



Capacity building to implement good animal welfare practices

Report of the FAO Expert Meeting

FAO Headquarters (Rome) • 30 September – 3 October 2008



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Declaration of Interest

Of 11 experts who were invited to the meeting, ten were able to attend. No participants declared an interest in the topics under consideration.

Abbreviations and acronyms

AWT	Animal Welfare Training
CABI	Centre for Agricultural Bioscience International
COE	Council of Europe
DFD	Dark, firm and dry meat syndrome
EC	European Community
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAWC	Farm Animal Welfare Council
HAS	The Humane Slaughter Association
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
HSI	Humane Society International
IDF	International Dairy Federation
IFAP	Federation of Agricultural Producers
IFC	International Finance Corporation
IMS	International Meat Secretariat
NGOs	Non-governmental organizations
NSPCA	National Council of Societies for the Prevention of Cruelty to Animals
OECD	Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
PSE	Pale, soft and exudative meat syndrome
RSPCA	Royal Society for the Prevention of Cruelty to Animals

UK	United Kingdom
UN	United Nations
USA	United States of America
WHO	World Health Organization
WSPA	World Society for the Protection of Animals

Executive Summary

1. Good animal welfare practices include prevention and treatment of disease and injury; prevention and mitigation of pain, distress and other negative states; and providing diets and living conditions that are suited to the needs and nature of animals.

2. Many good animal welfare practices have multiple benefits for people as well as animals. By improving animal health and productivity, they help maintain the food supply for people who produce and use animal products. They sustain the livelihood of small-scale animal producers and thus help preserve stable rural communities. Good animal welfare practices can also contribute to food safety and to human health and psychological well-being. Especially in parts of the world where many people suffer from poverty and starvation, an approach to animal welfare that focuses on benefits to people is most likely to succeed.

3. The treatment of animals is influenced by beliefs and values, which vary from culture to culture, regarding the nature of animals and their moral significance. Cultures also differ in the priority they attach to different aspects of animal welfare such as basic health and nutrition versus freedom from pain and distress. The view of animals as “sentient beings”, as reinforced by modern science, is spreading through scientific and veterinary education and provides an additional impetus to safeguard animal welfare.

4. The scientific study of animal welfare is a multi-disciplinary field of research. It began largely in response to animal welfare concerns over intensive animal production, but its methods are broadly applicable to animal welfare problems in all production systems and to the global issues of humane slaughter and animal transportation. There is a need to develop expertise in animal welfare science in countries with developing economies, partly by creating partnerships with established centres of expertise.

5. The scientific assessment of animal welfare is a key element in efforts to implement good animal welfare practices. Welfare assessment involves multiple variables and criteria. Such assessment is best used in a systems approach that seeks to identify causes of sub-optimal welfare, and opportunities for successful intervention, in the entire system or production chain. Animal welfare assessment should be done with the full participation of the people involved, in a process that also attempts to understand the perceptions and traditional practices of participants, and the social and material assets that they can bring to bear in solving animal welfare problems.

6. A wide range of standards and programmes have been created to ensure the implementation of good animal welfare practices. These include (a) voluntary welfare codes, often created by industry organizations, (b) corporate programmes, often used by retail

or restaurant companies, (c) product differentiation programmes that allow consumers to purchase selectively, (d) legislated standards, and (e) international agreements created by treaties or intergovernmental organizations. In promoting animal welfare, the different types of programmes also serve different political and commercial purposes, and they have different strengths and weaknesses; a legislative approach, for example, will only be effective if sufficient resources are devoted to its administration and enforcement. In any given situation, analysis is needed to determine what programmes would be most effective in promoting good animal welfare practices, and how implementation of such programmes could benefit animals and people.

7. Capacity building for implementing good animal welfare practices involves four elements: (a) education to create awareness of animal welfare and an understanding of its significance for successful animal production, (b) engagement to foster active involvement of people who work with animals, (c) training in specific procedures, and (d) communication among different international organizations, between stakeholders and providers of training, and among the different government departments, professional bodies and other organizations involved in animal welfare. Capacity building needs to be sympathetic to local knowledge and resources. Rather than seeking to impose standards that cannot be realized immediately, capacity building should facilitate the problem-solving abilities of participants so that they will be able to meet standards in the future. Ultimately, training should be done by local organizations and personnel; external expertise is most efficiently used to train future trainers.

8. Strategies that the Food and Agriculture Organization of the United Nations (FAO) could use in promoting good animal welfare practices include the following:

- (i) The FAO and other global organizations could proactively include animal welfare as a basic element of their projects, integrated with, and contributing to, other goals such as food safety and security, human and animal health, environmental sustainability, worker safety, rural development, gender equality, and social justice.
- (ii) Effective capacity building for good animal welfare practices will require alliances among organizations, based on a shared understanding of the goals, accepted and complementary roles of different players, and coordinated efforts. The FAO could cooperate with, and encourage alliances among, other organizations including:
 - international agencies with an interest in animal welfare, including the World Organisation for Animal Health (OIE) which is developing internationally accepted standards of animal welfare, developing animal welfare strategies in certain regions through its Regional Commissions, and designating certain “Collaborating Centres” of animal welfare research,
 - international animal producer organizations which are providing leadership on animal welfare in their respective sectors and could provide a conduit for capacity building to reach local producers,
 - non-governmental organizations (NGOs), including animal welfare NGOs and development NGOs, many of which are already playing important roles in promoting good animal welfare practices,

- governments and multilateral organizations which support training and awareness building related to animal welfare, and
- certain private sector companies and financial institutions which include animal welfare as part of their corporate social responsibility programmes.

(iii) Given that animal welfare is being linked increasingly to trade and market access, the FAO and other agencies could help to build capacity in lower-income countries so that producers in these countries are better positioned to participate in such trade. Capacity building is also needed so that small- and medium-scale producers are not put at a competitive disadvantage compared to large, industrialized producers. Helping smaller producers to communicate and share resources could increase their ability to implement guidelines or standards, reduce production and transportation costs, and enable them to market larger quantities of products.

9. Although animal welfare problems are extremely diverse, certain generic problem areas occur on a global basis. These include transportation especially over long distances, slaughter and pre-slaughter management, provision of adequate feed and water, the handling of animals by humans, culling of animals that are unhealthy or of low commercial value, and keeping animals under conditions for which they are not genetically suited. These problem areas provide logical starting points for needs assessment, capacity building, training materials, research projects, and the creation of incentives. Moreover, for poor or landless farmers, making a satisfactory living is often the first step toward being able to provide appropriate animal care. Hence, improving the economic well-being of low-income animal owners is a high-priority element in efforts to improve animal welfare.

10. Based on their deliberations, the experts made the following recommendations:

- (i) Improvements to animal welfare in food production systems can play a significant role in improving the welfare of people by such means as improving access to food of animal origin, improving economic returns through increased livestock productivity, improving the efficiency of draft animals, and reducing risks to human health through improved food safety and animal health. Attention to animal welfare can be of special benefit to countries with less developed economies through technology improvement, increasing access to markets, and fostering international cooperation. To support good animal welfare practices in countries with less developed economies, the FAO should give priority to practices that lead to benefits for both people and animals.
- (ii) Beyond such practical and economic benefits, attention to animal welfare can have broader social benefits. It can contribute to teaching an ethic of care; it can be a force for social cohesion within a family, a community or a business; and positive relations with animals are an important factor in human (as well as animal) well-being. These benefits should be recognized in capacity building programmes.
- (iii) Animal welfare should not be treated as a stand-alone issue but as one among many socially important goals including food safety and security, human and animal health, environmental sustainability, worker safety, rural development, gender equality, and social justice.

- (iv) As an initial step in pursuing animal welfare objectives, the FAO should ensure that animal welfare is integrated into, and contributes to, its existing programmes in areas such as animal health and nutrition, livestock development, sustainable livelihoods, and emergency responses where animals are involved.
- (v) Animal welfare is strongly influenced by human behaviour. In capacity building to improve animal welfare, the FAO (and those who deliver FAO-sponsored projects) should attempt to understand and engage with the people who work with animals, recognize the cultural norms, knowledge and abilities that they have, cooperate with them to identify means of improving animal welfare as a way of better achieving their goals, and facilitate their own innovation and problem-solving.
- (vi) As a general approach, improving the welfare of animals should begin with an assessment of the risks and opportunities in the entire system or production chain, and a search for improvements that will be practical in the given situation. Assessment should include science-based assessment of the needs and welfare of the animals, and risk assessment to identify causes of sub-optimal welfare. In many cases the most effective approach is likely to be a continual-improvement process based on achievable targets rather than the importation of radically different procedures based on foreign technology and values.
- (vii) In some situations, formal animal welfare assurance programmes (national laws, international agreements, corporate programmes, and others) provide valuable guidance and incentives for improving animal welfare, and may facilitate access to certain markets. As part of the assessment of risks and opportunities, FAO should consider the possible role and benefits of such programmes, and any capacity building that is needed to facilitate compliance for countries and producers that wish to comply.
- (viii) Scientific research on animal welfare provides the scientific evidence behind many animal welfare practices and standards. The FAO should consider working with centres of expertise in animal welfare science to facilitate access by member countries to the findings of animal welfare research and to encourage research on issues of importance to countries with developing economies.
- (ix) Many countries are showing interest in creating and/or revising animal welfare legislation, in some cases to comply with established standards. The FAO should consider working with other organizations to provide relevant assistance on animal welfare legislation to member countries on request.
- (x) Although animal welfare problems are extremely diverse, several problem areas stand out as high priority across many regions and production systems. These are: transportation, slaughter (including pre-slaughter management), food and water, handling/herding methods, culling and disposition of animals that are sick or of low commercial value, and the keeping of animals under conditions for which they are not genetically suited. These problem areas provide logical starting points for capacity building efforts. In addition, as poverty can severely limit the ability of owners to care for animals, poverty reduction among animal producers is a significant priority for improving animal welfare.

- (xi) Improving animal welfare globally will require strategic partnerships. In particular, the FAO should work in cooperation with the World Organisation for Animal Health (OIE) which is developing international standards together with regional animal welfare strategies through certain of its Regional Commissions, the World Health Organization, and other institutions engaged at an international level. It should also work together with academic and producer organizations, animal welfare and other relevant non-governmental organizations, financial institutions, and the private sector to facilitate the funding, execution and communication of initiatives related to animal welfare. The FAO should also facilitate partnerships among organizations with complementary capabilities (such as organizations with funding capabilities and those with competence in training) whose cooperation could support the implementation of good animal welfare practices.
- (xii) The FAO should identify and empower staff persons, who have expertise in animal welfare and its applications, to put these recommendations into action.

Preface

Animal welfare is recognized as a core component of a responsible livestock sector. It is accepted to be integral to programmes that improve animal health, increase livestock production, respond to natural disasters where animals are involved, and to be instrumental in defining the fit between the genetic makeup of animals and the environments in which they are kept.

FAO recognizes, on the other hand, that animal welfare practices, despite their evident positive impacts, are insufficiently applied throughout the sector, both in traditional and modern systems.

To enable more explicit and strategic attention to animal welfare and its mainstreaming into practice, FAO's Animal Production and Health Division (AGA) convened this expert meeting to generate specific advice, from the best expertise available, on the need for capacity building to implement good animal welfare practices. It was also recognized that, in addition to the selected experts, there is a wealth of information and interest available in animal welfare from a wide range of interested groups and institutions, including non-governmental organizations, farmers and producers associations, professional groupings, and academia.

