



Synthesis – Livestock and the Sustainable Development Goals

Global Agenda for Sustainable Livestock

On 25 September 2015, the 193 Member States of the United Nations adopted the 2030 UN Agenda for Sustainable Development. The Agenda sets out 17 aspirational objectives, the Sustainable Development Goals (SDGs), associated with 169 targets, which will serve governments, international organizations, the private sector and civil society to chart the path of human advancement over the next 15 years. (<http://www.un.org/sustainabledevelopment>).

The SDGs succeed the Millennium Development Goals (MDGs), the objectives set for the period 2000-2015. Over this period, the world witnessed significant advances in human development, such as halving extreme poverty and child mortality. However, it is recognized that targets for MDG7 – environmental protection – have not been achieved or were negatively impacted. The SDGs cover a much broader range of issues than the MDGs, in the knowledge that development is only sustainable if it respects the limits set by finite resources (land, water, nutrients and energy) and supporting ecosystem services.

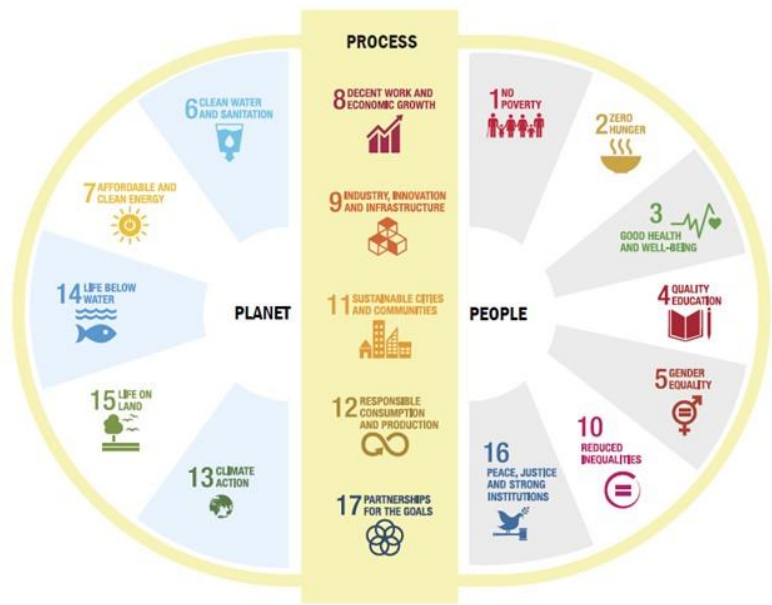
The 17 SDGs integrate the three dimensions of sustainable development – economic, social and environmental – and are indivisible. That means no one goal is separate from the others, and all call for a comprehensive and participatory approach (FAO, 2016). All goals are also universal, in the sense that the 2030 Agenda is relevant to all nations. However, while the UN 2030 Agenda for Sustainable Development is an internationally endorsed framework accepted by, and applicable to, every nation, major gaps still remain in international awareness and consensus on how its various goals and targets are to be accomplished.



The present synthesis aims to provide an overview of the linkages between livestock and the SDGs in order to support Agenda partners in achieving the UN SDGs by helping them assess the full importance of the livestock sector's potential contribution. Using scientific facts and figures obtained by FAO experts and from the literature, it describes how livestock are connected to the different Goals. It also uses elements from a working paper currently being developed by the Animal Production and Health Division of FAO and presents the outcomes of the Global Agenda multi-stakeholder partnership meeting in Panama in June 2016.

