

# ANIMAL HEALTH AND THE MILLENNIUM DEVELOPMENT GOALS



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

**Animal Production and Health** Division





## THE LIVESTOCK SECTOR AND RURAL LIVELIHOODS

FAO focuses in particular on MDG1 (Eradicate extreme poverty and hunger), MDG3 (Promote gender equality and empower women), MDG7 (Ensure environmental sustainability) and MDG8 (Develop a global partnership for development)

Livestock accounts for 40 percent of the global value of agricultural output, employs approximately 1.3 billion people and supports the livelihoods of almost a billion extremely poor people (those living under 'a-dollar-a-day'). It is an integral part of mixed farming systems: raising farm productivity and contributing to food/nutrition security through access to high-quality food providing protein and vital micro-nutrients. In developing countries 90 percent of milk and 70 percent of ruminant meat are estimated to be produced in such systems, as are over one-third of pig and poultry meat, and eggs. Livestock generate up to one-third of farm income, making a significant contribution to the livelihoods and income of the poor. (Source: Costales, Pica-Ciamarra and Otte, FAO, 2007).

Livestock enhance food security in households as an asset, a safety net to be sold for income or consumed in times of crisis, as collateral for credit, or an investment which can lead to higher incomes through increases in productivity and diversification of income sources. A 2009 FAO survey of 14 countries, showed that an average of 60 percent of rural households keep livestock, with a significant share of outputs sold and contributing to household cash income, for example for purchasing lower-cost staple foods.

The sector is undergoing rapid growth, and technological and structural change, in particular a move from smallholder mixed farms to specialised industrial production systems. Since 1961 per capita egg consumption in developing countries has increased fivefold and meat consumption threefold (Source: FAO, 2009). Rising demand will lead to increased livestock populations: from 1.5 billion to 2.6 billion cattle, and 1.7 to 2.7 billion goats and sheep, by 2050 (Source: FAO, 2009), creating both opportunities for poverty reduction, food security and economic growth, and threats to livelihoods, with human health and environmental risks.

Livestock can provide a pathway out of poverty for smallholders and associated low-income actors in livestock value chains, while also contributing to food/nutrition security by providing access to high-quality food, thereby helping to eradicate extreme poverty and hunger (MDG1). Furthermore, improving the resource-use efficiency of livestock production can play a significant role in increasing sustainability of natural resource-use, and protecting and promoting biodiversity (MDG7).

## CASE STUDY 1

### MDG 1: THE LIVESTOCK SECTOR AND ECONOMIC GROWTH

A recent study found a statistically significant causal relationship between economic growth and livestock sector productivity growth in 36 out of 66 developing countries examined. Most of the 36 countries are agricultural-based or transforming economies, and in 33 of the 36, livestock sector productivity appears to have been a driver of per capita GDP growth.

The study indicates that increased agricultural productivity as a driver of economic growth in developing countries also applies to the livestock sector, reducing food prices for consumers, increasing incomes for producers, and creating growth multiplier effects through the rest of the economy, as demand for other goods and services increases. This implies that a vision of the livestock sector as primarily driven by external factors may mislead policy development: while policies that enable smallholders to sell profitably in high-value markets may be important, policies addressing the fundamental constraints to the development of the livestock sector may be equally important. Thus, policies aimed at improving smallholder livelihoods should not focus only on

improving access to output markets but also on the supply of good quality production inputs and services (Source: Pica, Pica-Ciamarra and Otte, FAO, 2008).

In Viet Nam, economic progress over the last decade has been accompanied by significant growth in domestic livestock production (led by population growth and higher demand): pork – 120 percent; poultry – 130 percent; beef – 25 percent; and milk – 220 percent. Growth has been in the domestic market and over 60 percent, and in some regions 90 percent, of rural households own livestock, which has contributed to an improved standard of living for 50 percent of rural households (Source: IFPRI, 2002), and potentially has large primary and secondary household income effects. During the same period the trade balance in livestock products has deteriorated. Smallholder productivity increases, price increases (based upon value creation and quality) and reductions in production cost (based upon market access and information), can make a substantial contribution to poverty alleviation and economic growth. (Source: Otte, Roland-Holst & Do Anh Tuan, FAO, 2010).