To capitalize on this vast resource, an open forum was held ahead of the expert meeting in which all interested parties were invited to present their views to the experts. This was a particularly rewarding experience and it is a formula which will be used again in future expert meetings.

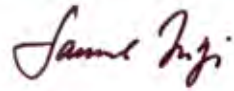
The session of the experts was impressively productive and the expert report is of an exceptionally high quality; this expert meeting was, in the experience of the AGA Division, one of the most conscientious, focussed and productive sessions ever. The experts, the associated resource persons and the meeting's outstanding chairperson, Professor David Fraser, deserve much praise and respect for contributing to such a successful outcome.

Obviously, even the best of expert meetings is of little use if their recommendations are not taken into account and put into practice. AGA's programme is to secure a responsible livestock sector which addresses animal welfare not as a stand-alone issue but one that is integrated into overall sector development.

Capacity building is an important component of FAO's mandate; AGA is committed to raise awareness, strengthen synergies and foster partnerships, create and disseminate information related to animal welfare. The Division is launching an interactive and participatory website, in association with key partners from the public and civil society sectors, dedicated to animal welfare.

The results of the expert meeting have come at a very opportune time as FAO

prepares for its new Strategic Framework and the corresponding Medium Term Plan. This offers the opportunity for integrating systematically animal welfare dimensions as recommended by the expert meeting into the Organization's programme in support of a more responsible livestock sector.



Samuel Jutzi
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1. Introduction

1.1 BACKGROUND

The welfare of humans and the welfare of animals are closely linked. In many regions, a secure supply of food for people depends on the health and productivity of animals, and these in turn depend on the care and nutrition that animals receive. Many diseases of humans are derived from animals, and the prevention of these animal diseases is important for safeguarding human health. Roughly one billion people, including many of the world's poor, depend directly on animals for income, social status and security as well as food and clothing, and the welfare of their animals is essential for their livelihood. Moreover, positive relations with animals are an important source of comfort, social contact and cultural identification for many people.

The use of animals for food production (which involves by far the largest number of animals used by humans) is changing rapidly. In the more industrialized countries, production based on grain-based diets (especially poultry and pig production) has shifted dramatically toward greater concentration of animals in fewer, larger units, typically in indoor facilities. In some countries, the number of farms raising pigs and poultry is now less than one tenth the number a half century ago, yet this much reduced number of farms are producing a greater output of animal products. Even more striking are the changes in countries with less developed economies. In the last half century, meat production and consumption in countries with developing economies² has changed and increased greatly, and now accounts for more than half of global meat production. These massive increases in production have involved a wide variety of production systems including subsistence agriculture, small-scale commercial production, and industrial-scale production using methods developed in the industrialized nations. Aspects of these various production systems, combined with the transportation and slaughter of enormous numbers of animals, raise a wide range of animal welfare issues.

As a backdrop to these developments, the human population of the world, and the correlated human demand for products of animal origin, continues to rise to unprecedented levels. The resulting escalation of animal production raises a number of ethical issues, including environmental sustainability and secure access to food, which must be considered alongside the growing concern about animal welfare.

Animal welfare has also become the focus of an emerging field of scientific research. Much of the basic work has been done in the economically developed countries, and is primarily focused on the problems of intensive animal production systems. However, the methods of animal welfare science are broadly applicable to a wide range of animal

² In this report, the term "countries with developing economies" is used to indicate those countries classified as "developing" rather than 'developed' in the standard classification of the FAO.

welfare problems seen across the spectrum of production methods, and to the global issues of animal welfare during slaughter and transportation.

Finally, animal welfare is coming to be recognized as highly relevant to success in international development. It is integral to programmes to improve animal health, to develop livestock production, to respond to natural disasters where animals are involved, and to improve the fit between the genetic constitution of animals and the environments in which they are kept. Development agencies that fail to take animal welfare into account may miss important opportunities to improve the lives of people who depend on animals for their livelihood. In addition, compliance with animal welfare standards can promote improved technology and open access to international markets for products from less developed countries, thus contributing to development.

For these many reasons, it is logical for the Food and Agriculture Organization of the United Nations (FAO) to give more explicit and strategic attention to animal welfare in its capacity building activities in countries with developing economies.

1.2 PROCESS

To guide its activities, the FAO convened an Expert Meeting to provide advice on “Capacity building to implement good animal welfare practices”. The Expert Meeting began with an open call for individuals with expertise on the topic. Experts were then selected on the basis of their experience and geographic diversity. Experts were explicitly required to serve in their capacity as individuals and not to represent the interests or viewpoints of any organizations with which they were affiliated. There was also an open call for interested organizations and individuals to present their views and positions to the experts in an open forum on Monday, 29 September 2008. The experts then met for four days (30 September to 3 October 2008) of discussion and report-writing. During this time, the experts also had access to 14 Resource Persons (eight drawn from FAO staff and six from other organizations) as well as four FAO staff who served as the Secretariat for the meeting.

1.3 SCOPE

In any discussion on animal welfare, a fundamental issue is what types or species of animals to include. The expert group decided to focus on the welfare of farm animals (domesticated terrestrial animals used in food production), including those used for draft. Thus, the discussion centred on cattle and other bovines, horses and other equines, sheep, goats, pigs, and the various species of poultry that are commonly raised for meat or eggs. Many of the principles should also apply to other animal-related issues such as control of stray dogs, and they could well be extended in the future to the use and production of aquatic animals.

1.4 OTHER CONSIDERATIONS

As background to their discussion the experts noted the following:

- In agriculture, there are strong links between animal welfare, animal health and animal production.

-
- Animal welfare is a complex, often emotionally charged issue, and cultural differences can lead well-motivated people to advocate different courses of action. Failure to recognize these differences, especially those cultural values that are present in the countries where the FAO is active, could lead to rejection of attempts to improve animal welfare.
 - The well known “Five Freedoms” and the statement of the elements needed for them to be achieved (Appendix H) provide valuable ethical and practical guidance on improving animal welfare.
 - The 12 Welfare Criteria identified in the Welfare Quality Project (Appendix H) provide valuable guidance on the scientific assessment of animal welfare.
 - The definition of animal welfare adopted by the OIE (Appendix H) sets out the scope of the concept.
 - In the context of FAO activities, animal welfare can and should contribute to the implementation of the Millennium Development Goals (Appendix H).
 - The Draft Universal Declaration on Animal Welfare (WSPA 2007), promoted by the World Society for the Protection of Animals (WSPA), and supported in concept by the World Organisation for Animal Health (OIE) and many governments and non-governmental organizations, provides a valuable guiding philosophy for efforts to improve the welfare of animals.

2. Impacts and benefits of good animal welfare practices

Given the strong relationship between animal welfare, animal health and productivity, practices designed to promote good animal welfare will often lead to improvements in animal production:

- Good handling methods can improve growth and reproduction by reducing the pain, fear and physiological stress reactions engendered by rough or inappropriate handling.
- Providing suitable diets and adequate water helps to maintain the health and productivity of animals.
- Providing living conditions that are well suited to the animals can reduce the incidence of abnormal and injurious behaviour.
- Providing safe, comfortable environments and equipment (penning, flooring, harnessing) can prevent injuries and resulting losses of production.
- Providing adequate space can prevent crowding-related deaths and production losses.
- Improving the loading and transport of animals can reduce bruises and injuries that result in carcass downgrading.
- The use of appropriate techniques and equipment in the slaughter process will minimise pain, fear and distress and improve the quality of the meat.
- Close attention to animals by their caretakers improves the potential for early diagnosis of diseases, production decreases, and behavioural problems, and thus increases the possibility of effective intervention.

Improved animal health can also decrease risks to human health, particularly in countries with developing economies. Vaccination for diseases such as brucellosis and rabies can decrease animal mortality and morbidity, and also reduce the potential for transmission of these diseases to humans. Decreasing animal crowding can reduce the risk of animals spreading tuberculosis and subsequently infecting humans.

The safety and quality of food products is also affected by factors that affect animal welfare. Feeding lactating animals a nutritionally balanced diet helps maintain the nutritional value of the milk. Gentle handling of animals before and during slaughter helps prevent quality defects in the meat (Gregory 2007), notably PSE (pale, soft and exudative) meat and DFD (dark, firm and dry) meat syndromes. Improved animal health and welfare through improved sanitation and hygiene also improve the safety of animal foods, for example by decreasing trichinosis, echinococcosis, and salmonellosis.

In addition to such practical benefits, positive interaction with animals can provide psycho-social benefits that are important for human well-being. It contributes to teaching an ethic of care; it can be a force for social cohesion within a family, a community or a business; and involvement with animals can be a source of pride, interest, and companionship. Attention to animal welfare can also have broader benefits for human com-

munities. In many rural areas, the livelihood of small-scale farmers is intimately linked to the survival, health and productivity of their animals. Hence, by making improvements in these respects, good animal welfare practices can help to maintain prosperity, rural employment and the consequent benefits of family and community stability.

Finally, where women are closely involved in the care of production animals, good animal welfare practices can improve the position of woman in rural communities. Providing women with the tools and opportunities to care for dairy cattle, poultry and other animals often leads to good animal care and productivity, and thus increases food security for women and children, and empowers women because they come to play a critical role in providing food and income for their families.

Because animal welfare is a complex concept, the links between improving animal welfare and other outcomes is often complex as well. An improvement in one aspect of animal welfare can have negative effects on other aspects of animal welfare; for example, moving animals to outdoor environments to avoid the welfare problems of confinement systems can lead to increased exposure to harsh weather, parasites or predators. Nor does improved animal welfare necessarily bring economic benefits; for example, the cost of providing high quality diets, environments or veterinary care may exceed the monetary value of any resulting increases in productivity.

Nonetheless, there are many examples of improved animal welfare leading to clear benefits for humans. These provide ample scope for achieving better outcomes for people and animals simultaneously. Especially in parts of the world where many people suffer from poverty and starvation, an approach to animal welfare that focuses on benefits to people is most likely to succeed (McCrimdell 1998).

3. Culturally appropriate approaches

FAO's 192 members encompass very different social, cultural, religious and economic backgrounds. These background circumstances need to be recognised and respected, both because of their inherent importance and because doing so will be important for achieving good animal welfare outcomes.

All of the major religions of the world teach compassion and kindness to animals, but there are also large differences in beliefs regarding the nature of animals and their moral status (Waldau and Patton 2006). The Abrahamic religions (Christianity, Islam and Judaism) originated largely in pastoralist cultures which saw a large difference in moral status between humans and other species. These religions traditionally attached great importance to the diligent care of animals, while in most cases regarding the ownership, use and killing of animals as morally acceptable. In some Eastern religions, the line between human and non-human beings is less absolute. In addition, specific animals (cattle in India, dogs and cats in the West) are so culturally significant that the slaughter of these species for human food is strongly resisted. In promoting good animal welfare practices, religious, cultural and social norms and beliefs need to be taken into account. Box 1 describes a practical intervention to improve animal welfare in a manner that conformed to the cultural norms of the region.

