the animal's head in normal resting position;
- j) In those species where the mouth is normally held near the floor, have at least 25 cm (10 in.) of ventilation space at the level of the animal's head; this opening should be divided in two with a maximum height for any opening of 13 cm;
- k) In all containers, there should be a sufficiently large ventilation opening at a height of 25 cm to 30 cm (10 to 11 in.) above floor level on all four sides to allow for circulation; and
- m) Have some physical means of ensuring the ventilation space is not blocked, such as the use of cleats (wedges) or allowing space between the outside of the container and the pallet.

6.3 Species Requirements

6.3.1 Horses

6.3.1.1 Horses should be transported in containers and be separated from each other if they are more than 145 cm (57 in.) in height.

6.3.1.2 Horse crates

6.3.1.3 Crates used to transport horses should:

- a) be strong enough to prevent unruly horses from breaking or escaping from the container under any circumstances;

- b) in the case of multi-horse containers, have partitions of sufficient strength and size to separate the horses and to support each horse's weight;
- c) adjust to allow mare and foal to travel together;
- d) provide the same percentage of open space for ventilation as required in 4.2, divided between the two side walls; however, if the access doors are constructed in such a manner that they may be left open during the flight, the door space may be included in the ventilation space;
- e) be constructed to minimize noise;
- f) allow access to the head during the flight;
- g) have the front end notched and padded to accept the neck of the animal;
- h) have a secure point for attaching restraining devices;
- j) have a front and rear barrier that will restrict the movement of the horse and will ensure that liquids are deflected into the container;
- k) ensure horses cannot bite other animals;
- m) be constructed to resist kicking;
- n) have no fittings or projections in the area likely to be kicked, metal plates should be covered with a protective material;
- p) ramps shall be non-skid in nature, have foot battens, and be of a maximum slope of 25 degrees when the container is on a standard 50 cm (20 in.) dolly; and
- q) not have a step up or down of more than 25 cm (10 in.).

6.3.2 Swine

- 6.3.2.1 Crate design and shipment planning should recognize that swine are extremely susceptible to high heat and humidity and that they normally carry their head near the floor.
- 6.3.2.2 In the use of multi-tiered crates, special attention should be paid to ensure air can move through the crate, in accordance with the aircraft's ventilation pattern and capacity to remove heat.
- 6.3.2.3 Crate construction should take into consideration the tendency for mature swine to chew.
- 6.3.2.4 Litter should be dust-free, shavings or other non-toxic materials may be used but not saw dust.
- 6.3.2.5 Containers for immature swine should only be constructed when flight is imminent, since rapid growth can result in undersized containers, if the flight is delayed.
- 6.3.2.6 In order to reduce fighting, swine shipped in

group pens should be housed together as a group prior to shipment and not be mixed with other swine before loading on the aircraft.

6.3.2.7 Mature boars and incompatible females should be shipped in individual crates.

6.3.2.8 Individual crates should be 20 cm (8 in.) longer than the body, 15 cm (6 in.) higher than the loin of the pig and of sufficient width, to allow the pigs to lie on their side.

6.3.3 Cattle

6.3.3.1 Crates used to transport cattle should:

- a) if multi-tiered or roofed, have at least 33 percent of the roof and four walls as open space; and
- b) have at least one ventilation opening 20-25 cm (8-10 in.) above the floor which is of such width that it will not cause injuries to the feet.

6.3.3.2 Adult bulls should be transported separately unless they have been accustomed to each other. Cattle with and without horns should be separated from each other.

6.3.4 Other Species

6.3.4.1 Animals that normally exhibit a herding instinct, including buffalo and deer, can be shipped in group containers providing the mental and physical characteristics of the species are taken into consideration.

6.3.4.2 All crates used to move such animals should have a roof or other method of preventing the animals from escaping.

6.3.4.3 Animals in which the horns or antler cannot be removed, should be transported individually.

6.3.4.4 Deer should not be transported in velvet nor in rut.

6.4 Guidelines for Pregnant Animals

6.4.1 Heavily pregnant animals should not be carried except under exceptional circumstances. Pregnant animals should not be accepted when the last service or exposure to a male prior to departure has exceeded the following time given here for guidance only:

<i>Females</i>	<i>Maximum Number of Days since the Last Service or Exposure to a Male</i>
Horses	300
Cows	250
Deer (axis, fallow and sika)	170
(red deer, reindeer)	185

Ewes (sheep)	115
Nannies (goats)	115
Sows (pigs)	90

6.4.2 Where service dates or date of last exposure to a male are not available, the animals should be examined by a veterinarian to ensure that pregnancy is not so advanced that animals are likely to give birth during transport or suffer unnecessarily.