## CASE STUDY 2

### MDG 1/6: THE GLOBAL RINDERPEST ERADICATION PROGRAMME (GREP)

Rinderpest once the most dreaded disease for cattle, has a history of epidemics causing devastating depopulations of livestock and wildlife in Europe, Asia, Middle East and Africa.

GREP was launched in 1994 as an international coordination mechanism to promote eradication (and disease-free certification) of the virus by 2010. The programme was supported by USAID, DFID, the EC, and the Irish and Italian governments; and through FAO's Technical Cooperation Programme (TCP), which funds rapid outbreak control, promotes diagnostic capacity, and coordinates preparedness planning, surveillance and capacity development.

The programme enhanced understanding of disease epidemiology; developed appropriate techniques, strengthened national laboratory services and assisted

national veterinary services in surveillance; coordinated regional/international campaigns; developed effective strategies to respond to re-introduction of the disease; established/developed regional approaches and networks of laboratories and epidemiological units; provided vaccines and coordinated campaigns among cattle and buffalo; and safeguarded the virus from accidental escape from laboratories/vaccine manufacturing places.

The most recent outbreak was reported in 2001, and FAO concludes that all rinderpest virus lineages are extinct. Most countries are now internationally recognised as rinderpest-free and in October 2010 FAO's Director-General is expected to announce the end of field operations in support of country dossier preparation for submission, prior to full announcement of eradication in 2011.



## **ANIMAL DISEASE PREVENTION AND CONTROL**

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Animal disease affects the amount, timing and stability of income for livestock producers, reduces production and productivity, disrupts trade, deprives small producers of access to credit to buy animals, and thereby exacerbates poverty. Poor people are more likely to experience health problems caused by contact with animals, and those employed in the intensive production sector are at risk of unemployment when disease outbreaks occur. At the biological level, pathogens compete for the productive potential of animals and reduce the share that can be utilized for human ends. A sick animal produces less milk, meat and eggs, provides less draught power, and poorer quality food.

The economic impact of recent diseases includes: severe acute respiratory syndrome (SARS), US\$ 30-50 billion; highly pathogenic avian influenza (HPAI), US\$10 billion; bovine spongiform encephalopathy (BSE) in the EU, in the 1990s, 92 billion Euros, and US\$11 billion – and rising – in the United States in 2003; and CBPP which affects cattle, US\$45 million annually in lost productivity in Africa. Other livestock diseases include classical swine fever (CSF), with estimated losses of US\$2.34 billion in the Netherlands, in 1997-98; and FMD with losses of up to US\$ 45 billion in the UK in 2001, and US\$ 350 million in Japan in the first few weeks of the 2010 outbreak (Source: The State of Food and Agriculture, FAO, 2009). As early as 1994, FAO established the Emerging Disease Prevention System (EMPRES) to enhance early warning, detection and response to animal disease.

Animal diseases can be reduced or prevented through enhanced animal health at the farm level, which depends on a package of husbandry practices, comprising balanced nutrition, adequate housing, clinical healthcare, preventive vaccination, and hygiene and biosecurity measures.

FAO's Emergency Centre for Transboundary Animal Diseases (ECTAD) works with national authorities in enhancing disease intelligence, surveillance and emergency response systems; develops the infrastructure and technical capacity of veterinary/animal health services; introduces or updates

legislation; supports public-private sector partnerships; strengthens support for community-level animal health services; and engages stakeholders, including the poor, in decision-making on animal health programmes.

