

# Livestock matter

Livestock are critical to building sustainability in food and agriculture. Current and future livestock sector development needs to produce more, from less, and in ways that benefit all. Solving the sector's challenges requires stakeholders to find common ground and to join forces towards continuous practice change. The Global Agenda for Sustainable Livestock is one example of these new ways of working.

Livestock and livestock products are criticised for contributing to unhealthy diets, climate change and competition over grains. Mixed with concerns about animal welfare and a recent string of food safety scandals, it sometimes appears that the world would be better off without livestock.

The opposite is true. We need livestock, animals that we use for food and other products and as a component of mixed farming world-wide. By turning our attention away from livestock, we risk missing out on large development opportunities.

The vast diversity in livestock systems world-wide and the different demands and expectations placed on the sector have contributed to the difficulties for public policy in comprehensively addressing the sector. This diversity has also added to a poor understanding of how the sector, given an increasing world population, growing scarcity of natural resources and accelerating climate change, can best contribute to the world's need for sustainable food and agriculture.

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**Henning Steinfeld**  
*Henning.Steinfeld@fao.org*

**Jeroen Dijkman**  
*Jeroen.Dijkman@fao.org*

*Food and Agriculture Organization  
of the United Nations (FAO)  
Rome, Italy*

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## ■ Food security and livelihoods

Traditionally, livestock has served to turn resources that humans can't use directly, such as grazing and crop residues, but also agro-industrial by-products and diverse forms of waste, into valuable products and services. Even today, this continues to be the case: more than 80 per cent of all livestock feed is not edible by humans. In many countries, livestock are making large net contributions to food supply. In India alone, the net protein supplied by the dairy sector (edible protein provided by livestock minus edible protein fed to them) meets the protein requirements of 150 million people.

Consumption of meat, milk, and eggs is growing rapidly in many developing countries, driven by growing populations, rising incomes and urbanisation. These richer diets are welcome because livestock products provide micronutrients such as vitamin A and B12, riboflavin, calcium, iron and zinc, which are critical to growth and development in humans. However, in many developed countries, and increasingly also in developing countries, people are consuming in excess of their needs.

The livestock sector creates livelihoods for an estimated one billion people. For them, livestock constitute a productive asset and often the only form of income. Livestock provide not only food, but other products like leather or wool, traction and manure as well. They increase and stabilise

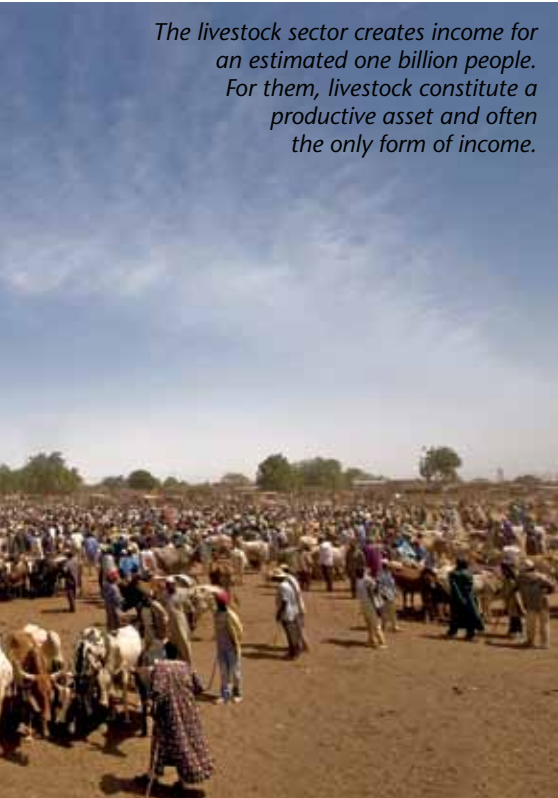


Photo: N. Palmer for FAO/PLPI

rural incomes. No other sector contributes so strongly to the lives and livelihoods of the most marginalised people. Many of them are poor and live in marginal areas, with low education and poor health. Here, improving livestock production, for example through vaccinations and better feed, can make critical contributions to nutrition and incomes. More commercialised livestock operations provide employment, and are a growth component of many rural economies, often with few other options.

