Survey on the actual animal welfare situation at Turkish slaughterhouses

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by
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Für meine Eltern und Großeltern
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<th>Abbreviation</th>
<th>Explication</th>
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</thead>
<tbody>
<tr>
<td>ASPCA</td>
<td>American Society for the Prevention of Cruelty to Animals</td>
</tr>
<tr>
<td>Cat.</td>
<td>category = class</td>
</tr>
<tr>
<td>CITES</td>
<td>Convention on International Trade in Endangered Species of Wild Fauna and Flora</td>
</tr>
<tr>
<td>cm</td>
<td>centimetre</td>
</tr>
<tr>
<td>DE</td>
<td>decapitation</td>
</tr>
<tr>
<td>DIALREL</td>
<td>Encouraging Dialogue on issues of Religious Slaughter</td>
</tr>
<tr>
<td>EC</td>
<td>European Council</td>
</tr>
<tr>
<td>EFSA</td>
<td>European Food Safety Authority</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FAOSTAT</td>
<td>Food and Agriculture Organization Corporate Statistical Database</td>
</tr>
<tr>
<td>HB</td>
<td>chest stick</td>
</tr>
<tr>
<td>HE</td>
<td>throat cut followed by puncture of the spinal cord and chest stick</td>
</tr>
<tr>
<td>HG</td>
<td>throat cut and broken neck</td>
</tr>
<tr>
<td>HS</td>
<td>throat cut</td>
</tr>
<tr>
<td>IQR</td>
<td>interquartile range</td>
</tr>
<tr>
<td>Ino</td>
<td>largest non-outlier observation</td>
</tr>
<tr>
<td>m</td>
<td>mean</td>
</tr>
<tr>
<td>Med</td>
<td>median</td>
</tr>
<tr>
<td>n</td>
<td>number of animals</td>
</tr>
<tr>
<td>No.</td>
<td>Number</td>
</tr>
<tr>
<td>PI</td>
<td>personnel index</td>
</tr>
<tr>
<td>Q1</td>
<td>lower quartile</td>
</tr>
<tr>
<td>Q2</td>
<td>upper quartile</td>
</tr>
<tr>
<td>r</td>
<td>range (highest score – lowest score)</td>
</tr>
<tr>
<td>sd</td>
<td>standard deviation</td>
</tr>
<tr>
<td>sno</td>
<td>smallest non-outlier observation</td>
</tr>
<tr>
<td>sqm</td>
<td>square metre</td>
</tr>
<tr>
<td>ST</td>
<td>throat cut and puncture of the spinal cord</td>
</tr>
</tbody>
</table>
1. Introduction
The Council Directive 93/119/EC on the protection of animals at the time of slaughter or killing (EUROPEAN COUNCIL 1993) is compulsory for all Member States of the European Union. Candidate countries also have to meet these requirements. The European Council decided in December 2004 to open accession negotiations with Turkey on 3 October 2005 and set out the framework and the requirements for starting accession negotiations. Therefore Turkey has to conform its animal welfare legislation to EU standards.

At the First Conference On Animal Welfare And Veterinary Education In Turkey in June 2005 in Ankara drafts of the Regulation for the Protection of Farm Animals including the protection of laying hens, calves and pigs (CANGA 2005), the Regulation on the protection of animals during transport (KALKAY 2005) and the Regulation on the protection of animals at the time of slaughter and killing (ÖZDEMIR 2005) were presented. Additionally representatives of the Turkish veterinary universities presented their research projects in the field of animal welfare. The high attendance at the conference showed the increasing interest in animal welfare topics in Turkey, particularly in regard to the Regulation on the protection of animals at the time of slaughter and killing. However, the presentations and discussions also revealed a considerable lack of knowledge on how the rules should be implemented in practice and that only little scientific investigations had been carried out in this specific field. Therefore it was proposed to perform a field survey in order to get more detailed information on the present animal welfare situation in Turkish slaughter houses and to assess the results in the light of the Directive comparing the animal welfare legislation of Turkey and of the European Union. For this reason during a period of seven months 99 slaughterhouses were visited and evaluated by means of a self-developed checklist (standard protocol) which was designed according to the Council Directive 93/119/EC in order to standardize the received data of the different slaughter plants.
2. Comparison of Turkish and EU animal welfare legislation

2.1. Turkish animal welfare framework

There are clear systematic differences between Turkish and EU legislation. While the European animal welfare law exists independently besides other legal frameworks, the Turkish animal welfare regulations are mainly incorporated in other laws. There is for example a law on slaughterhouses that contains administrative instructions, food hygiene, animal health and animal welfare prescriptions. The only law dealing exclusively with animal welfare subjects is the “Animal Welfare Law”. In this dissertation only the animal welfare statements of the different laws and directives will be presented and discussed.

In principle, the legal regulations are valid for the whole of Turkey. However, different ministries enacted the regulations and consequently different authorities are responsible for the implementation and the supervision. Table 1 presents the Turkish animal welfare framework valid during the period of investigation of the Turkish slaughterhouses and the corresponding responsibilities:
<table>
<thead>
<tr>
<th>Animal Welfare Law</th>
<th>Ministry of Agriculture and Rural Affairs</th>
<th>Ministry of Environment and Forestry</th>
<th>Police and Gendarmerie</th>
<th>Local Authorities</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Power of enactment of directives for animal trade, protection of farm animals, slaughter, zoos</td>
<td>• Encrafted this law</td>
<td>• Encrafted this law</td>
<td>• training for people selling pet and ornamental animals</td>
<td>• TRT Broadcasting Corporation: educational television and radio programme</td>
<td></td>
</tr>
<tr>
<td>• Responsible for all processes and granting of authorizations for the trade, import and export of pet animals</td>
<td>• Power of enactment of directives for trade with animals, trading of wild animals, putting animals to death as a sacrifice, zoos</td>
<td>• Authorization of the usage of animals in films and advertisements of commercial purposes</td>
<td>• registraction of pet and stray animals</td>
<td>• Relevant institutions and organisations: financial support for animal shelters and hospitals</td>
<td></td>
</tr>
<tr>
<td>Animal Health Law</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Encrafted this law</td>
<td>• Setting of a cordon after an outbreak of an infectious disease</td>
<td>• Examination of animals and issuing the veterinary health reports for animals leaving the district</td>
<td>• control of the paper of origin and of the veterinary health report during animal transport on the street</td>
<td>• Muhtar or municipality: issuing the paper of origin for animals transported within the boundaries of the district</td>
<td></td>
</tr>
<tr>
<td>• Encrafted this regulation</td>
<td>• Examination of animals and issuing the veterinary health reports for animals leaving the district</td>
<td>• Production of vaccines and conducting vaccination programmes</td>
<td>• Killing of animals</td>
<td>• Examination veterinarian: responsible for examination of the animals before and after slaughter</td>
<td></td>
</tr>
<tr>
<td>Regulation on the Experimental Animals</td>
<td>• Encrafted this regulation</td>
<td>• Competent authority for all concerns</td>
<td>• Auditing authority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation regarding Red Meat and Meat Products Processing Establishments</td>
<td>• Encrafted this regulation</td>
<td>• Competent authority for all concerns</td>
<td>• Auditing authority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation regarding Poultry Meat and Meat Product Production Plants</td>
<td>• Encrafted this regulation</td>
<td>• Competent authority for all concerns</td>
<td>• Auditing authority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation regarding Pet and Ornamental Animals</td>
<td>• Encrafted this regulation</td>
<td>• Competent authority for all concerns</td>
<td>• Auditing authority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation regarding Farms</td>
<td>• Encrafted this regulation</td>
<td>• Competent authority for all concerns</td>
<td>• Auditing authority</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tab. 1: Turkish Animal Welfare Framework, enacting ministries and competencies during the period of the investigation of the Turkish slaughterhouses**
The Animal Welfare Law (MINISTRY OF ENVIRONMENT AND FORESTRY 2004)

The animal welfare law (Hayvanları Koruma Kanunu Nr. 5199) consists of five parts and 33 articles and was adopted in 24th June 2004 by the Ministry of Environment and Forestry. It became operative on 1st July 2004.

The introductory part deals with general issues, such as the aim, the scope, definitions and basic principles of the law. The objective of the law is to ensure an untroubled life for animals and to provide a good and suitable treatment of animals, to protect them in the best possible ways against pain, suffering and harassment, and to prevent any kind of unjust treatment towards them.

In accordance with this objective given in Article 1, this law incorporates provisions concerning the arrangements to be made, the measures to be taken, the coordination to be provided, audits, restrictions and responsibilities as well as the penal clauses to be applied when executing the law. The basic principles regarding the protection of animals and providing an untroubled life for animals are as follows:

- All animals are born equal and they all have the right to live within the framework of the provisions of this law.
- Domestic animals have to live under appropriate conditions according to their species. The life of stray animals should be supported just like the one of owned animals.
- Appropriate measures should be taken for the protection, safeguarding, caring and avoidance of maltreatment of animals.
- It is essential to encourage and provide coordination for real persons and legal entities meeting the requirements envisaged in this law, who with no intention of obtaining economic benefit or personal interest and solely acting under humane and conscientious responsibilities are caring for or intend to care for stray and feeble animals.
- Endangered species and their habitats have to be protected.
- Wild animals should not be taken away from their natural habitats, and they should not be hunted down and trapped to subsequently live in confinement.
- While protecting animals and providing them an untroubled life, the hygiene, health and safety of humans and other animals has to be taken into consideration.
- It is essential that the care, feeding, sheltering and transportation of animals are carried out under conditions according to their species.
- The persons actually transporting animals or the persons responsible for their transport have to provide the appropriate medium and conditions for the transportation of the animals peculiar to their species and their characteristics.
- It is essential that the local authorities in collaboration with voluntary organizations conduct training and establish animal shelters and hospitals for the protection of stray and feeble animals in order to provide care and treatment for them.
- To avoid uncontrolled reproduction, it is essential that cats and dogs fed and sheltered in communal societies should be castrated by their owners. Nevertheless, persons willing to propagate their animals are responsible for the care and/or giving out of the offspring as well as their registration by the municipality.

The second part deals with protective measures and is divided into four subsections.
The first subsection gives rules for the ownership, care and protection of animals. It is divided into one part about the ownership and care of animals and in another about the protection of stray and feeble animals. It is illustrated that individuals selling pets and ornamental animals shall be responsible for participating in training programs on the caretaking and protection of animals, organized by local authorities, and obtaining a certificate thereof. Animal owners have to meet all needs of their animals according to their species and they have to protect the public from any negative influences, which may be originated from the animal. Pets and ornamental animals kept particularly in the house or in the garden for non-commercial purposes are not liable to attachment due to the debt of the owner. Pets, ornamental animals and animals kept under control that are incapable of re-adapting to their natural habitat cannot be abandoned, i.e. they cannot be released in an environment where they cannot subsist. However new owners have to be found for them or they have to be delivered to an animal shelter. The killing of stray and feeble animals is prohibited except for the conditions envisaged in Law No. 3285 on Animal Health and Surveillance (General Directorate of Protection and Control, 1989). It is obligatory for everyone to take stray and feeble animals to an animal shelter established or authorized by local authorities as quickly as possible. These animals should be kept in the observation facilities, to be established at the centres mentioned above. It is essential that the animals which have been castrated, vaccinated and rehabilitated at the observation facilities are returned to the environment they came from after they have been registered.

Subsection two presents special provisions for interventions on animals, as there are surgical interventions, which have to be conducted by a veterinarian. Surgical interventions aimed at changing the physical appearance of pets and ornamental animals, or other interventions carrying no therapeutic effect like cutting off the ears or the tail, removing vocal cords, extracting nails and teeth are prohibited. The appliance of hormones and drugs without a medical reason is also forbidden. Animals cannot be used in non-scientific diagnostic, therapeutic and experimental studies. The “Regulation on the Procedures and Principles for the Protection of Animals used for Experimental or Scientific Purposes, Breeding Establishments for Experimental Animals and the Establishment, Operation and Inspection of Laboratories Performing the Experiments” laid down by the Ministry of Agriculture and Rural Affairs outlines the welfare of animals used for experimental purposes.

Subsection three outlines trade and training of animals. When an animal is sold, it shall be ensured that the animals are in a good health condition and are being sheltered in a clean environment, under appropriate sanitary requirements. The transferring, selling or purchasing of an animal that is ill, disabled and old or suffering from pain and distress of an incurable extent is prohibited, except for the purposes of duly slaughtering or putting to death with a pain-free method. The usage of animals for making films and advertisements of commercial purposes are subject to authorization of the Ministry and its local authorities. The procedures and principles regarding the authorization in question shall be established with a regulation enacted by the Ministry, after having received the opinions of relevant institutions. Further regulations on farm animals and on the trade with wild animals shall be laid down by the responsible ministries. The animals must not be subject to training which exceeds their natural capacities and powers and they must not be trained by methods causing injuries, unnecessary sufferings and incites to bad habits. To let animals fight with other living animals is prohibited.

The final subsection stresses the guidelines for slaughtering, putting animals to death and prohibitions. The slaughtering of animals has to be done as fast as possible, in accordance
with the hygienic rules and procedures, without frightening or intimidating the animal and in a manner so as to cause as little pain as possible, taking into consideration the conditions required by religious rules. It shall be ensured that the slaughter of animals is performed by competent persons. A detailed regulation shall be enacted by the Ministry under which the Presidency of Religious Affairs is established. Animals in the period of propagation, gestation and nursing must not be killed unless it is provided with the legal exceptions, medical and scientific reasons and emergencies constituting unavoidable threats for human health and environment. The principles and procedures for putting to death shall be determined with a regulation enacted by the Ministry.

Twelve prohibitions concerning animals are given in Article 14:

• Intentional bad behaviour towards animals, cruel and rigorous handling of animals, beating animals, leaving animals without food or water, exposing them to excessive heat or cold, neglecting to care for them, physical and psychological abuse of them.
• To force animals to actions exceeding their natural capacities or strength.
• Selling pets or ornamental animals to persons who haven’t received training on keeping animals.
• Selling pets and ornamental animals to persons under the age of sixteen.
• Intervention to the animals’ body before its death is assured.
• Slaughtering or killing animals, other than slaughter animals and wild animals which are subject of trade and game authorized within the scope of Law No 4915, and placing their meat on the market shall be prohibited.
• To distribute animals not bred for slaughtering, as awards, bonuses or premiums.
• Artificial interventions, except for medical reasons, which may cause harm, to the eggs or unborn offspring, except for caviar production, and administration of foreign substances.
• To keep ill animals, animals in the last third of gestation or animals which have just given birth under inappropriate conditions.
• Sexual intercourse with animals and torture.
• To force feed animals except for health reasons, to feed animals with food causing pain, suffering or harm and to give them alcoholic drinks, cigarettes or other drugs.
• It is forbidden to propagate, to own, to import, to sell, to advertise, to exchange, to exhibit and to give dangerous animals like Pitbull Terrier and Japanese Tosa away for free.

Part three highlights the animal protection management. It regulates the organization, duties and responsibilities of local boards, audits and volunteers, the financial support for the protection of animals and concludes with other provisions (educational publications, traffic accidents, zoos, prohibitions and authorizations, safeguarding). The board of animal protection in each province meets under the chairmanship of the governor, and deals with the protection of animals, identifies the problems encountered and tries to find solutions. The participants of the provinces’ boards, its duties and responsibilities, e.g. to support, and to take necessary measures for the establishment and improvement of animal shelters and hospitals in the province, are given. The qualifications of auditors, auditing principles and procedures, establishment of registers and system of monitoring, compulsory notification, and principles and procedures for notification shall be adopted with a regulation enacted by the
Ministry of Environment and Forestry. The province board of animal protection appoints annually a so called local commissioner of animal protection. He or she is a voluntary individual, who deals with animal welfare in his or her district. The duties and responsibilities of the local commissioners of animal protection, the procedures and principles relating to granting of licenses, the withdrawal of licenses and the trainings provided shall be adopted with a regulation enacted by the Ministry. Financial support shall be provided for the establishment of animal shelters and hospitals to protect the animals, and for performing activities like care, rehabilitation, vaccination and castration at the animal shelters and hospitals, mainly from local authorities and relevant institutions and organizations and from the Ministry at the amounts considered appropriate. For this purpose, necessary funds shall be allocated from the Ministry’s budget.

Part four gives other provisions and the penal provisions. Article 20 states that "For the purposes of protecting animals and ensuring animal welfare, making programs aimed at common and formal education, issuing of the subject with radio and television programs shall be the basic principle”.

The final part concentrates on miscellaneous and final provisions and provisional articles.

The Law of Animal Health Control numbered 3285 and dated 8th May 1986 consists of four parts and 61 articles. This law was nullified by law number 5996 on 11/6/2010. However, it will be presented and discussed in this study, as it was valid during the time of investigation. The aim of this law is to prevent the transmission of diseases from animals and animal materials to humans and other animals. This law also addresses the fight against contagious animal diseases. The scope of the law is to protect animal health, to fight against contagious diseases and to control animal movements, transport of animal materials, import and export of animals and animal products with respect to health conditions.

The aim, scope and definitions of the law are given in Part one, Section one. Section two outlines the animal health control at borders. Every animal must be accompanied by a health certificate issued by an official veterinarian of the export country. The first health control is carried out at the borders by an official veterinarian peering at the animals within their transport containers. Animals without health certificate can be rejected or quarantined. Sick animals can be killed. In some diseases a payment will be made by the state according to article 41.

Section five deals with measures of prevention and cure and with trade and traffic of animals and animal materials within the country. To transport an animal it is necessary to have a certificate of origin which is issued by the "muhtar" (the chairman of the village or district) in villages or by the municipality in cities. Animals which are transported for private consumption or to the local markets do not need a certificate of origin. Before transporting the animals to another province or district, the animal owner has to show the certificate of origin to the nearest representative of the Ministry of Agriculture and Rural Affairs. If the examination of the animals shows that they are healthy, he will receive a veterinary health report, which has to accompany the animals during their journey. The trade of animals in
cities or towns has to take place in markets or parks. However, the trade of animals to be slaughtered for private consumption is excluded from this rule. Also animals which are presented at exhibitions or fairs have to have a certificate of origin or a veterinary health report. Section seven stresses that the slaughter of animals for commercial purposes is only allowed at slaughterhouses and the animals have to possess a certificate of origin and a veterinary health report. The animals will be examined before and after slaughter.

Part two of the law gives special rules to specific illnesses.

Part three deals with compensations and penal codes.

2.1.2.1 Animal Health Control Regulation (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 1989)

Complementary to the Animal Health Control Law the Animal Health Control Regulation was issued by the cabinet on 22nd February 1989 and was nullified by law number 5996 on 11/6/2010. It specified the commandments of the Animal Health Control Law.

Article six and seven give the specifications of the certificate of origin and the animal health report. If these documents have been issued by a private veterinarian, they have to be endorsed by an official veterinarian. They have to include information on the kind of animals, their sex, the number of animals, the owner’s name and address and the places of embarkation, customs control and disembarkation.

Article 92 and 93 deal with slaughter, and the examination of slaughter animals before and after slaughter. It is mentioned, that slaughter for private consumption and for sacrificial animals can be carried out at places other than slaughterhouses. If animals from other provinces are brought to a slaughterhouse they have to be accompanied by a health report. If they come from the local area a certificate of origin is sufficiently. At the slaughterhouse the sex and type of the animal have to be determined. The animal’s body condition, movement, state of awareness, skin, digestive, respiratory and genital organs are checked. Healthy animals are allowed to rest 24 hours before slaughter.