This document builds on the premise that livestock is positioned at the interface of the world's human and natural systems, which has been at the basis of the Global Agenda's understanding of sustainability. Humans have been shaping their environment, the natural system, since the dawn of agriculture at the very least. Agriculture uses natural resources (land, water, biodiversity, forests, fish, nutrients and energy) and environmental services and transforms them into agricultural products (food, feed, fibre, fuel) that serve not

only immediate needs but also provide economic and social services (food security, economic growth and poverty reduction, health and cultural value). Approaches to sustainability must therefore address the interactions and trade-offs occurring within and between the human and natural systems as a consequence of farm production, and decide how best to reduce their impact (as recognized in FAO’s *Principles for Sustainable Food and Agriculture*). The SDGs could therefore be grouped into those that describe people’s needs and aspirations (no poverty, zero hunger, good health and education, gender equality, reduced overall inequality, and peace and justice); those that describe environmental or “planet” requirements (water, energy, marine systems, land and biodiversity, and climate); and those that describe desirable processes by which to achieve a better balance. The present document uses this PPP approach in reviewing the 17 SDGs.



Facts and figures presented are non-exhaustive and are drawn from a large number of sources. The data illustrate the links between livestock and the SDGs and show how the sector can help achieve the latter. It is important to recall that conditions differ from country to country, and from location to location; so will priorities and available options.

PEOPLE: SDGs targeting human dimensions of development



1 NO POVERTY
End poverty in all its forms everywhere. There are 900 million poor people worldwide, living on less than US\$1.9/day (World Bank, 2015). About half of them depend directly on livestock for their livelihoods. To poor people, farm animals are a major asset – representing both capital and, in many cases, a source of income. Livestock, which can be sold in times of crisis, act as household insurance. On the farm, they provide animal traction and fertilization, and reward their owners with a wide diversity of products ranging from milk, meat and eggs to leather, hides and skins. Livestock therefore contribute to three major pathways out of poverty by: (1) increasing resilience (2) improving smallholder and pastoral productivity and (3) increasing market participation (ILRI, 2007). In order to reinforce livestock’s role in poverty eradication, however, it is important to obtain more accurate information on the number and characterization of poor livestock keepers and of workers along livestock supply chains. Another priority is to gather better and systematic evidence on how to improve livestock productivity and generate greater market access for smallholders.



End hunger, achieve food security and improved nutrition and promote sustainable agriculture. Livestock provide 14 percent of the total calories (kcal) and 33 percent of the protein in people’s diets at global level (FAOSTAT, 2016). Farm animals also make an important contribution to food security, helping combat micronutrients deficiency, or “hidden hunger”, by providing people with essential vitamins and minerals. Another vital role played by livestock

is providing animal traction and manure for fertilization, which helps boost crop productivity while, as an economic asset and a source of income, they contribute directly to households’ purchasing power and food security. But while livestock can transform materials such as grass, straws, agro-industrial and household wastes – none of which are edible by humans – into high-quality protein, animal feeds also contain products that people do eat, and/or which are grown on land that could be used to raise food crops for human populations. This conflict lies at the root of the “feed versus food” debate, a dispute compounded by the fact that ruminants are often considered to be relatively inefficient in converting feed to food. In order to enhance livestock’s contribution to ending hunger, ways must be found to increase feed use efficiency, reduce feed-food competition, and the use as feeds of materials that are not edible by humans should be prioritized.



Ensure healthy lives and promote well-being for all at all ages. Animal-source foods are important to nutrition and health, especially for children and pregnant women and for the elderly. They can help reduce mortality among children and the newborn. As noted, animal-origin foods provide a wide range of micronutrients – such as vitamin A, vitamin B-12, riboflavin, calcium, iron and zinc – which are difficult to obtain in adequate quantities from plants source alone (Randolf et al., 2007; Murphy & Allen, 2003). But livestock can also represent a threat to human health. A majority of recent pandemics such as H1N1, or “swine flu” in 2009, are of animal origin. Of the known animal diseases, 61 percent are zoonotic, meaning that they can also infect humans (IFAH, 2012). Disease transmission between animals and human occurs daily around the globe, both through agricultural practices and everyday activities. As the main consumer of antibiotics (mostly used to speed growth), the livestock sector is a major contributor to global Antimicrobial Resistance (AMR) – a rapidly emerging threat to human health. Nonetheless anti-microbial consumption is expected to rise by almost 70 percent by 2030. Farm animals are also among the sources of some of the most severe but neglected tropical diseases while, in economic terms, livestock diseases cause huge losses every year. In order to increase livestock’s positive contribution to human health, and reduce their negative impact, animal health should be made a priority in public policies within a One health approach, seeking collaborative effort to attain optimal health for people, animals and the environment.