Livestock account for about 40 per cent of global agricultural gross domestic product. Whilst the continuous growth of the sector undoubtedly offers many opportunities, its intensification and specialisation may also lead to the marginalisation of those that cannot take part in this growth. This contributes to a further erosion of the rights of indigenous people and contributes to the use of child labour in certain livestock production systems. Value chain development, however, can also remove barriers for some smallholder producers to enable access to more lucrative markets and contribute to more equitable growth. An im-

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portant part of the livestock sector's contribution to growth requires incentives and institutions that increase market participation by smallholders.

### ■ Natural resources and climate change

Livestock's environmental impact looms large. The livestock sector is the world's largest user of agricultural land, through grazing and the use of feed crops, and plays a significant role in climate change, management of land and water, and biodiversity. Growing demand is mostly met through intensification, leading to industrial-type modes of production that are productive in the use of feed and animals, but often have negative social, environmental and animal welfare implications.

Twenty-six per cent of all land is used for grazing, and 33 per cent of cropland is used for cultivation for livestock feed. Livestock production is also often implicated as a significant source of water pollution, particularly from confined types of production. The sector contributes an estimated two thirds

of all agriculture's climate emissions, but large potential exists to reduce the emission intensity of the sector through resource use efficiency gains, in addition to significant carbon sequestration potential as part of the many ecosystem services the sector may provide. Wider adoption of existing good practices and technologies in feeding, health and husbandry, and manure management – as well as greater use of currently underutilised technologies such as biogas generators and energy-saving devices – could help the global livestock sector significantly cut its outputs of global warming gases.

Livestock manure is often an important input to maintaining soil fertility, and so contributes to greater crop production for food and income, lowering the need or purchase of synthetic fertilisers. In some areas, dung is also used as a fuel. Dung for fertiliser, fuel, and building material is often a marketable commodity. In these systems, cattle, and other animals, also often provide traction for transportation and crop production, for domestic use and for hire.

Crop and pasture expansion into natural ecosystems has contributed to livestock production growth and will continue in the future. Most expansion arises through the clearing of forests, resulting in losses of environmental goods and services, including stored carbon, biodiversity, water, and air quality – however, such expansion has been much reduced recently through more effective policies, for example in Brazil.

Payment for environmental services (PES) is a potential tool for increasing the value of livestock production systems. Currently, however, in many developing country contexts, where there are market imperfections, land tenure issues and broader development needs of land users, conditional payments for environmental services may be less relevant than more general investments in production systems and livelihoods.

Livestock is often instrumental in landscape management and in enhancing biodiversity in numerous set-

tings, although it has also been indicated to pose a threat to biodiversity in 40 per cent of all ecoregions. Biodiversity of animals – and domestic animals in general – appears to be under threat in countries where breeding policies and subsidies may restrict the choice of breeds. And whilst genetic similarity has been an important factor in advances made in resource use efficiency, the maintenance of genetic diversity will be key to livestock's role as a tool of adaptation in a context of ever-evolving production, disease, and climate threats.

### ■ Health and disease

Producing with animals and the perishability of most livestock products also puts special demands on their marketing and preparation to prevent contamination and other food safety risks. For the poor people in developing countries, food-borne disease is frequent and generally under-reported.

The widespread use of antimicrobial drugs for preventive measures or as growth promoters is of mounting concern. Inappropriate use may contribute to increasing microbe resistance, which makes these drugs ineffective in treating infectious diseases or parasitic infections in humans and animals. The use of such drugs has grown as livestock systems are intensifying around the world. Residues harmful to consumers can also be an issue in certain types of production systems.

Intensive large-scale production often involves the geographical clustering of genetically similar animals. Strong biosecurity and health protection regimes generally prevent infectious disease problems, but major outbreaks occur when a pathogen evolves to a higher virulent form, eludes the vaccine used, acquires resistance to antibiotics, or enters undetected into the food chain. Smallholder livestock systems – which tend to involve animals roaming freely over large areas, but still in relatively high densities – also facilitate disease spread, both among local animal populations and

over large distances. Livestock connect wildlife and environmental health to human health, and are an important element in disease emergence and transmission. Seventy per cent of all new human diseases originate from animals, mostly from wildlife.