This law was implemented on 11.6.2010 and nullified the Law of Animal Health Control number 3285.

It consists of nine parts with 50 Articles and two Annexes.

The objective of this law is to ensure the security of food products and animal feed and to protect and secure public health, the health of animals and plants, the breeding of animals and plants and animal welfare having regard to environment protection.

The scope of this law is to control the production of food and feed at all levels, to protect animal health, to fight against contagious diseases and to control animal movements, transport of animal materials, import and export of animals and animal products with respect to health conditions, the protection of plant health and plant products. Furthermore the scope includes
the welfare of pets, farm animals and animals used for experimental and scientific purposes. Primary production for self-consumption is excluded from this law. The aim, scope and definitions of the law are given in Part one, Section one. The competent ministry for this law is the Ministry of Agriculture, Forestry and Rural Affairs. Primary production, paragraph 3-(1) 5) includes animal husbandry, breeding and the production of milk and eggs for private consumption. Slaughter does not belong to primary production.

Part two deals with animal health, animal welfare and zootechnics. Paragraph 4 describes the measures taken by the Ministry in the case of an outbreak of contagious diseases. Section two presents provisions on animal identification. Animal owners have to inform the ministry on any changes within their livestock and animals have to be earmarked or have to have a microchip implanted. Information on the provisions for animal transport can be obtained from the ministry. Livestock can only be traded at licensed animal markets or fairs. Excluded are sales from one company directly to another company. Shops or people selling pets or ornamental animal have to be licensed, too. Section gives provisions on animal welfare and zootechnics. Animal owners and keepers have to meet the needs of the animals concerning housing, care, nutrition, health and other necessities with regard to animal health and environment protection provisions. For the slaughter or killing of animals adequate equipment has to be used to avoid unnecessary fear, pain and suffering. Euthanasia of animals is only allowed under following conditions:

- The animal suffers, feels pain or has an incurable illness.
- For public health reasons or for prevention and eradication of contagious diseases.
- The behaviour of the animal poses serious danger to people or other animals. A veterinarian has to decide whether the animal has to be euthanized or not and the animal has to be euthanized by a veterinarian.

2.1.4. Regulation on the Procedures and Principles for the Protection of Animals used for Experimental or Scientific Purposes, Breeding Establishments for Experimental Animals and the Establishment, Operation and Inspection of Laboratories Performing the Experiments (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2004)

This regulation was nullified by the Regulation on the Protection of Animals used for Experimental or Scientific Purposes on 13/12/2011. However, it will be presented and discussed in this study, as it was valid during the time of investigation.

The regulation consists of seven chapters with 19 Articles and three Annexes.

The objective of this regulation is to ensure that breeding establishments for animals used for experimental or other scientific purposes are established and operated under appropriate technical, health and hygienic conditions, and that these establishments are maintained and used so as to provide the welfare and safety of the animals concerned. This Regulation comprises the rules, technical and hygienic requirements which shall be complied with during the breeding, usage, sale and transportation of animals used for experimental or other scientific practices carried out by natural persons, legal entities, public bodies and institutions, as well as the processes which apply in conformity with the provisions of this Regulation.
The activities where animals may be used for experimental and other scientific purposes are presented in article five. Amongst others the animals can be used for scientific purposes “to prevent diseases and health-related abnormalities in humans, animals and plants”, “for the research of production, safety, effectiveness, quality and side effects of drugs, substances, products or clinical applications used on humans, animals or plants”, “for the research of physiological occurrences in humans, animals and plants” and “for training and education”.

Article six says, that animals used or intended to be used for experimental or other scientific purposes shall be provided with a living environment and space for freedom of movement, food, water, environmental conditions and care that can adequately meet their physiological needs and maintain their health and well-being. Locations where animals are bred, housed or used should be checked on a daily basis. The welfare and health condition of animals should be observed closely and with adequate frequency so that pain, suffering and other avoidable harmful situations may be eliminated. All conditions determined as potentially harmful for the animal should be ameliorated in the shortest possible time.

Article seven stresses, animals are only allowed to be used, if there is no other possibility to carry out the experiment. When the use of an animal is unavoidable, the choice of species and genus shall be carefully considered. In the choice between the methods to be applied, those which require the minimum number of animals, cause the least pain, suffering or lasting harm, and which are most likely to provide satisfactory scientific results shall be selected. General or local anaesthesia or other pain-relieving treatment shall be applied to the animal during all processes involving pain or suffering. When the process applied has been completed, a decision shall be made on whether the animal used is to be kept alive or killed by a humane method. The animal shall not be kept alive if it is likely to remain in lasting pain or distress, even though it has been restored to normal health in all other respects. The decision on whether the animal is to be kept alive or not shall be made by a veterinarian. It is necessary that the responsible facility manager is a veterinarian. He is responsible for the acceptance, care, feeding, breeding, observation of the health condition, treatment of diseases, record keeping of the animals in the research unit as well as for ensuring that the researches performed are in compliance with veterinary medical practice. It is obligatory for these establishments to employ at least one veterinarian, on the basis of the number of animals to be used. The veterinarian shall be responsible for checking the health condition and well-being of the animals. The department of experimental animals within the establishment shall also be under the responsibility of the veterinarian. Animals can only be used for training and educational purposes if this is absolutely necessary.
2.1.5. Regulation on the Protection of Animals used for Experimental or Scientific Purposes (GENERAL DIRECTORATE OF NUTRITION AND CONTROL 2011a)
The regulation consists of ten chapters with 45 Articles and fourteen Annexes.

The objective of this regulation is to ensure good animal welfare conditions for animals used for experimental or scientific purposes. This includes the breeding, feeding, care, husbandry and killing of these animals. Furthermore the conditions for the origin, breeding and identification of the animals and the certification of laboratories or scientific institutions, as well as the qualification of the people handling the laboratory animals and the documentation are part of the objective.

The scope contains measures to reduce the number of animals for experimental or scientific purposes and to find alternative procedures.

Chapter two stresses that institutions using laboratory animals have to work according to good scientific practice and use as few animals as possible and that the degree of pain, suffering and fear for these animals should be as low as possible. A good health status and the well-being of the animals has to be ensured during their stay at all institutions and during transport. This includes regular feeding, watering and care. The physiological and behavioural needs of the animals should be met as well as possible. Housing conditions and the supply of feed and water have to be checked daily. The welfare and health conditions of animals should be observed closely and with adequate frequency so that pain, suffering and other avoidable harmful situations may be eliminated. All conditions determined as potentially harmful for the animal should be ameliorated in the shortest possible time. Only animals fit for transport may be transported. To reduce aggressive behaviour among the animals, animals not knowing each other should be transported in different cages. A veterinarian has to check the health status of the animals daily, the lighting has to be adapted to the needs of the housed animal species and animals sensible to noises have to be accommodated in a noise reduced surrounding. Also the conditions for water supply, nutrition, transport, housing and enrichment measures are part of this article. Producers of laboratory animals, transport companies and institutions using laboratory animals have to employ an animal welfare officer and build an animal welfare body. Additionally they have to employ a veterinarian or an animal health technician and another person responsible for animal welfare issues.

Chapter four defines the type of experiments animals may be used for and the permitted laboratory animal species. It is not allowed to use animals taken from the wild, stray and feral animals for experiments.

In chapter five it is stated that painful procedures have to be done under anaesthesia and if necessary painkillers have to be administered. The procedures are classified according their severity into mild, moderate, severe and non-recovery. Animals may only be used for new experiments if they have fully recovered from a mild or moderate procedure and if the following experiment is considered mild, moderate or non-recovery. If animals feel pain or suffer at the end of a procedure they shall be euthanized. The decision has to be taken by a veterinarian. Is it kept alive, it has to receive care and accommodation according to its health status. It is possible to find a new home or return laboratory animals to a suitable habitat if the health status of the animal allows it, there is no danger for public health and the well-
being of the animal is safeguarded. If the animal has to be killed at the end of a procedure or due to other reasons, it must be done under a minimum of pain, suffering and distress.

All breeders, suppliers and users of laboratory animals have to employ competent personnel that received adequate training and education in the fields of carrying out procedures on animals, designing procedures and projects, taking care of animals and killing animals (chapter seven).

Chapter eight lays down that breeders, suppliers and users of laboratory animals have to keep records on the animals, including the number of species, their origin, the dates when the animals were acquired, supplied, released or rehoused, time and reason of death and on the procedures the animals were used in. Detailed information on all used dogs, cats and non-human primates have to be kept and these animals have to be marked with a permanent individual identification mark after weaning.

2.1.6. Regulation regarding the Procedures and Principles for Establishment Opening, Operation and Inspection of Red Meat and Meat Products Processing Establishments (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2008a)

The newest version of this Regulation was adopted by the Ministry of Agriculture and Rural Affairs on 20th April 2007 and is numbered 26499. The objective of the Regulation is to ensure the sound production of meat and meat products by providing slaughter of bovines and ovines at establishments having proper technical and hygienic conditions; examination, storage, cutting, processing, becoming into finished product, wrapping, packing and transport of meat to be obtained from slaughter animals; and to make arrangements for necessary measures involving disposals and waste arising from processing establishments.

The regulation is based on the 4th and 6th article of the "Law on the Production, Consumption and Inspection of Food" dated May 27, 2004 and numbered 5179 and on article 33 of the Animal Health and Control Law dated May 8, 1986 and numbered 3285. It contains nine chapters, 32 Articles (the original Turkish version as given on www.kkgm.gov.tr/yonetmelik/kirmizi_et_yon.html) and three annexes.

There are also some definitions, which are interesting in the focus of animal welfare:

- authorized unit: unit of the Ministry of Agriculture and Rural Affairs authorized to provide permission for establishment and operation of facilities within the scope of the regulation; General Directorate of Protection and Control for combines and slaughterhouses of the first and second class; Provincial Directorate of the Ministry for the slaughterhouses of the third class, cold storage, cutting facilities and finished product production facilities.
- combine: the facility having cutting facility and/or finished product production facility in addition to slaughterhouses of the first and the second classes where slaughter animals are being slaughtered.
- slaughterhouse: the facility where animals for slaughter are slaughtered and/or meat and bowels are stored after the cutting process in cold storage containing the cleaning and/or processing of the entrails; they are graded as first, second and third class slaughterhouses according to their capacity and technical conditions.
slaughterhouse of the first class: the slaughterhouses having conditions specified in this regulation and which have a maximum slaughter capacity depending on the size of the slaughter room, the slaughter and post-slaughter hygienic conditions, the capacity of the cold storage and the space of the waiting areas. They are permitted to sell meat to all parts of the country.

slaughterhouse of the second class: the slaughterhouses having conditions specified in this regulation and which have a maximum slaughter capacity of 18 slaughter units a day. They are not allowed to sell meat outside the province they are situated in.

slaughterhouse of the third class: the slaughterhouses having conditions specified in this regulation and which have a maximum slaughter capacity of 8 slaughter units a day. They are neither allowed to sell meat outside the province nor the county they are situated in.

slaughter unit: one slaughter unit used for the determination of the slaughter capacity of slaughterhouses, one slaughter unit is equal to one piece of cattle, one water buffalo, one horse, one camel, two ostriches, four pigs, eight sheep, ten goats or 130 rabbits.

examination veterinarian: a veterinarian, who examines the animals prior to slaughter and the meat after slaughter, who took part in a course on meat inspection and examination held by the ministry and who is appointed by the authorized unit to work at private slaughterhouses and combines or who is allowed to work for slaughterhouses of the municipalities and Meat and Fishery Products Joint Stock Company.

The third chapter contains the guidelines for combines and slaughterhouses of the first class. Article six gives general conditions, as some of them are:

- Those slaughterhouses are allowed to sell meat within the whole of Turkey and to export their meat and meat products.
- All sides of the facilities have to be surrounded by walls or wire fence with a minimum height of 1.5 meters.
- To enable convenient work there has to be sufficient natural or artificial light, which does not change colour.
- There must be a lockable room for the inspecting veterinarian, where he can find his necessary equipment.
- There should be separated places to clean and disinfect the vehicles carrying live animals and the vehicles carrying meat.

Article seven gives specific conditions:

- The open and the enclosed animal waiting places should have a size of twice the daily slaughter capacity by calculating 3 sqm for bovines, 0.7 sqm for ovines and 1 sqm per pig. The floors must be easy to clean and disinfect, resistant and waterproof. There have to be arrangements to allow feeding and watering of the animals if necessary and a drainage system. Separate sections for each animal species and a sufficient number of examination paddocks have to be available. The facilities have to be constructed in such a way, that the different species do not meet during their movements.
- The loading platforms have to ensure an easy unloading of the animals and approaching of the vehicles. They shall have strong fencing at both sides to prevent the animals from escaping. There shall not be any pointy, sharp or the like parts, where animals could hurt themselves. The floors shall be non-slippery, made of waterproof materials and easy to clean and disinfect.
• There has to be a separate, enclosed, lockable section for the examination and keeping of ill animals or animals, which might be ill. The drainage system of this quarantine section must not have any connection to the drainage system of the other animal waiting sections.
• There have to be separated slaughter sections for ovines and bovines.
• There has to be a separated slaughter room or section for sick or potentially sick animals. This part of the slaughterhouse must be totally separated from the rest of the abattoir.

Chapter four illustrates the guidelines for slaughterhouses of the second and third class. Only the differences to the conditions of the slaughterhouses of the first class will be given here.

Article eight gives the general and specific conditions for slaughterhouses of the second class:
• The maximum slaughter capacity must not exceed 18 slaughter units a day. The meat must not be sold outside the province the slaughterhouse is situated in.
• The waiting places for the slaughter animals have to be next to the slaughterhouse or in a short distance from the abattoir. The per head space required for bovines, ovines and pigs, the loading platforms, the conditions for the floor, the drainage system, the feeding and the watering are the same as in first class slaughterhouses, but any mention about the capacity of the waiting areas is missing.
• The slaughter of the different animal species can be carried out in the same slaughter hall, but at different times.
• Sick or potentially sick animals have to be slaughtered last and afterwards the slaughter room and the equipment have to be cleaned and disinfected.

The conditions for third class slaughterhouses are outlined in article nine:
• The maximum slaughter capacity must not exceed 8 slaughter units a day and there are no third class combines. Meat can be sold only within the boundaries of the county, the slaughterhouse is situated in.
• Different animal species have to be slaughtered at different times. Separated slaughter rooms or divisions for the different animal species are not necessary.
• Sick or potentially sick animals have to be treated as in slaughterhouses of the second class.
• As in slaughterhouses of the second class the waiting places for the slaughter animals have to be next to the slaughterhouse or a short distance from the abattoir.

Chapter five explains general rules to be obeyed during working at combines and slaughterhouses, which have received the working permission:
• No animals, except to the ones which are going to be slaughtered, are allowed to enter the estate of the slaughterhouse.
• Animals which are brought to the slaughterhouse have to be accompanied by a certificate of origin or a health certificate of a veterinarian.
• Animals shall be moved to the slaughter hall in such a way, that they are not exposed to any stress. It is forbidden to slaughter on the floor. During the slaughter procedure the animals shall suffer as little as possible. In combines and slaughterhouses of the first and second class the slaughter and the following procedures have to be performed on a conveyor system. In third class slaughterhouses hooks can be used.
• The transport of the slaughter animals and the examination before and after slaughter have to be carried out according the Animal Health and Control Law No. 3285 and the
instructions of the Animal Health and Control Regulation dates 22/2/1989 and numbered 89/13838.

- The vehicles carrying living animals, meat, offals and finished products have to be cleaned and disinfected after every transport at a special unloading place.
- It is not allowed for the transport vehicles to be used for any other purposes, than to transport animals.
- The examination veterinarian is responsible for all the examinations of the animals before and after slaughter. All slaughterhouses have to employ a veterinarian.
- The animals must not be slaughtered before the responsible veterinarian has examined them.
- The responsible veterinarian is authorized to request all kind of tests on the animals for examination and control purposes.

2.1.7. Regulation for the Operation and Supervision Procedures and Principles of the Poultry Meat and Meat Product Production Plants (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2008b)

The objective of this Regulation, dated 8th January 2005 and numbered 25694, is to ensure minimum standards at poultry slaughter plants and to outline necessary technical and hygienic conditions. It is divided into eight parts, 32 articles and three annexes. Rules for the examination of the animals and the meat, technical and hygienic conditions, refrigerating, preserving, chopping, turning into end products, wrapping, packaging and transferring of meats and plucks which are to be obtained from poultry for slaughtering and providing production of safe meat and meat products are given. All poultry slaughter plants have to employ a veterinarian. He has to examine the poultry before and after slaughter. A dim environment should be provided at the hanging section in order to prevent animals to become stressed. There should be an indoor section that is suitable for cleaning and disinfection, has ventilation and heating facilities, has enough space for keeping the animals brought to the plant for slaughter and for their examination before slaughter. Additionally, a platform for the examination of animals on the vehicles before unloading should be provided. There should be an indoor section or a room that has no connection with other sections and has its own discharge, for the animals that are in bad health or under the suspicion of being in bad health. Animals have to be accompanied by a veterinary health report or a certificate of origin. Slaughter of animals which have been brought without the veterinary health report or certificate of origin is forbidden. The veterinarian has to carry out the inspection according to the rules of the profession and under sufficient light. It has to be controlled whether the veterinary health report or the certificate of origin belong to these animals and whether injuries, stress and similar situations have occurred at the time of transportation. For animals which come from farmyards that are continuously under veterinarian control, inspection of animals one by one is not compulsory, if a document which includes the following data is presented to the veterinarian 72 hours before slaughter:

- the species of poultry
- the number of poultry
- the names of the animal feed contractors
- evaluation of the veterinarian who is responsible for the poultry yard about the health of the animals and if available, the results of the laboratory analysis
- application dates of medical treatments
• vaccination name, date and type
• planned date of slaughter

If the animals brought for slaughter do not come from poultry yards which are kept under control, all animals have to be inspected one by one. Only slaughter animals are allowed to enter the estate of the slaughter plant. It is only allowed to shackle living animals. The birds have to be unloaded and transferred to the place of slaughter as soon as possible after their arrival. They have to be shackled into a conveyor belt by their wrists. The animals under suspicion have to be slaughtered after the slaughter of the healthy animals. Afterwards the whole slaughterhouse and equipment has to be disinfected. In combines and slaughterhouses a veterinarian and in the other plants within the scope of this regulation, a veterinarian, a food engineer or graduates of food science and zoo technical departments of a faculty of agriculture can be employed as responsible manager. The employment of a sufficient number of examination veterinarians, providing one for each slaughter line and each shift is compulsory. Animals must not be slaughtered before the examination veterinarian examined them and meat and other products must not be taken away from the slaughterhouse before the meat examination is completed.

2.1.8. Regulation regarding the Procedures and Principles for Licence, Opening, Operation and Inspection of Establishments for the Sale, Housing and Training of Pet and Ornamental Animals (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2001)

This Regulation, dated 27th November 2001 and numbered 24596 consists of four chapters, 19 articles and ten annexes. Its objective is to ensure sufficient technical and hygienic conditions, to prevent and protect from the dissemination of infectious and parasitic diseases, the combat, control and the support of the excision of them in establishments which buy and sell, house for a specific time or train pet and ornamental animals. They have to guarantee the health of the animals during their purchase and selling, their accommodation and training. The disposals and waste of the establishments must not harm the environment or the public health. These kinds of institutions have to employ a veterinarian. For hygienic reasons the places must be easy to clean and disinfect. All the cages have to be equipped with devices for watering and feeding the animals. The size of the cages has to be adequate to the animal species in size and number and it is not permitted to put them on top of each other (fish tanks excluded). Animals like snakes, lizards, frogs or turtles have to be accommodated in special places, which ensure their survival. The space requirement for each animal species is given (e.g. per dog 0.8 sqm, per cat 0.2 sqm). Dogs, cats, squirrels and predators have to be solitary in the cages. The cages have to be cleaned at least once a week and if necessary at more frequent intervals. For each animal species a separate quarantine room or quarantine cages have to exist to hospitalise ill or potentially ill animals. If an animal dies in such an establishment, the responsible veterinarian has to document the reason and date of death. The official veterinarians of the province or the rural district may control the health of the animals and can impose quarantines.