6.4.3 Any animal showing udder engorgement and slackening of the pelvic ligament should be refused.

6.5 Stocking Density

6.5.1 General Considerations

6.5.1.1 The current stocking densities agreed by the International Air Transport Association (IATA) must be minimally adhered to. However, the graphs giving the space requirements should be extended to take into account animals larger and smaller than those dealt with currently.

6.5.1.2 When calculating stocking rates, the following should be taken into account:

- a) It is essential that accurate weights of animals are obtained in view of the limitations imposed by the load capabilities of the aircraft and the space required per animal;
- b) In narrow bodied aircraft, there is a loss of floor area in the upper tier of two-tier penning due to the contours of the aircraft;
- c) Space available should be calculated on the

inside measurements of the crates or penning system used, not on the floor space of the aircraft;

- d) Multi-tiered crates, high outdoor temperatures at departure, arrival or stopover points, or extreme length of the trip will require an increase in the amount of space per animal; a 10 percent decrease in stocking density is recommended for trips in excess of 24 h;
- e) Special attention should be paid to the transport of sheep in heavy wool which require an increase in space allotted per animal and to pigs which have limited ability to dissipate heat;
- f) Animals confined in groups, especially in pens, should be stocked at a high enough density to prevent injuries at take-off, during turbulence and at landing, but not to the extent that individual animals cannot lie down and rise without risk of injury or crushing; and
- g) In multi-tiered shipments, it should be recognized that the ventilation and cooling capacity of the aircraft is the limiting factor, especially in narrow bodied aircraft. Ventilation capacity varies on each individual aircraft and between aircraft of the same model.

6.5.2 Guidelines for Stocking Densities

The following table gives stocking density guidelines for different domestic species:

Calculation tables (in kilograms and metres)

Species	Weight	Density	Space/ Animal	No. of Animals per 10 m ²	Animals per Single Tier Pallet	
	kg	kg/m ²	m ²		224 × 274 cm	224 × 318 cm
Calves	50	220	0.23	43	26	31
	70	246	0.28	36	22	25
Cattle	300	344	0.84	12	7	8
	400	393	1.27	8	5	6
	500	408	1.47	7	4	5
	600	400	1.75	6	3	4
Sheep	25	147	0.20	50	31	36
	70	196	0.40	25	15	18
Pigs	25	172	0.15	67	41	47
	100	196	0.51	20	12	14

6.6 Preparation for Air Transport of Livestock

6.6.1 Health and Customs Requirements

- a) The legal requirements including animal health, welfare and species conservation, should be ascertained from the country of destination and any in transit countries before the animals are assembled or the transportation is arranged.
- b) Contact the veterinary authorities in the country of origin regarding veterinary certification.
- c) Planning of the transportation should take into account weekends, holidays and airport closures.
- d) Verify that any proposed intransit stops or alternates will not jeopardize the importing or in transit countries health requirements.

6.6.2 Environment

- a) Animals are affected by extremes of temperature. This is especially true of high temperature when compounded by high humidity. Temperature and humidity should therefore be taken into consideration when planning the shipment.
- b) Times of arrival, departure and stopovers should be planned so that the aircraft lands during the coolest hours.
- c) At outside temperatures of below 25°C at the landing point, the aircraft doors should be opened to ensure adequate ventilation. Confirmation should be received from government authorities that animal health legislation does not prevent opening of aircraft doors.
- d) When outside temperatures at any landing point exceed 25°C, prior arrangements should be made to have an adequate air-conditioning unit available when the plane lands.

6.6.3 Facilities and Equipment

- a) Specific arrangements must be made to ensure that holding and loading facilities including ramps, trucks, and air-conditioning units are available at departure, all in transit and arrival airports. This should include identification of specific staff who are responsible and the method of contacting them, for example telephone number and address.
- b) Specific notification must be given to all those responsible for providing facilities or equipment at the destination and in transit stops immediately before departure.

- c) Containers should be loaded so as to ensure access can be made to the animals at all times.

6.6.4 Preparation of Animals

- a) Vaccination must be done far enough in advance of the departure date to allow for immunity to develop.
- b) Veterinary certification and serological testing must be arranged several weeks in advance of livestock shipment.
- c) Many animals require acclimatization before they are transported. Animals such as swine and wild herbivores must be separated and held in the groups that will occupy containers. Mixing of such animals immediately before or during transport is extremely stressing and should be avoided.
- d) Incompatible animals should be transported singly.

6.7 Handling and Forwarding

6.7.1 The very nature of animal consignments calls for special handling and attention.

6.7.2 All consignments must be forwarded promptly, handled with extreme care and stowed to obtain maximum ventilation and comfort for the particular animals involved.

6.7.3 Travelling has an unsettling effect on animals and they should be disturbed as little as possible. Most animals, particularly domestic pets, prefer to travel in semi-darkness, and to facilitate this containers should be enclosed, but with adequate holes for ventilation.