These measures and mechanisms make a significant contribution to achieving the MDGs, not only by helping countries to combat disease, including zoonotic and high-impact animal diseases with a potential to become epidemics or pandemics (MDG6), but also by protecting livestock and minimizing the impact of disease upon the livelihoods and food security of poor households, and thereby addressing extreme poverty and hunger (MDG1). Furthermore, by focusing upon the role of rural women in livestock production, food security, and disease prevention, FAO aims to promote gender equality and economically empower women through provision of additional income (MDG3). Moreover, collaborations and coordination with UN agencies, governments, civil society and the private sector help to enhance the global partnership for development (MDG8), in particular in preventing animal disease, and promoting safe and sustainable livestock production and food security.

### CASE STUDY 3

#### MDG 6/8: THE FAO GLOBAL PROGRAMME FOR HPAI

Following the H5N1 HPAI outbreaks and the rapid spread of the disease in Southeast Asia in 2003, FAO and OIE developed the Global Strategy for the Progressive Control of H5N1 Highly Pathogenic Avian Influenza. This strategy was regularly updated to reflect the evolving disease situation, the latest revision dating from October 2008. The FAO Global Programme for the Prevention and Control of Highly Pathogenic Avian Influenza was the organization's operational plan for the FAO/OIE global strategy. The programme was designed in November 2005 and revised in March 2007 and supported through the commitment by USAID of US\$132.5 million, benefiting more than 90 countries worldwide, more than 60 of which were ultimately affected by HPAI.

The programme was regularly revised to reflect new developments and knowledge, to more holistically address the disease. While the programme emphasised emergency actions to prevent the introduction of HPAI, respond to new incursions, and fight the disease where already present, greater attention was increasingly given to strategic and longer-term issues. These embraced animal health, socio-

economics, biosecurity, farming systems, wildlife and communication, in an integrated and coordinated approach.

The efforts focused on assisting veterinary services to develop preparedness plans, improve surveillance systems, acquire laboratory resources and competence to diagnose disease, and develop response capability. These were led by the Emergency Centre for Transboundary Animal Diseases (ECTAD) established in 2005 to coordinate and manage FAO's response to HPAI and other zoonotic diseases, through mechanisms including the Global Early Warning and Response System (GLEWS), which enables policy makers to make accurate assessments of outbreak risks; the OFFLU Network of expertise on animal influenza; and the Crisis Management Centre – Animal Health (CMC-AH), which deployed rapid assistance missions to more than 20 countries.

A survey conducted in October 2008 among 54 representative countries benefiting from the programme, showed that the vast majority are now better prepared to detect and mount a rapid and effective containment of the disease (and other animal diseases).

### CASE STUDY 4

#### MDG 6: RIFT VALLEY FEVER IN NAMIBIA

Rift Valley fever (RVF) outbreaks occurred in Namibia in May 2010, after an absence of 25 years. RVF is a vector-borne disease causing high rates of abortion and mortality primarily in cattle, sheep and goats; and human illness or death through direct contact with infected animals and

meat, or through mosquito bites. An FAO team was deployed at the request of the government to provide guidance.

RVF was suspected in sheep by veterinary services on 9 May, and detected during inspection at a market abattoir.

Samples from dead, sick and healthy animals were sent to the Central Veterinary Laboratory in Windhoek where the disease was confirmed on 12 May.

Rapid diagnosis and confirmation enabled the veterinary team to immediately implement surveillance surveys in high-risk areas, including farms adjacent to outbreaks, close to water and where animal movement permits had been issued to or from affected farms. Investigations revealed five further positive farms. Control measures were initiated on 14 May to limit the spread of disease and reduce the impact on livestock productivity and trade, including suspension of movement of cattle, sheep and goats from, into, within and through the affected regions; suspension of slaughter at export abattoirs; and sale of animals at auctions.

Outbreaks were controlled and restrictive measures progressively relaxed when results of surveillance confirmed that the disease was confined. Movement and trade bans were relaxed after a few weeks of absence of cases. The alertness and prompt actions of the veterinary services ensured that RVF did not spread and thus minimized its impact upon animals, livelihoods and food security, trade, and human lives. To date no human case has been reported in the country.