Article eight gives specific conditions for pet shops:
• The shops have to be supervised by a veterinarian, who is registered at the municipality. They have to keep records on his working schedule.
• Before coming into the pet shops, the animals have to receive treatment against parasites, which has to be documented by the responsible veterinarian in their health certificate.
• It is not allowed to sell dogs and cats younger than two months. The animals have to be vaccinated against specific illnesses at the age of eight and twelve weeks (e.g. rabies). This has to be documented in their vaccination record by the responsible veterinarian. After the vaccination the animals have to stay at least four days in the shop.
• It is forbidden to sell animals whose import is prohibited.
• The responsible veterinarian has to keep all the health records of all animals to be sold in the shop. Excluded from this rule are snakes, lizards, turtles, frogs, birds in cages and fish.
• Aquarium animals like snakes, frogs, turtles, fish, etc. and avian animals like canaries, budgies and parrots and animals like cats and dogs have to be housed and sold in different parts of the shop.
• It is not allowed to sell pet animals or ornamental animals to persons aged younger than sixteen years.
• The customers should not be able to touch or have direct contact to the animals in their cages.
• If shops want to sell endangered species which are listed on list I, II or III of CITES, they have to have a special licence from the responsible authorities.

Article nine gives special conditions for housing and training establishments
• They have to be supervised by a veterinarian, who is registered at the municipality. They have to keep records on his working schedule.
• They have to complete forms about every animal, which stays or is trained in the establishment. The form has to include information about the animal’s name, particular characteristics, and the owner’s name, address and phone number. Additionally they have to fill in how the animal has to be accommodated, fed, its special needs, etc.
• Training grounds have to write down what kind of training the animal is going to receive and the owner has to sign this form.
• Avian animals have to be brought together with the cage they live in, their feeding, supplementation and vitamins.
• Aquarium, fish food and equipment have to be in operational state.
• Dogs have to be vaccinated against: rabies, parvovirus, distemper and corona virus; Cats have to be vaccinated against: rabies, feline panleucopenia and feline rhinotracheitis
• The housing or training establishments have to be checked whether the institution or the animal owner provides the feed for the animal.
• The housing or training establishments have to inform the owner of the animal about the animal’s health situation and have to carry out the necessary treatment. If the animal owner is not within reach, the responsible veterinarian has to decide. The owner has to pay for the necessary treatments.
• The housing or training establishments have to ensure good living conditions for every animal according to its race, characteristics and size.
• Training grounds have to employ a certificated specialist and enough caretakers.

The duties of the employed veterinarian are listed in Article eleven. He has to control the health situation of the animals, vaccinate and treat them if necessary. He has to keep the
required documents, e.g. vaccination records. According to article sixteen it is forbidden to overwork animals or to force them to do things, after which they might be handicapped.

2.1.9. Regulation regarding the Procedures and Principles for Establishment Opening, Operation and Inspection of Farms (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2006)

This Regulation, numbered 26254 and dated 9th August 2006 consists of eight parts and 31 articles. It was nullified by the Regulation on the Protection of Farm Animals in December 2011. However, it will be presented and discussed in this study, as it was valid during the time of investigation.

The objective of this Regulation is to set minimum technical, health and hygiene standards at farms, to support the expansion of economic middle-sized and big farms and to ensure productive work, animal health, animal welfare and the protection of the public health.

The poultry must not have any contact with wild birds of any kind, and this must be considered during planning of the coops. It is not allowed to accommodate different poultry species or poultry in different stages of life within one barn. The barns have to be easy to clean and disinfect, they have to provide enough air circulation and light and they have to hold off wild birds. Good handling of the animals during the care, fattening and transport has to be guaranteed. The cleaning and disinfection of the coops has to be done carefully. Disinfection devices have to be located at the entrances of the barns.

2.1.10. Regulation on the Protection of Farm Animals (GENERAL DIRECTORATE OF NUTRITION AND CONTROL 2011b)

This regulation published on 23rd December 2011 consists of five parts and 33 articles.

The objective of this regulation is to set minimum standards for the rearing, housing and domestication of farm animals with special regards to their physiological, ethological and behavioural needs.

In the scope farm animals shall be protected against unnecessary pain, suffering and distress. Animals living in the wild, intended for use in competitions, shows, cultural or sporting events, laboratory animals, any invertebrate animal and farms with less than 350 laying hens or 350 breeding chickens are excluded from this law.

The second part of the regulation deals with general provisions. It enables the competent authorities to conducts on spot controls to check the animal welfare situation on the farms. Animals shall be cared for by a sufficient number of staff who possess the appropriate ability, knowledge and professional competence. The competent authority has to provide training courses in the field of animal welfare for people responsible for the care of farm animals. All animals kept in husbandry systems in which their welfare depends on frequent human attention shall be inspected at least once a day. Animals in other systems shall be inspected at intervals sufficient to avoid any suffering. Adequate lighting shall be available to enable the animals to be thoroughly inspected at any time. Any animal which appears to be ill or injured
must be cared for appropriately without delay and, where an animal does not respond to such care, veterinary advice must be obtained as soon as possible. Where necessary sick or injured animals shall be isolated with dry comfortable bedding. Records of medical treatments given and number of mortalities have to be kept by the owner or keeper of the animals. The freedom of movement of an animal, having regard to its species and in accordance with established experience and scientific knowledge, must not be restricted in such a way as to cause it unnecessary suffering or injury. Where an animal is continuously or regularly tethered or confined, it must be given the space appropriate to its physiological and ethological needs in accordance with established experience and scientific knowledge. Also conditions of the buildings and accommodation of the animals, as minimum risk of injury, adequate air circulation and air quality and lighting are given here. Animals must be fed a wholesome diet which is appropriate to their age and species and which is fed to them in sufficient quantity to maintain them in good health and satisfy their nutritional needs and the intervals of feed intake have to be appropriate to their physiological needs. All animals have to have access to suitable water supply. Non-therapeutic interventions on the animals are forbidden. However, the competent authority grants the permit to trim the beak of up to ten days old chicks intended for laying, in order to prevent feather picking and cannibalism.

The third part of the regulation lays down the minimum standards for the protection of laying hens. The sound level shall be minimised. Constant or sudden noise shall be avoided. Ventilation fans, feeding machinery or other equipment shall be constructed placed, operated and maintained in such a way that they cause the least possible noise. There must be enough light to enable the birds to orientate themselves, see each other and show normal levels of activity. The lighting has to follow a 24 hours rhythm with at least 8 hours of uninterrupted darkness and a sufficient period of twilight to allow the hens to settle down. Accommodation comprising two or more tiers of cages must have devices or appropriate measures must be taken to allow inspection of all tiers without difficulty and facilitate the removal of hens. The design and dimensions of the cage door must be such that an adult hen can be removed without undergoing unnecessary suffering or sustaining injury. Also the conditions for alternative cage systems and unenriched cage systems are given here.

The fourth part deals with the conditions of the husbandry and rearing of calves. New born calves have to receive bovine colostrum as soon as possible after their birth and in any case within the first six hours of life. Calves must be fed at least two times a day. All calves must be provided with an appropriate diet adapted to their age, weight and behavioural and physiological needs, to promote good health and welfare. To this end, their food must contain sufficient iron to ensure an average blood haemoglobin level of at least 4.5 mmol/litre, and a minimum daily ration of fibrous food must be provided for each calf over two weeks old, the quantity being raised from 50 g to 250 g per day for calves from eight to 20 weeks old. Calves shall not be muzzled. Where calves are housed in groups and are fed by an automatic feeding system, each calf must have access to the food at the same time as the others in the group. Where tethers are used, they must not cause injury to the calves and must be inspected regularly and adjusted as necessary to ensure a comfortable fit. Each tether must be designed to avoid the risk of strangulation or injury and to allow the calf to lie down, rest, stand up and groom itself without difficulty. Calves older than eight weeks shall not be confined in individual pens unless a veterinarian certifies that its health or behaviour requires it to be isolated in order to receive treatment. When calves are kept in groups, the unobstructed space
allowance available to each calf shall be at least equal to 1.5 sqm for each calf of a live weight of less than 150 kilograms, at least equal to 1.7 sqm for each calf of a live weight of 150 kilograms or more but less than 220 kilograms, and at least equal to 1.8 sqm for each calf of a live weight of 220 kilograms or more. These conditions do not apply to farms with less than six calves and farms where the calves are kept with their mothers for suckling.
2.2. Differences and similarities of the Turkish and the European animal welfare frameworks

Turkey has a quite substantial animal welfare framework covering a general animal welfare law, parts on animal movement including import and export, animal health, protection of animals used for experimental purposes, rules dealing with the slaughter of animals, keeping and training of animals and for farm animals. In the following a brief comparison is carried out elucidating whether the Turkish legal framework covers all main subjects present in the European Union legal regulations and in the European Council Recommendations. Furthermore content and enforcement mechanisms of the Turkish laws are described.

The European animal welfare framework will not be discussed in detail but only presented in tables and compared with the Turkish laws and regulations. Table 2 gives an overview on the conventions of the European Council and the dates of signature, ratification and implementation by Turkey. In table 3 the actual animal welfare framework of the European Union is given.

Tab. 2: Overview of the Conventions of the European Council and the date of signature, ratification and implementation by Turkey

<table>
<thead>
<tr>
<th>Conventions of the European Council</th>
<th>Signature</th>
<th>Ratification</th>
<th>Entry in Force</th>
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<tbody>
<tr>
<td>European Convention for the Protection of Animals kept for Farming Purposes CETS No.: 087</td>
<td>06.06.2007</td>
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<tr>
<td>European Convention for the Protection of Animals for Slaughter CETS No.: 102</td>
<td>09.09.2007</td>
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<tr>
<td>Convention on the Conservation of European Wildlife and Natural Habitats CETS No.: 104</td>
<td>19.09.1979</td>
<td>02.05.1984</td>
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<td>European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes CETS No.: 123</td>
<td>05.09.1986</td>
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<td>European Convention for the Protection of Pet Animals CETS No.: 125</td>
<td>18.11.1999</td>
<td>28.11.2003</td>
<td>01.06.2004</td>
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<td>Protocol of Amendment to the European Convention for the Protection of Animals kept for Farming Purposes CETS No.: 145</td>
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<td>Protocol of Amendment to the European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes CETS No.: 170</td>
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<td>European Convention for the Protection of Animals during International Transport (Revised) CETS No.: 193</td>
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### Tab. 3: Overview of the actual animal welfare framework of the European Union

<table>
<thead>
<tr>
<th>Number and Name of Directive/Regulation</th>
<th>Amendments</th>
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<tr>
<td>Council Directive 2010/63/EC on the protection of animals used for experimental and scientific purposes</td>
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<tr>
<td>Council Regulation No 1/2005 on the protection of animals during transport</td>
<td></td>
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<tr>
<td>Council Regulation No 1099/2009 on the protection of animals at the time of slaughter and killing</td>
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</tbody>
</table>

The Turkish Animal Welfare Law numbered 5199 has no direct counterpart within the animal welfare legislation of the European Union, as it mainly deals with pet animals, which are subject to the jurisdiction of the Member States. It follows the assumptions of the "European Convention for the Protection of Pet Animals CETS No.: 125" in the field of welfare of pet animals and was issued by the Ministry of Environment and Forestry. Both texts demand in their scope the absence of "unnecessary pain, suffering or distress" and it is forbidden to "abandon a pet animal". The Turkish law is very detailed regarding the protection of pet animals, but it is not exclusive to them, as the principals apply to all kind of animals. It especially supports and strengthens the situation of stray animals and tries to solve the problem by obligatory castration of cats and dogs by their owners or by animal shelters (AKINCIOGLU 2005). People who want to breed their dogs or cats are responsible for the offspring. Municipalities have to organise boards of animal protection and they have to support animal shelters and animal welfare activities within their region. One of the biggest problems of this law is the enforcement and the control. The most important thing is to inform and educate the people and to explain the need of this regulation to them. There is no way to ensure the abidance by the law in daily life if the people do not understand the reasons for implementing it. The Ministry tries to solve this problem by providing educational programmes on public television and radio for a minimum of two hours monthly, and on the private radio stations a minimum of half an hour per month.

The protection of animals sold in pet shops and trained or housed in special establishments, animals used for experimental purposes, farm animals and animals for slaughter are briefly mentioned and it is referred to the particular regulations concerning these animals and
institutions. This law does not apply to the killing of animals due to contagious illnesses and besides the Animal Health Law which mainly deals with compensation money, that is paid in the case of the need of killing animals due to specific illnesses, there is no other regulation dealing with the animal welfare issues concerning the killing (ARIK 2005). Additionally the law is sketchy and undetailed in some points, e.g. in the field of animal transportation, education of people dealing and handling animals professionally, the ban on dangerous animals "like Pitbull Terrier and Japanese Tosa", as there is no other regulation giving more detailed information about these subjects. In contrary to the jurisdiction of the European Union zoophilia is mentioned and forbidden. There is no comment on sexual intercourse between humans and animals in the animal welfare framework of the European Union. Also in most of the member states this subject is mentioned in national animal welfare laws or criminal codes. Only if cruelty towards animals can be proven, criminal consequences can follow. Many veterinarians and scientists worldwide share the opinion that sexual acts with animals also without violence and injuries should be regarded as criminal offences (HVOZDIK et al. 2006).

Already the title of the "Law of Animal Health Control" implies that it does not mainly deal with animal welfare issues. An important point relevant to animal welfare is the identification of animals and the examination of them before transport. It describes the documents and the required information about the origin of the animals and their health situation. It is sufficient, if the so called "muhtar" (the chairman of the village or district) hands out the paper of origin, though he is no veterinarian and does not need any qualification in the field of animal health or welfare. The transport of animals for private reasons and to local markets is excluded from this rule. That means that those animals are not accompanied by any document of origin and no person, except the owner, has seen or examined them before transport. Animals transported for private reasons such as private slaughter and breeding can also be traded anywhere and not only at the markets or parks. There is no definition of "private consumption" or "markets" and "parks" in this law. Only animals which are transported beyond the boundaries of a county or a district need a veterinary health report and are therefore presented to the nearest representative of the Ministry of Agriculture and Rural Affairs. The person issuing the certificate is an official veterinarian working for this ministry. The official veterinarian examines the animals before writing out the certificate. The control on the streets is carried out by the police and military police. Those controls on the streets include only a check of the papers, but not a health check, as the people carrying out the control are not veterinarians. There is also no specific condition given concerning the vessels the animals are transported in, nor any specifics about the fitness of transport of the animals or the period of time that the animals can be transported.

The Turkish “Law of Animal Health Control” was nullified by the Turkish “Law of Veterinarian Issues, Plant Health, Food Safety and Animal Nutrition Safety on 11th June 2010. In contrary to the “Law of Animal Health Control” already the objective of the new law is, among other things, to ensure animal welfare. However, similar to the nullified law, primary production for self-consumption is excluded from this regulation although slaughter, even for self-consumption is not excluded. Unfortunately there are also no statements on animal welfare conditions during transport of animals. According to the European “Council Directive on the protection of animals during the time of slaughter and killing” it is stated in the new Turkish law that for the slaughter or killing of animals adequate equipment has to be used to
avoid unnecessary fear, pain and suffering. Any detailed information on “adequate equipment” or “unnecessary fear, pain and suffering” is missing and it led to no new prescriptions for slaughter equipment such as adequate knives or restraint systems and there is still no comment on stunning before slaughter.

The "Regulation on the Procedures and Principles for the Protection of Animals used for Experimental or Scientific Purposes, Breeding Establishments for Experimental Animals and the Establishment, Operation and Inspection of Laboratories Performing the Experiments” is geared to the "Council Directive 86/609/EEC (EUROPEAN COUNCIL 1986) on the protection of animals used for experimental and scientific purposes”.


Within the "Regulation regarding the Procedures and Principles for Establishment Opening, Operation and Inspection of Red Meat and Meat Products Processing Establishments” (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2008a) there is no call for any kind of education in the field of animal welfare or slaughter of animals at all for the personnel of the abattoir. In contrary the “Council Directive 93/119/EC on the protection of animals at the time of slaughter and killing” (EUROPEAN COUNCIL 1993) demands in Article seven that "No person shall engage in the movement, lairaging, restraint, stunning, slaughter or killing of animals unless he has the knowledge and skill necessary to perform the tasks humanely and efficiently”. In the countries of the European Union people who work in slaughterhouses or butcheries and handle living animals have to visit special seminars and have to possess a certificate of competence in the field of animal welfare at the time of slaughter and killing.

The veterinarian working at the slaughterhouse is not necessarily an official veterinarian, but in most cases (as most of the slaughterhouses are private and only a few belong to the communities) he works for the abattoir and is paid by the owner of the slaughterhouse. This creates a state of dependence that endangers the independent point of view of the veterinarian, which is necessary, as it should be his job to control the meat facilities in the field of animal welfare and meat hygiene. Consequently the efficiency of the work of the veterinarian depends on the attitude and compliance of the slaughterhouse owner, who has economic interests that may be conflictive to animal welfare issues.

In the guidelines for the second and third class slaughterhouses it is stressed, that ill or potentially ill animals have to be slaughtered after the slaughtering of the healthy animals has been finished. This conflicts with the EU-Regulation which demands an immediate slaughter of ill or injured animals, as to prevent unnecessary pain and suffering.

The Turkish regulation gives no information on the construction of the passageways from the waiting area to the slaughterhouse, on the moving of the animals or on the handling of ill or injured animals.
The EU regulation gives specific conditions for "Requirements for the movement and lairaging of animals in slaughterhouses" in Annex A. "Animals must be unloaded as soon as possible after arrival". "Animals which might injure each other on account of their species, sex, age or origin must be kept and lairaged apart from each other" and they "must be protected from adverse weather conditions". "The condition and state of the health of the animals must be inspected at least every morning and evening". "Animals which have experienced pain or suffering during transport or upon arrival at the slaughterhouse, and unweaned animals, must be slaughtered immediately. If this is not possible, they must be separated and slaughtered as soon as possible and at least within the following two hours. Animals which are unable to walk must not be dragged to the place of slaughter, but must be killed where they lie or, where it is possible and does not entail any unnecessary suffering, transported on a trolley or movable platform to the place of emergency slaughter.” The unloading of the animals has to be done as fast as possible after the arrival at the slaughterhouse using ramps and platforms with the minimum possible incline and non-slippery floors. "During unloading, care must be taken not to frighten, excite or mistreat the animals and to ensure that they are not overturned". Instruments intended for guiding animals and their proper application are outlined and it is stressed that it is forbidden to strike or to apply pressure to any particularly sensitive part of the body. "In particular, animals’ tails must not be crushed, twisted or broken and their eyes must not be grasped. Blows and kicks must not be inflicted”. The directive also describes the principles of lairaging and adequate water and feed supply of the animals. Animals delivered in containers have to be handled carefully and slaughtered as soon as possible. All these points are not considered in the Turkish Regulation.