There are also important cultural differences in people's understanding of animal welfare (Fraser 2008a). In countries that have undergone an industrial revolution, the debate over what constitutes a satisfactory life for animals tends to parallel the earlier debate about the welfare of industrial workers. One view (often expressed by animal producers) attaches primary importance to basic health and the good functioning of the body, and argues that high productivity is a strong indicator of good animal welfare. An opposing view attaches primary importance to the freedom of animals to live in a reasonably natural manner, and argues that welfare is jeopardized by industrialized, confinement systems even if they achieve high productivity. In countries whose economies are not highly industrialized, good animal welfare may be viewed differently again – especially as requiring good nutrition, shelter and protection from the elements. Although these competing views may complicate discussion of animal welfare, in practice they also provide a variety of useful starting points for promoting better animal welfare within a given human culture.

Further influencing modern beliefs about animals is the view, reinforced by modern science, that animals are "sentient beings" that experience states such as pain, suffering and contentment. This view has gained sufficient strength in science that the prevention and control of pain and suffering in animals are widely regarded as ethical requirements in the practice of scientific research and scientific education in Western countries. Inasmuch as this view is spreading globally through scientific and veterinary

education, it may create a further overlay to traditional beliefs and a further impetus for considering the welfare of animals. For example, it can strengthen calls for humane handling of draft animals, humane euthanasia of animals suffering from untreatable pain or disease, and humane slaughter methods that prevent fear and pain.

BOX 1

Modernization of gaushalas in India

The cow is considered sacred in Indian culture, and the slaughter of cows is prohibited in most Indian states. When cows stop producing milk, however, many owners are unable to continue caring for them; and the move to mechanized farming has reduced the demand for bullocks (males) for draught power. The result is a large number of abandoned cattle that create a public nuisance and eke out a marginal, low-welfare existence.

Indian society has a long tradition of “gaushalas” which provide care for unwanted cows. There are approximately 4000 gaushalas in India, and the number is increasing to meet the growing number of stray animals. Many gaushalas have 1000 cattle or more, and a few have over 10,000.

Financing the gaushalas has been an on-going challenge. In response, the Animal Welfare Board of India has embarked on a modernization programme to make gaushalas financially self-sustaining and to increase the value of cows in Indian agriculture. “Model Gaushalas” use the cattle for a range of purposes including:

- generation of biogas from manure for heating, cooking, lighting and electric power generation,
- creation of vermi-compost, an organic fertilizer, from surplus manure with the help of earthworms,
- using the draught power of bullocks to generate power for lighting and irrigation,
- production of a cow urine extract used in traditional Indian medicine, and
- genetic improvement programmes for local Indian cattle breeds using selected cows and high quality bull semen.

In addition, the staff of the Model Gaushalas train local farmers in the use of **bullocks for draught power with improved carts and agricultural implements, to enable farmers to use draught power instead of expensive mechanized methods.** Model Gaushalas are also used to train local people in assisting animals in natural disasters.

4. Science and research

4.1 FOSTERING THE APPLICATION OF ANIMAL WELFARE SCIENCE

Animal welfare science has emerged over several decades as a multi-disciplinary field which applies a combination of animal behaviour, stress physiology, nutrition, genetics, veterinary medicine and other disciplines to problems of animal welfare. Box 2 provides three illustrative examples showing how animal welfare research has been used in the pursuit of three broad goals: to improve the basic health and functioning of animals, to prevent fear, pain and other negative states, and to allow animals to live in a manner for which they are suited. The examples also show that animal welfare research has been applied to different aspects of animal production, to environmental design, handling methods, and production/feeding systems, respectively. Such research has led to many improved animal welfare practices, and it has formed the basis of various animal welfare standards.

In the past, much of the research on farm animal welfare was motivated by concerns over the welfare of animals in industrialized production. Hence, it tended to be focused on production systems typical of countries with industrial economies. However, given that most animal production now occurs in countries with developing economies, there is a need to redefine the field of animal welfare science more broadly, so that the benefits can be applied more readily in other parts of the world (Fraser 2008b).

For this to occur, the best long-term strategy is likely to be to the creation of local networks of animal welfare science in countries with developing economies, rather than 'parachuting' expertise from elsewhere. Nonetheless, given the existing strength in animal welfare science in some industrialized countries, it would be sensible to link the emerging networks with training opportunities and collaborating scientists in established centres. Many of the established centres for animal welfare science are already engaged in such linkages. For example the Animal Welfare and Behaviour group at Bristol University collaborates in research on the welfare of working animals in Egypt, Guatemala, India and other countries (Swann 2006); the Animal Welfare Training team, also of Bristol University, has conducted training for slaughter workers in southeast Asia (Box 3) and Central America; the Animal Welfare Program at the University of British Columbia has hosted and cooperated with 40 visiting scientists from Brazil, Mexico, Poland and Iran; and Purdue University's Center for Food Animal Well-Being has hosted Chinese researchers and students for scientific visits and internships, and is assisting the University of Krakow, Poland, to help establish a programme in swine behaviour and welfare.

Scientists and academics from leading centres of animal welfare science have given hundreds of workshops and lectures in all regions of the world where animal production is carried out. More formal approaches are also being used to foster such cooperation. For example, the 'Welfare Quality' research project, funded by the European Commission, created an international scientific network involving scientists from Europe and

Latin America to develop animal welfare assessment schemes applicable to a variety of farming systems. The OIE has recognized certain 'Collaborating Centres' with expertise in animal welfare which can provide training, organization of scientific meetings, and twinning with research institutions in poorer countries. The FAO could contribute to these efforts by identifying animal welfare problems and opportunities through its in-country programmes, and helping to identify research collaborations that could be applied and fostered.

BOX 2

Animal welfare science

Animal welfare science has used a range of disciplines to achieve three broad objectives: to improve the basic health and functioning of animals, to prevent fear, pain and other negative states, and to allow animals to live in a manner for which they are suited. The following examples illustrate research done in support of these objectives.

1. In Sweden, a series of studies used the methods of pathology to identify how different design features of commercially available cages can lead to injuries in laying hens. The studies showed that hens developed foot lesions if the floor was sloped too steeply, neck lesions if the food trough was too deep and installed too high for comfortable access, and overgrown claws if there was no abrasive material on the floor that the hens could scratch. The research led to better cage designs which improved bird health and productivity, and also formed the basis of animal welfare standards in the European Union (Tauson 1998).

2. Studies in Australia have shown how rough handling of animals can lead to a long-lasting fear of humans and correlated reductions in productivity. A study of 66 dairy farms showed that on farms where the staff handled cattle roughly, the animals showed a persistent fear response toward people, had higher levels of the stress-related hormone cortisol in the milk, and had lower milk yields. The results are thought to reflect a long-lasting stress response caused by chronic fear of humans, which interferes with the hormonal processes necessary for the production and let-down of milk. The research has led to training programmes that teach low-stress animal handling methods (Hemsworth et al. 2000).

3. In Canada, dairy calves have traditionally been fed by bucket twice per day at the time when the cows are milked. With such infrequent meals, intake is generally limited so as not to overwhelm the digestive system with too much milk at any one time. In contrast, calves reared by their mothers suckle many times per day with smaller meals, and they achieve a larger daily intake. Research showed that if calves have free access to artificial teats with small orifices and slow flow rates, they will consume milk with a more natural feeding frequency and meal size, and this results in greater weight gains and fewer signs of chronic hunger. The research has led to more effective feeding systems for calves (Rushen et al. 2008).

BOX 3**Animal welfare training for slaughter workers in Indonesia**

The Animal Welfare Training team (AWT) of University of Bristol, UK, became involved in training slaughter workers in Indonesia in 2002, with the support of Humane Society International (HSI) and the local animal welfare organization Yudisthira.

Initial fact-finding and needs assessment identified many areas where improvements were needed. These included poor hygiene, low maintenance, poor lighting which prevented thorough inspection of animals, blunt knives and no means to sharpen them, lack of training, aggressive handling of animals, and deliberate use of pain to control animal movements.

An initial workshop on welfare and quality issues was then delivered in Bali in 2002 to invited delegates working in commercial and traditional slaughter. Given the success of the workshop, more extensive training was then developed with the goal of generating a sustainable indigenous training capacity. The most promising participants of the 2002 workshop were designated as local trainers who would then develop and conduct similar courses for other workers. The 'training trainers' programme included both theory and practical experience; it covered animal welfare and quality issues, unconsciousness, stunning, slaughter, codes of practice, and welfare assessment.

Programme participants subsequently drafted Bali's first Codes of Practice for its cattle and pig industries, covering the unloading and movement of animals, pre-slaughter restraint, slaughter, dressing, butchering and staff hygiene. As the programme progressed in Bali, the training expanded into other areas of Indonesia with the support of HSI, Yudisthira, WSPA, the Indonesian Veterinary Medical Association, and the Indonesian Government.

4.2 DISSEMINATION OF SCIENTIFIC INFORMATION

There is also a broader need to make the findings of animal welfare science more widely available, not only to researchers but to veterinarians, agricultural advisors and others who are directly involved in capacity building in animal production. Animal welfare research tends to be spread among a wide range of scientific journals in the fields of animal science, veterinary medicine, and animal behaviour, plus the specialized journals *Animal Welfare* and *Journal of Applied Animal Welfare Science*. Through its library system the FAO could make these and other scientific sources more readily available in countries with developing economies.

4.3 SCIENTIFIC ASSESSMENT OF ANIMAL WELFARE

The scientific assessment of animal welfare involves multiple criteria which can be applied at three different levels:

- "Animal-based" criteria are assessed at the level of the animals themselves. These include the presence of injuries, the incidence of disease, scoring of body condi-

tion, and the performance of certain behaviour. Animal-based criteria in animal transportation, for example, might include the rate of survival and the incidence of bruising and injury. Many such criteria are directly relevant to animal welfare, and they can be used within a wide range of production methods. However, they provide only a 'snap-shot' in time, as later groups of animals might react differently to the same conditions.

- "Resource-based" criteria assess housing, diet and other resources that are provided for the animals. These are relatively easy to measure, and their link to animal welfare can be established through research. However, resource-based criteria do not guarantee a good state of welfare at any given time because, for example, animals may suffer from disease or fear despite having an appropriate environment and other resources. Resource-based criteria may be most applicable in relatively uniform production systems (such as cage systems for egg production) where predictable links between resources and animal welfare can be established by research; however, such criteria may not be good predictors of animal welfare when applied to very different production systems.
- "Management-based" criteria focus on human care as an important factor in animal welfare. They may include the handling skills of the staff, feeding practices, hygiene strategies, and record keeping. Although there are important links between human care and animal welfare in general, management-based criteria are relatively indirect as indicators of actual animal welfare.

As noted above, the assessment of animal welfare is complicated by the diverse ways that animals are kept. Good animal welfare is the outcome of complex interactions among genetics, nutrition, environment, disease status, management skill and other factors. Therefore, efforts to monitor and improve animal welfare need to use a system-oriented approach using a wide range of information and capturing the complex interactions that occur (Sundrum 2006). Specifically, assessment of animal welfare needs to identify causes of sub-optimal welfare, and the opportunities for successful intervention, in the entire system or production chain.

Although the assessment of animal welfare should be science-based, it should also be done with the full participation of the people involved (RSPCA 2008). Participatory Action Research (Reason and Bradbury 2001) provides valuable approaches for assessing needs, understanding perceptions and traditional practices, identifying social and material assets, and planning beneficial interventions, all with the full participation of the target audience. (see Box 4).