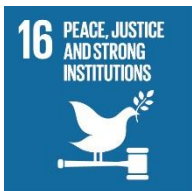
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. A healthy diet is key to learning capacities. Livestock not only provide protein and micronutrients, but can also contribute in other ways to giving children a quality education. Examples include school milk programmes and other animal-based school feeding schemes. Boosting such initiatives would help stimulate school enrolment and attendance, as well as improve students’ performance. With livestock providing half of the rural poor with income, farm animals represent a significant source of household revenues and employment. Every effort should therefore be made to boost livestock’s productivity by introducing improved husbandry practices and transferring appropriate technologies. Higher productivity translates into higher household budgets – and more money to send children to school.



Achieve gender equality and empower all women and girls. Some two thirds of poor livestock keepers – 290 million – are estimated to be women. They are largely involved in caring for small ruminants, poultry and dairy cows. But labour statistics may underestimate their role. That is because women are less likely than men to define their activities as work and less likely to report themselves as engaged in livestock management – while working, on average, longer hours than men. Despite women’s major role in animal production and marketing, however, they have less access to resources, land and capital in particular. In order to help achieve gender equality in agricultural populations, priority should be given to improving the conditions of women working in the livestock sector.



Reduce inequality within and among countries. Livestock are a source of income, create employment and give poor rural households a chance to participate in markets. About half of the rural poor rely on livestock (Robinson et al. 2011). While ownership of livestock is often considered more equitable than ownership of land, livestock rearing is mostly a land-based activity so that strong inequalities can arise due to disparities in access to land and water. This leads to inequality in ownership of animals – with most households keeping very few and a very small minority holding a disproportionately high share. Supporting the development of small-scale livestock rearing can significantly contribute to reducing overall inequalities.