The Turkish regulation gives no conditions for the kind of restraint used for the animals before slaughter. It only states that it is forbidden to slaughter animals on the floor.

On the other hand Annex B of the European directive concentrates on the restraint of animals before stunning, slaughter or killing. "Animals must be restrained in an appropriate manner in such a way as to spare them any avoidable pain, suffering, agitation, injury or contusions. However, in the case of ritual slaughter, restraint of bovine animals before slaughter using a mechanical method intended to avoid any pain, suffering or agitation and any injuries or contusions to the animals is obligatory. Animals’ (poultry and rabbits excluded) legs must not be tied, and animals must not be suspended before stunning or killing”.

Also the way of slaughter is not described in Turkish legislation. There is no comment about stunning or how to cut the throat and the vessels during slaughter without stunning. The only statement is that the blood has to be shed completely.

The EU-Directive is quite elaborate on the way of restraint and stunning of the animals. In Article five point 1c) it states that “Solipeds, ruminants, pigs, rabbits and poultry brought into slaughterhouses for slaughter shall be:” “stunned before slaughter or killed instantaneously in accordance with the provisions of Annex C” but with point 2 it is added that “In the case of animals subject to particular methods of slaughter required by certain religious rites, the requirements of paragraph 1(c) shall not apply.” The European directive leaves the decision, whether to allow or to prohibit religious slaughter to its Member States. In some member states it is generally forbidden to slaughter animals without stunning whereas others give room for slaughter without stunning for members of religious groups, for whom it is forbidden to eat meat of stunned animals. In Annex C the European Directive gives specific
information on the stunning systems that can be used for special animal species. It is permitted to stun animals with captive bolt, concussion, electro narcosis and exposure to carbon dioxide. Free bullet pistol or rifle, electrocution and exposure to carbon dioxide are the allowed methods for killing animals. "Stunning must not be carried out unless it is possible to bleed the animals immediately afterwards". 

Annex D of 93/119/EC gives the rules for "bleeding of animals". "For animals which have been stunned, bleeding must be started as soon as possible after stunning and be carried out in such a way as to bring about rapid, profuse and complete bleeding. In any event, the bleeding must be carried out before the animal regains consciousness". "All animals which have been stunned must be bled by incising at least one of the carotid arteries or the vessels from which they arise. After incision of the blood vessels, no further dressing procedures nor any electrical stimulation may be performed on the animals before the bleeding has ended". The Turkish regulation does not give any information on these points. Probably the most important point to regulate would be the proceeding with further slaughter procedures after the throat cut. The animals are not stunned before slaughter and it must be ensured that the bleeding has been finished and the animals are dead, before any further steps of processing the carcass are allowed to be conducted.

The killing of fur animals and surplus day-old chicks and embryos in hatchery waste are not mentioned within the Turkish regulation, but they are stated within Annex F and G of the European Directive

Similar to the regulation for red meat slaughterhouses the "Regulation for the Operation and Supervision Procedures and Principles of the Poultry Meat and Meat Product Production Plants" (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2008b) does not call for any education of the workers of the slaughterhouse in the field of animal welfare. The way of slaughter is not described. It is not said, whether the poultry has to be stunned or not stunned. The examination veterinarians are employed by the slaughterhouse, which has the same consequences as stated above in red meat slaughterhouses. Also the handling of the animals delivered in cages or containers and their lairaging, feeding and watering is not regulated. Its counterpart within the European animal welfare framework is also the “Council Directive 93/119/EC on the protection of animals at the time of slaughter and killing” (EUROPEAN COUNCIL 1993), like for the red meat slaughterhouses.

The "Regulation regarding the Procedures and Principles for Licence, Opening, Operation and Inspection of Establishments for the Sale, Housing and Training of Pet and Ornamental Animals" (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2001) has no counterpart within the EU animal welfare legislation. It includes some points of the "European Convention for the Protection of Pet Animals CETS No.: 125" of the COUNCIL OF EUROPE (1987). Both texts demand for example a minimum age of sixteen years for the permission to buy an animal. But the Turkish regulation is far more detailed, than the European Convention. Pet shops, training grounds and housing establishments have to be legislated by the local authorities; in Turkey the district departments of the General Directorate of Protection and Control are responsible. For animals staying in one of the establishments special forms have to be filled in and those forms have to be forwarded to the competent authorities. The Turkish regulation gives detailed information about the housing of the animals in pet shops by stating minimum cage space requirements. It demands that
veterinarians who have the supervision on the welfare, health and handling of the animals in all three kinds of establishments have to document all animal treatments. The employed veterinarians have to be registered at the district department of the Directorate of Protection and Control, which includes information on their working hours at the establishments. To sell endangered species, which are on the CITES lists, special licenses have to be acquired from the competent authorities. In training establishments only specialists are allowed to work with the animals. However the educational programmes for people working in pet shops, housing or training establishments should be described in more detail to meet the demands of the regulation of the Council of Europe. Animals must not be overworked and the training has to be designed according to their species, age and health situation. The institutions are checked at least four times a year by official veterinarians of the District Directorate of Protection and Control.

The "Regulation regarding the Procedures and Principles for Establishment Opening, Operation and Inspection of Farms" (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2006) is very superficial and general. It does not meet the claims of its European counterparts “Council Directive 91/630/EC laying down minimum standards for the protection of pigs” (EUROPEAN COUNCIL 2008b), “Council Directive 91/629/EC laying down minimum standards for the protection of calves” (EUROPEAN COUNCIL 2008a), “Council Directive 98/58/EC on the protection of animals kept for farming purposes” (EUROPEAN COUNCIL 1998) and “Council Directive 1999/74/EC laying down minimum standards for the protection of laying hens” (EUROPEAN COUNCIL 1999a). It gives no information on the housing conditions of the animals according to animal welfare, e.g. minimum place requirements, micro climate, nutrition, handling and treatment of the different animal species. There are no regulations dealing with laying hens, calves and pigs in particular. For farm animals no minimum standards are set. In Turkey 35 % of the inhabitants live from agriculture (ÜNAL 2005). According to ÜNAL (2005) there are lots of problems in the protection of farm animals, as there are nutrition deficiencies in high performance milk cows, inadequate housing of the animals concerning micro climate, space requirements and barn equipment. Interventions on animals like castration, the shortening of pecker and claws of chicken and dehorning are not regulated.

The new “Regulation on the Protection of Farm Animals (GENERAL DIRECTORATE OF NUTRITION AND CONTROL 2011b) is the first Turkish regulation setting minimum standards in the field of farm animal welfare and its second part dealing with general aspects meets all prescriptions of the European “Council Directive 98/58/EC concerning the protection of animals kept for farming purposes” (EUROPEAN COUNCIL 1998).

The third part of the Turkish “Regulation on the Protection of Farm Animals” deals with animal welfare conditions of laying hens, as the “Council Directive 1999/74/EC laying down minimum standards for the protection of laying hens” (EUROPEAN COUNCIL 1999a) does. Chapter I Article 4 of the EU Directive gives the “Provisions applicable to alternative systems”. The Turkish regulation quotes it one-to-one. The only difference is in the last sentence of the chapter. The EU Directive says that “However, where the usable area corresponds to the available ground surface, Member States may, until 31 December 2011, authorise a stocking density of 12 hens per sqm of available area for those establishments applying this system on 3 August 1999”. In contrary the Turkish Regulation states that in
establishments built before the publication of this regulation on the welfare of farm animals, what was on 23rd December 2011, a stocking density of 12 laying hens per sqm available area is authorised and no end of this transitional rule is given.

Chapter II Article 5 of the EU Directive gives the “Provisions applicable to rearing in unenriched cage systems”. Just as in the part on alternative systems the Turkish regulation quotes the EU Directive, but ignores the last sentence of the article which gives again the transitional rule “Member States shall ensure that rearing in the cages referred to in this chapter is prohibited with effect from 1 January 2012. In addition, with effect from 1 January 2003 no cages such as referred to in this chapter may be built or brought into service for the first time”. Consequently it is not forbidden to rear laying hens in unenriched cage systems in Turkey. There is also a difference in the titles of the chapters on unenriched cages systems, as the European Directive speaks only of “rearing in unenriched cage systems, whereas the Turkish Regulation makes no statement about rearing or accommodation during laying activity.

Chapter III Article 6 of the EU Directive gives “Provisions applicable to rearing in enriched cage systems”. Again in the title of this part in the Turkish Regulation “rearing” is not mentioned. The rest of the provisions on enriched cage systems are the same in the Turkish and the European texts.

In the Annex of the European Directive general provisions for the welfare of laying hens and design of the cages are given. The Turkish Regulation quotes it again one-to-one.

The fourth part of the Turkish Regulation deals with welfare standards for calves. As in the European “Council Directive 2008/119/EC of 18 December 2008 laying down minimum standards for the protection of calves” (EUROPEAN COUNCIL 2008a) calves are defined as bovine animals up to an age of six months. Equally to the European Directive the Turkish Regulation states that calves older than eight weeks shall not be confined in individual pens, unless it is necessary because of the health condition of the animal. But the Turkish Regulation lacks provisions on the size and the quality of the walls of individual pens. The Turkish Regulation states that it is not allowed to keep animals in permanent darkness, but it does not fulfil the provision of the European Directive that there has to be appropriate natural or artificial lighting “equivalent to the period of natural light normally available between 9 a.m. and 5 p.m.”. In both texts it is stated that calves have to be fed at least twice a day, but the European Directive demands, that calves are at least twice, if they are held outside once, a day inspected by the owner or keeper. The Turkish Regulation demands solely that all animals have to be inspected at least once daily. It is clearly said in the EU Directive that calves must not be tethered, apart from “periods of not more than one hour at the time of feeding milk or milk substitute” in the case of group-houses calves. The Turkish Regulation allows the tethering of calves.

The “Council Directive 1999/22/EC relating to the keeping of wild animals in zoos” (EUROPEAN COUNCIL 1999b) and the “Council Regulation No 1/2005 on the protection of animals during transport” (EUROPEAN COUNCIL 2005) have no counterpart within the Turkish Animal Welfare Framework. Also the contents are not included in any other regulations or laws, besides the principles of the Animal Welfare Law.
3. Materials and Methods

3.1. Checklist

To gain an impression of the animal welfare situation in the Turkish slaughterhouses a checklist was setup. It was geared to the demands of the consolidated text of "Council Directive 93/119/EC of 22 December 1993 on the protection of animals at the time of slaughter or killing" (EUROPEAN COUNCIL 1993) and contained aspects of checklists of the "Beratungs- und Schulungsinstitut für schonenden Umgang mit Zucht- und Schlachttieren (bsi)" (HOLLEBEN AND WENZLAWOWICZ 2003). According to HOLLEBEN (1996) a differentiation between constructional premises, technical equipment and staff and management based problems has to be made. The checklist was divided into six parts and additionally the personnel index was surveyed. For each question points were assigned, according to its impact on the animal welfare at slaughterhouses. Depending on the question the maximum achievable score can be two or four points. The lowest score per question is zero points.

3.1.1. Part one - General aspects

In this part general aspects like the certificate of competence for workers of the slaughterhouse handling living animals, the species of slaughtered animals, the existence and place of the weighing machine for living animals, the kind and usage of driving aids, the existence of a place to wash and disinfect animal transporting vessels and the enclosure of the slaughterhouse area were evaluated (compare table 4).

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Has the staff handling living animals a certificate of competence in the field of animal welfare or do they receive an instruction at the slaughterhouse?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>2</td>
<td>Are different animal species slaughtered at the slaughterhouse? If yes, are the constructional conditions adapted to the slaughtered animal species?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>3</td>
<td>Where is the scale located? Does the weighing impair the animal movement?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>4</td>
<td>Which driving aids are used?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>5</td>
<td>How are these devices used?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>6</td>
<td>Overall impression of the staff during animal handling.</td>
<td>0 – 4</td>
</tr>
<tr>
<td>7</td>
<td>Is there a place with (warm) water supply to clean the vehicles?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>8</td>
<td>Is the abattoir an enclosed site?</td>
<td>0 – 2</td>
</tr>
</tbody>
</table>

achievable maximum score 24

3.1.2. Part two – Management and logistics of animal arrival at the slaughterhouse

It was asked how long the animals have to wait on the vehicles before they were unloaded, and if the slaughterhouse staff was pre-notified of the time and number of animals in the deliveries. It had also been of interest if there was a person who is in charge of the logistics of animal arrivals. To get to know the attitude of the slaughterhouse management towards its suppliers it was asked, if the slaughterhouse owner avenged any deficiencies of the delivered animals, alluding to animal welfare problems and if all animals were accepted at the
slaughterhouse without regard to their origin, health situation or accompanying documents. It was checked if an emergency plan for the treatment of injured, ill or non-ambulatory animals existed. Before slaughter animals have to be examined by a veterinarian, who looks for the general health situation, injuries and infectious diseases. It was surveyed whether a veterinarian was present during animal arrivals and if he was able to get an impression of all delivered animals (compare table 5).

Tab. 5: Questions Part 2 – management and logistics of animal arrival and achievable score

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Are there waiting periods before the unloading of the animals?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>10</td>
<td>Are the animal deliveries announced?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>11</td>
<td>Who is the person in charge for the unloading?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>12</td>
<td>Does the management point out or revenge deficiencies alluding to animal welfare problems in the delivered animals?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>13</td>
<td>Are all animals accepted? If no, what is done with rejected animals?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>14</td>
<td>How are ill or injured ambulant animals treated?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>15</td>
<td>How are ill or injured non ambulatory animals treated?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>16</td>
<td>Examination of slaughter animals. Is every animal examined? Who examines the animals?</td>
<td>0 – 4</td>
</tr>
</tbody>
</table>

achievable maximum score 24

3.1.3. Part three - Design of unloading facilities

In this section the construction of the ramps for unloading the animals was evaluated (table 6 with corresponding questions and scores). First it is determined if the slaughterhouse had any facilities to unload animals. If there is such a device it has to have the minimum possible incline. The maximum incline must not exceed 20 degrees. The ramps should have a lateral protection and must have non-slip flooring. Additionally the ramps must minimize the risk of injury to the animals and have to protect them from adverse weather conditions. The passageways from the ramps to the lairage area were also assessed.

Tab. 6: Questions Part 3 – design of unloading facilities and achievable score

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Are there facilities to unload the animals?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>18</td>
<td>How big is the maximum incline of the ramp?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>19</td>
<td>Has the ramp a lateral protection?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>20</td>
<td>Is the floor of the ramp non-slippery?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>21</td>
<td>Does the construction of the ramp minimize the risk of injury of the animals?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>22</td>
<td>Is the area of the ramp protected against adverse weather conditions?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>23</td>
<td>Is the lateral protection of the passageways constructed in such a way to prevent the animals from putting their limbs through it and to prevent them from escaping?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>24</td>
<td>How are the races from the ramp to the lairage area designed?</td>
<td>0 – 4</td>
</tr>
</tbody>
</table>

achievable maximum score 22
3.1.4. Part four - Lairage area

This part deals with questions about the lairage facilities (table 7 with corresponding questions and scores). The waiting area of the slaughterhouse must be constructed in such a way, that all animals can lie down, stand up and stand without difficulty. Therefore there have to be sufficient pens and enough space. The floors have to minimize the risk of slipping and must not cause injuries. Animals which are not slaughtered directly after their arrival have to be supplied with water, available from appropriate drinking troughs, during the waiting period. At slaughterhouses where bulls are slaughtered devices which prevent the animals from jumping on the back of each other are necessary, if the bulls are not tethered. Adequate ventilation, taking into account the extremes of temperature and humidity has to be ensured. Where mechanical means of ventilation are required, provisions must be made for emergency back-up facilities in the event of a breakdown. Animals which stay longer than twelve hours at the slaughterhouse have to be provided with adequate food according to their species. There has to be artificial lighting at a level sufficient to permit inspection of all animals at any time. If necessary, adequate back-up lighting must be available. It was evaluated whether the animals are tethered during their stay (but no points are assigned for this question, as it is not prescribed in the EU directive) and if groups of animals stay together or if animals from different groups are mixed in the pens. There has to be a quarantine area and a place where lactating cows, sheep and goats can be milked if necessary. Animals which have to stay at the abattoir overnight have to be accommodated with enough bedding material.

Tab. 7: Questions Part 4 – lairage area and achievable score

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Can the delivered animals, which are not slaughtered immediately after delivery, be housed in such a way, that they can easily lay, stand up and lay down and that for every animal, which is not slaughtered within 12 hours after arrival, a resting place, which fulfils the criteria for heat conduction, exists?</td>
<td>0 - 4</td>
</tr>
<tr>
<td>26</td>
<td>Construction and partition of the lairage area.</td>
<td>0 – 4</td>
</tr>
<tr>
<td>27</td>
<td>Construction of the floors: Are the floors non-slippery? Do they minimize the risk of injury to the animals?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>28</td>
<td>Have the animals, which are not slaughtered immediately after arrival, access to water of sufficient quality and quantity at any time?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>29</td>
<td>Is there a device which counters bulls to jump on the back of other animals?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>30</td>
<td>Are the animals protected from coldness and what kind of equipment ensures the cooling in summer?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>31</td>
<td>Is it possible to feed the animals if they are not slaughtered within 12 hours after arrival and does a feed storage exist?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>32</td>
<td>Is there an adequate ventilation system in the barn? If yes, is there an alarm system, which notifies the person of charge about a disturbance and is there an emergency generator?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>33</td>
<td>Is there enough artificial or natural lighting to permit inspection of all animals at any time?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>34</td>
<td>Are the animals tethered or can they walk around in the pens?</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Do animal groups stay together or are they mixed in the pens?</td>
<td>0 – 4</td>
</tr>
</tbody>
</table>
36 Is it possible to separate single animals if necessary? 0 – 4
37 Is there the possibility to milk lactating animals? 0 – 2
38 Is there suitable bedding material for all animals kept in the lairage overnight? 0 – 2

**Maximum achievable score** 38

### 3.1.5. Personnel index

Additional to the first four parts of the checklist the 'personnel - index’ was evaluated according to the slaughterhouse categories. Questions which directly depended on the attitude and performance of the employees were evaluated to see if there was a difference between the plant classes (compare **table 8**). Question 28 was included because while it would have been no problem to water the animals at all plants, at some abattoirs the staff did not give any water to the animals and therefore the animals had to wait without any water supply.