4.4 SCIENCE AS A BASIS FOR STANDARDS

Policy statements often call for animal welfare standards to be "science-based". The term is appropriate, but needs to be understood in context (Giere 2006). Because animal welfare is a complex concept, animal welfare standards can (as noted below) be designed to meet different animal welfare objectives. For example, some standards are designed mainly to ensure a high level of health until the age of slaughter; others include additional goals such as preventing pain or allowing animals to rest comfortably. Once the objectives have been decided, science can indicate what provisions should be

made in order for the objectives to be met. Such standards are indeed science-based, but they also rest on ethical decisions about which animal welfare objectives to pursue. Especially where standards are decided by a political process such as consensus among stakeholders or countries, there are also important political decisions regarding the objectives and measures that the different parties are willing to support.

5. Standards and legislation

5.1 ANIMAL WELFARE STANDARDS AND ASSURANCE PROGRAMMES

The past 50 years have seen the emergence of a wide range of animal welfare standards and assurance programmes designed to promote the use of good animal welfare practices. These fall into five main formats (Fraser 2006) which are designed to achieve different political and commercial objectives:

- Voluntary welfare codes, in some cases created by industry organizations, were among the first programmes to be developed. In general they are intended (1) to educate producers and the public about appropriate animal welfare practices, and (2) to assure the public that animal welfare is being considered in an industry, although they may fail to meet this objective unless additional measures (such as auditing or certification) are used to demonstrate the level of compliance.
- Corporate programmes, often used by retail or restaurant companies, are intended to assure customers of the animal welfare standards followed in the company's supply chain. These may be used to maintain customer loyalty and satisfaction.
- Product differentiation (labelling) programmes are used by producers, or by third party organizations such as animal protection agencies, to identify products that are produced according to defined standards or production systems. These allow consumers to shop selectively and patronize forms of animal production that they wish to support.
- Legislated standards are used by governments to assure voters and trading partners that animal welfare standards are being observed within a jurisdiction.
- International agreements, as created by treaties or intergovernmental organizations, are used to establish common standards among different countries and to prevent different standards from impeding international trade.

In addition to these different formats, animal welfare standards include many different requirements which achieve different animal welfare objectives. These commonly fall under four broad objectives to:

- maintain the basic health and biological functioning of animals,
- prevent or reduce negative states such as pain, fear and distress,
- allow animals to perform certain types of natural behaviour, and
- allow animals certain natural elements in their environment.

Many animal welfare standards differ in what they require because they emphasize these different objectives to different degrees. For example, some of the most basic standards simply require sufficient space, food and water to maintain the basic health and biological functioning of animals, whereas other standards require additional features to promote comfort and allow animals to perform types of natural behaviour that they are highly motivated to perform (Fraser 2006).

Interventions to promote good animal welfare practices should include an analysis of the possible roles and benefits of the various animal welfare standards and assurance programmes, and of the capacity building that is needed to facilitate compliance.

5.2 LEGISLATION

Many jurisdictions have some form of legislation relevant to animal welfare, but approaches vary widely.

Some of the most basic animal-related law is anti-cruelty legislation. This is often criminal law designed to punish anti-social acts toward animals, especially neglect and intentional infliction of unnecessary suffering. Some anti-cruelty laws were adopted in light of the recognition that individuals who are deliberately cruel to animals are often dangerous to other people. Anti-cruelty laws have only limited relevance to the common problems of animal welfare in food production because most of the animal welfare problems are not the result of intentional cruelty.

More relevant to animal welfare problems are laws and regulations requiring certain standards to be maintained in the raising, transport and slaughter of animals. For example, many countries have animal transportation laws that specify the maximum length of time that animals may be transported in vehicles without food, water and rest. Many countries also have humane slaughter laws that specify how animals should be treated immediately before and during slaughter. Some countries, especially in Europe, have laws governing the keeping of animals on farms, for example specifying the minimum amount of space that animals must be allowed in confinement production systems.

A further legislative approach is to provide official recognition to voluntary codes or other guidance documents. For example, New Zealand for many years had welfare codes for animal production; these provided an agreed set of recommended practices that were widely supported by the industry, but compliance was voluntary. In 1999, however, the country's new Animal Welfare Act gave official recognition to the codes: it did not make compliance mandatory, but it specified that failure to follow the codes can be used as evidence in cases where individuals are prosecuted for an animal welfare offence, and that compliance with a relevant code can be used as a defence (New Zealand Ministry of Agriculture and Forestry 2005).

In some countries, national animal welfare legislation is difficult to achieve for political or constitutional reasons. In Australia, for example, many aspects of animal welfare are the responsibility of the individual state (sub-national) governments rather than the national government. In order to achieve a consistent approach, Australia gained the support of both state and national governments to develop the Australian Animal Welfare Strategy (Australian Government 2008).

Selecting an appropriate approach to legislation is a complex decision. A legislative approach needs to fit the values and priorities of a culture. It requires political commitment and will normally require close consultation with farmers and other stakeholders. Moreover, a legislative approach is likely to be effective only if sufficient resources are deployed for administration and enforcement. For a given situation, careful analysis is needed to decide what approach, including what mixture of legislation, non-regulatory standards, education and other measures, will be most effective to achieve implementation of good animal welfare practices.

The FAO has substantial legal expertise, and in the past the FAO has provided advice and support to countries wishing to develop other types of agriculture and food-related law. The FAO could consider developing similar staff expertise on animal welfare law

in order to assist countries to decide and implement the approach most suited to their specific circumstances. This could be done in cooperation with animal welfare NGOs, some of which have substantial legal expertise, and with the World Organisation for Animal Health (OIE) which is developing guidelines on veterinary legislation addressing the roles and responsibilities of veterinary services, and is also working with a number of countries to support the development of animal health and welfare legislation.

5.3 INTERNATIONAL STANDARDS AND AGREEMENTS

International standards and agreements have played an increasing role in animal welfare over the past several decades.

The Council of Europe, which has 47 member countries as of 2008, has been creating international agreements related to animal welfare since the 1960s. For example, the European Convention for the Protection of Animals during International Transport, first drafted in 1968 and revised in 2003, lays down general conditions for animal transportation. Detailed Recommendations have been created for pigs, horses, cattle, sheep and goats, and poultry. The European Convention for the Protection of Animals kept for Farming Purposes, drafted in 1976, gives basic principles for the keeping, care and housing of animals, especially in intensive breeding systems. Detailed Recommendations were subsequently prepared for cattle, sheep, goats, pigs, various bird species, and farmed fish (Council of Europe 2008). The Convention (which has been ratified by 33 countries) is open to accession by non-European countries; Recommendations may be implemented by all countries. Ratification/implementation by trading partners could provide one means of establishing equivalence of animal welfare standards.

The European Union (EU), with 27 member countries in 2008, has also been developing policies and minimum standards for the welfare and protection of animals for roughly 30 years. Since the 1980s, a number of 'Regulations' and 'Directives' (agreements which member countries are obliged to translate into national law) have set minimum standards for transportation and slaughter of animals, as well as aspects of the rearing environment such as minimum space allowances in confinement rearing systems. The EU Protocol on Protection and Welfare of Animals, annexed to the Treaty of Amsterdam (amending the Treaty of the European Union), recognizes animals as 'sentient beings' and calls for member states to pay 'full regard to the welfare requirements of animals, while respecting the legislative or administrative provisions and customs of the Member States relating in particular to religious rites, cultural traditions and regional heritage' (European Union, 1997).

The World Organisation for Animal Health (OIE), with 172 member nations as of 2008, identified animal welfare as a strategic priority in 2001. Subsequently, a process involving member countries, scientists, industry and non-governmental organizations resulted in the drafting of standards for the transport of animals by land, sea and air, together with standards for the slaughter of animals for human consumption and the killing of animals for disease control purposes. These standards (OIE 2008) were accepted by the member nations in 2005. As of 2008, additional texts are being developed by expert ad hoc groups on other topics including the control of stray dog populations, laboratory animal welfare, and the transportation of aquatic animals. These are likely to be pro-

posed to the member countries for possible adoption in the future. In addition, the OIE has organized a “Global Conference on Animal Welfare” in 2004 and 2008 to stimulate the development and implementation of its animal welfare standards (OIE 2004), and has published materials on animal welfare issues (OIE 2005) and the scientific assessment and management of animal pain (Mellor et al. 2008). Although the OIE standards thus far cover only certain aspects of animal welfare and are not binding on the member countries, their endorsement signalled a near-global acceptance of animal welfare as a significant issue.

The World Trade Organization, under the Agreement on the Application of Sanitary and Phytosanitary Measures (the “SPS” agreement), formally recognises the OIE as the reference organization responsible for establishing international standards relating to animal health. Because the SPS agreement does not include animal welfare, the animal welfare standards of the OIE cannot be referenced in the case of disputes between countries over international trade. Nonetheless, the standards provide an internationally agreed reference point that can be included in bilateral or multilateral trade agreements involving countries that wish to establish equivalent standards in those areas where OIE standards exist (Thiermann and Babcock 2005).

Since each OIE member country decides when and how to implement the OIE animal welfare standards, implementation may take considerable time and effort in many cases. The FAO, together with animal industry bodies and non-governmental organizations, could play a significant role in capacity building to help member countries implement the standards.

6. Capacity building for improving animal welfare

Capacity building to implement good animal welfare practices can be seen as involving four elements: education, engagement and awareness building, training, and communication.

6.1 EDUCATION

Education is needed to create awareness of animal welfare and a greater understanding of the significance of animal welfare for successful animal production. In the case of animal producers and handlers, such education may ultimately lead to the implementation of new procedures that improve animal welfare outcomes. Education directed to the general population may lead eventually to people supporting forms of animal production that involve good animal welfare.

Animal welfare education needs to take cultural, political, economic and religious considerations into account, so as to be locally relevant.

Animal welfare education can occur at all levels of a country's education system. At lower levels, animal welfare education can take the form of simple principles such as the "Five Freedoms". In higher education it can take the form of scientific and conceptual understanding of the place of animal welfare in animal health, productivity and product quality.

Especially in countries where a high proportion of the population is engaged in agriculture, education of children in the school system may be the best long-term strategy for achieving change; and in countries where women play key roles in animal care, it is particularly important that such education include girls and women.

6.2 ENGAGEMENT AND AWARENESS BUILDING

The welfare of animals is strongly influenced by the behaviour of the people who deal directly with them (Hemsworth and Coleman 1998). Examples include the use of appropriate handling and herding methods, early detection and treatment of illness or injury by attendants, and the conduct of people engaged in slaughter or in killing animals in disease eradication programmes. Hence, engaging the people who deal directly with animals will often be a crucial step to achieving good animal welfare outcomes. Box 4 describes a planned, five-step process of engagement used by the Brooke – a charity that seeks to improve the welfare of working equines and their owners – that led to a participatory programme centred on reducing animal injuries.

Engagement and awareness building through workshops, as a precursor to implementing training and other specific programmes, is a proven strategy that introduces issues and initiates involvement and debate amongst those who will subsequently invest and benefit from the process. Awareness building should not be limited to a top-down

BOX 4**A five-step process of participatory engagement to improve animal welfare**

The Brooke, a charity which seeks to improve the welfare of working equines and their owners, is active in Asia, Africa, Central America and the Middle East. A project in an Indian village, where humans and equines work under harsh conditions in brick kilns, illustrates the Brooke's five-part process of participatory engagement.