Well-known diseases also continue to cause large losses to production and livelihoods. Outbreaks of notifiable diseases disrupt international trade and prevent access to more lucrative markets. In addition, such events often have concomitant disastrous knock-on effects on closely linked industries and activities. Livelihood strategies driven by poverty and desperation that contribute to pollution hotspots, and the incubation of microbes and increased distribution of insect vectors due to climatic changes have a growing effect on both human and animal disease outbreaks. The poor often bear a disproportionately high share of the burden of (zoonotic) disease because of their close contact with livestock in unsanitary conditions. We are more in contact with animals than ever before, and livestock and wildlife are more in contact with each other. It is thus time to acknowledge the degree to which our health is connected to the health of animals and the environment.

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## ■ The challenges

With global population projected to reach 9.6 billion in 2050, the livestock sector's role in providing high value food will continue to increase. At the same time, the natural resources that sustain agriculture, such as land and water, are becoming scarcer and are increasingly threatened by degradation and climate change. Climate change, changing ecologies, increasing travel and trade, and the co-existence of traditional and modern livestock production, are also growing animal health risks. How can we address these challenges?

**First**, we need to seize every opportunity to reduce poverty and stabilise livelihoods through livestock. Better access to productive resources, combined with services and innova-

tion, can provide viable and inclusive growth enabling the poor to participate in growing markets or take up opportunities outside the livestock sector. Offered more income alternatives, many smallholders and pastoralists have chosen to exit the livestock sector, while others will continue to keep livestock for subsistence needs. Still, large numbers of them manage to intensify and commercialise their operation, as demonstrated by successful small-scale dairy development in South Asia and East Africa, for example.

**Second**, there is a need for inclusive approaches to managing disease threats at the animal-human-environment interface that involve producers at every level in the development and implementation of animal-disease and food-safety programmes.

**Third**, we need to improve the efficiency of the use of natural resources. FAO's analysis shows that there are huge efficiency gaps which can be profitably bridged using existing technology. Current productivity is still very low in many parts of the world. Incentives are needed to induce livestock keepers and resource managers to adopt better practices. Innovation and technology adaptation play a large role in making livestock more resource-efficient. Preferably, livestock production should be based on materials not competing with direct use as food.

**Fourth**, the potential of livestock to contribute to the protection of natural resources is huge and much under-utilised. Climate gas emissions can be reduced substantially, and grasslands can sequester carbon, provide water resources and enhance biodiversity. Exploiting these opportunities can also provide new income to smallholders and pastoralists. Livestock can be a powerful tool in climate change adaptation, too. Through its capacity to turn vast amounts of low value resources and agricultural and food industry waste into desired products, and through its flexibility, by contracting and expanding, and by geographical shifts, the livestock sec-

tor provides an important buffer in global and country food systems. As we have entered a period of accelerating climate change, such capacity will be even more important.

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## ■ The Global Agenda for Sustainable Livestock

In pursuing sustainability in the livestock sector, we need to recognise the different demands and expectations placed on it and the vast diversity of livestock systems world-wide. The multiple social, environmental and health aspects of sector development need to be dealt with in a dynamic, integrated and inter-disciplinary manner. Given the size and complexity of the task, joining forces is a necessity. FAO and its partners are, therefore, working together in new ways to address these challenges, for example through FAO's leading role in the Global Agenda for Sustainable Livestock.

The Agenda partnership unites the forces of the public and private sectors, producers, research and academic institutions, NGOs, social movements, and community-based organisations. The Agenda builds consensus on the path towards sustainability and catalyses coherent and collective practice change by (i) building relevant, co-constructed and accessible evidence; (ii) engaging stakeholders in dialogue to build common understanding and joint action; (iii) developing innovative approaches and solutions; and (iv) formulating tools and levers to enable and incentivise changes in food and agricultural systems.

The partnership ([www.livestock-dialogue.org](http://www.livestock-dialogue.org)), built jointly from 2010, has identified common ground and increased global awareness on the development issues underlying sustainable livestock sector development.

Finding solutions for the sector to produce more, from less, in ways that benefit all, requires the integration of perspectives across scales and actors and a focus on incentives and innovation for practice change. Sustainable development depends on it.