## SUPPORTING AN ENABLING POLICY ENVIRONMENT

The speed of transformation of the sector has often outpaced the capacity of governments to improve the policy and regulatory framework; and has occurred largely without sector-specific policies. An enabling institutional and policy environment is essential to create the necessary conditions for development initiatives to address the needs of the poor and contribute to equitable and sustainable development.

FAO assists member states to improve national legislation in relation to animal health and production, food safety, inspection and certification of animal products, compliance with international obligations, and formulate livestock production policies that promote gender equality. Most poor households – including women-headed ones – depend upon livestock as a safety net, thus would benefit from better access to animal-health services, a greater voice in livestock disease-control, and policies which are specifically targeted at improving their livelihoods, and generating opportunities for women, thereby contributing to the promotion of gender equality and empowerment of women (MDG3).

### CASE STUDY 5

#### MDG 1/3: FACILITATING LIVESTOCK TRADE IN WEST AFRICA

FAO's 'Pro-Poor Policy Initiative (PPLPI)', supported by the UK's DFID, has fostered policy and institutional changes in Asia, Latin America and Africa since 2001.

Animal trade and transportation has significantly changed over the last decade. At Pouytenga livestock market in Burkino Faso, transportation times from (Mali, Mauritania and Niger) and to (Benin, Cote d'Ivoire, Nigeria and Togo) neighbouring countries have decreased from up to 45 days to just one day. Cross-border trade is driving the

expansion of the sector, bringing with it heightened threats of transmission of animal diseases, particularly those that are spread though, and thus limit trade; and to the safety of animal products for human consumption. Although rinderpest has been eradicated. African swine fever (ASF), peste des petits ruminants (PPR), foot-and-mouth disease (FMD) and contagious bovine pleuropneumonia (CBPP) are serious threats and in some cases are gaining ground. Rising volumes of trade accelerate the spread of disease when outbreaks occur, and are thus a serious threat to animals,

livelihoods and food security. Moreover, governments react to disease outbreaks in neighbouring countries by banning imports of live animals, thereby causing potentially severe impacts upon trade.

The project worked with the Union Economique et Monetaire Ouest Africaine (UEMOA) in developing a common regional legal framework to protect animal health and enhance and make regional trade in animal and animal products safer, for the benefit of producers, consumers and traders, and to increase the potential for international trade through compliance with international standards and certification requirements.

The project conducted national studies on animal health and food safety to reveal gaps and overlaps in legislation, disease control problems and capacity deficits; compiled and harmonized regional documents with livestock sector participants and animal health experts; and drafted a final legislative framework which was approved and signed by UEMOA's Council of Ministers. Training was provided to boost implementation of the legislative framework, which is currently being introduced at national level in the eight UEMOA member countries. Benefits include easier border trade; enhanced animal health services for poor producers; greater support for community animal health workers in delivery of vaccines; lower prices for livestock products due to expansion of regional trade; improved food safety for consumers; and strengthening of national trader associations. The project has improved food security by increasing and diversifying production at village level. The new framework is estimated to provide benefits to 20 million poor livestock keepers in West Africa. [Source: PPLPI: A Living from Livestock, FAO, 2008].







## RESPONDING TO EMERGENCIES

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Poor smallholder farmers who rely on livestock for their livelihoods are disproportionately affected by emergencies. FAO works to minimize the impact of emergencies on the food and livelihood security of affected populations, design rehabilitation programmes and mobilize funds to implement, in order to restore agricultural and livestock production, strengthen the survival strategies of those affected, and minimize the threat to animals and people from incursion and spread of animal diseases, such as highly pathogenic avian influenza (HPAI), African swine fever (ASF), Rift Valley fever (RVF), foot-and-mouth disease (FMD) and others..