6.7.4 Animals should not be stowed near foodstuffs or perishables because of contamination of perishables and the unsettling effect food odours will have on the animals.

6.7.5 Care should be taken to ensure that the animals are not subjected to extremes in temperature. Most animals can withstand normal variations in temperature, but prolonged exposure to draughts and direct sunlight can be fatal. Animals must not be left standing on the tarmac on loading or unloading but should be loaded directly into the aircraft from the cargo handling vehicle and vice versa.

6.7.6 While in air, the animals must not be removed from their containers for exercise.

6.7.7 Particular care must be taken to ensure that the ventilation holes are clear of other cargo to prevent suffocation. Containers should not be unnecessarily tilted or jolted during handling. It is essential that containers are securely stowed, as any movement can stress the animal.

6.8 Feed and Water

6.8.1 On long journeys, animals must be fed and watered. Most animals require watering at regular intervals and normally the supply of water is more important than solid food.

6.8.2 Airlines should keep a supply of canned and/or dried pet food at cargo terminals.

6.8.3 Animals should not be removed from containers for feeding purposes unless they are in an escape-proof area.

6.8.4 If, after the journey commences, a delay in carriage arises from disrupted services, it is the responsibility of the office at the point of disruption to ensure that the animals concerned are properly fed and watered and suitable arrangements for custody made.

6.9 Tranquillization

6.9.1 Experience has shown that there is considerable risk in sedating animals transported by air. Tranquilizers reduce the ability of the animals to respond to stress during transportation. In addition, the reaction of various species to tranquillization cannot always be foreseen. For these reasons, routine tranquillization is not recommended. Tranquilizers should only be used when a specific problem exists, and should be administered by a veterinarian or by a person who has been instructed in their use. Persons using these drugs should understand the full implications of the effects of the drug in air transport, for example certain animals such as horses and elephants should not go down in containers. Drugs should only be administered during the flight with the knowledge and consent of the captain.

6.9.2 It is not necessary to sedate every animal before transport by air. The owner should seek veterinary advice and if sedation is prescribed the sedative should be administered no more than 1 h before acceptance for carriage.

6.9.3 In all cases, when tranquilizers are used, a note should be attached to the container stating the generic name of the drug used, the dose and the time given.

6.10 Emergency Slaughter

6.10.1 Emergency slaughter of animals in aircraft should, in general, only occur when the safety of the aircraft, crew or other animals are involved.

6.10.2 Every aircraft transporting animals should have a method of killing the animals with minimum pain and someone suitably trained in that method.

6.10.3 In all cases when horses or other large animals are to be carried, the method of killing should be

discussed with the airline during the planning stages. Suitable methods are:

- a) Captive bolt stunner, followed by an injection of a lethal chemical with the following conditions:
 - i) Operator should be trained to use the captive bolt stunner on the species or type of animal being transported.
 - ii) An expert should determine that the type of captive bolt pistol is adequate for all the animals being transported.
 - iii) Some airlines and countries may prohibit the carriage of captive bolt pistols.
 - iv) User should recognize that the noise associated with the captive bolt may excite other animals.
 - v) Requirement that the captive bolt pistol is accurately centered may be difficult to achieve with an excited animal.
- b) Injection of a chemical with the following conditions:
 - i) Various chemicals may be used to sedate, immobilize or kill animals.
 - ii) Central nervous system depressants such as barbiturate euthanasia solutions must be injected directly into a vein to be effective. This is not normally practical for anyone but an experienced veterinarian or an especially trained and experienced attendant, where the animal is sufficiently fractious to require euthanasia.
 - iii) Sedatives such as promazine and its derivatives may make the animal more fractious.
 - iv) Immobilizing solutions such as succinylcholine are not humane.

6.10.4 Airlines do not permit the use of firearms which discharge a free bullet because of the danger to the aircraft.

6.11 Destruction of Carcasses

6.11.1 In the event of any animal death on board, the competent authority of the airport of destination should be notified in advance of landing.

6.11.2 Carcasses should be disposed of under the supervision of and to the satisfaction of the veterinary authority of the country the aircraft is in.

6.11.3 The method of disposal should be based on the risk of introducing a controlled disease.

6.11.4 For carcasses which represent a high risk of introducing disease, the following is recommended:

- a) Destruction by incineration, rendering or deep burial under the supervision of the veterinary authority;
- b) If removed from the airport site, transportation in a closed, leak-proof container.

6.12 Handling of Food and Waste Material

6.12.1 Waste material which contains anything of animal origin including food, litter, manure, or animal feed should be handled, collected and disposed of in a manner that ensures it will not be fed to livestock. It should be collected in specified areas, and stored and transported in closed, leakproof containers.

6.12.2 Some importing countries legislation may prohibit or restrict the use of hay or straw during the transportation period. Unloading of hay, straw, other animal feed and litter may be restricted or prohibited by in transit countries.

