CONTINUED STRONG GROWTH OF ANIMAL PRODUCTION

In 2050, world meat production is expected to have reached 455 million tonnes (50% more than in 2012) and milk production 1077 million tonnes (45% more than in 2012). Growth in animal production is expected to remain higher than demographic growth. Between 2012 and 2050, consumption per capita is set to rise from 36 to 48 kg per year for meat (+33%) and from 101 to 114 kg per year for milk (+13%) (Alexandratos, N. & Bruinsma J., 2012).

Nowadays, experts agree that the outlook is for strong growth in the supply and demand for animal products worldwide, especially in developing countries, where 80% of the world’s population lives.

In recent years, serious doubts have been raised about the livestock sector’s capacity to meet the challenge of achieving sustainable growth, and to share the benefits, without impacting on climate change. However, field observations, a variety of statistical data, and recent scientific publications, notably those of the Intergovernmental Panel on Climate Change (IPCC), show that the predicted impacts of livestock production on the environment need to be revised downwards, and that by exploiting technological advances livestock production can be compatible with a decrease in greenhouse gas (GHG) emissions and a reduction in the pressure of livestock on natural resources (Caro et al., 2014).

Furthermore, for 90% of poor rural households, representing more than 800 million people worldwide, animals are often the main source of income. They contribute to agricultural production and food security and play an irreplaceable role in risk mitigation strategies (IFAD, 2011; FAO, 2012). However, up to now, poor livestock farmers have not sufficiently benefited from development policies. The presence of numerous, inadequately controlled animal diseases still hampers the efforts of poor farmers to improve the productivity of their animals and, consequently, to improve their living conditions and achieve the sustainable development of livestock production.

In least developed countries (LDCs) and most middle-income countries, greater consideration needs to be given to the interdependence of the economic, environmental and social components of sustainable development, and poor livestock farmers should receive more support so that they can exploit technological advances and take steps towards achieving sustainable production.
Since 2006 and the publication of the FAO report *Livestock’s long shadow*, estimates of GHG emissions from livestock have been revised downwards several times. In 2014, an analysis carried out in accordance with IPCC rules showed that global emissions from livestock represented 9% of total anthropogenic GHG emissions (Caro et al., 2014). If the offsets provided by GHG sequestration in extensive ruminant production systems were taken into account, these estimates would be even lower.

Monogastric animals (pigs and poultry) produce three quarters of the world’s meat and emit 20% of the total amount of GHGs produced by livestock. Ruminants (cattle, sheep and goats) produce 78% of livestock GHGs; this is due to enteric fermentation, a digestion process which enables cellulose to be digested but which produces methane, a gas with a capacity to trap heat that is 25 times greater than that of carbon dioxide (Gerber et al., 2013). However, ruminant production systems have the capacity to sequester carbon and thereby partially offset GHG emissions. In Europe, these offsets are equivalent to between 24% and 53% of cattle emissions (Dollé et al., 2011). Little is known about the level of offsets in extensive livestock production systems in tropical regions. It is likely to be very high, since pastoral grazing of the savannah mitigates the effects of bush fires, thereby preserving young bushes that sequester carbon. Furthermore livestock also eat crop residues which would otherwise be destroyed by fire or by soil fermentation. Moreover, animals provide traction for ploughing and transport for some 2 billion people, thereby reducing the consumption of fossil fuels (Phaniraja & Panchasara, 2009; Dikshita & Birthalb, 2010). Specific studies are now needed to examine how these offsets should be taken into account in GHG emission assessments.

The technical, economic, social and environmental components of sustainable development are interdependent. Better livestock productivity has a unique capacity to accelerate the reduction of rural poverty and is essential for improving the other components of sustainable development (Pica et al., 2008; Xiaoyun Li, 2013).

Statistical analysis has shown strong positive correlations (i.e., the variables vary in the same direction) between variables representing changes in livestock performance and those representing the level of poverty reduction in the major regions of the world. It has also shown strong negative correlations (i.e., the variables vary in the opposite direction) between variables representing livestock performance and those representing the levels of GHG emissions from meat and milk production. In other words, any increase in livestock performance as a result of improved productivity corresponds to a reduction in GHG emissions (Caro et al., 2014).
The environmental impacts of livestock production depend on the level of exploitation of technological advances.