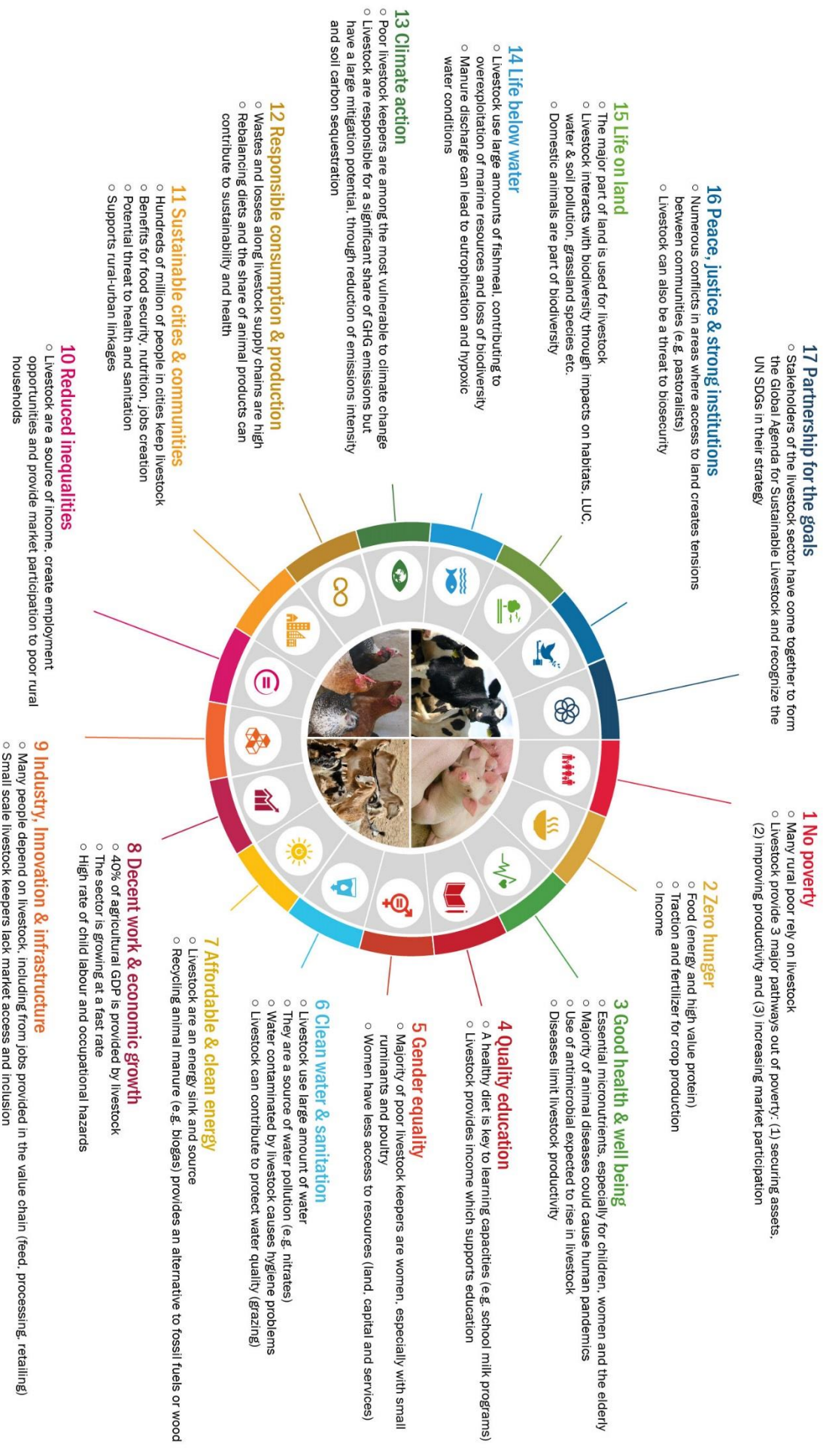
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. Competition for resources can lead to violence among pastoralist communities. Insecurity of tenure is identified as a root cause of rural conflicts (Pica-Ciamarra et al., 2007), with violent strife often occurring in areas where access to land creates tensions between pastoralist and other groups. Because of their exposure and vulnerability to disease, and of their importance in the food supply, livestock can also be considered as a potential threat to biosecurity and as a possible target and weapon. Investing in livestock development in order to lessen competition for resources can contribute to conflict reduction.

PLANET: SDGs targeting natural resources and climate



Ensure availability and sustainable management of water and sanitation for all. Livestock use large amounts of water. Water is used not only for drinking and servicing the animals but also for irrigating feed crops and forage, and during processing of animal products – for example in dairy plants and slaughterhouses. While livestock production makes a positive contribution to water quality, for example in grazing areas by protecting the soil surface from erosion, improved manure management to recycle nutrients and energy from livestock wastes is a priority. This will help reduce discharge and pollution, as well as associated public health risks (e.g. waterborne diseases), providing benefits to biodiversity and the economy in the process.

Livestock and the SDGs: review of main linkages





Ensure access to affordable, reliable, sustainable and modern energy for all. As part of the carbon cycle, livestock are a sink and a source of energy. Energy contained in animal manure is often neglected and partially lost. Recycling energy from animal manure, for example through anaerobic digestion, can provide an alternative to fossil fuels or firewood, both in large and small livestock operations. Methane is a versatile carrier of renewable energy and can be used to generate both heat and power, and as a vehicle fuel. Most anaerobic digestion systems produce biogas (with a large share of methane) for heat and power plants at large scale, and cooking gas at small scale. The digested residue from anaerobic fermentation makes an excellent fertilizer provided that survival of pathogens is minimized by anaerobic treatment (Weiland, 2010). Supporting the recycling of energy (and nutrients) from animal manure can contribute significantly to delivering affordable and renewable energy in a wide range of production systems.