- First, an **entry point activity** was used to engage animal owners and build rapport. This involved encouraging the community to form self-help groups of 10 to 20 men or women who pooled regular small savings in a fund that was used for purposes decided by the group. The self-help groups agreed to meet monthly to discuss their common issues, with equine welfare being high on their agenda.
- Next, a **participatory community analysis** was carried out using 'participatory rural appraisal' tools widely used in development programmes. This built an understanding of the animals' lives, work, feeding and watering practices, as well as traditional beliefs of the owners.
- Third, a **participatory animal welfare needs assessment**, which encouraged owners to look at available resources and constraints from the animals' point of view, identified wither and girth wounds as key problems for the animals.
- Fourth, **root cause analysis and action planning** were used to identify causes of the injuries. These included damaged padding and saddles, cleanliness, material and size of the girth strap, faulty carts, and careless driving. The effects on the animal were identified as infection of wounds, poor appetite, weakness, and suffering; effects on the owners were identified as loss of income as the animals did less work, leading to frustration and anger. An action plan was then developed to address each of the causes of injuries.
- The final stage was **implementation of the action plan and participatory monitoring**. Implementation of the action plan included tightening loose bolts on the saddle that had caused wither wounds, changing the girth strap as necessary, repairing carts to improve balance, and regular checking of injuries. Group 'transect walks' were then used to score animals on animal-based welfare indicators validated by scientific welfare assessment done by trained welfare assessors from the Brooke.

Although the self-help groups were brought together by a shared interest in their animals, they have also initiated other activities and spawned other similar groups which are helping to make the equine owners more self-reliant. A significant number of these groups are managed by women who play a major role in providing care to working equines.

approach since that will inevitably exclude more traditional approaches. Rather, awareness building should involve engagement with workers, rural communities and local traditional production.

People working with animals may resist giving attention to the welfare of livestock, especially those that will inevitably be slaughtered. Hence, emphasis may be needed on the links between animal welfare and practical outcomes such as meat quality, reduction of carcass bruising, and access to markets. It may also be appropriate for animal welfare to be included as one element in the global movement toward the use of standards to improve all aspects of animal production.

Historically the process of engagement and awareness building has been undertaken by many interested parties. NGO's are well placed to resource this initial process of engagement, for example by facilitating workshops at community and local levels supported by appropriate expertise. Awareness building should not rely on the opinions of any one group or organization, but rather present a view of welfare issues based on scientific evidence and experience, and supported by agreed guidelines.

6.3 TRAINING

Training refers to the process of teaching a particular skill or type of behaviour through practice and instruction over a period of time. Although training exists for certain professionals such as veterinarians and agronomists, there is a great need for training related to animal welfare for people engaged in handling, transport, slaughter and euthanasia. Although training may be most readily embraced in large-scale commercial operations such as commercial slaughter plants, training sympathetic to local knowledge and resources is needed at all levels of animal production.

Many animal welfare problems have no single, ideal solution that can be identified in advance and promoted through training in specific procedures. What is needed instead is to foster a problem-solving mentality. In many cases this is best achieved by engaging with the people who work with animals, recognizing the knowledge, abilities and cultural norms that they have, cooperating with them to identify problems, facilitating their own innovation and problem-solving, and encouraging them to improve animal welfare as a way of better achieving their own goals. In many cases the most effective approach is likely to be a continual-improvement process based on achievable targets rather than the importation of radically different procedures based on foreign technology and values. Thus, training should not seek to impose standards that cannot be immediately realized, but rather facilitate dynamic problem-solving that will enable standards to be met in the future.

Ultimately, training should be done by appropriate organizations and personnel within each country. Initially, the necessary expertise may need to come from external sources, but these should be used as much as possible to create in-country expertise through training future trainers. Box 5 describes a train-the-trainer approach currently being used.

BOX 5**A train-the-trainer initiative for capacity building in animal welfare**

The “Better Training for Safer Food” initiative, run by the European Commission, is aimed at training officials responsible for verifying compliance with laws relating to food, feed, and the health and welfare of animals. Although targeted mainly at officials from Member States of the European Union, training courses dedicated to animal welfare are open also to participants from other countries, particularly countries with less developed economies and that export, or could in the future export, to the European Union. The main goal of this initiative is to train the trainers who will be able to transfer and develop technical capacities in their own countries.

In the workshops participants discuss the scientific basis of animal welfare and its link with animal health and food safety, while also examining European Community rules and existing international standards. The methodology involves analysis of problems, needs, solutions and capacities, specifically to improve animal production and food safety while respecting animal welfare. The workshops are based on a common understanding of animal welfare, together with awareness of different production systems, socio-cultural dimensions, and needs of the participating countries. Several stakeholder organizations have been involved in the development of the training courses.

6.4 COMMUNICATION

Good communication is needed so that international organizations engaged in capacity building will be clear and open regarding their goals and the process by which they expect to achieve them.

Communication is also needed between the various stakeholders and providers of training. Inter-governmental cooperation should be encouraged to facilitate this process through established relationships and agreements.

There is also a need for communication within countries, as responsibility for animal welfare may be divided among different governmental departments, professional bodies and other organizations.

A further need is for communication of relevant standards and scientific information to those who provide training. In this way, training should provide information about internationally agreed principles, standards and recommendations, together with appropriate supporting information.

7. Strategies for implementing capacity building

7.1 ANIMAL WELFARE AND CORPORATE SOCIAL RESPONSIBILITY

Increasingly, governments, funding agencies and the private sector are incorporating “corporate social responsibility” (for the environment, social justice, animal welfare, etc.) into their policies and practices. In the same vein, the FAO and other global organizations should proactively include animal welfare as a basic element of their projects. For example, large-scale funded projects, such as programmes to prevent the spread of avian influenza, need to include animal welfare training as a core component.

In integrating animal welfare into its programmes the FAO should not treat animal welfare as a stand-alone issue but as one of the many goals it pursues such as food safety and security, human and animal health, environmental sustainability, worker safety, rural development, gender equality, and social justice. In particular, good animal welfare practices need to be integrated into, and contribute to, broader programmes to improve livestock production, animal health, product safety, worker safety and human development, within a context of respect for the environment and cultural traditions.

In this regard, animal welfare makes a natural fit with several of the Millennium Development Goals embraced by the FAO, particularly because improved animal welfare can lead to improved livestock production and health, and to resulting socio-economic benefits. Specifically, good animal welfare practices can help:

- to eradicate extreme poverty and hunger by providing better access to food,
- to promote gender equality and empower women, especially in situations where women take a leading role in animal care,
- to reduce child mortality and improve maternal health through increased availability and safety of food of animal origin,
- to ensure environmental sustainability through sustainable use of the resources used for animal production, and
- to develop a global partnership for development through international cooperation focused on animal welfare in livestock-based development.

7.2 ALLIANCES

Effective capacity building for good animal welfare will require alliances among organizations. Such alliances need to be based on a shared understanding of the goals, coordinated efforts, and accepted and complementary roles and responsibilities of different players.

FAO can play an important coordination role with other inter-governmental organizations, especially the World Organisation for Animal Health (OIE) and the World Health Organization (WHO). There is an obvious complementarity of roles between the FAO and

the OIE. The OIE develops internationally accepted standards of animal welfare, and it is also developing strategies to improve animal welfare in certain regions through its Regional Commissions (see Box 6).

FAO has a clear role in supporting the implementation of good animal welfare practices. Naturally, all such activities need to be done in coordination with governments of member countries, and in ways that will successfully engage farmers and others who are directly involved in the production, transport and slaughter of animals.

Many organizations could assist in capacity building for good animal welfare practices. The following are illustrative examples rather than a complete list.

The International Federation of Agricultural Producers (IFAP) represents farmers in 79 countries. In its policy brief on animal welfare (IFAP 2008), the organization notes

BOX 6

Australian and OIE involvement in the development of regional animal welfare plans

Since the 1970s, Australia's cattle, sheep and livestock export industries have provided technical assistance to commercial trading partners in the Middle East and South East Asia. In 2005, the OIE's adoption of animal welfare guidelines for the transport and slaughter of animals provided a new international framework for such technical assistance and capacity building.

In 2005 Australia sponsored a regional workshop in Bahrain, linked to the meeting of the OIE Regional Commission for the Middle East. Delegates considered regional impediments and risks for animal welfare and agreed to work together on a plan. Australia then worked with Saudi Arabia, Kuwait, Oman, Bahrain, Qatar and the United Arab Emirates through the Gulf Cooperation Council, and a plan was finalised in 2006. The plan defines five goals for the region to improve animal handling, transport and slaughter. The goals are to develop infrastructure, laws, standards, welfare training, and public education/awareness. The plan recognises the need to work with religious leaders to influence community attitudes toward improving animal care.

Using this approach, in 2007 Australia convened a similar meeting of members of the OIE Regional Commission for Asia, The Far East and Oceania to develop a similar regional animal welfare plan. The plan was endorsed by OIE's International Committee in May 2008 as a model for other regions.

As part of the regional plans, Australia works with other partners to provide training in low-stress livestock handling on ships, trucks and at feedlots where animals are unloaded and loaded. Australia has funded improved loading ramps, restraint boxes for slaughter, and other animal handling infrastructure. Trainers work with livestock handlers to improve management and provide recognition through issuing certificates to trainees. Australia expended \$AUS4 million on these activities in 2004-2008 and has committed a further \$AUS 6 million for 2009-2013.

that the adoption of 'internationally harmonized minimum standards for animal welfare' is important to maintain consumer confidence in livestock products. IFAP also calls on advisory services, research institutes, agricultural education establishments, and veterinary services to include animal welfare in their programmes. In addition to its policy-level support for good animal welfare practices, IFAP could potentially provide an effective conduit for capacity building efforts to reach local producers in its member countries.

Other international organizations deal with specific sectors of the livestock industry. The International Meat Secretariat (IMS) has international links with the meat industry; the International Dairy Federation (IDF) brings together dairy producers from the 53 countries which account for more than 80% of milk production worldwide. Some such organizations have been active in supporting good animal welfare practices and have produced guidance documents specific to their sectors. For example, the IDF has produced its "IDF Guide to Good Animal Welfare in Dairy Production" (IDF 2008).

Many non-governmental organizations (NGOs), including animal welfare NGOs and development NGO, are already playing important roles in animal welfare activities. The Brooke, as noted above, is active in training and intervention to improve the welfare of working equines and their owners (Box 4). The Humane Slaughter Association (HSA) provides publications and training packages on methods of slaughter, and has conducted extensive training in Southeast Asia, the Caribbean and other areas. The Humane Society International (HSI) assisted the FAO with the publication of a guidance document on the humane handling, transport and slaughter of animals (FAO 2001) and has supported animal welfare training for slaughter workers (Box 3). RSPCA International has delivered training courses in Asia and central and Eastern Europe. on animal welfare in long-distance animal transport (Appleby et al. 2008). Heifer International, which is active in agricultural development and poverty reduction in many countries of the world, provides livestock owners and community animal health workers with training in animal care. The World Society for the Protection of Animals (WSPA), with 900 member organizations in over 150 countries, has (among many activities) provided on-the-ground assistance for animals in disaster relief efforts, and has disseminated scientific evidence

Several governments and multilateral organizations have established records of international support for animal welfare. For example, Australia has been active in promoting good animal welfare practices in the transport and slaughter of animals in Southeast Asia and the Middle East (Box 6). The European Commission, in its Community Action Plan on the Protection and Welfare of Animals 2006-2010, expressed commitment to raise awareness and create a greater international consensus on animal welfare, and to support the implementation of internationally recognised animal welfare standards, particularly in countries with less developed economies, together with actions to allow developing countries to export products that meet certain animal welfare standards into European markets (European Commission 2006). In line with this commitment, the European Commission has helped to fund and organize animal welfare workshops and conferences in many parts of the world (Box 7).