**Tab. 8: Personnel index**

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Which driving aids are used?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>5</td>
<td>How are these devices used?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>6</td>
<td>Overall impression of the staff during animal handling.</td>
<td>0 – 4</td>
</tr>
<tr>
<td>11</td>
<td>Who is the person in charge for the unloading?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>14</td>
<td>How are ill or injured ambulant animals treated?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>15</td>
<td>How are ill or injured non ambulatory animals treated?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>16</td>
<td>Examination of slaughter animals. Is every animal examined? Who examines the animals?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>28</td>
<td>Have the animals, which are not slaughtered immediately after arrival, access to water of sufficient quality and quantity at any time?</td>
<td>0 – 2</td>
</tr>
<tr>
<td></td>
<td><strong>achievable maximum score</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

### 3.1.6. Part five - Races towards slaughter room and restraint

In this part the design of the races leading from the lairage area to the slaughter room and the method of restraint were evaluated (**table 9**). The entrance of the restraint device is one of the critical points as most of the animals shy at the narrow box, the slippery floor and strange noise and smells coming from the slaughter hall. The kind of restraint is a crucial factor for the assessment of the animal welfare situation as it has to provide operational safety for the workers and at the same time has to prevent additional stress and pain from the animal. The seconds from the entry of the animals into the restraint device to the throat cut were counted.
Table 9: Questions Part 5 – races towards slaughter room and restraint and achievable score

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>Design of races towards the restraint device and/or slaughter room</td>
<td>0 – 6</td>
</tr>
<tr>
<td>40</td>
<td>Are the floors of the passageways and in front of the restraint device non slippery?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>41</td>
<td>Is there a restraint box or a similar device?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>42</td>
<td>How long is the animal restrained before it is stunned or before the throat cut is carried out?</td>
<td>0 – 2</td>
</tr>
<tr>
<td>43</td>
<td>Does the restraint device restrict the head movement of cattle sufficiently?</td>
<td>0 – 4</td>
</tr>
<tr>
<td>44</td>
<td>Are the animals stunned prior slaughter?</td>
<td>0 – 4</td>
</tr>
</tbody>
</table>

achievable maximum score 22

3.1.7. Part six: Slaughter

A detailed description of the restraint system, the method and procedure of slaughter and finally the assessment of the duration of eye movement and breathing after the throat cut constitute this last part of the checklist (Table 10). The slaughter process was observed closely. It was monitored which anatomic structures were cut by the slaughter man and if the bleeding was fast and at gush. The seconds after the throat cut, where eye movement and regular breathing were present, were counted.

Table 10: Questions Part 6 and achievable score

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>Method of restraint</td>
<td>0 – 4</td>
</tr>
<tr>
<td>46</td>
<td>Operation of the restraint device</td>
<td>0 – 4</td>
</tr>
<tr>
<td>47</td>
<td>Utilised slaughter equipment</td>
<td>0 – 4</td>
</tr>
<tr>
<td>48</td>
<td>Procedure of exsanguination</td>
<td>0 – 4</td>
</tr>
<tr>
<td>49</td>
<td>Clinical symptoms after throat cut</td>
<td>0 – 4</td>
</tr>
</tbody>
</table>

Maximum achievable score 20
3.2. List of visited slaughterhouses
In total 99 slaughterhouses in 15 Turkish provinces were visited (compare figure 1). 75 first class slaughterhouses, 10 second class slaughterhouses and 14 third class slaughterhouses were inspected. Slaughterhouses where both cattle and sheep or goats were slaughtered were counted as two slaughterhouses, as for each species all sections from general aspects to slaughter were separately evaluated. In three out of the 75 visited first class slaughterhouses and one out of the 14 third class slaughterhouses slaughter was not observed. The figures are based on data received from the General Directorate of Protection and Control of the Ministry for Agriculture and Rural Affairs in Ankara. According to them in 2005 there were 178 first class slaughterhouses, 21 second class slaughterhouses and 414 third class slaughterhouses located in Turkey. Most of the meat was produced in first class slaughterhouses. The number of third class slaughterhouses is high, as they provide meat for small communities and nearly every village in Turkey has its own slaughterhouse. The slaughter capacity is limited to 8 slaughter units a day, but this number is normally not attained. Second class slaughterhouses are quite rare in Turkey. They have a maximum slaughter capacity of 18 slaughter units a day (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2008a).

Fig. 1: Map of Turkey showing the locations of the visited slaughterhouses
The 99 visited slaughterhouses were distributed in 15 counties of Turkey. The urban centres Istanbul, Ankara and Izmir were visited, as they have according to their high population figures a high demand on meat and meat products. Kayseri (Central Anatolia) and Afyon (Western Anatolia) are the two “meat centres” of Turkey, where the highest density of slaughterhouses can be found. They deliver meat and meat products mainly to Istanbul, Ankara and Antalya. Denizli, Isparta and Antalya are located in the Mediterranean Region. Representatives for Central Anatolia, besides Ankara, are Eskisehir, Konya and Sivas. Ordu and Tokat represent the Black Sea Region, whereas Elazig and Erzerum belong to East Anatolia.

The abattoirs were visited during their normal slaughter routine, which made it impossible to know beforehand how many animals would be slaughtered during the inspection. Consequently the observed animals belonged to different breeds and to different age groups. Most of the sheep and goats were representatives of local Turkish breeds. The cattle breeds differed from local breeds to Holstein Fresians, Jersey Cows and animals of unknown breed. At two slaughterhouses water buffaloes also were seen. The first class slaughterhouses slaughtered mainly young bulls, whereas in the third class plants the entire range of age groups and also cows were present. Sheep and goats of all ages and of both sexes were slaughtered.

### 3.3. Data collection

In the 15 counties the local competent veterinary authorities were visited. Together with their official veterinarians the slaughterhouses, which should be visited were chosen. Either the slaughterhouses were contacted the day before the visit, the same day or they were not notified at all. This depended on the slaughter capacity and slaughter days and times of the slaughterhouses. They were visited during normal slaughter routine. The data collection at all slaughterhouses was conducted by the same investigator (the author of this dissertation). The investigator was always accompanied by an official veterinarian of the local competent veterinary authority. All divisions of the slaughterhouses from animal delivery to bleeding of the animals were inspected. Also the staff including the plant manager and the veterinarian, were asked about their daily work. During the visits notes were written down. After the visit the questionnaire was completed. The expenditure of time needed at the slaughterhouses differed according to the slaughter capacity and the animal arrival at the slaughterhouses. In average four hours per slaughterhouse were necessary.
4. Results

The results of the interpretation of the achieved scores of the questionnaires are summarised in Table 11 and 12. They show the total number of points of part one to four, of the personnel index and of part five and six of the checklist according to the slaughterhouse classes.

| Tab. 11: Statistics on the achieved scores of parts 1 to 4 and personnel index |
|----------------------------------------|----------------|---------------|----------------|----------------|----------------|----------------|
|                                        | Maximum Points | Part 1 general aspects | Part 2 management and logistics of arrival | Part 3 unloading facilities | Part 4 lairage area | Personnel index |
|                                        | 108 | 24 | 22 | 38 | 28 |
| sno                                    | 7 | 2 | 0 | 3 | 0 | 0 |
| Q1                                     | 45 | 6 | 4 | 12 | 16.5 | 5 |
| Med                                    | 58.5 | 12 | 10 | 15 | 22 | 10 |
| Q2                                     | 72 | 16 | 14 | 18 | 28 | 19 |
| lno                                    | 91 | 20 | 18 | 22 | 36 | 26 |
| IQR                                    | 27 | 10 | 10 | 6 | 11.5 | 14 |
| r                                      | 84 | 18 | 18 | 22 | 36 | 26 |
| m                                      | 51.39 | 11.36 | 9.68 | 14.42 | 21.71 | 11.83 |
| sd                                     | 18.70 | 5.10 | 5.41 | 4.83 | 8.05 | 8.25 |
| First class slaughterhouses             | sno | 33 | 5 | 2 | 11 | 0 | 2 |
|                                        | Q1 | 36 | 5 | 9 | 13 | 13 | 8 |
|                                        | Med | 64 | 14 | 12 | 15 | 20.5 | 17 |
|                                        | Q2 | 70 | 16 | 14 | 16 | 26 | 20 |
|                                        | lno | 72 | 20 | 18 | 19 | 28 | 22 |
|                                        | IQR | 34 | 11 | 5 | 3 | 13 | 12 |
|                                        | r | 39 | 15 | 16 | 8 | 28 | 20 |
|                                        | m | 57.00 | 12.40 | 11.30 | 14.70 | 18.60 | 14.70 |
|                                        | sd | 16.35 | 5.64 | 4.67 | 2.45 | 9.02 | 7.27 |
| Second class slaughterhouses            | sno | 34 | 12 | 10 | 14 | 14 | 9 |
|                                        | Q1 | 49 | 13 | 12 | 14 | 14 | 16 |
|                                        | Med | 59 | 15.5 | 12.5 | 16 | 17 | 20.5 |
|                                        | Q2 | 74 | 16 | 17 | 17 | 21 | 24 |
|                                        | lno | 87 | 20 | 20 | 20 | 24 | 25 |
|                                        | IQR | 25 | 3 | 5 | 3 | 7 | 8 |
|                                        | r | 53 | 17 | 18 | 12 | 34 | 16 |
|                                        | m | 59.36 | 14.14 | 13.36 | 15.00 | 16.86 | 19.50 |
|                                        | sd | 15.64 | 4.29 | 4.50 | 3.51 | 8.87 | 5.42 |

sno = smallest non-outlier observation; Q1 = lower quartile; Med = median; Q2 = upper quartile; lno = largest non-outlier observation; IQR = interquartile range (Q2 - Q1); r = highest score - lowest score; m = mean; sd = standard deviation; PI = personnel index;
### Tab. 12: Statistics on the achieved scores of parts 5 and 6

<table>
<thead>
<tr>
<th></th>
<th>Part 5 and 6</th>
<th>Part 5 races and restraint</th>
<th>Part 6 slaughter procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Points</td>
<td>42</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>sno</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Q1</td>
<td>6</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Med</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Q2</td>
<td>10</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>lno</td>
<td>13</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>IQR</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>r</td>
<td>13</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>m</td>
<td>8.5</td>
<td>3.9</td>
<td>4.6</td>
</tr>
<tr>
<td>sd</td>
<td>4.7</td>
<td>2.2</td>
<td>3.2</td>
</tr>
</tbody>
</table>

**First class slaughterhouses**

<table>
<thead>
<tr>
<th></th>
<th>First class slaughterhouses</th>
<th>Second class slaughterhouses</th>
<th>Third class slaughterhouses</th>
</tr>
</thead>
<tbody>
<tr>
<td>sno</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Q1</td>
<td>6</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Med</td>
<td>6.5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Q2</td>
<td>10</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>lno</td>
<td>10</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>IQR</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>r</td>
<td>5</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>m</td>
<td>8.1</td>
<td>3.2</td>
<td>4.9</td>
</tr>
<tr>
<td>sd</td>
<td>3.9</td>
<td>1.4</td>
<td>3.0</td>
</tr>
</tbody>
</table>

sno = smallest non-outlier observation; Q1 = lower quartile; Med = median; Q2 = upper quartile; lno = largest non-outlier observation; IQR = interquartile range (Q2 - Q1); r = highest score - lowest score; m = mean; sd = standard deviation;

### 4.1. Plant results for part 1 (general aspects) to part 4 (lairage area)

Figure 2 shows a general overview on the three classes of slaughterhouses and their obtained scores for part one to part four of the checklist. The y-axis gives the sum of the obtained points. The maximum number of points that could be achieved in all four parts together was 108. On the x-axis the three slaughterhouse classes are given. For the first class slaughterhouses the box-and-whisker diagram shows that 50% of the slaughterhouses gained 45 to 72 points and the median had a value of 58.5 points. The range between the smallest score of 7 points and the highest with 91 points was 84 points. The category two plants had a
minimum point number of 33 points and 50% of the slaughterhouses gained between 36 and 64 points with a median at 64. The best score was 72 points and the lowest 33 points. The range was 39 points. 50% of the third class slaughterhouses gained a score between 49 and 74 points with a median at 59.5 points. The best sum of points was 87 and the lowest 34 points, what caused a range of 53 points.

4.1.1. Plant results for part 1 (general aspects)

Figure 3 gives the results for the first part of the checklist, which are the ‘general aspects’. The highest possible number of points that could be achieved was 24. 50% of the first class slaughterhouses gained 6 to 16 points with a median at 12 points. The worst result was 2 points and the best 20 points, which led to a range of 18 points. The median of the second class slaughterhouses lay at 14 points and the lower quartile had a score of 5 and the upper quartile of 16 points. The range was 15 points, as the lowest value was 5 and the highest value 20 points. The third class slaughterhouse had a range of 8 points, with two outliers at 3 and 8 points. 50% of the plants reached 13 to 20 points with a median at 15.5 points. Like the first and second class abattoir the highest value was 20 points.

All 99 slaughterhouses received zero points for the first question, as no employee had a certificate of competence or received special education in the field of animal welfare at the time of slaughter.

At the majority of all slaughterhouses (70 of 75 first class, 8 out of 10 second class and 13 out of 14 third class abattoirs) the constructional conditions were adapted to the slaughtered animal species, as asked in question two.
At one first class slaughterhouse the scale impaired the movement of the animals considerably and at another first class slaughterhouse it impaired the movement of the animals slightly. All other 97 slaughterhouses gained full points for question three. Nine first class, two second class and five third class slaughterhouses used only driving aids that are suitable for driving animals and received full points. Zero points for question four were scored by 25 first class and 3 second class slaughterhouse for using forbidden driving aids. The other slaughterhouses obtained one to three points.

In ten first class, two second class and four third class slaughterhouses the driving aids were used only when necessary and according to the prescriptions of “Council Directive 93/119/EC of 22 December 1993 on the protection of animals at the time of slaughter or killing” and these abattoirs received consequently the maximum score of four points for question five. 28 first class, three second class and one third class slaughterhouse received zero points as unnecessary pain was inflicted on the animals when they were driven by the staff.

The overall impression of the staff during animal handling (question six) was very good at 19 first class, five second class and nine third class slaughterhouses, but unsatisfactory at 29 first class, three second class and three third class slaughterhouses.

There was a place for cleaning and disinfecting the animal transporting trucks (question seven) at 23 first class, three second and two third class plants. No suitable car wash area was found at 42 first, five second and nine third class slaughterhouses and therefore they scored zero points.

The maximum score of two points for an enclosed area of the slaughterhouse that prevented animals from leaving the slaughterhouse estate or unauthorised persons or stray animals from entering the estate (question eight) obtained 60 first, eight second and six third class slaughterhouses. Zero points were scored by 15 first, two second and eight third class slaughterhouses as their property was open and the escape of an animal was not prevented by fences or walls.

1. Cat = first class slaughterhouses, 2. Cat = second class slaughterhouses, 3. Cat = third class slaughterhouses
4.1.2. Plant results for part 2 (management and animal arrival)
In part two of the checklist, which dealt with the arrival of the animals at the slaughterhouses, the median of all three plant categories differed only by 2.5 points and was situated at 10 (first class), 12 (second class) and 12.5 (third class) points. 50% of the first class slaughterhouses gained 4 to 14 points, of the second class 9 to 14 points and of the third class 12 to 17 points. The highest score was 18 points for the first and second category and 20 points for the third slaughterhouse category, as shown in figure 4.

At the majority of the slaughterhouses (64 out of 75 first class, 8 out of 10 second class and all 14 third class slaughterhouses) the animals were unloaded immediately or within one hour after arrival and thus these slaughterhouses scored the maximum points. The other slaughterhouses scored zero out of two possible points for question nine.

At 23 first, two second and three third class plants the animal arrival was announced (question ten) beforehand and these plants obtained two points. At the other slaughterhouses there was no pre-notification of animal arrival.

At 33 first class, 4 second class and ten third class slaughterhouses at least one employee was in charge of the unloading of the animals and consequently they scored two points for question eleven.

The delivery of ill, injured, pregnant or dead animals was not avenged at any slaughterhouse. All slaughterhouses gained zero points for question twelve.

At 34 first class, six second class and three third class plants animals that had entered the slaughterhouse did not leave it alive anymore. At 30 first, four second and six third class
slaughterhouses rejected animals left the slaughterhouse again alive, because of lack of papers or because the meat price did not suit the animal owners. Thus these plants scored zero out of two points for question 13.

At 34 first class, seven second class and twelve third class slaughterhouses ill or injured animals were slaughtered or killed immediately after arrival. Therefore these plants obtained the maximum score of four points. 36 first, three second and one third class plant gained zero points for question 14 as ill or injured animals either had to wait until end of the slaughter day or were just not detected and waited together with the healthy animals.

According to the prescriptions of "Council Directive 93/119/EC of 22 December 1993 on the protection of animals at the time of slaughter or killing" non-ambulatory animals were slaughtered or killed on the spot where they broke down at 19 first, two second and six third class plants. Zero points for dragging non ambulatory animals to the slaughter room were scored by 40 first, six second and 5 third class plants.

A veterinarian examined all incoming animals before slaughter at 31 first, seven second and ten third class plants. Consequently these abattoirs gained four out of four points for question 16. At 31 first, one second and three third class slaughterhouses the animals were not seen by a veterinarian before slaughter at all.

4.1.3. Plant results for part 3 (unloading facilities)

Figure 5 outlines that the ranges of points for the design of the ramps differed clearly. The first class slaughterhouses had a range from 3 to 22 points with two outliers at 0 and 1 point, the second class only a range from 11 to 19 points and the third class a range from 14 to 20 points with an outlier at 8 points. The medians are located next to each other with 15, 15 and 16 points. The maximum achievable number was 22 points. The best score of 22 points was reached by a first class slaughterhouse.

![Plant Results in Part 3](image)

1. Cat = first class slaughterhouses, 2. Cat = second class slaughterhouses, 3. Cat = third class slaughterhouses

Fig. 5: Box and whisker plots for results obtained from part 3 (unloading facilities)
Unloading facilities suitable for unloading live animals were present at 68 out of 75 first, all second and twelve out of fourteen third class plants and therefore these plants gained four out of four points for question 17. Two first and two third class slaughterhouses had unloading facilities but they did not ensure safe unloading of the animals in all cases and thus these two plants gained two out of four points. One first class abattoir gained one point. Three first class slaughterhouses had no unloading facility at all.

The incline of the unloading ramps (question 18) was less than 20 degrees at 56 first class, all second class and twelve third class slaughterhouses.

Lateral protection that makes it impossible for the animals to escape from or to fall of the ramps were present at 28 first, three second and four third class plants. Zero points for question 19 due to the lack of lateral protection of the ramps were scored by 21 first and eight third class slaughterhouses.

The floor of the ramps was non-slippery at 48 first, six second and 30 third class plants. Zero out of two points for question twenty were scored by 18 first, two second and one third class abattoir.

Injuries were minimized by the construction of the ramps at 30 first, two second and three third class plants and consequently two points were scored for question 21. No points were obtained because of the present risk of injury by 30 first, seven second and nine third class abattoirs.

The area of the unloading facility was protected against adverse weather conditions at fourteen first class plants. All other plants gained zero out of two points for question 22, as they had no protection at all.

22 first class, two second and five third class slaughterhouses were equipped with secure lateral protection of the races towards the waiting area. 24 first, three second and seven third class plants had no lateral protection of the passageways and gained zero points.

The passageways of 29 first class, four second class and twelve third class slaughterhouses supported the independent movement of the animals from the unloading facility to the waiting area. Those plants scored four points. Zero points for question 24 were scored by ten first and one second class plant.

**4.1.4. Plant results for part 4 (lairage area)**

In the lairage area the third class slaughterhouses had the smallest range from 14 to 24 points with an outlier at 34 and one at 0 points. The range of the first and second class was quite large with a variance of 36 and 28 points. The best lairage area was a first class plant which gained 36 of 38 points, as shown in **figure 6**.

A waiting area conforming to “Council Directive 93/119/EC of 22 December 1993 on the protection of animals at the time of slaughter or killing” was present at 42 out of 75 first class, eight out of ten second class and seven out of fourteen third class slaughterhouses and therefore four of four points were gained. For the absence of a waiting area seven first, one second and two third class plants obtained no points for question 25.
At 55 first, five second and seven third class abattoirs the construction and the partition of the waiting area was adequate to the slaughter capacity and the slaughtered animal species. Thus four of four possible points were scored for question 26. Zero points were scored by four first, one second and two third class plants.

1. Cat = first class slaughterhouses, 2. Cat = second class slaughterhouses, 3. Cat = third class slaughterhouses

**Fig. 6: Box and whisker plots for results obtained from part 4 (lairage area)**

Adequate flooring of the lairage area (question 27) was found at 20 first, one second and five third class plants. Zero out of four points were gained by 15 first, three second and six third class plants.