Take urgent action to combat climate change and its impacts. Climate change affects livestock production in many ways, both directly and indirectly, including through increase of CO₂ concentration in the atmosphere and variations in rainfall and temperature. Most impacted are animal productivity, availability and quality of forages and feed crops, animal health and biodiversity. Poor livestock keepers are among the most vulnerable to climate change, as shown by the May 2015 heat wave in India, which killed more than 17 million chickens (Reuters, 1.6.2015). In various sub-Saharan countries, losses of between 20 and 60 percent in animal numbers have been recorded during serious droughts in the past 2-3 decades. Impacts of climate change on animal health are also documented, especially for vector-borne diseases, since rising temperatures increase winter survival of vectors and pathogens. Impacts on feed crops and forage, and grasslands to a lesser extent, have also been quantified, despite uncertainties regarding interactions between higher temperatures and CO₂ concentrations.

Resilience to climate change in livestock production can be built by improving water management and breeding livestock for drought resistance. The same can be done with feed crops and forages, while further action is needed to improve animal health and disease control together with better grazing management and increased animal mobility. Climate-smart interventions are also required in agroforestry and to secure feed supplies as well as with regard to income diversification, insurance and early warning systems.

While livestock make a significant contribution to climate change – they are responsible for 14.5 percent of human-induced GHG emissions (Gerber et al., 2013) – farm animals can also reduce their greenhouse gas impact and soil carbon can be sequestered by better farming management. Packages of mitigation techniques can bring large environmental benefits (Mottet et al., 2016) and readily available technical interventions in livestock production systems could reduce livestock's impact by between 14 and 41 percent. Such interventions, by helping to reduce emissions and increase production, would make a substantial contribution to food security. Their implementation requires transfer of technology and knowledge, together with the right incentives and a conducive regulatory framework.



Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

The world's ocean fish are under serious threat. The principal source of pressure is overexploitation by fisheries, which has affected the size and viability of fish populations, the genetics of target species, and the food chains and ecosystems of which they are part. Overexploitation has been increasing over the last decades, and in 2011 about 60 percent of marine stocks were fully fished and 30 percent overfished (FAO, 2014). A significant, but declining, proportion of world fisheries production is processed into fishmeal (mainly for high-protein feed) and fish oil (as a feed additive in aquaculture, but also for human consumption). Fishmeal can be produced from whole fish, from fish remains, or other fish by-products. About 35 percent of world production was obtained from fish residues in 2012 (FAO, 2014), representing most of the fishmeal directly responsible for the depletion of marine life. Pigs and chickens currently use about 27 percent of global marine fishmeal production (IFFO, 2010), although this share is falling due to the rapid growth of aquaculture. Supporting the use of alternative feed resources for livestock can significantly contribute to limiting further depletion.

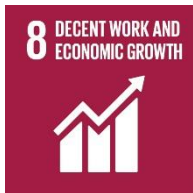
Livestock are also responsible for water pollution through discharge of wastes, especially surpluses of nitrogen and phosphorus. High concentrations of nutrients in streams and eventually oceans are considered a leading cause of eutrophication and hypoxia, resulting in high concentrations of algae and bacteria, which compete with marine life and reduce oxygen supply when decomposing. This can be limited by promoting adequate manure management and by recycling nutrients (and energy) from animal manure.