BOX 7**European Commission support for global awareness of animal welfare standards**

The European Commission is actively supporting efforts to raise global awareness of internationally recognized animal welfare standards. For example, the Community has helped to fund or organize the following:

- the two OIE Global Conferences on Animal Welfare in 2004 and 2008,
- the workshop “Animal Welfare in Europe: Achievements and Future Prospects”, Strasbourg, 2006,
- the conference “Animal Welfare: New Horizons for the 21st Century”, Montevideo, 2007,
- an OIE regional meeting on animal welfare, Panama City, 2008,
- International Forum on Global Aspects of Farmed Animal Welfare, Brussels, 2008,
- Conference on Global Trade and Farm Animal Welfare, Brussels, 2009.

Certain financial institutions have also included animal welfare as part of their corporate social responsibility programmes. For example, the International Finance Corporation (IFC), which provides credit for agricultural development, notes that good animal welfare is “increasingly seen to be a prerequisite to enhancing business efficiency and profitability, satisfying international markets, and meeting consumer expectations.” The IFC has indicated that it will assess how an applicant plans to address animal welfare issues before investing in a livestock enterprise (IFC 2006).

Finally, some private-sector companies promote animal welfare capacity building as part of their involvement in the livestock sector. In Brazil, for example, three private-sector companies plus WSPA jointly funded the printing and distribution of training materials to promote good handling of cattle (Box 8).

Other companies have integrated animal welfare into their corporate philosophy; Box 9 describes examples from South Africa, South Korea and India.

These and many other examples illustrate the scope that exists for the FAO to work with other organizations, and to encourage partnerships among such organizations, to enhance capacity building for good animal welfare practices.

BOX 8**Dissemination of training materials on animal handling in Brazil**

Since 1995, university-based scientists in Brazil have done applied research to improve the handling of beef and dairy cattle. After five years of research, it was decided to use the results to develop guidelines on cattle handling, vaccination, treatment of newborn calves and other topics. The guidelines emphasize positive approaches to animal welfare, using examples of good animal handling and showing the positive effects on animal health, animal production, and labour efficiency.

The problem was how to disseminate this material to the tens of thousands of people involved in handling animals. The university looked for partners by approaching farmers' associations, private companies, NGOs and government. In 2005, the first partner, Ford Dodge Animal Health, agreed to help fund the dissemination. Two other companies (Beckhauser Troncos e Balanças, and Allflex) and one NGO (World Society for the Protection of Animals) then joined the project. The resulting funding has allowed booklets on good cattle handling practices to be distributed free of charge in printed form and through the internet (e.g. www.grupoetco.org.br). The booklets provide a means for sponsoring organizations to draw attention to their activities in the context of promoting good animal welfare.

7.3 ANIMAL WELFARE, TRADE AND MARKET ACCESS

Trade and access to markets are becoming linked with animal welfare in various ways.

First, there is a growing trend for international retailers and food companies to establish quality standards for the products they sell, including requirements governing how animal products are produced (Fulponi 2006). For example some companies selectively purchase eggs from non-caged systems and pork from farms that do not house pregnant sows in close confinement. These policies could create significant market opportunities for developing countries where the desired systems are already in place. Nevertheless, training and capacity building will often be needed to ensure that the standards are met as required.

Second, certain countries are entering into trade agreements that call for equivalent standards of animal welfare. Where such agreements involve countries with more and less developed economies, they may also establish co-operation to support education, training and capacity building in animal welfare in the less developed economies. A preferential tariff treatment for products produced according to particular welfare standards would support these opportunities.

The linking of animal welfare with markets is taking place mainly in richer countries (e.g., Mench 2008). However, consumer surveys indicate a high level of concern for food animal welfare in some countries with developing economies (e.g., Fundación Construir 2008), and some producers and retailers in Africa, Asia and Latin America have integrated animal welfare practices and standards into their activities, partly for trade and market reasons (Box 9).

BOX 9**Examples of animal welfare incorporated into company policies in South Africa, South Korea and India.**

Woolworths (South Africa) is a large retail chain with approximately 20 000 employees. All of its products comply with its farm animal welfare policies which include adherence to an Animal Welfare Code of Practice approved by the National Council of Societies for the Prevention of Cruelty to Animals (NSPCA) of South Africa. The company conducts regular audits of abattoirs, and does not sell eggs from caged birds. As well as providing assurances to customers, the policies have helped sensitize producers to animal welfare and have led to obvious changes in behaviour.

ORGA Whole Foods, a subsidiary company of Pulmuone of Seoul, South Korea, introduced a farm animal welfare policy in 2007, with animal rearing standards based on the RSPCA's Freedom Food programme in the United Kingdom. The standards apply to over 3 000 cattle, 170 000 meat chicken and 10 000 laying hens. Auditing of participating farms is carried out every six months. Although products produced according to specified welfare standards are not yet widely consumed in Korea, animal welfare fits with the parent company's philosophy of marketing healthy products and showing respect for nature.

Keggfarms of New Delhi has been active in genetic breeding of poultry stocks since 1972. Since 1990 the company has focused on breeding poultry stocks (branded "Kuroiler") specifically for use by village households. In their breeding farms the company uses cage-free rearing with perches, litter and nesting places together with flock health measures. Chicks are sent to "brooding centres" (run as micro-enterprises) and then for placement as 'started birds' in village households. The started birds are sufficiently established to fend for themselves in harsh, resource-poor scavenging conditions, and they produce substantially more eggs and meat than indigenous breeds. The company produces nearly 20 million chicks annually, for rearing by 800,000 village households in 11 states. Having a breed that is genetically suited to thrive under village conditions is important for animal welfare; the project has also provided greater food security and income for nearly a million poor households (Ahuja et al. 2008).

In general, linking animal welfare with trade and market access, whether by private-sector standards or by widely accepted international standards, raises important concerns for lower-income countries. Access to markets, especially international markets, can greatly increase the profitability of animal production. However, meeting (and demonstrating compliance with) specific standards may require infrastructure that lower-income countries do not possess. The FAO and other agencies could help to build capacity in lower-income countries so that producers are better positioned to access large markets and participate in international trade. In addition, there is a need

for policy decisions and trading arrangements that do not create unnecessary or unfair barriers to trade for developing countries.

Linking animal welfare with trade and market access also raises concerns for smaller producers (Boselie et al. 2003) because they may have difficulty implementing the necessary changes to production methods, and because demonstrating compliance may be easier for a large producer than for many small ones. This is of special concern for international development because small- and medium-scale production is often most beneficial for development goals. Although large, industrialized production systems can often increase production and lower the cost of animal products, this does not benefit local communities if local people lose their income and consequently their access to food. In contrast, small- and medium-scale farming can provide employment opportunities for a larger number of people with the consequent preservation of families and local communities; and it can permit a family to produce food for family use plus a surplus to generate income.

For small- and medium-scale farmers to access markets that requires specific animal welfare standards, capacity building will be needed to allow local farmers to interact and share resources, reduce production and transportation costs, and enable them to market larger quantities of products. Such a process could be supported by food processing, catering or retailing companies that are willing to establish commercial links with specific communities or geographical areas.

8. Key issues

Animal welfare issues are extremely diverse. They depend partly on the scale of production: the problems of subsistence production are likely to include basic nutrition, shelter and health care, whereas the problems of intensive, commercial-scale production are more likely to include a reduction in the capability of the animals to cope with the environment due to factors such as crowding, injury-causing surfaces, poor air quality in buildings, and genetic selection for specific performance traits rather than general health. Problems also vary with climate, the disease status of the region, availability of feed and water, and availability of skilled labour.

Despite the variation, several problem areas stand out as high priority across many regions and systems. These are:

- transportation, including long journeys whether by foot or vehicle, and methods used to restrain animals for transport,
- slaughter, including the holding and movement of animals before slaughter and restraint during the slaughter or stunning process,
- provision of adequate feed and water,
- the handling of animals by humans, which can result in production losses from injury and chronic fear,
- culling of unwanted animals, including the disposal of animals that are sick or of low commercial value, and
- keeping animals under conditions for which they are not genetically suited. This includes the use of non-indigenous breeds which are not well adapted to local climate and conditions, and the housing of animals in unsuitable facilities.

Finally, animals rarely have good lives if their owners live in poverty. For poor or landless farmers, making a satisfactory living is often the first step toward being able to provide appropriate animal care. Hence, improving the economic well-being of low-income animal owners needs to be seen as a high-priority issue in efforts to improve animal welfare.

While capacity building needs to be targeted at locally relevant problems, the above general areas provide logical starting points for assessing which problems should be addressed, for the development of training materials and research projects, and for establishing incentives to improve the care and handling of animals.

9. Recommendations

Based on their deliberations, the experts made the following recommendations:

- (i) Improvements to animal welfare in food production systems can play a significant role in improving the welfare of people by such means as improving access to food of animal origin, improving economic returns through increased livestock productivity, improving the efficiency of draft animals, and reducing risks to human health through improved food safety and animal health. Attention to animal welfare can be of special benefit to countries with less developed economies through technology improvement, increasing access to markets, and fostering international cooperation. To support good animal welfare practices in countries with less developed economies, the FAO should give priority to practices that lead to benefits for both people and animals.
- (ii) Beyond such practical and economic benefits, attention to animal welfare can have broader social benefits. It can contribute to teaching an ethic of care; it can be a force for social cohesion within a family, a community or a business; and positive relations with animals are an important factor in human (as well as animal) well-being. These benefits should be recognized in capacity building programmes.
- (iii) Animal welfare should not be treated as a stand-alone issue but as one among many socially important goals including food safety and security, human and animal health, environmental sustainability, worker safety, rural development, gender equality, and social justice.
- (iv) As an initial step in pursuing animal welfare objectives, the FAO should ensure that animal welfare is integrated into, and contributes to, its existing programmes in areas such as animal health and nutrition, livestock development, sustainable livelihoods, and emergency responses where animals are involved.
- (v) Animal welfare is strongly influenced by human behaviour. In capacity building to improve animal welfare, the FAO (and those who deliver FAO-sponsored projects) should attempt to understand and engage with the people who work with animals, recognize the cultural norms, knowledge and abilities that they have, cooperate with them to identify means of improving animal welfare as a way of better achieving their goals, and facilitate their own innovation and problem-solving.
- (vi) As a general approach, improving the welfare of animals should begin with an assessment of the risks and opportunities in the entire system or production chain, and a search for improvements that will be practical in the given situation. Assessment should include science-based assessment of the needs and welfare of the animals, and risk assessment to identify causes of sub-optimal welfare. In many cases the most effective approach is likely to be a continual-improvement process based on achievable targets rather than the importation of radically different procedures based on foreign technology and values.