6.13 Disposal of Food Waste Material

Recommended methods of disposal are:

- a) Incineration to an ash;
- b) Heating at an internal temperature of at least of 100°C for 30 min, then disposal in a land-fill site; and
- c) Controlled burial in a landfill site.

6.14 Radiation

Radioactive materials must be separated from live animals by a distance of at least 0.5 m for journeys not exceeding 24 h, and by a distance of at least 1.0 m for journeys longer than 24 h (reference: Technical instructions on storage and loading-separation of the International Civil Aviation Organization). Special care should be taken with regard to pregnant animals, semen and embryos/ova.

6.15 Disinfection and Disinsectization

6.15.1 Disinfection

6.15.1.1 Those parts of the interior of the aircraft

destined for the carriage of animals should be thoroughly cleaned of all foreign matters using methods acceptable to aircraft management before being loaded.

6.15.1.2 These parts should be sprayed with a disinfectant:

- a) suitable for the diseases which could be carried by the animals;
- b) that does not cause problems with the aircraft; and
- c) that will not leave a residue hazardous to the animals being transported.

6.15.1.3 If in doubt, the airline should be consulted on the suitability of the disinfectant. A mechanical nebulizer should be used to minimize the amount of disinfectant used.

6.15.1.4 Suggested disinfectants currently in use are:

- a) 4 percent sodium carbonate and 0.1 percent sodium silicate; and
- b) 0.2 percent citric acid.

6.15.1.5 All removeable equipment, penning and containers including loading ramps should be thoroughly cleaned and disinfected in accordance with the requirements of both the exporting and importing countries.

6.15.1.6 After disinfection, all equipment to be replaced in the aircraft should be washed with clean water to remove any traces of disinfectant to avoid any damage to the aircraft structures.

6.15.2 Disinsectization

6.15.2.1 Where disinsectization is required, the country requesting the action should be consulted for appropriate procedures.

6.15.2.2 The World Health Organization (WHO) Recommendations on the Disinsectization of Aircraft (WHO Weekly Epidem. Rec., No. 7, 1985) are recognized as standard.

ANNEX A

(Clause 4.5.1.7)

