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## Trends in the Livestock Sector

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### Learning Objectives: Understanding

- The critical issues confronting the livestock sector
- The main trends in the livestock sector and their background

The wise management of the world's agricultural biodiversity is becoming an ever greater challenge for the international community. The livestock sector in particular is undergoing dramatic changes as large-scale production expands in response to the surging demand for meat, milk and eggs.

Jacques Diouf, FAO Director General  
(FAO, 2007)

One of the greatest challenges for humanity in the next decades is to maintain natural reserves in a world with a constantly increasing number of people. From the estimated 6 billion inhabitants in 1995, it is believed that there could be an increase of up to 8 billion around 2020, of which 40% will live in urban zones with a tendency of increased consumption of products of animal origin, especially meat. Global meat production tripled from 47 to 139 million tonnes per year between 1980 and 2002. As livestock production shifts into more high-input systems, it will place more pressure on arable land for the production of feed (FAO, 2008).

Today, most of the 640 million small-holders and 190 million pastoralists that are

raising livestock are faced with rapidly changing socio-economic and ecological conditions. These include increased drought, floods and other effects of climate change, or social change because of out-migration of youth, as well as increased marketing opportunities for livestock products because of a growing urban population.

### Three Critical Issues

Three critical issues are confronting the sector (FAO, 2009b):

#### **Increasing pressure on ecosystems and natural resources – land, water and biodiversity**

The livestock sector is only one of many sectors and human activities are contributing to the pressure. In some cases, its impact on ecosystems is out of proportion with the economic significance of the sector. At the same time, the sector is increasingly facing

natural-resource constraints and growing competition with other sectors for a number of resources. Awareness is also increasing of the interactions between livestock and climate change, with the livestock sector both contributing to it and suffering from its impacts. Conversely, it is also being recognized that the sector can play a key role in mitigating climate change.

### **The globalization of food systems**

An increasing flow of technology, capital, people and goods, including live animals and products of animal origin are moving around the world. Increased trade flows, along with the growing concentration of animals, often in proximity to large human populations, have contributed to increased risks of spreading of animal diseases and to a rise in animal-related human health risks globally. At the same time, inadequate access to veterinary services jeopardizes the livelihoods and development prospects of many poor livestock holders throughout the developing world.

### **Social implications of the structural changes in the sector**

There are presently nearly one billion people who are undernourished. In facing this reality, more attention is being turned to smallholder farming. The social implications of the changes in food systems and the livestock sector need to be clarified. How can the livestock sector contribute more effectively to alleviating poverty and ensuring food security for all? Has the rapid development of the sector in many countries benefited smallholders, or are they being increasingly marginalized? If so, is this inevitable, or can the poor be brought into the process of livestock development?

### **General Trends**

In addition to these critical issues, we can see the following trends in the livestock sector (FAO, 2009b):

- Large-scale production is rapidly expanding in response to surging demand for meat, milk, eggs and other products of animal origin. This is also known as ‘the Livestock Revolution’ and is based on rapid urbanization and increased purchasing power in many societies. The livestock sector is rapidly moving towards intensive and specialized systems, in which the production environment is controlled and aimed at maximum productivity per animal. Intensification is accompanied by the scaling up of production. This is combined with the globalized trade of animals and livestock products. These intensive and industrialized production systems contribute to meeting most of the growing demand for livestock-derived food. However, this focus on industrialization and globalization of livestock marketing also tend to influence the opportunities of poorer livestock keepers, often in a negative way.
- Increasing international trade as well as the rise of large retailers and integrated food chains are other important drivers of change in the livestock sector. This is a fairly recent phenomenon in developing countries. These include international market changes for animals and animal products; vertically integrated market changes, often created by foreign direct investments; influences of the local markets by globalization; and increasing local markets.
- Changing natural environments, such as recent changes in climate, have already affected biodiversity and ecosystems, especially in dryland environments. It is predicted that this degradation of ecosystems could be significantly worse during the first half of this century and be a barrier to achieving the Millennium Development Goals. The livestock sector will be affected, especially the pastoralist systems. The negative effects of climate change on extensive systems in the drylands are therefore predicted to be substantial.
- Technological advances are another driver of change. Advances in transport, cooling systems and communication

have promoted the expansion of global markets and facilitated the spread of production systems in which livestock are often raised some distance from their source of feed. Other technological advances include biotechnologies (artificial insemination and embryo transfer) and gene-based selection.

