

# Carbon balance of our food systems

## Enhance the vision of Sahelian pastoral livestock farming within the negotiation arenas

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COP28 presidency puts forward **the future of our food systems: levers for adaptation, mitigation and development**. This same perspective must serve to **enhance the vision of Sahelian pastoral livestock farming**, often considered to have the highest Green House Gasses (GHG) emission intensities on a global scale. This assessment reduces GHG emissions per unit of product (meat, milk, etc.), which disadvantages extensive livestock systems (pastoral and agropastoral) because they are not very productive. Local scientific references are insufficient to establish a more realistic vision. In terms of **carbon balance following an ecosystem approach**, the results are quite different, and the Sahelian pastoral ecosystems are on a trajectory of carbon neutrality, with even a slight potential for carbon sequestration. Reducing emissions from our food systems is a universal priority. However, **contextualized solutions must be taken by repositioning the multifunctionality of pastoral livestock farming with regards to its ecological, economic and social dimensions**. This is how the **Declaration on Resilient food systems, Sustainable Agriculture and Climate Action**, presented at COP28, must integrate these issues. To do this, the international community must give oneself the means **to better quantify the real environmental impact of (agro)pastoral livestock systems**, to establish **fairer GHG reduction policies** respectful of an economic, social and cultural that is essential for **food and nutritional security in the Sahel**.



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### The move towards a fairer estimate of carbon emissions from Sahelian (agro)pastoral livestock systems.

According to recent estimates with the GLEAM v3.0 Dashboard tool, livestock farming is responsible for 12% (FAO, 2015) of global **anthropogenic emissions**. Behind this estimation there are regional differences. **Scientific research must support Sahelian countries in establishing appropriate evaluation methods to produce fairer references.**

#### Sahelian (agro)pastoralism in a few figures:

- 20 million people across the Sahel depend on pastoralist livestock and migrate every year in search of water and pastures for their herds. (World Bank, 2020)
- In Africa, 40% of land is dedicated to pastoralism (WOCAT, 2009)
- Pastoralism provides 70% of the milk and half of the meat from cattle and small ruminants (Assouma M. H., 2019)

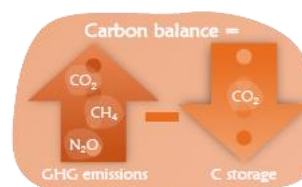
### Abandon a method based solely on GHG emissions and unsuitable references

If we consider the methane emission per animal, a Western cow which produces 30 litres of milk would emit less methane per litre of milk than a Sahelian cow which is only capable of producing 3 litres of milk per day. These product-based assessments do not take into account the multifunctionality of (agro)pastoral livestock farming and lack precision due to the insufficiency of local scientific references. Thus, the priority is to produce new references and move to an ecosystem method.

#### The ecosystem method

Also known as the “territorial” method, it takes into account the **entire functioning of a territory** to calculate its carbon balance. All exchanges are counted, GHG emissions into the atmosphere counted positively and carbon storage in the ecosystem counted negatively. This method is better adapted to the extensive low-input level livestock farming systems of the Sahel.

#### A carbon balance integrating the functioning of the ecosystem



In the Sahel, (agro)pastoral livestock farming **adds-value to an extreme environment**. Often reduced to the production of methane, its ecosystem services are on the contrary numerous and allow, among other things, the **storage of a large quantity of carbon\***. The ecosystem approach makes it possible to quantify both GHG emissions linked to livestock activities in the Sahel but also the carbon storage of (agro)pastoral ecosystems.

\* 40 ± 6 kilograms per hectare per year (Assouma M.H., 2019)

Sahelian (agro)pastoral livestock farming can have a positive impact on the carbon cycle:

- **Soils:** animals are mobile on large spaces. They optimize the recycling of organic matter and fertilize rangelands and crops in large spaces through excrement (faeces and urine) deposited on the ground
- **Herbaceous plants:** animals transport seeds, which makes it possible to diversify (agro)pastoral rangelands; grazing stimulates the growth of vegetation
- **Environment:** grazing animals in (agro)pastoral areas can significantly reduce the risk of vegetation fires

### Engage mitigation policies that are truly applicable to Sahelian (agro)pastoral livestock farming.

Pastoralism is the “poor relation of agricultural policies” according to Pierre Jacquemot, expert associated to foundation Jean-Jaurès. The mitigation potential of livestock systems in developing countries is nevertheless considered by the IPCC to have the greatest reduction potential.

### Ambitions to be integrated into the NDCs

The Paris Agreement signed in 2015 commits nations around the world to strengthen their efforts in terms of reducing GHGs, through their Nationally Determined Contributions (NDCs). On this occasion, the member states of the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) renewed their commitment to communicating data on their GHG emissions and absorptions from all sectors through national inventories. However, the absence of contextualized data and heavy investments in adapted evaluation systems represent an obstacle to taking into account the livestock sector in the development of NDCs. COP28 is an opportunity to take stock because it invites all governments to align their food and agricultural systems with the NDCs. Investing in the production of national inventories reflecting this ecosystem vision is a priority. This would allow CILSS States to solidify their NDCs, better participate in debates and develop appropriate policies. Everything must be accompanied by a change of perspective: Sahelian (agro)pastoral livestock farming must get rid of these negative representations which are based on a product-based approach unfavourable to Sahelian livestock farming systems, and the idea that animals contribute to the degradation of natural resources and soils.



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The CaSSECS « Carbon Sequestration and greenhouse gas emissions in (agro) Sylvopastoral Ecosystems in the sahelian CILSS States » research and development project has been supporting this change of perspective, since 2020, by building tools and references to assess the ecosystem carbon balance of Sahelian (agro)pastoral livestock farming. This initiative must find an echo in international negotiating bodies in order to continue to:

- Produce new references for a detailed assessment of emission factors and the storage potential of Sahelian ecosystems
- Initiate a movement to contextualize tools and methodologies for assessing the environmental impact of livestock systems
- Build easily appropriable technologies and consolidated observatory-type systems for long-term monitoring of the carbon balance and updating of references
- Support public policies of CILSS countries to advocate for an economic, social and cultural system that is sustainable and beneficial for the environment

### References

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