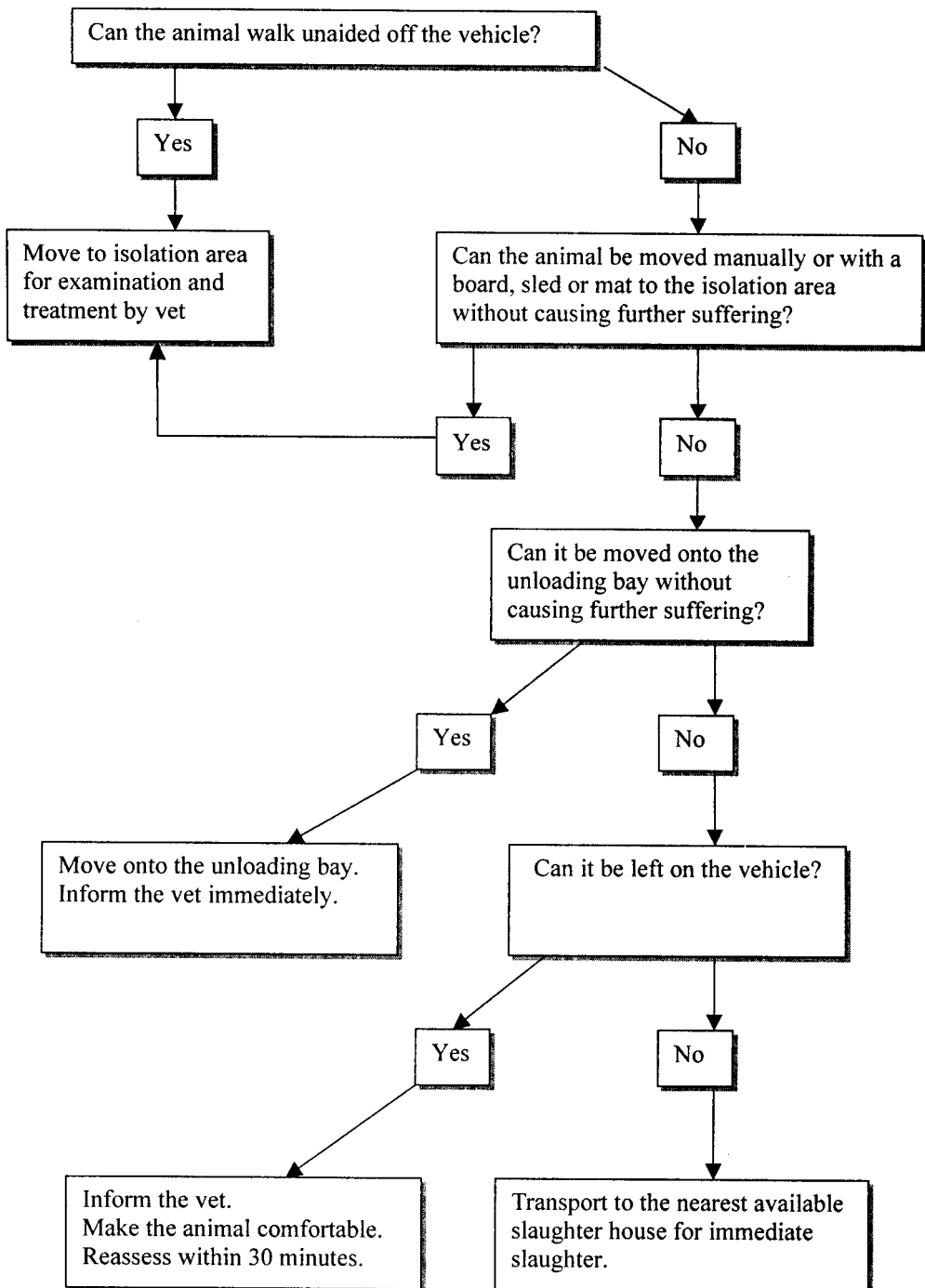
VETERINARY CHECKLIST

A-1 Age and general condition need to be noted, animals that are weak, debilitated and of poor body condition may be unfit for the anticipated journey.

Young animals with an unhealed navel are considered unfit for transport as are infant animals incapable of feeding themselves.

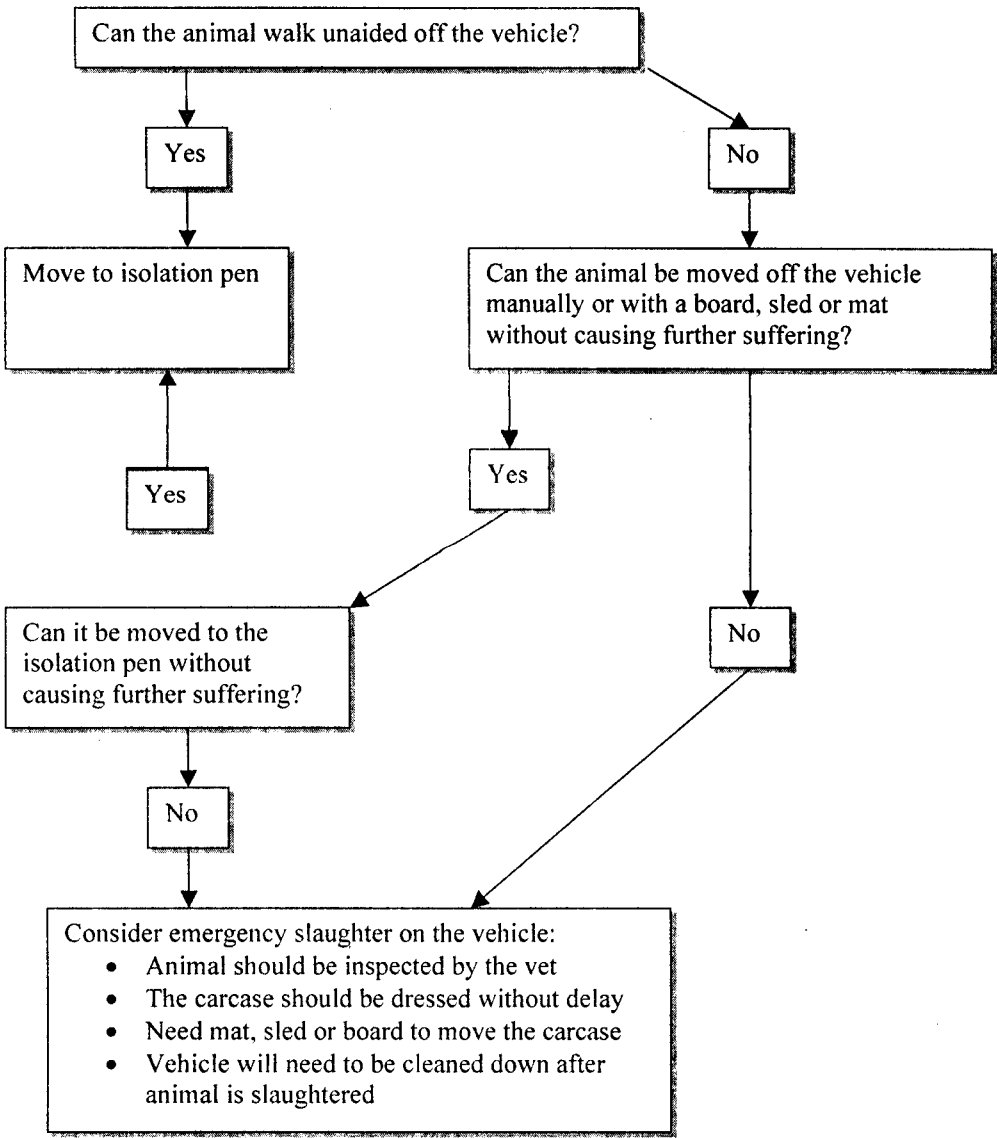
<i>Sl No.</i>	<i>Examination Point</i>	<i>Comment</i>
i)	Body temperature (evidence of heat stress, fever, dehydration)	Body temperature significantly outside normal range may not be fit to transport
ii)	Respiratory system	Animals in severe respiratory distress may be considered unfit for transport
iii)	Circulatory system	Where there may be significant risk to heart failure because of the length/complexity of the proposed journey — consider unfit to transport
iv)	Signs of significant swelling or injury	Severe wounds, protruding viscera — consider unfit for transport Severe swelling associated with chronic/acute pain — consider unfit for transport
v)	Fracture or breaks in the skeletal system	Consider unfit for transport
vi)	Signs of lameness (Examine limbs and joints for bony enlargements, swelling or injury)	Animals must be able to bear weight on all four limbs. Any form of lameness with associated pain: arthritic joints, infected foot lesions, laminitis, tendon and ligament injuries — consider unfit for transport
vii)	Signs of abdominal pain (check for gait or posture of the animal, check for signs of abnormal distension, bloat)	Acute, chronic may be considered unfit for transport Presence of ventral or umbilical hernia; transport likely to aggravate — consider unfit for transport
viii)	Pregnancy status of female animal	The following are considered unfit to travel: a) Animals likely to give birth (in the final trimester), b) Those who have just given birth, within 48 hours, and c) Animals with calving injuries, prolapsed vaginal or uterus
ix)	Examine udder and teats, check for signs of swelling, injury abnormality	Severe open wound, acute pain, infection, high fever, mastitis — consider unfit for transport
x)	Examine eyes for blindness	Totally blind animals are considered unfit to be transported

