

FAO contribution to the Nature Based Solutions workstream for the Climate Action Summit

Low Carbon Livestock Coalition

1. Context and rationale

Over the last 30 years, the consumption of meat, milk and eggs has tripled in low and middle income countries (LMICs), driven by growing populations, urbanization and higher incomes. Such growth has been associated with stronger environmental pressures, which will further intensify as global consumption of livestock products is projected to increase by another 50 percent by 2050.

Globally, livestock production is a resource-intensive use of land, water and biomass. However, livestock systems play critical roles in rural livelihoods and food security, and are diverse, encompassing extensive grazing systems, labour-intensive smallholder systems, and capital-intensive “modern” systems. Livestock systems emit greenhouse gases (GHGs) directly in the form of enteric methane from animal waste; and indirectly, through feed production on arable land, and through land use and land use change, particularly the encroachment of pastures and feed crops into forests. Total annual emissions from livestock systems amount to 8 GT CO_{2eq}, of which indirect emissions comprise 50%. Because of methane, cattle are responsible for 62 percent of livestock emissions. Nitrous oxide emissions resulting from animal waste and the application of nitrogen fertilizer are significant.

Recent political and business developments favour bold action in the livestock sector. The Paris Agreement signalled a global paradigm shift in climate change policy, followed by the Koronivia work programme. Large food companies have started committing to drastic reductions in their carbon footprints. Research, development, and stakeholder engagement have greatly advanced in recent years.

2. An overview of the contribution.

Because of their diversity and complexity, targeting low emission livestock requires an integrated approach that recognizes the linkages within livestock systems and with associated sectors and activities.

The Low Carbon Livestock Coalition (LC²) aims to reduce GHG emissions from livestock systems by improving the use of nutrients, building carbon and nitrogen stocks in soils, and improving the use of livestock products in healthy human diets, taking advantage of untapped potential and co-benefits. *Healthy Diets*. Persisting hunger and nutrient deficiency have now been joined by over-nutrition and obesity to form the double burden of malnutrition. Livestock systems and products remain a powerful tool to combat hunger and nutrient deficiency but are also implicated in a number of health issues associated with high levels of consumption. Public awareness, dietary guidelines and private sector strategies are key to ensuring that livestock products can be a part of a healthy and diverse diet.

3. How the contribution leverages living natural systems as a solution to avert climate change

Improved C and N flows in livestock systems. Emission intensity, or the GHG emissions per unit of output, closely correlates with productivity – more productive systems have lower emission intensities. For example, emission intensity of dairy systems in sub-Saharan Africa are five times higher than in Western Europe. In addition, there are huge variations in emission intensity in the same locations, suggesting a large gap in efficiency that can be filled with readily available technology such as improved feeding, genetics and animal health. Emissions can be reduced further by more forcefully engaging livestock in circular flows of C and N, recycling crop residues and agro-industrial by-products through

livestock as feed, and recycling animal waste as fuel and fertilizer. Similarly, biogas from animal manure reduces emissions and substitutes for fossil fuel.

Improving nutrient flows in livestock systems requires a set of technologies, policies and private sector strategies, and regulatory adjustments. Incentives need to encourage livestock production and productivity— as opposed to livestock keeping – in extensive systems in sub-Saharan Africa and Latin America, accompanied by technology and market development. Waste regulations need to align food safety concerns with better nutrient recycling in the treatment of food waste for feed.

Building C and N stocks through livestock. Grasslands cover one quarter of the Earth’s land area and are the largest terrestrial carbon sink, before forests. However, pastures are often degraded, leading to erosion and contributing to emissions. In contrast, regenerative forms of grazing mimic the environmental effect of wild herbivores and can capture atmospheric carbon while also benefitting water resources and biodiversity. Arable soils can be enriched with nitrogen through the application of manure as fertilizer. Growing stocks of both C and N in soils are critical to future productivity and resilience across all agri-food systems. Regenerative grazing provides ecosystem services that should be recognized by the public and the consumer, for example in the form of payment for environmental services or market premiums. Land use arrangements that enable appropriate stocking rates and rotational grazing are also critical.