In countries where scientific advances can be exploited and wastage resulting from animal diseases can be avoided, livestock production has reduced its impact on the environment. In developed countries, milk production doubled and meat production tripled between 1961 and 2010, but GHG emissions from livestock fell by 23%. In contrast, in LDCs and most lower-middle-income countries, for a number of reasons – notably an unfavourable institutional context and animal disease pressures – productivity gains have been weak and growth in livestock has largely been extensive (made possible by greater use of animals and inputs). This has led to an increase in the impact of livestock on natural resources and climate change (FAOSTAT, 2014; Caro et al., 2014). Improvements in sectoral policies would help to reverse this trend.

One-criterion assessments of the environmental impact of livestock production recommend replacing ruminants with monogastric animals, which emit fewer GHGs and occupy less space. However, these recommendations do not stand up to a broader analysis that takes into account all the requirements for sustainable development and the natural complementarities between the various animal species.

Cattle provide traction for ploughing and transport. Ruminants serve to convert coarse crop residues into proteins with a high nutritional value (milk, meat). They are the only animals capable of providing a livelihood for the often marginalised pastoral communities inhabiting the immense arid expanses covering 16% of the earth’s land mass, where cold, drought or steep gradients preclude the cultivation of crops.

In contrast to monogastric animals, which are often raised under landless systems and sometimes use rations that have been produced on other continents, 90% of ruminant fodder and grain is produced on-farm and does not require transport with a high carbon footprint. In all cases, ruminant dung returns to the soil where it re-enters natural cycles.

Furthermore, in contrast to the unfounded accusations levelled against ruminant livestock, numerous studies have shown the capacity of ruminant production systems to create an environment conducive to air quality, the regeneration of water resources and the maintenance of wildlife and biodiversity (Ronald & Debbie, 2010; SCDB, 2010; Borer et al., 2014).
LINKS BETWEEN LIVESTOCK, THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

Poor farmers do not benefit sufficiently from development policies.

Government support is essential to trigger the improvement of livestock productivity (Latruffe, 2010; OECD, 2011). In OECD countries, where livestock production represents on average nearly 50% of agricultural GDP, government support for agriculture (research and development, control of animal diseases, infrastructure, training, etc.) is distributed equitably between crop production and animal production. In 2012, this support totalled USD 258 billion, or 19% of the total value of farm products (OECD, 2013).

In China, sectoral reforms and extremely high subsidies for agriculture, which represented 17% of the total value of agricultural production in 2011, enabled a substantial increase in productivity. The growth in animal production was higher than that of crop production and contributed to the diversification of revenue and a drastic reduction of rural poverty (OECD, 2011b; Xiaoyun Li, 2013).

In contrast, in LDCs and most lower-middle-income countries, livestock production has been marginalised. Poor farmers do not receive the government support they need to secure their production and work in ways that achieve sustainable development. In 2012, official development assistance (ODA) for agricultural development totalled USD 11.5 billion. Livestock (production and animal health) received USD 173 million in direct support, which represents only 1.5% of total aid for agriculture. The marginalisation of livestock production is also apparent in the national Poverty Reduction Strategy Papers (PRSP) prepared with the World Bank and donors, and in the policies of the Least Developed Countries Fund for climate change: their funding priorities make no reference to livestock, despite the recommendations of climate experts (Blench et al., 2013; CCNUCC 2014).

The increase in GHG emissions from livestock production is chiefly the result of deficient sectoral policies and is closely linked to the persistence of severe rural poverty.

African has its own particular challenges in this respect. It is the continent with the highest proportion of the population engaged in farming. It is also the continent that provides the least support for agricultural productivity.

Sub-Saharan Africa has reported sustained economic growth of around 5%, but this growth is not based on the improvement of agricultural productivity. Consequently, it provides little benefit for the poor. Africa is also the future demographic giant. Its population is set to more than double by 2050. With 4 billion inhabitants by 2100, Africa is expected to be the world’s second most populous continent, just after Asia (UN Population Division, 2013).

In LDCs in general and in African LDCs in particular, where development aid often represents more than 10% of GDP and a far higher proportion of agricultural investment budgets, greater awareness of the interdependence of the various economic, social and environmental components of sustainable development should lead to a rethink on the coherence of development policies and a revision of the dangerous strategy of marginalising livestock production.