NOTE — *Prevention of Cruelty to Animals (Transportation of Animals on Foot) Rules, 2001, First Schedule.*

ANNEX B*(Clause 4.8.2.8)***HANDLING OF SICK OR INJURED ANIMALS AT ASSEMBLY CENTRE**

ANNEX C
(Clause 4.8.2.9)

HANDLING OF SICK OR INJURED ANIMALS AT THE SLAUGHTER HOUSE



ANNEX D

(Clause 4.12.9)

SPACE ALLOWANCES FOR ROAD AND RAIL TRANSPORT OF LIVESTOCK

D-1 Space allowance for animals shall minimally comply with the following figures.

D-1.1 Horses

a) Transport by rail

Adult horses	1.75 m ² (0.7 × 2.5 m) ¹⁾
Young horses (6-24 months)	1.2 m ² (0.6 × 2 m)
Ponies (under 144 cm at the wither)	1 m ² (0.6 × 1.8 m)
Foals 0-6 months	1.4 m ² (1 × 1.4 m)
¹⁾ Stall orientation will be determined by the useable width of the wagon. During long journeys foals and young horses should be able to lie down.	

NOTE — These figures may vary by a maximum of 10 percent for adult horses and ponies and by a maximum of 20 percent for young horses and foals, depending not only on the horses' weight and size but

also on their physical condition, the meteorological conditions and the likely journey time.

b) Transport by road

Adult horses	1.75 m ² (0.7 × 2.5 m)
Young horses (6-24 months)	1.2 m ² (0.6 × 2 m)
Ponies (under 144 cm at the wither)	1 m ² (0.6 × 1.8 m)
Foals 0-6 months	1.4 m ² (1 × 1.4 m)

NOTES

1 During long journeys foals and young horses should be able to lie down.

2 These figures may vary by a maximum of 10 percent for adult horses and ponies and by a maximum of 20 percent for young horses and foals, depending not only on the horses' weight and size but also on their physical condition, the meteorological conditions and the likely journey time.