Immediate and ad libitum access to water at the waiting area after arrival for each animal was provided by 14 first, two second and three third class plants. Because of the lack of water no points were given for question 28 to 60 first, eight second and eleven third class plants.

At 53 first class, nine second class and twelve third class there either was a device preventing the bulls from jumping on the backs of each other present or it was not present but also not necessary. Those slaughterhouses gained two out of two points. No points for question 29 were given to 22 first, one second and two third class slaughterhouses as there jumping of the bulls in the waiting area was observed.

The animals were sufficiently protected against coldness and heat in the lairage area at 38 first, three second and seven third class plants.

If animals had to wait for more than twelve hours at the lairage area they were fed at 17 first, one second and one third class plants. No feed and no feed storage were found at 57 first, eight second and eleven third class plants. Therefore those plants gained zero out of four points for question 31.
In none of the lairage areas was an electric ventilation system found and consequently also no alarm system (question 32). But at 70 first, nine second and twelve third class slaughterhouses the natural ventilation was sufficient. Insufficient air quality was found at four first, one second and two third class plants.

Sufficient lighting for the inspection of the animals was found in 70 first, six second and eleven third class plants.

For question 34 no points were available or scored, as it was only for the interest of the investigator if the animals were tethered or not.

The delivered animal groups stayed together and were not mixed with unknown animals (question 35) at the waiting area at 60 first, six second and seven third class plants. Hence those plants gained four out of four points. At 13 first, four second and seven third class slaughterhouses all delivered animals were housed together.

It was possible to separate single animals if necessary at 30 first, three second and one third class plants.

Only at one first class slaughterhouse was it possible to milk lactating animals if they waited for more than fifteen hours (question 37).

Bedding material for animals that had to stay in the lairage area overnight was found at 15 first, one second and one third class slaughterhouses. All other plants scored zero out of two points for question 38.

4.2. Personnel Index
The personnel index (figure 7) of the first class plants had a broad distribution from zero to 26 points with 50% of the abattoirs between 5 and 19 points and a median at 10 points. The range of the second class was with a value of 20 points smaller than the one of the first class but bigger than the range of the third class which started at 9 and ended at 25 points. The maximum score of 28 points was not reached. It was very interesting that five of the best ten personnel indices were scored by third class plants (n = 14) and the other five by first class abattoirs (n = 74). Nineteen of the twenty lowest scores were also gained by first class plants and only one by a second class abattoir (n = 10).
1. Cat = first class slaughterhouses, 2. Cat = second class slaughterhouses, 3. Cat = third class slaughterhouses

**Fig. 7: Box and whisker plots for results of the personnel index**

**4.3. Plant result for part 5 (races and restraint system) and part 6 (slaughter)**

Figure 8 gives the scores, according to the slaughterhouse categories, obtained by the visited slaughterhouses in Part 5 and Part 6. The maximum achievable point number is 42. The medians of the box-and-whisker plots of the three categories lie at 8, 6 and 8 points and the means at 8.5, 8.1 and 11 points (first, second and third class). The lowest (0 points) and the highest (34 points) scores were obtained by first class slaughterhouses. The inter quartile range for the first and second class slaughterhouses is 4 and for the third class 11 points.
1. Cat = first class slaughterhouses, 2. Cat = second class slaughterhouses, 3. Cat = third class slaughterhouses

Fig. 8: Box and whisker plots for results obtained from part 5 (races and restraint system and 6 (slaughter))

4.3.1. Plant results for part 5 (races and restraint system)
The results for the evaluation of the design and construction of the races towards the slaughter hall and the restraint system are shown in figure 9. The maximum achievable score is 22 points. The medians of all three categories lie close to each other with values of four (first and third class) and three (second class) points. The best (14 points) and the lowest scores (0 points) were scored by first class slaughterhouses. The IQR have values of three (first and third class) and two (second class) points. The mean of the first class is at 3.9 points, of the second class at 3.2 points and of the third class at 4.4 points.
For the design of the races towards the restraint device or directly to the slaughter hall (question 39) three first class and three third class plants gained the maximum point number of six and one first class slaughterhouse scored zero points. 64 of 72 first, five of 10 second and five of 13 third class plants scored two and three points.

15 first, one second and zero third class abattoirs had non-slippery floors. In total 76 slaughterhouses (all 13 third class plants) gained zero points for question 40.

For the existence and the kind of restraint device 93 of 95 plants gained zero points. One first class abattoir scored two and another one the maximum point number of four points.

Only eight first class and four third class facilities complied with the maximum restraint time of 10 seconds per animal. The other 83 slaughterhouses obtained zero points.

The head movement of cattle was unsatisfactory in 66 of 67 slaughterhouses and consequently they scored zero points.

All plants gained zero points for question 44, as in no slaughterhouse the animals were stunned before slaughter.

4.3.2. Plant results for part 6 (slaughter)

**Figure 10** presents the point distribution for part six of the checklist. The maximum score of 20 points was achieved by a first class plant, as was the worst result with zero points. The medians lie at four (first and second class) and five (third class) points.
Question 45 asked for a detailed description of the restraint system. Only one first class slaughterhouse gained the maximum point number of four, whereas all other 94 slaughterhouses gained zero points.

The operation of the restraint device was evaluated in question 46. Three first and three third class plants scored four points. Two points were obtained by five first and one third category plant. The other 83 plants, including all 10 second class facilities, got zero points.

The results for the slaughter equipment (question 47) were broadly distributed. 20 first, one second and four third class plants received the maximum score of four points and seven first category facilities zero points. 63 abattoirs scored one or two points.

At 59 of the 67 cattle slaughterhouses the knives had an even blade, whereas at eight slaughterhouses (all first class) the blades had notches. At all 28 sheep abattoirs the blades of the knives had an even surface.

The medium size of the blades used to cut cattle was 18 cm. The smallest blade used was 12 cm long and the longest had a blade length of 30 cm. In the first class slaughterhouses the shortest knife had a length of 12 cm and the longest of 30 cm. In the second class slaughterhouses the blades had a length from 12 cm to 20 cm and in the third class from 12 cm to 20 cm.

The medium size of the blades used to cut sheep was 18 cm. The smallest blade used was 10 cm long and the longest had a blade length of 20 cm. In the first class slaughterhouses the shortest knife had a length of 16 cm and the longest of 20 cm. In the second class slaughterhouses the blade had a length of 18 cm and in the third class from 10 cm to 20 cm.

In 95 slaughterhouses data for exsanguination was collected.
In 67 abattoirs (51 first class plants, nine second class plants, seven third class plants) cattle slaughter was observed. In 20 slaughterhouses (18 first class, two second class and zero third class slaughterhouse) the butchers opened up the throat of cattle with one cut, whereas in 47 plants (33 first class, seven second class and seven third class slaughterhouses) more than one cut was needed. An effective fast bleeding, achieved with one or more cuts, was observed at 32 plants (24 first class, seven second class and one third class slaughterhouses). In 35 abattoirs the quality of exsanguination was unsatisfactory (27 first class, two second class and six third class slaughterhouses).

The time given to the animals to bleed out before further processing of the carcass was started was three minutes or more at 57 plants (43 first class, eight second class and six third class slaughterhouses). In ten plants (eight first class, one second class and one third class slaughterhouse) the workers proceeded in less than three minutes after the throat cut with further processing of the carcass.

In 28 abattoirs (21 first class plants, one second class plants, six third class plants) sheep slaughter was observed. In 24 slaughterhouses (19 first class, one second class and four third class slaughterhouses) the butchers opened up the throat with one cut, whereas in four plants (two first class and two third class slaughterhouses) more than one cut was needed to cut the sheep’s’ throat. An effective fast bleeding, achieved with one or more cuts, was observed at eleven plants (six first class, one second class and four third class slaughterhouses). In 17 abattoirs the quality of exsanguination was unsatisfying (15 first class and two third class slaughterhouses). The time given to the sheep to bleed out before further processing of the carcasses was started was three minutes or more at all 28 plants.

To bleed the animals different methods were used. The most commonly used method in sheep and cattle was a lateral throat cut (HS) below the angle of the jaw. This cut was used in 42 cattle (figure 11) and 17 sheep (figure 12) slaughterhouses. The two carotid arteries, the two jugular veins are severed together with oesophagus, trachea and vagus nerve.
In two cattle and one sheep plant additionally to the throat cut the vertebral column was also cut (DE). Either the head was taken off totally or was still attached to the body by the skin (figure 13).

![Decapitation (DE) of cattle](image)

Fig. 13: Decapitation (DE) of cattle

During the slaughter of sheep it was observed in ten plants, that during or directly after the throat cut the neck of the animal was broken by manual overextension (HG, figure 14). This method was not used for cattle.

![Throat cut and broken neck (HG) of sheep](image)

Fig. 14: Throat cut and broken neck (HG) of sheep

Therefore it was observed frequently in cattle (twelve plants), but not in sheep, that directly after the throat cut there was an attempt to puncture the spinal cord with a knife from ventrally (ST).

The thoracic cut or so called chest stick (HB), where the brachiocephalic trunk is severed immediately cranial to the thoracic inlet, was only done at the slaughter of cattle (four plants), not for sheep. In seven abattoirs cattle was bled by a lateral throat cut followed by a puncture of the spinal cord and a thoracic cut (HE).

Figures 15 to 18 give the duration of eye movement and breathing after incision of the blood vessels in sheep/goats and cattle. The y-axis shows the seconds after the cut and on the x-axis the different slaughter methods are stated.
DE = decapitation, HB = chest stick, HE = throat cut, puncture of the spinal cord and chest stick, HG = throat cut and overextension of the neck, HS = throat cut, St = throat cut and puncture of the spinal cord

**Fig. 15: Box and whisker plots for duration of eye movement according to slaughter method in sheep**

**Figure 15** shows that the median time of eye movement in sheep after throat cut (HS) was 12 seconds. The longest time of eye movement in sheep that could be observed after throat cut was 40 seconds and the shortest time four seconds. If after the throat cut the neck was dislocated immediately (HG) the median duration of eye movement was 0 seconds and the longest interval was 20 seconds. If the head was cut off (DE) no eye movement could be seen any more.

**Figure 16** states that the median time of breathing in sheep after throat cut (HS) was 47 seconds. The first animals stopped breathing after 15 seconds, whereas the last one breathed for 120 seconds. The IQR has a value of 20.5 seconds. When the neck of the animals was dislocated after the throat cut (HG) the median time of breathing was 0 seconds. The longest observed interval of breathing was 29 seconds. The IQR has a value of 12 seconds. When the animals were decapitated (DE) they showed no breathing. Other slaughter methods were not used in sheep.
DE = decapitation, HB = chest stick, HE = throat cut, puncture of the spinal cord and chest stick, HG = throat cut and overextension of the neck, HS = throat cut, St = throat cut and puncture of the spinal cord

Fig. 16: Box and whisker plots for duration of breathing according to slaughter method in sheep

**Figure 17** illustrates that the median time of eye movement after throat cut (HS) in cattle was 20 seconds. It had a range from a minimum time of five seconds to a maximum duration of 94 seconds. The IQR has a value of 9 seconds. When additionally to the throat cut the spine was punctured with a knife (ST) the median time was 19 seconds. The first animal stopped eye movement after 5 seconds and the last one after 50 seconds. The IQR has a value of 10.5 seconds. When the animals were slaughtered according to method HB (chest stick) the median duration of eye movement was 18 seconds and the IQR had a value of 4 seconds. Only two animals were slaughtered with this method. When the apertura thoracis was punctured and a vertical cut from the throat to the apertura thoracis (HE) was done, the median time was 10 seconds. The first animal stopped eye movement after 6 seconds and the last after 52 seconds. The IQR had a value of 3 seconds. When the animals were decapitated, the median duration of eye movement was 0 seconds. The upper quartile value lies at 16 seconds and the highest value was 26 seconds. These values result from a waiting period before the slaughter-man separated the head from the body. The throat cut combined with an overextension of the neck (HG) was not observed in cattle.
DE = decapitation, HB = chest stick, HE = throat cut, puncture of the spinal cord and chest stick, HG = throat cut and overextension of the neck, HS = throat cut, St = throat cut and puncture of the spinal cord.

Figure 17: Box and whisker plots for duration of eye movement according to slaughter method in cattle

Figure 18 presents the time of breathing after the throat cut in cattle. When slaughtered according to method HS (throat cut) the median time of breathing was 130 seconds. The first animals stopped breathing after 24 seconds, whereas others breathed up to 320 seconds. The IQR has a value of 40 seconds. When additionally to the throat cut the spine was punctured with a knife (ST) the median time was 100 seconds. One animal stopped breathing immediately after the cut. The longest observed interval was 160 seconds. The IQR has a value of 30.5 seconds. When the animals were slaughtered according to method HB (chest stick) the median duration of breathing was 96 seconds. The lowest value is 60 seconds and the highest 132 seconds. The IQR has a value of 40 seconds. The median time of breathing of slaughter method HE (throat cut, puncture of the spinal cord and chest stick) was 0 seconds, but one animal breathed for up to 129 seconds. When the head was separated (DE) the median duration of breathing was 0 seconds. Times for breathing after decapitation up to 60 seconds could be observed, as the butchers waited up to this times after the throat cut before separating the head. The throat cut combined with an overextension of the neck (HG) was not observed in cattle.
DE = decapitation, HB = chest stick, HE = throat cut, puncture of the spinal cord and chest stick, HG = throat cut and overextension of the neck, HS = throat cut, St = throat cut and puncture of the spinal cord

**Fig. 18:** Box and whisker plots for duration of breathing according to slaughter method in cattle
5. Discussion
5.1. General aspects
All 99 visited slaughterhouses gained zero points in the first question, which dealt with the certificate of competence in the field of animal welfare for the workers at the slaughterhouses handling living animals. The World Organisation for Animal Health (OIE) stated in its "Terrestrial Animal Health Code - 2006" that “persons engaged with the unloading, moving, lairaging, care restraining, stunning, slaughter and bleeding of animals play an important role in the welfare of these animals. For this reason, there should be a sufficient number of personnel, who should be patient, considerate competent and familiar with the guidelines outlined in the present Appendix and their application within the national context. Competence may be gained through formal training and/or practical experience. This competence should be demonstrated through a current certificate from the Competent Authority or from an independent body accredited by the Competent Authority.” (WORLD ORGANISATION FOR ANIMAL HEALTH 2006). Also a big percentage of the employed veterinarians did not have any knowledge in this field, as during their studies animal welfare was not taught at Turkish universities and therefore they paid no or very little attention to animal welfare problems during their duty. The Turkish Law does not provide any training until now, but the draft for the new "Regulation on the protection of animals at the time of slaughter and killing"(ÖZDEMIR 2005) considers this problem and imposes an accordant certificate.

Another critical point is the usage of driving aids. In Council Directive 93/119/EC in Annex II 3, 4 it is stated that "Instruments intended for guiding animals must be used solely for that purpose, and only for short periods. Instruments which administer electric shocks may be used only for adult bovine animals and pigs which refuse to move, provided that the shocks last no more than two seconds, are adequately spaced out and that the animals have room ahead of them in which to move. Such shocks may be applied only to the muscles of the hindquarters.” "Animals must not be struck on, nor shall pressure be applied to, any particularly sensitive part of the body. In particular, animals’ tails must not be crushed, twisted or broken and their eyes must not be grasped. Blows and kicks must not be inflicted.” (EUROPEAN COUNCIL 1993). All variances of application of these instruments were observed at the different slaughterhouse categories. In some plants electric prods were used, but the way they were used differed a lot. Most often the prod was used too fast, more than once on an animal, in a situation where the animal was not able to move, as it was crushed between other animals or at very sensible parts of the body e.g. nose, testes, udder or anus. In these cases automatically zero points were given. According to GRANDIN (2007) an audit fails, ”if the electric prod is replaced with abusive driving methods such as beating, dragging, breaking tails or other abusive practices”, which was also observed and led to zero points. These problems were concentrated on cattle. Sheep were not driven by the help of electric prods and only in a few cases beating of sheep or goats occurred. Mostly the first animal was dragged by a foreleg or by the horns and the other animals followed. A better procedure could be the usage of a so called "Judasschaf", which is a trained sheep which lives at the slaughterhouse and guides the other animals towards the lairage area and the slaughter hall (HOLLEBEN AND WENZLAWOWICZ 2011).
5.2. Management and logistics of animal arrival at the slaughterhouse

The logistics at the arrival of the animals at the slaughterhouse has a big influence on the animal welfare situation. As Turkey has no current regulation concerning animal transport and the design and the special equipment of the vehicles transporting animals, it occurs that animals are transported in cars without sufficient ventilation, insufficient coverage, feed and water supply or too high animal density per square metre. There is a need for unloading soon after the truck arrives at the abattoir to avoid heat stress in the standing vehicle and distress among the animals. To ensure instant unloading and avoid unnecessary waiting periods animal deliveries must be announced to the person in charge who is coordinating the unloading. Arrangement of delivery times is also a pre-condition for an effective animal health and welfare control at the abattoir (BRIESE et al. 1997a). The control of the health status of the animals has to be carried out during unloading or at the latest in the lairage area. Experiences from practice show that bruises and other damages on the animals are reduced by half in cattle transport when transporters and producers had to pay for damages (GRANDIN 2007). Unfortunately 100% of the Turkish slaughterhouses scored zero points, as no preventative measures were in place.

The unloading of the slaughter animals (Fig. 19) is one of the critical welfare points at slaughterhouses as it is associated with stress for the animals. The vehicle is overloaded. They arrive at a foreign surrounding, with new smells and noises and may be exhausted from the journey. Therefore it is essential to have effective controls at the unloading ramps conducted by veterinarians. This gives the opportunity to evaluate the impact of the journey on the animals condition and to control the technical equipment and state of the transport vehicle (BRIESE et al. 1997a).

According to Annex I 6 of Council Directive 93/119/EC ”animals which have experienced pain or suffering during transport or upon arrival at the slaughterhouse, and unweaned animals, must be slaughtered immediately. If this is not possible, they must be separated and slaughtered as soon as possible and at least within the following two hours.” (EUROPEAN
COUNCIL 1993). Only 45% of the first class, 70% of the second class and 86% of the third class slaughterhouses reached four of four possible points for this question. The largest problem in the Turkish slaughter houses was that most of the ill or injured animals were just not detected, as no veterinarian was present during unloading. In the small third class plants with their low number of slaughter animals it was no problem to slaughter those animals immediately. In the larger slaughter houses the problem of waiting times and severely transport stressed animals is much more evident and affected cattle and sheep/goats. **Figure 20** shows an example of a bloated cow waiting for slaughter since several hours.

![Fig. 20: Bloated cow waiting for emergency slaughter for several hours at a larger slaughter house](image)

Animals which are unable to walk must not be dragged to the slaughter room, but should be slaughtered or killed in the truck, at the ramp or if this is not possible they can be transported on a trolley or platform without causing them additional pain and distress (Annex I 6 (EUROPEAN COUNCIL 1993)) . At almost none of the Turkish slaughterhouses were the animals killed at the ramp or in the transporters, as this would mean a loss of money to the animal owner, because for hygienic reasons the meat is not used anymore. It was observed frequently, that animals were dragged with a rope or with the help of a tackle or it was tried to make the animals stand up by using electric prods, sticks or the like. Some slaughterhouses had special ramps for non-ambulatory animals next to the slaughter hall and the animals were dragged into the slaughter room (medium distance approximately 4 metres). 25% of the first class, 20% of the second class and 43% of the third class plants scored maximum points. This was no problem for the handling of sheep or goats as they were just carried to the slaughter room.