### CASE STUDY 6

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#### MDG 1-FLOODS IN PAKISTAN

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The 2010 floods in Pakistan affected some of the most fertile and productive lands and devastated the livestock and livelihoods of subsistence farmers, creating a major threat to food security at household and national levels.

Livestock makes up about half of agricultural GDP and the government estimates that 1.2 million large animals and 6 million poultry have been lost to date (Source: OCHA Situation Report 17, August 2010). Livestock deaths result in reduced milk and meat production, and draught power, while the replacement cost is equivalent to years of earnings. Millions more require urgent feed, shelter and veterinary support, including vaccination. The loss of draught animal power will severely impact on farmer's production capacity

in the next sowing season (Sept/Oct 2010).

FAO works with national/provincial authorities and other partners in flood-affected districts to assess damage to livestock-based livelihoods and formulate and implement responses to ensure the rapid restoration and recovery of livestock-based livelihoods, including: distribution of emergency feed and essential veterinary supplies, and provision of emergency animal shelter material. FAO also takes steps to prevent diseases spreading among weakened animals. Ensuring livestock survival enables herds to be rebuilt through natural herd increase during the following calving season, while milk production is an indispensable source of food security for vulnerable families.



## CHALLENGES AND FUTURE DIRECTIONS

FAO also makes a significant contribution to the other MDGs through:

**MDG 2:** helping children to receive primary education by encouraging school attendance through support to the establishment of school gardens, including raising ducks, chickens, rabbits and goats; and school-feeding programmes, bringing nutritional benefits to children.

**MDG4:** addressing child mortality through support to countries in reducing child malnutrition, including nutrition education programmes for mothers and care-givers which improve children's dietary intake and are linked to interventions which improve household access to nutritious food, such as small animal-raising. A moderate intake of animal-origin foods provide high-quality protein and micronutrients (more easily obtained than from plant-based foods), including vitamins A and B12, riboflavin, calcium, zinc and iron, which help protect children from anaemia, stunted growth, blindness and rickets, and reduce risk from infectious diseases.

**MDG5:** addressing maternal health by promoting nutrition awareness and household food security; supporting the introduction of labour-saving technologies for women's tasks in livestock production, and food preparation/processing, as a way of improving women's general health; and increasing access to affordable animal-based foods, as a means of providing essential nutrients, such as vitamin B, iron and zinc.

Livestock production places increasing pressures on natural resources. Livestock grazing occupies 26 percent of the world's ice-free land surface (Source: FAO, 2009b); and production of livestock feed uses 33 percent of agricultural cropland (Source: Steinfeld et al, FAO, 2006), potentially resulting in higher prices for staple foods and undermining people's access to food. The expansion of land for such use can result in deforestation, while intensification of livestock production can cause overgrazing, and manure production often exceeds the absorptive capacity of the local area. The livestock sector

accounts for over 8 percent of global water use, including for irrigation of feedcrops, and causes water pollution through animal waste, and the use of antibiotics/hormones, and fertilizers/pesticides for feedcrops. The concentration of animal production in close proximity to human populations increases the risks to human health from animal diseases, which have a heavier burden on the poor, as they live in closer proximity to their animals and have less access to veterinary services. However, many national institutions for disease control have been obliged to respond to an increasing number of crises instead of focusing upon prevention, progressive disease containment, or elimination of emerging diseases before they spread.

Animal diseases have a major impact upon livelihoods and food security and threaten public health, therefore a continued commitment and sufficient resources are essential to minimize this threat. Smallholders need support to take advantage of opportunities provided by an expanding livestock sector. This requires innovation in national/regional/global food and agricultural systems; policy and institutional change; capacity building; access to capital and credit for investment; access to input and output services and markets; and improved transportation and communication infrastructures. Measures must be gender-sensitive and responsive.

However, rural poverty cannot be alleviated through agricultural development alone: the challenge for livestock development is to foster development in rural areas that benefit entire communities, not only those involved with livestock activities. Rural development policies can further facilitate the transformation of the sector by creating alternative opportunities for income generation and employment.