D-1.2 Cattle

a) Transport by road or rail space allowance

Class	Weight kg	Mean Cattle Dimensions kg	Space Required m ²	Space Required m ²
		Width × Length	Unhorned	Horned
Calves	Up to 50	0.27 × 1	0.28	0.28
	50-100	0.46 × 1.32	0.56	0.56
Cattle /Buffaloes (Young/Adult)	100-200	0.46 × 1.33	0.62	0.73
	200-300	0.56 × 1.52	0.86	0.96
	300-400	0.64 × 1.65	1.06	1.20
	More than 400	—	>1.27 to 1.73	>1.59 to 2

NOTE — These figures may vary depending on the animals' weight and size but also on their physical condition, the meteorological conditions and the likely journey time. The space allowance should be increased by at least 10 percent during hot, humid conditions.

b) Number of cattle permitted for commonly sized road vehicles

Because cattle must be placed onto vehicles in orderly

rows, less cattle can comfortably fit into vehicles than mathematically permitted by space allowance. Therefore, the following chart should be used:

Vehicle Size Length × Width m	Floor Area m ² of the Vehicle	Weight of Cattle Upto 50 kg (0.28 m ² /Animal)	Weight of Cattle 51 kg to 100 kg (0.56 m ² /Animal)	Weight of Cattle 101 kg to 200 kg		Weight of Cattle 201 kg to 300 kg		Weight of Cattle 301 kg to 400 kg		Weight of Cattle more than 400 kg	
				0.62 m ² Un-horned	0.73 m ² Horned	0.86 m ² Un-horned	0.96 m ² Horned	1.06 m ² Un-horned	1.20 m ² Horned	>1.27 Upto 1.73 m ² Un-horned	>1.59 Upto 2.00 m ² Horned
6.9 × 2.4	16.56	58	28	26	22	18	16	14	12	12	10
5.6 × 2.3	12.88	46	22	20	16	14	12	12	10	10	8
4.16 × 1.9	7.904	28	14	12	10	8	8	6	6	6	4
2.9 × 1.89	5.481	18	8	8	6	6	4	4	4	4	2

NOTE — In case of duple-decker, the number of cattle may be doubled.

D-1.3 Sheep and Goats

a) Transport by road or rail space allowance

Class	Weight kg	Mean Woollen Sheep/Goat Dimensions m	Space Required m ²	Space Required m ²
		Width × Length	Woollen	Shorn
Lambs	Up to 15	0.24 × 0.6	0.15	0.15
	16-20	0.25 × 0.7	0.17	0.16
Sheep/Goat (Adult)	21-25	0.26 × 0.74	0.18	0.16
	26-30	—	0.22	0.20
	31-40	—	0.25	0.24
	41-55	0.35 × 0.91	0.30	0.28
	More than 55	—	>0.40	>.40

NOTE — These figures may vary depending on the animals' breed, weight, size and length of fleece, presence or absence of horns as well as their physical condition, the meteorological conditions and the likely journey time. The space allowance should be increased by at least 10 percent during hot, humid conditions.

b) Number of sheep/goat permitted for commonly sized road vehicles

The following chart may be used as a guide when transporting sheep/goat:

Vehicle Size Length × Width m	Floor Area m ² of the Vehicle	Weight of Sheep and Goat Upto 15 kg (0.15 m ² /Animal)	Weight of Sheep and Goat 16 kg to 20 kg		Weight of Sheep and Goat 21 kg to 25 kg		Weight of Sheep and Goat 26 kg to 30 kg		Weight of Sheep and Goat 31 kg to 40 kg		Weight of Sheep and Goat 41 kg to 55 kg		Weight of Sheep and Goat more than 55 kg (0.40 m ² /Animal)
			0.17 m ² Woollen	0.16 m ² Shorn	0.18 m ² Woollen	0.16 m ² Shorn	0.22 m ² Woollen	0.20 m ² Shorn	0.25 m ² Woollen	0.24 m ² Shorn	0.3 m ² Woollen	0.28 m ² Shorn	
6.5 × 2.5	16.25	108	94	100	90	100	72	80	64	66	54	58	40
5.6 × 2.35	13.16	86	76	82	72	82	58	64	52	54	42	46	32
5.15 × 2.18	11.227	74	66	70	62	70	50	56	44	46	36	40	28
3.03 × 2.18	6.605	44	38	40	36	40	30	32	26	26	22	22	16
2.9 × 2	5.8	38	34	36	32	36	26	28	22	24	18	20	14
3.2 × 2.35	7.52	50	44	46	40	46	34	36	30	30	24	26	18
2.4 × 1.2	2.88	18	16	18	16	18	12	14	10	12	8	10	6

NOTE — In case of duple-decker, these numbers may be doubled.