The inspection of the animals before slaughter is another important control point for the evaluation of the animal welfare situation, the animal health status and the meat hygiene. It should be undertaken by a veterinarian, as he is the only one qualified to diagnose illnesses, assess injury severity and the consequences for meat hygiene. At this point ill or injured animals, which have not been detected before during loading and unloading can be identified
and examined. Only at a few slaughterhouses could this examination be observed because usually there was only one veterinarian in charge who was responsible for the inspection of the slaughter animals and for meat hygiene. The focus was clearly on meat hygiene and in the large plants with continuous slaughtering it was not possible for him or her to control live animals and do the meat inspection at the same time. Small plants, where a veterinarian was present and where only a few animals were slaughtered, and bigger plants, which employed more veterinarians, gained more points in this field.
5.3. Design of unloading facilities

Ramps for unloading animals should be designed such that almost all vehicles which deliver animals can use them. The incline of the non-slippery ramp floor should not exceed 20 degrees to minimize the risk of injury to the animals (Annex A II 1 (EUROPEAN COUNCIL 1993)). The unloading area should facilitate quick unloading of the animals, which can be jeopardised by too low ramps, lack of lateral protection, inappropriate (slippery) floors, stairs, lack of protection against adverse weather conditions and bad light conditions. In particular during warm weather prompt unloading is essential because heat rapidly builds up in stationary vehicles (GRANDIN 2000). Even if all these conditions are met it is very important to unload the animals patiently and quietly to give them the possibility to orientate themselves in the new environment (BRIESE et al. 1997a).

Nearly all of the visited Turkish slaughterhouses had ramps. There were only three first class slaughterhouses without any ramp, all other plants had unloading facilities. Figure 21 shows a very simple ramp without protection against adverse weather conditions. The maximum ramp incline of 20 degrees was only exceeded in 13 first class and two third class abattoirs. All second class plants gained full score for the existence and incline of their ramps. An even surface with a length of at least two animals body lengths at the top of the unloading ramp reduces the possibility of falls (GRANDIN 2000), but this could not be observed in any of the visited plants.

![Fig. 21: A common ramp](image)

The conditions of the floors, the lateral protection and the protection against adverse weather conditions were unsatisfactory in several abattoirs. Only in a few slaughter houses were the floors of the ramps slippery but in many plants the floors were very uneven bearing the risk of stumbling cattle whereas sheep and goats had almost no problems walking the ramps. It is well known that slippery floors and slipping causes stress for the animals (COCKRAM and CORLEY 1991). In some cases there was no lateral protection at all and in others it was so instable and low that it was no barrier for the animals. The lateral protection must be high enough to prevent any flight attempts and it must be strong enough to resist the weight of the animals. It is recommended that it is fully sheeted. Cattle move more readily up and down sheeted ramps, as they are prevented from looking out of the ramp and being distracted by
outside events (LAPWORTH 1990) Effective weather protection was only observed at 14 first class slaughterhouses and in none of the second and third category.

The races from the unloading facilities into the lairage area should be clearly arranged, which helps the animals to find the right way easily, as short as possible with a minimum of shifts in direction, secure flooring and lateral protection (BRIESE et al. 1997a; HOLLEBEN 1996). In this question 87% of the third class, 40% of the second and 39% of the first class plants scored the maximum number of points. The third class slaughterhouses had mostly short and straight races, whereas the first class slaughterhouses had much longer races with lots of curves and angles which made it harder for the animals to orientate themselves.
5.4. Lairage area

Council Directive 119/93/EC gives detailed instructions for the design of the lairage places, compare Annex A II 6 to 10 (EUROPEAN COUNCIL 1993). The lairage areas fulfil two functions. Firstly, they provide a resting area where the animals can recover from the stress of transport and secondly they hold a sufficient number of animals for steady slaughtering (BRIESE et al. 1997b). To assess if the animals can really rest at the waiting pens it is necessary to observe them during their stay there. Mostly lying behaviour is used as an indicator of resting behaviour (JARVIS and COCKRAM 1995). Mixing different social groups of sheep in lairage pens leads to reduced lying behaviour (JARVIS and COCKRAM 1995). All lairaged animals have to have enough room to lie down, stand up and turn around. As space allowance per animal increases also lying behaviour can be observed more frequently (JARVIS and COCKRAM 1995).

In the investigated slaughter houses generally there were no major problems of overcrowding of the lairage pens, as most of the slaughterhouses slaughtered below their slaughter capacity. Long, narrow pens should be preferred in stockyards and lairages in slaughter plants and 90° corners should be avoided (GRANDIN 2000). The animals should be watered and if staying for a longer period also fed. Lactating cows (also sheep and goats), have to be milked every twelve hours and the ventilation has to ensure a good microclimate. Only animals of one group should stay together in one pen to prevent fighting and injuries (LANDESTIERÄRZTEKAMMER BADEN-WÜRTTEMBERG 1992, GRANDIN 2000).

There were a few plants which had no lairage area at all (two first class, one second class and two third class plants). This is astonishing, as the slaughterhouses are classified by the Turkish Competent Authority according to the size of their waiting areas (GENERAL DIRECTORATE OF PROTECTION AND CONTROL 2008a).

The ventilation of the lairages is one of the critical points in Turkey. In some regions there are very cold winters and in others the summers are dry and hot. Many plants are lacking proper ventilation systems. However, in 51% of the first, 30% of the second and in 50% of the third class slaughterhouses the ventilation was found to be satisfactory.

![Fig. 22: Lairage area without protection against sun, heat and cold.](image)
Only in 14 of 75 first, 2 out of 10 in the second and 3 out of 14 in the third class slaughterhouses did the animals have free access to drinking water in the lairage area and many came from long journeys. In some cases they had to wait without any shade in front of the slaughter hall or in open pens (figure 22). Most of the lairages were equipped with watering troughs, but often no water was provided. It was also observed that no food was offered to the animals when waiting overnight in the lairage area. In Turkey it is mainly the responsibility of the animal owners to supply their animals with food until slaughter, only 23% of the first, 10% of the second and 7% of the third category plants provided food and had a feed store. As in third class slaughterhouses the animals come generally from short distances and normally do not have to wait longer than 3 hours after arrival, so there is no need to provide feed.
5.5. Personnel index

Figure 7 (page 53) presents results of the personnel index of the slaughter houses. The variety is much wider for the first class plants than for the third class plants. The interquartile range is 14 points for the first, 12 for the second and 8 points for the third category abattoirs. This distribution can also be observed in the other criteria of the checklist. The evaluation of the checklist reveals that both the best (highest score) and the worst (lowest score) plants can be found among the first class slaughterhouses. The best abattoir scored 91 points and the worst 7 points out of 108 achievable points, whereas the best third class plant gained 87 points and the worst still 34 points. The reason for this range in quality is not fully clear but can be explained by several reasons. Firstly, nearly all of the first class plants were privatised (72 out of 75) and economic aspects were well to the fore. Secondly, the veterinarians in these plants were all employees of the slaughterhouse company and not employed by the state. Thirdly, the butchers changed quite often and sometimes external butcher crews were hired on short notice. These butchers stayed only for a few hours and were paid per head of slaughtered animal. These crews have their own working routine and do not obey to the instructions of the employed veterinarians. Additionally the veterinarians are mostly very young and have just finished university, so their wages are very low or they work at the slaughterhouse only part time and have their own practice elsewhere where they spend most of the time. In contrast, most of the third class plants belong to the community (10 out of 14). The veterinarians are employed by the municipality and they are also responsible for animal health, disease control and animal transport. The workers are permanently employed and are paid per hour. The workers and the veterinarians are older and are very experienced. The workers are very patient with the few animals and there is no reason to hurry. Most of these slaughterhouses slaughter only on the average 7 cattle and 12 sheep or goats per day.
5.6. Raceways towards the slaughter room

The races from the waiting pens to the slaughter room have to meet the same conditions as the races from the ramps to the lairage area (compare point 5.3).

Nearly all third class slaughterhouses had no appropriate races. However, there is no need for such special races because the slaughter frequency is very low (only a few animals per day) and the animals are led calmly one by one into the slaughter hall. Most first and second class slaughterhouses do have races, where the animals are moved with the help of various driving aids. The biggest impediments for free movements of the animals are obstacles within the races, as there are drainages, reflectance of light on wet floors and acute angles of the passageways (GRANDIN 2007). The maintenance of the races is a big problem within Turkish facilities. Partially the first class slaughterhouses are very spacious and it is very costly and laborious to maintain the whole estate.

The races to the slaughter lack shielded lateral protection and often the flooring is uneven due to unsatisfying maintenance.

The floors in Turkish slaughter rooms are mainly tiled and wet. This creates problems when the animals enter the slaughter hall, as in the case of absence of a restraint box, they are confronted with slippery floors, which makes them walk very carefully or even refuse any further movement. One reason for these slippery floors is, that the animals do not struggle so much when the chain is put on their leg and they are hoisted, because they do not stand firmly on the ground. The same applies for sheep. Furthermore tiled floors are easy to clean and disinfect.
5.7.  Restraint

According to Annex B of Council Directive 93/119/EC of 22 December 1993 on the protection of animals at the time of slaughter or killing “Animals must be restrained in an appropriate manner in such a way as to spare them any avoidable pain, suffering, agitation, injury or contusions. However, in the case of ritual slaughter, restraint of bovine animals before slaughter using a mechanical method intended to avoid any pain, suffering or agitation and any injuries or contusions to the animals is obligatory.”. It is forbidden to tie animals’ legs and to suspend them before stunning or killing (EUROPEAN COUNCIL 1993).

The ideal restraining method depends on the slaughter animals, the method of slaughter (including slaughter speed and the process for stunning and/or bleeding) and the skills of the staff. Independent of the slaughter method there are some basic animal welfare principles of restraint that have to be considered (HOLLEBEN 2007):

- An animal should be able to enter the restraint device without any avoidable stress.
- The restraint must not cause avoidable stress or pain.
- The time of restraint should be as short as possible depending on the degree of fixation.
- Animals must not be injured by the restraint device.
- The method of restraint has to guarantee fast application and performance of the bleeding cut;
- Prompt back up stunning / stunning in case of prolonged consciousness must be possible;
- The method and device of restraint must suit the size, species and type of animals slaughtered.
- Restraint must not cause negative impact on bleed out, carcass or meat quality and should match the intended slaughter speed;
- A high level of working safety has to be secured.

Defence movements or flight reactions of the animals should not be caused by the restraint method as this complicates the cutting procedure (HOLLEBEN 2007). Therefore the animals should be exposed only to a minimum level of pressure during restraint. The device must hold the animal firmly enough to facilitate slaughter without struggle but excessive pressure that would cause discomfort should be avoided as struggling is often a sign of excessive pressure (GRANDIN 2005).

Upright restraints inflict less stress on the animals than shackling, hoisting or inverted restraint (GRANDIN 2010).

In the visited Turkish slaughter houses two different restraint methods were used for cattle. The majority of the bigger slaughterhouses used restraint boxes. They look similar to stunning boxes used for captive bolt stunning in European abattoirs. Most animals did not enter the restraint boxes voluntarily, because they were not used to narrow and dark passageways and because there were a lot of impediments. Firstly, the metallic surfaces of the restraint devices reflected light. Secondly, the material of the flooring changed at the entrance of the boxes. Thirdly, the boxes were positioned within the slaughter hall (fig. 23) and the animals stopped due to movements of people and noise inside the slaughter room.
The door was closed behind the animal after it entered the box (fig. 24) and the floor was laterally elevated. Due to the slippery surface of the floors the animals lost balance and tumbled. A chain was attached to one of the hind legs (fig. 25). The side door was opened and at the same time the animals were hoisted (fig. 26).

In other cattle slaughterhouses the animals were led into the slaughter hall. The rope of the head-collar was tied around a metal bar or ring at the wall or on the ground. A chain was put around a hind leg of the animal and the animal was hoisted.

In some cases a group of cattle was driven into a segregated part of the slaughter room, where they walked around without any restraint. The butcher stood between the animals and attached the chain to one hind leg of an animal. As the chain was tightened, the animal lost balance and tumbled. The butcher had to grab the animals head, overextend the neck on the floor and the cut the throat, while the other animals were walking still around.

All presented restraint methods for cattle scored zero points as they did not comply with Annex B of Council Directive 93/119/EC (EUROPEAN COUNCIL 1993). Restraining cattle by suspending their hind legs causes stress and pain and is not according to animal welfare (GREGORY 2005). Also for the slaughter procedure itself it is important that the animals are not too excited and nervous as calm cattle collapse more quickly and appear to have a more rapid onset of unconsciousness and also a more relaxed animal will facilitate bleed out (GRANDIN and REGENSTEIN 1994).
For sheep manual restraint and shackling on a conveyor system or on a heel were observed (fig. 27). Mostly sheep were led group wise into the slaughter room. Then one sheep was caught by one leg, the head, one ear or a horn and dragged several meters, depending on the size of the slaughter room, to the place of slaughter. There it was laid down manually. The animal was restrained on the floor by the foot of a worker. Either the same person or a second grabbed the head, overextended it and cut the throat. It was frequently observed that directly after the cut the head was released. The next sheep was positioned next to the first animal, while the bleeding and even movements of the first sheep were still going on (fig. 28).

In slaughter houses with bigger slaughter capacities the sheep were not slaughtered on the floor but they shackled. A group of sheep was led into a section of the slaughter room. The worker grabbed the leg of a sheep, put a chain or hook around the leg, dragged the animal by the chain towards the conveyor system and hooked the loose end of the chain into the conveyor system. The sheep were hoisted and hang upside down. When they reached the position of the butcher, he grabbed their head and cut the throat.

According to HOLLEBEN (2007) sheep and goats may be also restrained by hand without the help of additional restraint devices as they are much smaller and may be put on a table manually. Therefore one first class sheep abattoir gained four of four points for its restraint system. A race, where the animals queued up behind each other, led directly to an elevated metal table. Two workers grabbed the first animal without pulling the wool and laid it on the table. The head was extended over a metal stick and the throat was presented to the butcher. This way of restraint gained four points as it could be done very quickly, the two workers grabbed the animals gently and the distance the animal had to be dragged or driven separately from the other animals was practically zero.

Another first class sheep abattoir gained two out of four points. It worked with the same system of restraint, but the single races to the elevated table were missing. However the animals were lifted manually on the table by one person which led to more stress and struggling of the sheep and goats.

All other slaughterhouses gained zero points for their method of restraint.
5.8. **Time of restraint**

To gain full points, the maximum time of restraint was limited to ten seconds, as the different ways of restraint used in the visited Turkish slaughterhouses were all very stressful for the animals, and therefore they should be used as short a time as possible (Grandin, 1996). The twelve slaughterhouses that managed to cut the throats of the animals within ten seconds after the start of the restraint were all sheep abattoirs slaughtering sheep on the floor. Most slaughterhouses exceeded the time because the staff were not aware of the distress, fear and pain of the animals caused by the restraint. It was observed quite frequently that animals were lifted in the air and then the butcher would firstly sharpen his knife or talk to somebody while the animals were hanging up-side down. Knowledge and skills of the staff handling the animals and operating the devices is extremely important for reducing stress, strain and injuries during fixation and restraint and also for eliminating negative impacts on bleed out, carcass and meat quality (GRANDIN 1998, FEDERATION OF VETERINARIANS OF EUROPE 2004).

Due to the process of restraint of cattle with or without the use of restraint boxes it was not possible to cut them within 10 seconds after start of the restraint.
5.9. **Restriction of movements of the head**
To be able to conduct the throat cut fast and effective the movement of the animals head must be restricted in such a way, that the throat is presented to the butcher and that the wound is held open after the cut. All slaughterhouses gained zero points for this question, as the movement of the animals heads were either not restricted at all or were only held manually. In sheep the animals head could be easily held and extended by one person. But after the cut, the heads of the animals were released and the animals tried to stand up again, which led to contact of the wound edges and impeded fast exsanguination.
In cattle it was nearly impossible for one person to extend the neck of the animal and cut the throat at the same time. It was observed frequently that especially bulls struggled and it took several minutes and sometimes three persons to restrain the head of the animal.

5.10. **Stunning**
In none of the visited abattoirs the animals were stunned before slaughter. This complies with Turkish and European law in regard to religious slaughter.
5.11. Method of restraint during slaughter without stunning

In question 45 the different methods of restraint are evaluated under the aspect of slaughter without stunning. Restraining for slaughter without stunning requires that the neck can be stretched to permit the severance of all neck vessels by one single swift of the knife. It is also important, that the throat wound stays open to enable fast bleeding and the loss of consciousness as quickly as possible. Mechanical influences on the wound have to be minimized as long as the animals have not yet lost consciousness (GRANDIN 1993).

All observed restraint methods for cattle have been described above. It was stressful for the animals to fall down on a slippery floor and not be able to stand up again. When the animals were cut on the floor up to three men were needed to hold the animals down during the throat cut. The animals struggled to get up, some vocalized and the percentage of eye-white that was shown increased. The wound was not held open after the cut, wound edges touch each other, which caused struggling of the animals (GRANDIN 2010) and the bleeding was impeded when the animals adduct their head. The restraint boxes did not limit the mobility of the animals in such a way that the head and the neck were presented to the butcher. The intended purpose of these boxes was, to lay down the animals. Hoisting conscious animals on one hind leg is a strain for the animals (GRANDIN 1994, 1996). They are brought into an unnatural body position, which makes it hard for them to breath, as the gut is pressing against the lungs. The risk of injuries of the chained hind leg is very high. Consequently “it is forbidden to tie animals’ legs and to suspend them before stunning or killing” (EUROPEAN COUNCIL, 1993).

The throat of cattle was in most cases cut on the floor. That means that after the animal was hoisted, it was lowered again in such a way, that one shoulder and the head touched the floor. The butcher grabbed the head, tried to overextend it and cut through the vessels of the neck. Only in a few cases it was observed that the throat was cut whilst the animals was totally in the air. In these cases it was impossible to restrict movement of the head and to extend the head of the animal sufficiently, which led to the need to do more than one swift stroke of the knife to exsanguinate the animals.

For the restraint of cattle during religious slaughter other methods inflicting less pain and stress on the animals are available. The best restraint under the animal welfare point of view is the upright restraint (GRANDIN 2010), in the American Society for the Prevention of Cruelty to Animals (ASPCA) pen (FARM ANIMAL WELFARE COUNCIL 1985, DUNN 1990). In the ASPCA pen the head is held firmly by a chin lift, which has to be adjusted according to the size of the animal. In this position the neck is presented to the slaughter man and he can carry out the incision easily. It is important that the neck of the animal is not overextended to avoid unnecessary pain. When the animal collapses it is prevented from falling down by a belly plate. With the right adjustments the wound is held open to ensure a fast bleeding and the wound edges do not touch each other. The animals must not be released until bleeding is finished (FEDERATION OF VETERINARIANS OF EUROPE 2004).

In comparison with the ASPCA pen the rotary pens, as the Weinberg or Facomia pen, inflict more pain and stress on the animals. Most animals refuse to enter the pen, they show flight attempts and vocalisation when turned on their back and the pens cannot be adjusted to different sizes of the slaughter animals (ANIMAL WELFARE COUNCIL 1985, GRANDIN 1996, FEDERATION OF VETERINARIANS OF EUROPE 2004).
5.12. Slaughter equipment
The slaughter equipment used for bleeding the animals, the knife, has to be sharp and long enough to cut through all tissues of the throat with only one cut (BONNE and VERBEKE 2008). At all sheep slaughterhouses and at the majority of the cattle abattoirs (58 out of 67) the blades were sharp. Blunt blades are especially welfare-relevant if the neck is not sufficiently stretched to fixate the flexible skin around the neck of sheep or cattle (WENZLAWOWICZ and HOLLEBEN, 2007).