- (vii) In some situations, formal animal welfare assurance programmes (national laws, international agreements, corporate programmes, and others) provide valuable guidance and incentives for improving animal welfare, and may facilitate access to certain markets. As part of the assessment of risks and opportunities, FAO should consider the possible role and benefits of such programmes, and any capacity building that is needed to facilitate compliance for countries and producers that wish to comply.
- (viii) Scientific research on animal welfare provides the scientific evidence behind many animal welfare practices and standards. The FAO should consider working with centres of expertise in animal welfare science to facilitate access by member countries to the findings of animal welfare research and to encourage research on issues of importance to countries with developing economies.
- (ix) Many countries are showing interest in creating and/or revising animal welfare legislation, in some cases to comply with established standards. The FAO should consider working with other organizations to provide relevant assistance on animal welfare legislation to member countries on request.
- (x) Although animal welfare problems are extremely diverse, several problem areas stand out as high priority across many regions and production systems. These are: transportation, slaughter (including pre-slaughter management), food and water, handling/herding methods, culling and disposition of animals that are sick or of low commercial value, and the keeping of animals under conditions for which they are not genetically suited. These problem areas provide logical starting points for capacity building efforts. In addition, as poverty can severely limit the ability of owners to care for animals, poverty reduction among animal producers is a significant priority for improving animal welfare.
- (xi) Improving animal welfare globally will require strategic partnerships. In particular, the FAO should work in cooperation with the World Organisation for Animal Health (OIE) which is developing international standards together with regional animal welfare strategies through certain of its Regional Commissions, the World Health Organization, and other institutions engaged at an international level. It should also work together with academic and producer organizations, animal welfare and other relevant non-governmental organizations, financial institutions, and the private sector to facilitate the funding, execution and communication of initiatives related to animal welfare. The FAO should also facilitate partnerships among organizations with complementary capabilities (such as organizations with funding capabilities and those with competence in training) whose cooperation could support the implementation of good animal welfare practices.
- (xii) The FAO should identify and empower staff persons, who have expertise in animal welfare and its applications, to put these recommendations into action.

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Appendix A

Agenda of the meeting

FAO EXPERT MEETING ON CAPACITY BUILDING TO IMPLEMENT GOOD ANIMAL WELFARE PRACTICES

Italy, Rome, 30 September -3 October 2008
FAO Headquarters - Queen Juliana Room B-324

AGENDA

Time	Tuesday 30 September 2008	Speaker
9.00 - 9.15	Opening	S. Jutzi
9.00 - 9.15	<ul style="list-style-type: none"> • Election of a chairperson and a vice-chairperson • Appointment of a rapporteur • Adoption of the agenda • Information on logistic and meeting organization 	FAO
Scene setting		
9.15 - 9.30	Livestock sector trends	A. McLeod
9.30 - 10.10	Current state of scientific knowledge related on animal welfare, existing or emerging animal welfare standards (including international agreements, national/regional standards, corporate standards) and practices	D. Fraser
10.15 - 10.30	Coffee break	
Animal welfare standards and legislation (state of the art and implications)		
10.30 -10.45	Current and future developments in the EU animal welfare standards and legislation	A. Gavinelli
10.45 - 11.00	Current and future developments in the OIE animal welfare standards (International standards)	G. Murray
11.00 - 11.20	Animal welfare standards, public vs private	J. Mench
11.20 - 11.40	Animal welfare policies	P. Thornber
11.40 - 12.10	Animal welfare law & legislation	Song Wei
12.10 - 12.30	FAO support on animal welfare legal aspects	J. Vapnek
12.30 - 14.00	Lunch	
14.00 - 15.00	Discussion on policies and legislation	
15.00 - 15.30	Coffee break	
15.30 - 16.30	Conclusions and recommendations of this session	
16.30 - 17.30	Report writing	
Time	Wednesday 1 October 2008	Speaker
Animal welfare practices, impact and benefits		
9.00 -9.20	Implications of promoting good animal welfare practices	D. Fraser
9.20 - 9.40	Relation of animal welfare to animal health	J. Serratos

9.40 - 10.00	Animal welfare in fisheries and aquaculture	F. Berthe
10.00 - 10.30	Coffee break	
10.30 - 10.50	Animal welfare and trade (role of animal welfare in WTO if any; other potential roles of animal welfare in trade)	A. Sansolini
10.50 - 11.10	Constraints and opportunities for developing countries (current situation, recent and future developments, constraints and opportunities)	C. McCrindle
11.10 - 11.30	Socio- economic and environmental impact of animal welfare standards	J. Mench
11.30 - 11.50	Animal welfare assessment	A. Sundrum
11.50 - 12.10	Animal Welfare Board of India addressing emerging challenges	R.M. Kharb
12.10 - 12.30	Discussion on animal welfare practices, impact and benefits	
12.30 - 14.00	Lunch	
14.00 - 15.00	Discussion on animal welfare practices, impact and benefits	
15.00 - 15.30	Coffee break	
15.30 - 16.30	Conclusions and recommendations of this session	
16.30 - 17.30	Report writing	

Time	Thursday 2 October 2008	Speaker
Animal welfare capacity building & training (needs and activities)		
9.00 -9.20	Capacity building & training for animal welfare: an overview	P. Whittington
9.20 - 9.40	Capacity building & training for animal welfare in ruminant production systems	M. Paranhos da Costa
9.40 - 10.00	Capacity building & training for animal welfare in monogastric production systems	J. Mench
10.00 - 10.30	Coffee break	
10.30 - 10.50	Animal welfare capacity building & training: the perspective of producers	R. Bouchard
10.50 - 11.10	Animal welfare capacity building & training at community level	C. McCrindle
11.10 - 11.30	Capacity building & training for animal welfare during transport	P. Thornber
11.30 - 11.50	Capacity building & training for animal welfare during slaughter	P. Whittington
11.50 - 12.10	Capacity building & training for animal welfare in handling animals for animal health purposes	G. Murray
12.10 - 12.30	Capacity building & training: the perspective of government services (competent authorities, including veterinary services)	K. Promchan
12.30 - 14.00	Lunch	
14.00 - 15.00	Discussion on animal welfare capacity building and training	
15.00 - 15.30	Coffee break	
15.30 - 16.30	Conclusions and recommendations of this session	
16.30 - 17.30	Report writing	

Time	Friday 3 October 2008	Speaker
9.00-10.00	Overall conclusion, recommendations and report writing	
10.00 - 10.30	Coffee break	
10.30 - 12.30	Overall conclusion, recommendations and report writing	
12.30 - 14.00	Lunch	
14.00 - 16.30	Report : finalization and adoption of the report	
16.30	Closure of the meeting	M. Traorè S. Jutzi D. Fraser

Appendix B

Experts' résumés

David Fraser

David Fraser has had a 37-year career in research and teaching on applied animal behaviour and the scientific study of animal welfare. He is currently NSERC Industrial Research Chair in Animal Welfare at the University of British Columbia, Vancouver. He is the author of *Understanding Animal Welfare: The Science in its Cultural Context* (Wiley-Blackwell, 2008), and has served as a scientific advisor on animal welfare to many organizations including the the World Organization for Animal Health (Paris), the National Council of Chain Restaurants and the Food Marketing Institute (Washington), and the Food and Agriculture Organization of the United Nations (Rome).

R.M. Kharb

R.M. Kharb is currently the Chairman of the Animal Welfare Board of India (AWBI), a statutory body of the Government of India which is responsible for providing financial assistance to non governmental organizations (NGOs) and animal welfare organizations to carry out animal welfare activities in India. At present, the AWBI supports about 2500 NGOs. R.M. Kharb graduated in 1961 from the Punjab College of Veterinary Science and Animal Husbandry, Hisar. He has a degree of Veterinary Science (Pathology) from the Post Graduate College of Animal Sciences (UR), Mukteshwar, Kumaon. He was the Director General, Remount and Veterinary Corps (RVC) of the Indian Army and retired after rendering 38 years of service. He was decorated with Ati Vishist Seva Medal by the President of India for rendering outstanding services to the Nation. In recognition of his valuable contribution towards advancement of Veterinary education and training, Dr. Kharb was awarded the Fellowship of the prestigious National Academy of Veterinary Sciences of India.

Cheryl McCrindle

Prof Cheryl McCrindle BVSc (Hons) PhD (MRCVS), is currently Section Head of Veterinary Public Health at the Faculty of Veterinary Science at the University of Pretoria and is also a part-time lecturer at UNISA, where she presents veterinary epidemiology to Animal Health Technicians. She has a background in private practice, research and academia and has assisted both the SPCA and Animal Anti-Cruelty League as a consultant and locum tenens. Her research interests lie in veterinary public health, community oriented veterinary extension, animal welfare and veterinary jurisprudence and she has both . She holds an NRF rating as a researcher and in 2006 won the Shoprite-Checkers/ SABC 2 Woman of the year in the Category Education because of her development of an international Web-Based distance education course on veterinary extension and commu-

nication. In 2008 she represented the International Dairy Federation as Animal Health representative at the 76th OIE meeting.

Joy Mench

Joy Mench received her Ph.D. in Ethology (Animal Behavior) from the University of Sussex in England in 1983. She is currently a Professor in the Department of Animal Science and the Director of the Center for Animal Welfare at the University of California, Davis. Dr. Mench conducts research on the welfare of animals, especially poultry and laboratory animals. She has published more than 100 papers, book chapters, and books on these topics, and also given many invited presentations to national and international audiences. Dr. Mench has served on numerous committees and boards related to farm and laboratory animal welfare. She is a scientific advisor to the European Union's Welfare Quality Assurance project, and served as a member of the ad hoc group on Livestock Production Systems for the World Animal Health Organization (OIE). She has received awards from the Humane Society of the United States (2001 Animals and Society Teaching Award), the Poultry Science Association (2004 Poultry Welfare Research Award), and the University of California, Davis (2007 Distinguished Scholarly Public Service Award).

Mateus Paranhos da Costa

Mateus Paranhos da Costa has a background in animal science, with 21 years experience as teacher and researcher at São Paulo State University, at Jaboticabal-SP, Brazil. His areas of expertise include: Applied Animal Behaviour, Animal Welfare, Dairy Cattle Husbandry and Beef Cattle Husbandry. His career started at the São Paulo State University (UNESP, Jaboticabal-SP, Brazil) in 1986, where he has been worked mainly on farm animal behaviour and welfare. From 1991 to 1995 he did the PhD in Psicobiology, and in 1999 he was at Cambridge University (UK), looking for more expertise on animal welfare assessment. Since then he has been involved in many research projects, looking for practical improvements on beef and dairy cattle handling procedures and facilities. He has published over 100 scientific papers, chapters or books.

Kittipong Promchan

Kittipong Promchan, veterinarian, is currently working as Senior Veterinary Auditor for the Department of Livestock Development of Thailand. He joined the Department of Livestock Development of Thailand in 1993; until 2003, he was working as Veterinary Inspector in the chicken, pig and cattle slaughterhouse. He performed ante mortem, post mortem and issues health certificate for export. After the bird flu outbreak in Thailand, he went to Japan to work in the Office of Agriculture of the Thai Embassy in Japan. At present he is responsible for auditing Good Management Practices and Hazard Analysis Critical Control Point system of slaughterhouses, processing factories and other livestock establishments allowed to export.