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Livestock production is widespread around the world, with up to 26 percent of terrestrial areas dedicated to rangelands and 33 percent of croplands dedicated to fodder production. Whether livestock has a positive or negative impact on biodiversity depends on the intensity of production, the nature of specific practices, the livestock species used and the local ecological conditions. At one extreme, undisturbed habitats can be destroyed, such as in conversions of primary forest to pastures or feed crops, although livestock is not the only driver and overall deforestation has been significantly reduced since 2004. At the other extreme, in some places with a long history of livestock grazing, a unique biodiversity has adapted to habitats associated with the presence of livestock. Livestock's pressure on biodiversity is not only exerted through conversion/conservation of natural habitats and land use change, but also through impacts on water quality and quantity as well as contributions to climate change. Improving grazing management can contribute to grassland restoration and carbon sequestration in soils, and it can also reduce deforestation. For example, agroforestry – the use of trees and shrubs as part of agricultural systems – and silvo-pastoralism – the association of trees and pastures – can prevent soil erosion, facilitate water infiltration and decrease damage to production from extreme weather. Such actions also help diversify income sources and provide energy and fodder for livestock. In addition, the use of nitrogen-fixing leguminous trees such as *Faidherbia albida* can increase soil fertility and yields. Agricultural biodiversity and well-adapted livestock are essential, particularly in harsh environments where crop farming is difficult or impossible. The capacity of agro-ecosystems to maintain and increase their productivity, and to adapt to changing circumstances, constitutes a vital element in global food security. Genetically diverse livestock populations are a precious resource for livestock keepers and society in overcoming future challenges, and should be conserved (FAO, 2007).

PROCESSES: SDGs targeting economic and institutional development



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. Livestock contributes up to 40 percent of agricultural GDP. It is one of the fastest-growing economic sectors in developing countries (2.5 percent per year during the last two decades). Livestock production and merchandizing in industrialized countries account for 53 percent of agricultural GDP (World Bank, 2009). Capturing the economic benefits of the expanding livestock market can help to sustain overall economic growth.

Livestock is a sector where opportunities for profits are substantial and often unrealized. Increasing the currently marginal productivity of labour in the livestock sector through training, technological upgrading and innovation can produce substantial and sustained value creation in developing-countries' supply chains. Employment returns to investment in livestock are higher than average because of the sector's high growth rate and labour intensity, with more diverse recruitment, including women. This is true not only in rural livestock production but also in the area of urban processing and marketing.

Child labour in the livestock sector is most frequent in animal care and herding (FAO, 2013). Herding can start at a young age, anywhere between 5 and 7 years and the working conditions are very context specific and vary greatly. Child labour is likely to be hazardous, to interfere with a child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development. Governments need to work with producer organisations, communities, the private sector and international organisations in order to limit children activities in livestock to age-appropriate tasks. They also need to work on reducing occupational hazards for all workers in livestock supply chains by improving occupational safety and health.



Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. A large share of the population depends on livestock, including from jobs provided by associated sectors such as feed production, processing and retailing. With a higher growth rate than other agricultural activity, expected to reach 3 percent per year in the coming decades, the processing of animal products is one of the fastest-growing sub-sectors in emerging economies. But most of the growth so far has occurred in large-scale, intensive livestock operations, largely excluding smallholders. Public investments and policies should promote market access for the small producers who are the majority of livestock keepers in most developing economies.



Make cities and human settlements inclusive, safe, resilient and sustainable. For the first time in history, more people are now living in cities than in rural areas. At least 800 million city dwellers in developing countries practice urban agriculture, from growing vegetables to keeping camels – often in densely populated areas. Many rear livestock (more than 50 percent in Nairobi's Dagoretti district, for example, [ILRI, 2012]). Urban livestock provide many benefits, from improved food security, nutrition and health from livestock products, to the creation of jobs and protection from food price volatility. But urban livestock also present significant risks since, in the absence of proper sanitation and infrastructure, they can be a source of pollution and disease. 'Zoonoses', or diseases transmitted to humans by animals, particularly affect the poor in developing countries. But rather than banning urban livestock, however, poor producers, processors and sellers should be supported to clean up their activities and upgrade them.