The lengths of the blades were not satisfactory at the visited Turkish slaughterhouses. It should have at least twice the length of the width of the animals’ neck (FEDERATION OF VETERINARIANS OF EUROPE 2004, GRANDIN 2010). In no cattle slaughterhouses the blades of the knives twice as long as the width of the animals’ throat. And even if the blades would be long enough, there are limitations to cut the neck of large cattle with one swift of the knife. According to the area to be cut the length of the blade increases disproportionately depending on the pressure that can be applied by the operator (ADAMS and SHERIDAN 2008).
5.13. Exsanguination and loss of consciousness

To secure a good exsanguination both carotid arteries and jugular veins have to be cut. The Council Directive 93/119/EC demands that in stunned animals at least one of the carotid arteries has to be cut. In conscious animals it is important that the blood loss is fast to render the animals unconscious by interrupting the brain’s blood supply, which leads to a drop of blood pressure and hence to a loss of oxygen in the brain (ADAMS and SHERIDAN 2008). With adequate incision of the neck vessels all animals lose between 40 and 60 % of their total blood volume (WARRISS and WILKINS 1987).

In only a minority of the cattle slaughterhouses was it managed to bleed the animals with one cut (20 out of 67). Whereas in 24 out of 28 sheep slaughterhouses only one cut was needed to bleed the sheep. Also in other studies it was shown that it is very hard in cattle to cut the neck with one single swift of the knife, and even in sheep it cannot be guaranteed (GREGORY et al. 2008). Especially cattle react to multiple cuts with flight attempts or vocalisation (GRANDIN 1994). In conscious animals more than one swift stroke of the knife leads to additional pain, as each time the knife touches the surface of the wound there is further nociceptor activation (EFSA 2004).

In less than half of the cattle (32 out of 67 plants) and the sheep (11 out of 28) slaughterhouses an effective bleeding was achieved even if the animals were cut several times. Reasons for this are bad cut quality due to lack of knowledge or skills of the butchers, closure of the wound after the cut because the head of the animal was released and false aneurysms in cattle (GREGORY et al. 2008).

The faster the animal bleeds out, the faster it loses its consciousness and dies due to the lack of oxygen in the brain (HOLLEBEN et al. 2010). To determine how fast the animals lose consciousness it was observed how long movements of the eyes and regular breathing were present (HOLLEBEN et al. 2010).

When sheep were cut with a lateral throat cut (HS) it took the longest time until eye movement (minimum time 4 seconds; maximum time 40 seconds) and breathing (minimum time 15 seconds, maximum time 120 seconds) ceased, compared with the other observed slaughter methods. During spot visits in the frame of the DIALREL – Project two out of 400 mature sheep regained consciousness during bleeding after nearly two minutes after the cut (HOLLEBEN et al. 2010). Also in cattle the longest period of consciousness was observed after throat cut (HS). The minimum time of eye movement was five seconds and the longest period of eye movement lasted for 94 seconds. Breathing ceased in some animals already after 24 and others breathed up to 320 seconds. In a study of NEWHOOK and BLACKMORE (1982) an isoelectric EEG was found after 132 to 326 seconds in calves. GREGORY et al (2010) evaluated the time to collapse after throat cut in 174 adult cattle. It took up to 265 seconds before the last animal collapsed. Also under laboratory conditions most of the cattle lose consciousness five to 90 seconds after the cut, but animals may be able to regain consciousness within five minutes (HOLLEBEN et al. 2010). Obviously it takes longer to lose consciousness in cattle than in sheep cut by the same method. This can be traced back to the fact that in cattle the so called “rete mirabilis occipitale” is much more developed than in sheep (BALDWIN and BELL 1963, HOLLEBEN et al. 2010). Arteries diverging from the carotid artery and vertebral arteries secure the additional blood supply to the brain. These
arteries are not cut by the traditional throat cut and therefore the brain is supplied with oxygen for a longer time (BLACKMAN et al. 1986). Additionally false aneurysms impede bleeding and accordingly loss of consciousness in cattle (GREGORY et al. 2008). When cattle are cut by a thoracic cut severing the major blood vessels emerging from the heart, the brachiocephalic trunk is severed (HOLLEBEN et al. 2010). The blood loss is faster compared to the traditional throat cut (GREGORY et al. 1988), and the possibility of the development of false aneurysms is not reported in any study. In sheep the chest stick was not used.

The other bleeding methods (dislocation of the neck, decapitation and the throat cut combined with puncture of the spinal cord) do not fulfil the demands of Council Directive 93/119/EC. These techniques are considered to be painful procedures and must not be conducted until the animal shows no further movements (EUROPEAN COUNCIL 1993).
6. Conclusion
Presently the Turkish animal welfare legislation does not satisfy the criteria of the animal welfare legislation of the European Union in a number of areas. Action is needed in nearly all fields. An exception is the law for the protection of experimental animals, which displays a high standard. ÖZGÜR (2005) stated: “In order to find animal welfare within the Turkish laws and regulations you have to read between the lines”. Already the headings of the regulations demonstrate that they mainly deal with licensing and hygienic issues. Also the execution and competencies of the different ministries are not regulated clearly.

To comply with the Council Directive 93/119/EC on the protection of animals at the time of slaughter or killing it will be necessary to take action. At the moment no equivalent to the license of competence in the field of animal welfare for employees at slaughterhouses exists in Turkey. Even experienced butchers working for many years in slaughterhouses have never received an education concerning animal behaviour, physiology, illnesses and animal welfare. As a large number of the employees, and even slaughterhouse owners and constructors, do not understand and even do not question why animals behave in different ways in special situations, and which factors do raise fear, pain and suffering in an animal, these aspects are not regarded when slaughterhouses are designed.

The delivery of animals that suffered from stress during transport because they have either been unfit for transport, or the transport conditions have led to pain or injuries, is not properly addressed. Even seriously ill or badly injured animals waited hours for slaughter at more than half of the first class and nearly a third of the second class abattoirs. Only at the third class plants very few animals suffered from waiting times. Veterinarians did not pay any special attention to the welfare condition of the animals. The main responsibility of the veterinarians is to assure good meat hygiene. At the time of this study the veterinarians at the private slaughterhouses, mainly first and second class abattoirs, were employed by the slaughterhouse owners, whereas at the most third class plants the veterinarians were official veterinarians employed by the competent authorities.

The constructional deficiencies can be easily improved in most of the plants. The basic requirements such as ramps, races and lairage areas are present in most plants. In the lairage area the supply of the animals with feed and most important with water was not always guaranteed. Adequate forced ventilation systems are missing in all abattoirs.

The investigation of the slaughter procedure itself displayed several animal welfare problems. The restraint methods are in contrast to actual animal welfare standards throughout Europe and should be improved. It is explicitly forbidden by European law to hoist sheep and cattle, when they are still conscious, by their legs. The intention of the Turkish animal welfare regulation has to be a proper restraint of the animals before cutting the throat in order to guarantee that the knife can be positioned properly, the cut can be conducted fast and with one swift stroke of the knife, and that the wound stays open until the animal has lost its consciousness and the bleeding is completed. However, none of the observed restraining methods in sheep or in cattle has fulfilled these criteria in practice.

All observed abattoirs slaughtered without stunning. This is a specificity of Islamic tradition and was justified by the slaughterhouse owners and the workers by religious reasons. Another argument was that they believed that stunned animals do not bleed out as well as non-stunned animals. More than one study has shown that there are no significant differences
in the amount of blood lost after slaughter without or with stunning (ANIL et al. 2004, 2006). The butchers and other involved persons stated that the animals were bled by one swift cut of the knife. During this investigation it was only observed at sheep plants, that the operator was able to achieve a fast bleeding by only one cut. At all cattle plants more than one cut was necessary in order to enhance bleeding.

There are discussions whether the animals feel pain if only one cut is carried out for bleeding. A majority of the scientists are convinced that the animals feel the pain (EFSA 2004, HOLLEBEN et al. 2010), whereas others deny the experience of pain during and after the cut (GRANDIN and REGENSTEIN 1994). There is no discussion amongst most scientists working in the field of animal welfare at the time of slaughter or killing that the animals feel pain if more than one cut is needed to bleed the animal. As during the visits most of the animals were released from the restraint right after the cut flight attempts were observed frequently in sheep as well as in cattle. In some cases vocalisation was noticed also during or after the cut before the animals lost consciousness. The loss of consciousness is never instantaneous when the animals are not stunned, but lose consciousness due to exsanguination (HOLLEBEN et al. 2010). In cattle it took up to 94 seconds before eye movement stopped and 320 seconds before regular breathing ceased. And also in sheep the maximum time till the eyes did not move any more was up to 40 seconds and they breathed up to 120 seconds. These long periods till the loss of consciousness have to be seen in conjunction with the unsatisfactory restraint methods. These results show that there is an acute need for action for the sake of the welfare of the animals at the time of slaughter in Turkey.

However, it must also be acknowledged that the Turkish authorities take big efforts to improve the situation at slaughterhouses and to align not only the laws but also the conditions during daily slaughter routine with European standards. A very promising article was published on October the 31st 2011 in the Turkish newspaper “Hürriyet” where the Minister for Agriculture and Rural Affairs Mehdi Eker stated that from December 2011 on there will be painless slaughter with electrical stunning at Turkish slaughterhouses and also during the ritual Festival of Sacrifice (BABACAN 2010). It is to hope that this promise will be put into practice soon. Up to now there have been no changes regarding slaughter without stunning within the animal welfare law or in the “Regulation regarding the Procedures and Principles for Establishment Opening, Operation and Inspection of Red Meat and Meat Products Processing Establishments”.

The results of this investigation reveal a number of considerable challenges for the further development of the Turkish animal welfare law, in particular in regards to slaughter and killing at slaughterhouses. I am convinced that there is a lot of support by knowledge and experience from other Member States of the European Union for the way of Turkey to the European Union, also in regard to the animal welfare law.
7. **Recommendations:**

- Establishment of obligatory training systems, which concentrate on animal welfare and animal behaviour for the staff and the veterinarians. Additional an independent veterinarian should be inducted into the slaughterhouses surveying the animal welfare conditions. This veterinarian has to be a kind of official or accredited veterinarian working directly for the competent authority and has to substantiate upgraded education in the field of animal welfare. The veterinarian has to be present during animal delivery and slaughter. Spot tests carried out by official veterinarians can support the animal welfare development.

- For most of the ramps stable lateral protection, a protection against adverse weather conditions (an awning may be sufficient) and even, non-slippery floors have to be fitted or refitted.

- The ventilation systems must be adapted to the local weather conditions to prevent the animals from suffering due to high or low temperatures.

- The supply with food and water for the animals in the lairage area must be guaranteed and controlled.

- As a possible stunning method the captive bolt pistol is recommended. It is cheaper than electrical stunning devices, it is easier to handle and to maintain and the stunning efficiency can be easily controlled.

- If Turkey wants to carry on with slaughter without stunning, it has to change its way of restraint to avoid the hoisting of conscious animals. Upright restraint in the so called Cincinnati or ASPCA-pen is recommended. Sheep and goats can also be restrained in an upright position. As they are quite small it is possible that they can be restrained by hand or by the operator taking the animal between his legs, limiting backward movement by using a fence or wall and stretching the neck of the animal by hand. The small ruminants can also be lifted on a table and then laid on their side manually and held down. During and after the cut the head has to be supported manually or by a device attached to the table, to ensure that the wound edges do not touch each other again. In bigger plants the animals can be processed towards the table by a v-shaped restraint system.
8. Summary

Ellen Eser

Survey on the actual animal welfare situation at Turkish slaughterhouses

Turkey is one of the candidate countries for full EU membership. One of the preconditions for membership in the EU is the alignment to the European legislature. This concerns also the animal welfare framework including the “Regulation on the protection of animals at the time of slaughter and killing”. Presently little is known about the standards of the animal welfare conditions at Turkish slaughterhouses. This field-study is the first scientific investigation on the actual animal welfare situation in Turkish slaughterhouses and compares the findings and observations in practice with the animal welfare legislation of Turkey and the European Union. The aim is to give a first insight into the animal welfare situation at Turkish slaughterhouses.

The investigations were carried out during a period of seven months (from May to November 2006) in 99 slaughterhouses throughout 15 provinces of Turkey. The slaughterhouses were divided into 75 first class slaughterhouses, 10 second class slaughterhouses and 14 third class slaughterhouses. Slaughterhouses where both cattle and sheep or goats were slaughtered were counted as two slaughterhouses, as for each species all sections from general aspects to slaughter were separately evaluated. In three out of the 75 visited first class slaughterhouses and one out of the 14 third class slaughterhouses slaughter could not observed. First class slaughterhouses are generally the biggest slaughterhouses as their maximum slaughter capacity depends only on the size of the slaughter room, the slaughter and post-slaughter hygienic conditions, the capacity of the cold storage and the space of the waiting areas. They are permitted to sell meat to all parts of the country. The slaughter capacity of second class slaughterhouses is limited to 18 slaughter units a day and they may deliver meat only within their province. Third class slaughterhouses have a maximum slaughter capacity of 8 slaughter units a day and they are incapable of selling meat outside the county they are situated in. The slaughterhouses were visited once and evaluated at the day of the visit using a standardised checklist which was designed according to the "Council Directive 93/119/EC of 22 December 1993 on the protection of animals at the time of slaughter or killing" in order to be able to compare the monitored conditions in the different slaughter plants. The checklist was divided in six sections: general aspects, management and logistics, animal arrival, unloading facilities, lairage area, raceways towards slaughter room, restraining facilities and slaughter procedure; additionally a personnel performance index was used.

For the first part of the checklist (maximum achievable point number 24), the general aspects, 50% of the first class slaughterhouses gained 6 to 16 points with a median at 12 points. The worst result was 2 points and the best 20 points, which led to a range of 18 points. The median of the second class slaughterhouses lay at 14 points and the lower quartile had a score of 5 and the upper quartile of 16 points. The range was 15 points, as the lowest value was 5 and the highest value 20 points. The third class slaughterhouse had a range of 8 points, with two outliers at 3 and 8 points. 50% of the plants reached 13 to 20 points with a median at 15.5 points.

In part two of the checklist (maximum achievable point number 24), which dealt with the arrival of the animals at the slaughterhouses, the median of all three plant categories differed
only in 2.5 points and was situated at 10 (first category), 12 (second category) and 12.5 (third category) points. 50% of the first class slaughterhouses gained 4 to 14 points, of the second class 9 to 14 points and of the third class 12 to 17 points. The highest score was 18 points for the first and second category and 20 points for the third slaughterhouse category.

In the third part of the checklist the unloading facilities were evaluated. The first class slaughterhouses had a range from 3 to 22 points with two outliers at 0 and 1 point, the second class only a range from 11 to 19 points and the third class a range from 14 to 20 points with an outlier at 8 points. The medians are located next to each other with 15, 15 and 16 points. The maximum achievable number was 22 points. The best score of 22 points was reached by a first class slaughterhouse.

For the lairage area (part four of the checklist) the third class slaughterhouses had the smallest range from 14 to 24 points with an outlier at 34 and one at 0 points. The range of the first and second class were quite big with a variance of 36 and 28 points. The best lairage area was a first class plant which gained 36 of 38 points.

The fifth part dealt with the design and construction of the races towards the slaughter hall and the restraint system. The maximum achievable score is 22 points. The medians of all three categories lie close to each other with values of four (first and third class) and three (second class) points. The best (14 points) and the lowest scores (0 points) were scored by first class slaughterhouses. The mean of the first class is at 3.9 points, of the second class at 3.2 points and of the third class at 4.4 points. All slaughterhouses slaughtered without stunning.

Part six of the checklist dealt with the slaughter procedure itself. The maximum score of 20 points was achieved by a first class plant, as was the worst result with zero points. The medians lie at four (first and second class) and five (third class) points.

The majority of all abattoirs provided basic facilities like ramps, races and also a lairage area. At most plants the observed constructional deficiencies can be easily improved without causing high costs. As expected, the most significant differences to the European slaughter practices are the restraining methods and the lack of any stunning prior to sticking and bleeding of the animals due to religious prescriptions. The study reveals significant deficiencies in the education of the slaughterhouse staff. In future special attention should be paid to the education of staff. Veterinarians and workers must be trained to detect weak and injured animals immediately, and veterinarians must have the competence to make decisions on such animals as to whether they are fit for slaughter or have to be killed immediately followed by condemnation of the carcases. A substantial welfare problem is that the animals are not sufficiently restrained. In nearly all cattle slaughterhouses the cattle were hoisted with a chain around one of their hind legs before they were cut, and also in some of the sheep slaughterhouses shackling of life animals was observed. Consequently movements of the animal’s body before and during slaughter cannot be avoided, which impairs fast exsanguination and leads to contact of the wound edges, causing additional pain. Appropriate restraint systems should be applied in practice.

The results of the investigation revealed a high variation between the qualities of the slaughterhouses. On the other hand there is a high willingness to upgrade slaughterhouse conditions and to improve the knowledge and skills of the staff.
9. Zusammenfassung

Ellen Eser

Untersuchung zur aktuellen Tierschutzsituation an türkischen Schlachthöfen


Im ersten Abschnitt der Checkliste (Maximalpunktzahl 24), den allgemeinen Aspekten, erhielten 50% der erste Klasse Schlachthöfe sechs bis 16 Punkte mit einem Median bei zwölf Punkten. Ihr schlechtestes Ergebnis waren zwei und das beste 20 Punkte, was zu einer Spannweite von 18 Punkten führt. Der Median der zweite Klasse Schlachthöfe lag bei 14 Punkten, wobei das untere Quartil einen Wert von fünf und das obere Quartil einen Wert von 16 Punkten erreichte. Die Spannweite betrug 15 Punkte mit dem niedrigsten Wert bei fünf und dem höchsten Wert bei 20 Punkten. Die Spannweite der dritte Klasse Schlachthöfe betrug acht Punkte mit zwei Ausreißern bei drei und acht Punkten. 50% dieser Betriebe erzielten 13 bis 20 Punkte mit einem Median bei 15,5 Punkten.
Im zweiten Abschnitt der Checkliste, der sich mit der Anlieferung der Tiere, befasste, konnten maximal 24 Punkte erreicht werden. Die Mediane aller drei Schlachthofklassen unterschieden sich lediglich um 2,5 Punkte und lagen bei 10 (erste Klasse), 12 (zweite Klasse) und 12,5 (dritte Klasse) Punkten. 50% der erste Klasse Betriebe erhielten vier bis 14 Punkte, der zweite Klasse Betriebe neun bis 14 Punkte und der dritte Klasse Betriebe zwölf bis 17 Punkte. Bei den erste und zweite Klasse Schlachthöfen war die höchste erreichte Punktzahl 18 Punkte und bei den dritte Klasse Betrieben 20 Punkte.


Die Ergebnisse dieser Untersuchungen zeigen eine breite Spannbreite im Tierschutz an türkischen Schlachthöfen. Ermutigend ist die hohe Aufmerksamkeit für Tierschutzfragen bei allen Beteiligten, eine hohe Bereitschaft für Veränderungen an den Schlachthöfen und für eine Verbesserung der Ausbildung und Schulung des Personals.
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