Song Wei

Dr. Song Wei is Attorney and Professor at the University of Science and Technology of China (USTC) and Director of the Law Institute of USTC, Hefei City (People Republic of

China). His education includes a Bachelor degree, at the Beijing Institute of Technology, MS and a PhD from University of Science and Technology of China. His responsibilities at the University include teaching on Animal Welfare Law. In addition to teaching, he is also a law consultant for companies, organizations and the government. He is a member of a council of China Law Education Association.

Albert Sundrum

Prof. Sundrum has a PhD in Veterinary Science; from 1987 to 1998 he has been Research Fellow and Lecturer at the Institute of Organic Agriculture, University of Bonn (Germany); since 1999 he is Professor at the Department of Animal Nutrition and Animal Health of the University of Kassel (Germany). His research activities are focused on the assessment of animal health and welfare in organic cattle and pig production and the implications of nutrient supply on animal health status. He has been member of the Scientific Committee on Animal Health and Welfare of the EU-Commission in 2001 (Report on the welfare of beef cattle), and of the Scientific Advisory Council of the Ministry of Nutrition, Agriculture and Consumer Protection of Germany (BMELV) since 2002. He has been involved in several EU funded projects on the topic of 'Animal Health and Food Safety in Organic Farming'.

Peter Thornber

Peter Thornber, veterinarian, is currently Manager, Australian Animal Welfare Strategy and Communications, Australian Government Department of Agriculture, Fisheries and Forestry. Dr Thornber has extensive experience in Australia's animal health and welfare system and has worked closely with OIE on animal health issues for many years. He has extensive animal health and animal welfare policy experience and worked closely with international governments and organisations. He is a Member of the Australian College of Veterinary Scientists (Animal Welfare) and the Australian Veterinary Association Animal Welfare and Ethics Special Interest Group. He was responsible for the drafting and finalisation of the Australian Animal Welfare Strategy aimed at all Australians and all uses of animals – Australia's national blueprint document to improve animal welfare outcomes into the future. He has managed the development of Australian Standards for the Export of Livestock and their ongoing maintenance and review. He is funding current work to develop new Australian Standards and Guidelines for Land Transport of Livestock.

Paul Whittington

For over 34 years Paul Whittington has been directly involved in pure and applied research into animal welfare and food production from the Meat Research Institute and latterly as a Research Fellow at the University of Bristol, UK. Within the School of Clinical Veterinary Science, Division of Farm Animal Science he has researched welfare at slaughter looking at animal behaviour, animal handling, specialising in stunning, slaughter or killing publishing in journals from Nature to Veterinary Science. 17 years ago Paul Whittington with colleagues at the University began authoring and delivering general and bespoke courses in animal welfare at slaughter to the UK industry. Fifteen

years ago he formed Animal Welfare Training as a group of researchers specialising in the technology transfer of welfare research to the industry. He is now a Teaching Fellow within the department and manages AW Training. He is now full time authoring and delivering general and bespoke training courses worldwide across Europe, Central and South America, Thailand, Malaysia, Taiwan and Indonesia. Apart from consultancy and general training worldwide he is currently delivering the full Training trainers program for red meat in Malaysia with Humane Society International and Meat and Livestock Australia, Portugal with RSPCA UK and the poultry Training trainers program with CP Foods in Thailand.

Appendix C

List of documents

1. PAPERS SUBMITTED BY EXPERTS

Kharb, R.M. no date. *Animal Welfare Board of India and its efforts in modernization of Goshalas (old cows home) – A unique animal welfare activity.*

McCrindle, C. M. E. no date. *Experiences in Participatory Action Research to Promote Animal Health and Food Safety in Rural, Peri-urban, Urban and Settlement Areas in South Africa.* Faculty of Veterinary Science, University of Pretoria, Onderstepoort, Republic of South Africa

McCrindle, C. M. E., Cornelius, S. T. and Schoeman, H. S. 1997. A survey of animal welfare needs in Soweto. *Journal of the South African Veterinary Association.* Department of Production Animal Medicine, Faculty of Veterinary Science, Medical University of Southern Africa, Internal Box 170, Medunsa, 0204 Republic of South Africa.

Mench, J. A., James, H., Pajor, E. A. and Thompson, P.B. no date. *The welfare of animals in concentrated animal feeding operations.*

Paranhos da Costa, M. J. R., Dalla Costa, O.A., Cruz Barbalho, P., Biagiotti, D., Panin Ciocca, J.R., Naves Murilo, J.E., Gerusa Naves, H. Q. and Dias Barbosa Silveira, I. no date. *The transport of farm animal in Brazil: First report.* ETCO – Grupo de Estudos e Pesquisas em Etologia e Ecologia Animal, Departamento de Zootecnia, Faculdade de Ciências Agrárias e Veterinárias, UNESP, 14.884-900, Jaboticabal-SP, Brazil

Song, W. no date. *Animal welfare law and contemporary Chinese legal system.* Law Institute, University of Science and Technology of China

Song, W. no date. *Traditional Chinese culture poses some difficulties for new animal welfare laws.* Law Institute, University of Science and Technology of China

Sundrum, A. 2007. *Conflicting areas in the ethical debate on animal health and welfare.* In: Zollitsch, W., Winckler, C., Waiblinger, S. and Halsberger A. (editors.), *Sustainable food production and ethics.* Wageningen Academic Publishers, 257-262.

Sundrum, A., Vaarst, M., Arsenos, G., Kuzniar, A., Henriksen, B.I.F. , Walkenhorst, M. and Padel, S. no date. *Recommendations to the formulation of EU regulation 2092/91 on organic livestock production.*

2. DOCUMENTS SUBMITTED IN RESPONSE TO THE FAO CALL FOR INFORMATION

CIWF. 2008. *The impact of livestock farming: solutions for animals, people and the planet.* Compassion in World Farming, Godalming, U.K.

CIWF. 2008. *Global warning: climate change and farm animal welfare.* Executive summary. Compassion in World Farming, Godalming, U.K.

D'Silva, J. 2008. *Sustainable Agriculture.* Compassion in World Farming, Godalming, U.K.

FAI/WSPA. 2008. *Model Farm Project.* Food Animal Initiative, World Society for the Protection of Animals. London, U.K.

FAI. no date. *Outcome measures.* Food Animal Initiative, UK

Farrel, D. no date. *The future eaters.* School of Land, Crop and Food Sciences, University of Queensland, Brisbane, Australia

HIS. 2008. *Animal Welfare, International Trade and Sustainable Development - Improving the Lives of Animals, Farmers and Communities.* Humane Society International, Washington, USA

IWGAID. 2008. *Protecting animals from disasters.* International Working Group on Animals in Disasters.

McLeod, A., Thieme, O. and Mack, S. D. no date. *Structural changes in the poultry sector: will there be smallholder poultry development in 2030?* Animal Production and Health Division, FAO, Rome

Ransom, E. 2007. The rise of agricultural animal welfare standards as understood through a neo-institutional lens. *International Journal of Sociology of Food and Agriculture* – Vol. 15(3), December 2007

RSPCA/Eurogroup for Animal Welfare. no date. *Developing animal welfare: the opportunities for trade in high welfare products from developing countries.* Royal Society for the Prevention of Cruelty to Animals, Horsham, U.K. and Eurogroup for Animal Welfare, Brussels, Belgium

The Brooke. 2008. *Bearing and heavy burden.* The Brooke, London, U.K.

The Brooke/CIWF/Eurogroup for Animals/HIS/RSPCA/WSPA. no date. Joint position statement of animal protection NGOs on farm animal welfare. The Brooke, London, U.K., Compassion in World Farming, Godalming, U.K., Eurogroup for Animals, Brussels, Belgium, the Humane Society of the United States and Humane Society International, Washington, USA, the Royal Society for the Prevention of Cruelty to Animals, Horsham, U.K. and the World Society for the Protection of Animals, London, U.K.

Zapata, B., Bonacic, C. no date. *Bienestar animal en camelidos sudamericanos: experiencias prácticas.* Facultad de Ciencias Veterinarias y Pecuarias, Santa Rosa 11735, Chile

WSPA. 2007. *Industrial Animal Agriculture Part of the Poverty Problem.* World Society for the Protection of Animals. London, U.K.

Appendix D

List of relevant events to promote capacity building related to animal welfare

Global Dairy Congress

International Dairy Federation World Dairy Summit

International Dairy Federation World Dairy Congress

World Meat Congress

World Poultry Congress

World Pork Congress

World Farmers' Congress

Young Farmers World Congress

World Conference on Animal Production and Safety Inspection of the Ministry of Agriculture since 2005.

Annual Meeting of the European Association for Animal Production

International Society for Animal Hygiene Congress

World Veterinary Congress

PANVET Congress of Veterinary Science

Annual Meeting of the Animal Production and Health Commission for Asia and the Pacific

FAO Regional Conferences

Conferences of the OIE Regional Commissions

Appendix E

Background considerations

I. THE FIVE FREEDOMS

1. Freedom from hunger and thirst by ready access to fresh water and a diet to maintain full health and vigour.
2. Freedom from discomfort by providing an appropriate environment including shelter and a comfortable resting area.
3. Freedom from pain, injury or disease by prevention or rapid diagnosis and treatment.
4. Freedom to express normal behaviour by providing sufficient space, proper facilities and company of the animal's own kind.
5. Freedom from fear and distress by ensuring conditions and treatment which avoid mental suffering.

Source: FAWC (2008).

II. WELFARE CRITERIA IDENTIFIED BY THE WELFARE QUALITY PROJECT

1. Animals should not suffer from prolonged hunger
2. Animals should not suffer from prolonged thirst
3. Animals should be comfortable, especially within their lying areas
4. Animals should be in a good thermal environment
5. Animals should be able to move around freely
6. Animals should not be physically injured
7. Animals should be free of disease
8. Animals should not suffer from pain induced by inappropriate management
9. Animals should be allowed to express natural, non-harmful, social behaviours
10. Animals should have the possibility of expressing other intuitively desirable natural-behaviours, such as exploration and play
11. Good human-animal relationships are beneficial to the welfare of animals
12. Animals should not experience negative emotions such as fear, distress, frustration or apathy

Source: Welfare Quality Project (2007)

III. DEFINITION OF ANIMAL WELFARE ADOPTED BY THE WORLD ORGANISATION FOR ANIMAL HEALTH

“Animal welfare” means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress. Good animal welfare


requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter/killing. "Animal welfare" refers to the state of the animal; the treatment that an animal receives is covered by other terms such as animal care, animal husbandry, and humane treatment.

Source: OIE (2008)

IV. THE MILLENNIUM DEVELOPMENT GOALS


1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

Source: United Nations (2008)



Animal welfare is coming to be recognized as highly relevant to success in international development. It is integral to programmes to improve animal health, to develop livestock production, to respond to natural disasters where animals are involved, and to improve the fit between the genetic constitution of animals and the environments in which they are kept.

Aware of the above, FAO has decided to give more explicit and strategic attention to animal welfare and to guide its activities, it has convened an Expert Meeting to provide specific advice on 'Capacity building to implement good animal welfare practices'. The strenuous and collaborative work of the experts, together with resource persons from the main relevant institution involved in animal welfare and FAO staff, resulted in this report.



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