Ensure sustainable consumption and production patterns. The demand for livestock products will increase by more than 70% between 2005 and 2030 (FAO, 2009). According to FAO's estimates, in countries where food consumption is currently increasing, diets generally feature more livestock products, vegetable oils and sugar. These three food groups together now provide 29 percent of total calories (kcal) supplied in developing countries – 20 percent more than three decades ago. This share is expected to rise to 35 percent in 2030, whereas it has stabilized around 48 percent in industrialized countries. A growing number of studies argue that reducing the share of animal-source food in diets could bring large environmental and health benefit. Bearing in mind the very large diversity of diets at global level, rebalancing to reach nutritional targets could also contribute to raising overall efficiency in food systems (Tilman and Clark, 2014).

Almost one third of all food produced is lost or wasted between field and fork. For every kg of meat produced at global level, about 200 grams are lost or wasted. For every litre of milk (or equivalent in dairy products), between 100 ml and 250 ml are lost or wasted, depending on the region (FAO, 2011). Meat losses and wastes in industrialized regions are steepest at the end of the food supply chain because of high wastage rates by retailers and, especially, consumers in Europe and the United States. Consumer waste accounts for approximately half of total meat losses and waste. In developing countries, 40 percent of food losses occur at the post-harvest stage. In the case of meat and meat products, losses in all developing regions are distributed fairly equally throughout the supply chain, but high losses occur at the production stage, especially in sub-Saharan Africa, because of poor animal health. Limiting wastes and losses all along the supply chain, considering regional priorities, can contribute to improved efficiency and sustainability.



Strengthen the means of implementation and revitalize the global partnership for sustainable development. A successful sustainable development agenda requires partnerships between governments, the private sector and civil society. Such inclusive partnerships, at all levels, from local to global, build upon a shared vision, together with agreed goals and principles that hold people and the planet as central (UNSDNS, 2016). In the livestock sector, stakeholders have joined together to form the Global Agenda for Sustainable Livestock, recognizing the UN SDGs as their strategy. This multi-stakeholder partnership mobilizes and shares knowledge, provides robust evidence, develops cutting-edge tools and promotes an integrated approach to enhance policy coherence for sustainable livestock. It is supported by a wide range of partner organizations from the public and private sectors, NGOs, civil society and CBOs, research, academia and intergovernmental organizations.

Priorities for the livestock sector's stakeholders

During the multi-stakeholder partnership meeting of the Global Agenda for Sustainable Livestock in Panama (June 2016), about 190 participants from 45 countries representing different sectors – private sector – public sector- NGO's- Academia/Research – Social Movements – Donors – Intergovernmental and multilateral Organizations- discussed the roles of livestock in achieving the SDGs. They expressed their interest and considered their priorities from different perspectives: as individuals, as a constituency and as a group of thematic knowledge. Though all SDGs were seen as important and relevant to livestock, 5 out of 17 received significantly higher priority from all perspectives: SDG 1 (no poverty), SDG 2 (zero hunger), SDG 13 (climate action), SDG 15 (life on land) and SDG 17 (partnership for the goals). When asked as individuals, partners also prioritized SDG 12 (responsible consumption and production).



Discussions and negotiations for setting up priorities in different groups revealed that public and private sector have similar priorities (SDG 2, 3, 8 and 15). They also confirmed some of the existing thematic areas of work in the Global Agenda (e.g. improving efficiency and tools for measuring progress) and shed light on current gaps and emerging issues.

The multi-stakeholder partnership adopted the Panama declaration recognizing the important contribution of the sector to the UN Agenda 2030 and the need for concerted action and for an agreement to work towards policy reforms, institutional development and investments for sustaining practice change in livestock. With this declaration, partners of the Global Agenda accepted the challenges of sustainable development and showed determination and willingness to engage.