ANNEX E*(Foreword)***COMMITTEE COMPOSITION****Livestock Feeds, Equipments and System Sectional Committee, FAD 5**

<i>Organization</i>	<i>Representative(s)</i>
Ministry of Agriculture, New Delhi	DR V. K. TANEJA (<i>Chairman</i>)
Air India, New Delhi	SHRI M. KHOSLA SHRI D. J. CHIBBER (<i>Alternate</i>)
Anand Agricultural University, Anand	DR SUBHASH PARNERKAR DR R. S. GUPTA (<i>Alternate</i>)
Animal Welfare Board, Chennai	SECRETARY
Bhartiya Agro-Industries Foundation, Ahmedabad	SHRI D. V. RANGNEKAR SHRI RAMESH RAWAL (<i>Alternate</i>)
Brindavan Phosphates Pvt Ltd, Bangalore	SHRI SADANAND MANDHYAN SHRI A. PARTHASARATHY (<i>Alternate</i>)
Central Avian Research Institute, Izatnagar	DR T. S. JOHRI DR A. K. SHRIVASTAV (<i>Alternate</i>)
Central Drug Research Institute, Lucknow	SHRI P. Y. GURU
Central Institute for Research on Buffaloes, Hissar	DR T. R. CHAUHAN DR B. S. PUNIA (<i>Alternate</i>)
Central Sheep and Wool Research Institute, Dist Tonk	DR R. C. JAKHMOLA DR S. A. KARIM (<i>Alternate</i>)
Confederation of Indian Industry, New Delhi	SHRI D. S. CHADHA
Consumer Unity and Trust Society, Jaipur	HEAD
CREAT, Bangalore	DIRECTOR
Directorate General Remount Veterinary Services, New Delhi	ADDITIONAL DIRECTOR GENERAL (RVS) JOINT DIRECTOR (TECHNICAL) (<i>Alternate</i>)
Directorate of Animal Husbandry, Government of Gujarat, Gandhi Nagar	DR R. B. SHUKHLA DR M. B. SIMARIA (<i>Alternate</i>)
Directorate of Animal Husbandry, Government of Haryana, Chandigarh	DR K. S. DANGI DR O. P. YADAV (<i>Alternate</i>)
Godrej Agrovvet Ltd, Mumbai	DR S. L. ANAOKAR SHRI P. N. NARKHEDE (<i>Alternate</i>)
Hi-Bred (India) Pvt Ltd, Karnal	SHRI GURDIP SINGH SHRI MAKSUD ALAM KHAN (<i>Alternate</i>)
Indian Airlines, New Delhi	SHRI DINESH KUMAR MS MADHULIKA BABAL (<i>Alternate</i>)
Indian Council of Agricultural Research, New Delhi	DR O. P. DHANDA DR RANJAN GUPTA (<i>Alternate</i>)
Indian Veterinary Research Institute, Izatnagar	DR USHA RANI MEHRA DR R. C. KATTIYAR (<i>Alternate</i>)
Mehsana District Co-operative Milk Producers Union Ltd, Mehsana	MANAGING DIRECTOR SHRI M. B. JANI (<i>Alternate</i>)
Ministry of Railways, New Delhi	EXECUTIVE DIRECTOR, TRAFFIC AND TRANSPORT
Ministry of Environment and Forests (Animal Welfare Division), New Delhi	JOINT SECRETARY DEPUTY SECRETARY (<i>Alternate</i>)
National Dairy Development Board, Anand	DR R. KASIRAJ DR M. R. GARG (<i>Alternate</i>)
National Dairy Research Institute, Karnal	DR K. K. SINGHAL DR A. K. TYAGI (<i>Alternate</i>)
Nav Maharashtra Chakan Oil Mills Ltd, Pune	DR M. B. KUMBHAR DR C. B. PATHAK (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
People of Ethical Treatment of Animals, PETA, Mumbai	MS ANURADHA SAWHNEY SHRI N. G. JAYASIMHA (<i>Alternate</i>)
Punjab Agricultural University, Ludhiana	DR B. K. GUPTA PROF & HEAD (<i>Alternate</i>)
Punjab State Cooperative Milk Producers' Federation Ltd, Chandigarh	DR VIKAS PRATAP SHRI A. K. DHAWAN (<i>Alternate</i>)
Tamil Nadu University of Veterinary & Animal Sciences, Chennai	DR V. BALAKRISHNAN DR M. MURUGAN (<i>Alternate</i>)
The All India Sheep and Goat Breeders and Dealers Association (Regd), Mumbai	SHRI M. A. QURESHI PRESIDENT (<i>Alternate</i>)
The Compound Livestock Feed Manufacture Association of India, Mumbai	DR P. G. PHALKE DR S. S. CHABRA (<i>Alternate</i>)
BIS Directorate General	MS MADHULIKA PRAKASH, Scientist and Head (FAD) [Representing Director General (<i>Ex-officio</i>)]

Member Secretary
SHRI VIJAY KUMAR SINGH
Assistant Director, (FAD), BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc : No. FAD 5 (1661).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 2323 0131, 2323 3375, 2323 9402

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :

	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110 002	{ 2323 7617 2323 3841
Eastern : 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700 054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160 022	{ 60 3843 60 9285
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600 113	{ 2254 1216, 2254 1442 2254 2519, 2254 2315
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400 093	{ 2832 9295, 2832 7858 2832 7891, 2832 7892
Branches : AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. PARWANOO. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM. VISAKHAPATNAM.	