- Public policies as well as formal education and research are forces that add to the drivers presented above.
- The emergence of new and virulent animal diseases and their control measures has largely influenced the opportunities of small-scale livestock keepers in many countries. Examples include foot-and-mouth disease, hog cholera and more recently highly pathogenic avian influenza (HPAI, bird flu). Recent years have seen a number of serious epidemics, which have led to the loss of production and death of millions of animals. For example, the HPAI outbreak in 2003/2004 resulted in the slaughter of 30 million chickens in Thailand, amounting to approximately 29% of the country's native chicken population. Efforts to control the disease include the establishment of 'poultry-free zones' around large-scale production units, which inhibit the opportunities for local small-scale chicken production (see also Geerlings, 2007).
- Disasters and emergencies, such as drought, famine, floods, hurricanes, earthquakes, war and civil unrest, have devastating impacts on lives and livelihoods. The frequency of many types of disaster is increasing. The impact of such events on the livestock sector is not well documented. Food aid and restocking activities are not always appropriate to the local situation. Experience has shown that post-disaster restocking activities need to be carefully considered if they are to be well integrated and not to have an adverse effect on animal genetic diversity and the needs of the intended beneficiaries.
- Local animal breeds are threatened with extinction. A heavy reliance on just a few breeds of farm animal species, such as high-milk-yield Holstein-Friesian cows, egg-laying White Leghorn chickens and fast-growing Large White pigs, is happening while there is the loss of an average of one livestock breed every month. This is also called the 'Livestock Meltdown'. There is, therefore, an international call for *in situ* (farm raising) and *ex situ* (cryo-preservation) conservation activities of local, heritage and rare breeds.
- Average human food intake increases but hunger remains. According to FAO studies, under 'business as usual' the undernourishment in people's diet will decline from 20% in 1992 to 11% in 2015, but reductions in absolute numbers of undernourished people will be modest; from 776 million in 1992 to 610 million in 2015; far from meeting the World Food Summit target.
- The privatization of veterinary services in the developing world is taking place, whereas veterinary care, especially to the poorest livestock keepers in marginalized regions, is lacking. In the 1990s, when privatization was the buzzword, many countries commercialized the provision of livestock services, such as vaccinations, consultancy and training. This has had a major impact, especially on the poorer sections of society, and has given rise to many debates.
- Some argue that private markets serve people's individual needs best. For livestock services, this means that private providers are most efficient at delivering services such as artificial insemination and clinical veterinary care ('private good' services). Others argue that pushing veterinarians into privatization leads to less accountability and not more, because they are forced to practise 'health for profit' and not 'health for all'. Democratizing the services would involve decentralized governance, appropriate extension work, prevention, accountability and transparency to farming communities. This demands greater public investment and not less, to enable a more effective and farmer-owned 'free' service (Ahuja and Ramdas, 2010).
- The commercialization and over-exploitation of medicinal plants and

the growing interest in alternative treatments has resulted in the hunt for potentially useful indigenous knowledge. Firms and research groups seek to patent ingredients or preparations, and remedies are commercialized by outsiders, often bypassing the communities that developed them. These developments have resulted in the overuse of selected medicinal plants, while local communities have rarely benefited from the use of their knowledge and plants by outsiders.

- There is increasing concern and criticism on uncontrolled market forces, both in developed and developing countries and the effect of the above-described trends in relation to the environment, poverty alleviation and MDGs, animal genetic resources, and animal wellbeing, to name but a few. This concern comes from civil society organizations as well as UN organizations and governments. The FAO of the UN, for example, is designing global guidelines to secure valuable animal genetic resources. Alternatives are posed in many ways, e.g. in the form of the slow food movement, consumer-producer alliances, (re-)diversification of agriculture and endogenous development. In higher policy levels, and in spite of the concern expressed, these alternatives are not yet taken into account in a serious way.

## Other Trends

### Land grabbing

Since the beginning of 2009, large-scale acquisitions of farmland in Africa, Latin America, Central Asia and South-east Asia have made headlines in a flurry of media reports across the world. Lands that only a short time ago seemed of little outside interest are now being sought by international investors to the tune of hundreds of thousands of hectares. This is a hot issue because land is so central to identity, livelihoods

and food security. Several factors seem to underpin these land acquisitions. These include food security concerns, particularly in investor countries, which are a key driver of government-backed investment (Cotula *et al.*, 2009). Government-backed deals can also be driven by investment opportunities rather than food security concerns.

In addition, global demand for biofuels and other non-food agricultural commodities, expectations of rising rates of return in agriculture and land values, and policy measures in home and host countries are key factors driving new patterns of land investment (Mathias, 2007).