Cross-sectoral integration and national prioritization of SDG targets

Livestock – SDG linkages are many, revealing the diversity and complexity of livestock systems, and the different purposes they fulfil. The importance of these linkages varies among countries and location. Efforts to address one Goal will typically very often have impacts on others. For example, actions and policies aiming at increasing renewable energies from biomass (SDG 7) can have negative impacts on SDG 6 on water (through irrigation of energy crops) and on SDG 2 on hunger (through competition for land between food and energy production). Efforts aiming to improve productivity in agriculture to end hunger can also contribute to poverty reduction (SDG1) through increased income for small farmers and to achieving SDG 15 on land (through limiting expansion of agricultural land).

To achieve the 17 SDGs, 169 targets have been identified. Looking at the 107 SDG targets that are not related to specific means of implementation, Le Blanc (2015) demonstrated that 60 targets affect at least one other goal and that 19 impact on three goals or more. SDG 2 (Zero hunger) was found to relate to at least eight other SDGs, making it one of the five most-connected goals – the others are SDG 12 (Sustainable production and consumption), 10 (Inequality), 1 (Poverty) and 8 (Economic growth). SDG 2 (Zero hunger) has one of the broadest formulations among SDGs, with explicit references to land management, agricultural production methods and terrestrial ecosystems in its targets.

Achieving the SDGs will require analysing the 169 targets and how they link together, and prioritizing them to address national specificities. Many governments have separate agencies addressing different sectors such as agriculture, water, energy and climate, and identifying cross-sectoral priority targets will support more integrated and coherent policies. SDG targets should be seen by countries as building blocks that they can pick from and arrange to fit the local context and capabilities (Weitz et al., 2014). Interactions between targets can be viewed in three ways: one target can be *dependent* on one or several other targets (e.g. increasing access to irrigation for agriculture requires a steady supply of freshwater); it can *impose conditions* on other targets (e.g. sustainable food and agricultural systems set a condition on how water should be used more efficiently); and it can *reinforce* them (e.g. improving water-use efficiency helps improve yields sustainably). *Trade-offs* may also appear in how targets interact, e.g. when food and energy production compete for the same water or land resource. When they do, targets should not be excluded but carefully addressed in a cross-sectoral approach, to identify win-win solutions or ways to mitigate negative impacts.

Measuring progress: the role of knowledge

Harmonized indicators are essential in order to measure progress. A sound indicator framework will turn the SDGs and their targets into a management tool to help countries develop implementation strategies and allocate resources accordingly; and provide a report card to measure progress towards sustainable development and ensure the accountability of all stakeholders. The mechanics of SDG monitoring are still being worked out, but an emerging consensus suggests that the focus of SDG monitoring will be at the national level. Complementary monitoring will occur at regional and global levels (UNSDNS, 2015). Since SDGs and targets are interdependent, many indicators should contribute to monitoring more than one target.

Developing indicators and metrics requires tools and methodologies. They include protocols and analyses that can be applied to all production systems and regions. For example, measuring nitrogen-use efficiency or estimating losses from a disaster related to climate change needs a harmonized accountability method, with specific data requirements. Independent and impartial national capacities are needed to measure progress, but there is a strong lack of capacity in many countries (UNSDNS, 2015). Some indicators exist, but data is not systematically collected on a routine, harmonized, and comparable basis – particularly in low-income countries, and for key social and environmental metrics. International effort is therefore necessary to continue generating and disseminating knowledge for efficient and fair monitoring of progress in achieving the SDGs.

In the current list of proposed indicators, only 1 is specific to livestock (yield gap in livestock production) but a large number of indicators for agriculture and food systems have a livestock component (e.g. nutrient use efficiency, genetic diversity, percentage of wastes water flows treated, greenhouse gas emissions, annual change in forest area, nutrition). This confirms the need for integrated approaches also in measuring progress and illustrates the need for the sector to engage in developing sound indicators.

Based on such comprehensive perspective, the key to addressing livestock sector development within an SDG framework lies in developing integrated tools and actions that address the specific priorities and development needs of countries and locations. There is much to be gained from connecting disparate knowledge in the social, economic, environmental and technological realms, and the Global Agenda for Sustainable Livestock provides the adequate platform for these connections.

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