4. How might the contribution support both climate, mitigation and adaptation as well as other important co-benefits and social, economic and environmental outcomes in coming years including:

The contribution supports both climate mitigation and adaptation, and will result in higher food security, agricultural productivity and rural incomes, and additional environmental benefits, such as water and biodiversity.

5. Reduction in carbon emission and carbon capture (GTonnes)

Emissions from livestock systems could be reduced by 50%, considering gains in emission intensity, soil carbon offsets and moderate consumption levels.

6. Increasing climate resilience

Increased soil carbon stocks and efficient C and N flows enhance resilience to shocks. Livestock systems based on a circular use of biomass augment the overall stability of food systems.

7. Social impact (job increase; poverty reduction, etc.)

Producers, including small-scale and pastoral producers, benefit from productivity increases and payment for environmental services.

8. Net economic impact (total in US\$; how achieved?) n/a

9. Impact on realization of the 2030 Agenda for Sustainable Development (in particular SDGs 1,2,6,12,13,14,15,16)

The proposal uses the SDGs as a reference framework and focuses in particular on SDG 1, 2, 3, 5, 6, 7, 10, 12, 13, 14, 15 and 17.

10. Just transition n/a

11. Food security

Increased livestock productivity and moderate consumption levels contribute to increased local and global food security.

12. Minimising species extinction and ecological losses, and fostering an increasing of biodiversity

Biodiversity is fostered in two ways: higher resource use efficiency reduces pressure on land and water resources, while carbon offsets halt and reverse degradation.

13. Which countries and organisations are involved in the contribution?

This proposal is supported by a wide range of countries that lead efforts in low carbon livestock, including Uruguay, Ecuador, Colombia, Costa Rica, France, Ireland, Denmark, Morocco, Senegal, Ethiopia, Rwanda, Mongolia, China, Bangladesh, Thailand, Vietnam, and New Zealand. This proposal is also supported by international organizations and partnerships (ILRI, GRA, CCAC, and GASL) and by a wide range of stakeholders, including donors.

14. How have indigenous people, local communities, youth and other stakeholders been consulted in developing the contribution?

Indigenous people, local communities, youth and stakeholders are being consulted through dedicated multi-stakeholder platforms (e.g. Global Agenda for Sustainable Livestock)

15. Where the contribution can be put into action?

The contribution can be implemented globally across all agri-food systems.

16. How the contribution will be delivered? How will different stakeholders be engaged in implementation? What are the potential transformational impacts?

The contribution will initially be delivered using a multi-stakeholder process through the development of regional and national road maps, which lay out consensus areas for action, technical and institutional requirements, and financing.

17. Is this initiative contributing to other UN SG work stream areas (industry; climate finance and carbon pricing; infrastructure, cities and local government; nature-based solutions; resilience and adaptation; youth and mobilization; social and political drivers; mitigation strategy)?

This proposal contributes to the resilience and adaptation and mitigation strategies work streams.

18. Examples of experiences to date: how does this contribution build upon this experience? How does the contribution link with different ongoing initiatives?

Recycling food waste as a cereal substitute in pig feeding has greatly reduced the need for feed concentrates in Japan and Korea. Improved grazing schemes in the US, Costa Rica, Colombia and Uruguay have demonstrated the potential for soil protection and carbon sequestration.

19. Mechanisms for funding (with specific emphasis on potential for partnerships)

Funding mechanisms vary and include GCF, offsets schemes, government, private sector and producers.

20. Means of stewardship, metrics for monitoring.

The indicators are total GHG emissions, GHG emission intensities and carbon sequestration.

21. Communication strategy

The communication strategy will be carried out by a range of partners using a variety of tools.

22. Contact details of proponents (indicating the degree of commitment among the countries and organizations that are named)

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