For people in recipient countries, this new context creates risks and opportunities. Increased investment may bring macro-level benefits (such as GDP growth and improved government revenues), and may create opportunities for economic development and livelihood improvement in rural areas. However, as governments or markets make land available to prospecting investors, large-scale land acquisitions may result in local people losing access to the resources on which they depend for their food security – particularly as some key recipient countries are themselves faced with food security challenges.

While there is a perception that land is abundant in certain countries, these claims need to be treated with caution. In many cases, land is already being used or claimed – yet existing land uses and claims go unrecognized because land users are marginalized from formal land rights and access to the law and institutions. Even in countries where some land is available, large-scale land allocations may still result in displacement as demand focuses on higher value lands (e.g. those with greater irrigation potential or proximity to markets).

### Expansion of rights-based approaches

Livestock Keepers' Rights and Bio-cultural Community Protocols (BCPs) have come up over the past few years to provide livestock-keeping communities the opportunity to document and showcase their role in the

management of animal genetic resources and agro-ecosystems. Indigenous and local livestock keepers have been recognized as 'Guardians of biodiversity' (FAO, 2009a). Community Protocols (CPs) are increasingly recognized by biodiversity conventions, and are now part of the Nagoya Protocol on Access and Benefit Sharing that was adopted at the COP 10 of the UN Convention on Biological Diversity in Japan, October 2010. This means that within 2–5 years the national governments will start using CPs in their strategies to promote biodiversity. BCPs are promoted to include the cultural elements in this effort (LPP and LIFE Network, 2010; Compas, 2010).

#### **Increased problems with multi-resistant microbe strains**

A series of complicated problems with the resistance of bacterial pathogens to commonly used antibiotics has evolved, especially within the intensive livestock production systems. A part of this is blamed on the widespread use of antibiotics for disease prevention and growth promotion. In some countries, it is alleged that intensive pig production has led to the development of multi-resistant *Staphylococcus aureus* (better known as MRSA) in the human population and has caused major problems and costs within hospitals. The use of antibiotics for growth promotion is now prohibited within the EU. More recently, a multi-resistant component that can move from one microbe to the other – also called extended-spectrum beta-lactamase-producing microbes or ESBL – has been identified, which is linked to excessive antibiotic use in intensive chicken production. This threat is now also growing on a worldwide scale (Kumarasamy *et al.*, 2010). Indiscriminate use of antibiotics in smallholder systems contributes to further this problem.

#### **Renewed interest in traditional practices – ethno-veterinary medicine**

Around the globe, traditional animal health care approaches are having a comeback,

triggered by an increasing recognition of their value and the need to reduce the heavy use of commercial products in veterinary medicine and agriculture. In 1986, McCorkle coined the term 'ethno-veterinary medicine' for such approaches and – together with other scientists and development practitioners – advocated for their enhanced use in development. Since then, the number of studies, projects, documents and theses on ethno-veterinary medicine has been steadily increasing, both in developing and developed countries (FRLHT and Tanuvus University, 2010). A comprehensive book on *Ethno-veterinary Botanical Medicine* was published in April 2010 (Katerere and Luseba, 2010).

However, veterinary faculties have been slow in picking up on this trend, offering information on medicinal plants at best. Ethno-veterinary medicine has much more to offer. A systematic integration of ethno-veterinary practices and information into veterinary curricula and education would not only widen the spectrum of prevention and treatment choices, it could also deepen the understanding of and respect for health care approaches of communities and make veterinary services in marginal areas more appropriate to the needs of livestock keepers. Plus, it would cater to the increasing demand among clients for alternative health care approaches (Mathias, 2010).

#### **One Health – One Medicine Approach**

It is becoming much more evident that human health, animal health, public health and environmental health are all connected (ILRI, 2008). This recognition has led to the emergence of an initiative that is variously called as One Health or One Medicine, and is bringing practitioners of each field together. One Health may seem far removed from the low-input livestock systems; however, it has immense implications in villages with limited resources, especially related to the control of zoonotic diseases. When veterinary and human health services join forces, for example, vaccinations

against rabies can be more efficient, covering dogs and cattle in one community at the same time (Be.Troplive, 2010).

Zoonotic diseases might take epidemic (e.g. rabies, Rift valley fever) or endemic forms (e.g. brucellosis, echinococcosis). Whereas emerging and epidemic zoonoses usually attract much interest, endemic zoonotic diseases rarely give rise to

collaboration between the medical and veterinary professions, especially in developing countries. In fact, these are the neglected zoonotic diseases, officially recognized as such by the World Health Organization (WHO, 2005). There is a clear need for more intense collaboration between human and animal health professionals in the control of these diseases.

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