

Elements of context

Today, agriculture is simultaneously facing the challenge of adapting to climate change and contributing to the mitigation of its impacts by reducing greenhouse gas emissions. The United Nations Framework Convention on Climate Change defines climate change as changes that are directly or indirectly linked to human activity and that alter the composition of the atmosphere, in addition to the natural climate variability observed over comparable time periods. The impacts of climate change are multiple: decreases in agricultural yields, occurrence of extreme weather events, modification of rain cycles (resulting in long and recurrent droughts), modification of soil structure and water sources, loss of biodiversity, occurrence of new pests and diseases of crops, humans and animals, ocean acidification (affecting fisheries and coral reefs), snowmelt, etc. The impacts of climate change primarily affect the most vulnerable populations and households, particularly small-scale agricultural producers and pastoralists in developing countries, where household food security depends mainly on their own agricultural production.

Greenhouse gases (GHGs) are the main causes of climate change. These gases contained in the atmosphere and which can be of natural or anthropogenic origin absorb or emit heat into the earth's atmosphere, creating the greenhouse effect, increasing the temperature around the earth, thus causing climate change. Agriculture is one of the sectors of activity that generate greenhouse gases. At the same time that it is impacted by climate change. It contributes up to 25% to greenhouse gas emissions, especially if it is not practiced in a sustainable way.

There are two complementary approaches to combating climate change: adaptation and mitigation. Adaptation refers to the capacity of a system to adjust and adapt to the effects of climate change and its consequences; it is the set of measures taken to reduce the vulnerability of natural and human systems to the actual or expected effects of climate change. Mitigation includes all human interventions to reduce or eliminate GHG sources or increase GHG sinks. Mitigation is essential to ensure food security in a sustainable manner.

Agroecology provides both climate change adaptation solutions and climate change mitigation measures. The dissemination of agricultural and livestock practices based on sustainable and agro-ecological agriculture reduces the vulnerability of agricultural systems to climate hazards and thus strengthens the resilience of small producers and agricultural systems to shocks and disasters.

Combating desertification and climate change

For the UNCCD, land is important for the climate. Its rehabilitation and sustainable management are essential to close the emissions gap and reach the target. Soil restoration in degraded ecosystems has the potential to store up to 3 billion tons of carbon per year.

Land is fundamentally linked to climate change mitigation and adaptation. The land use sector is said by the UNCCD to have great potential to reduce emissions, sequester carbon, and increase human and biophysical resilience. While it has positive implications for all Sustainable Development Goals (SDGs), to achieve these multiple benefits, ambitious climate action on land is needed.

Land degradation neutrality provides a framework in which conservation, sustainable use, and restoration act as three pillars to leverage synergies between the three Rio conventions. The IPCC has documented that policies to promote land degradation neutrality (part of SDG target 15.3) can also improve food security, human well-being, and climate change adaptation and mitigation.

The UN General Assembly also reaffirmed that achieving land degradation neutrality can serve as an accelerator for achieving the SDGs and recognized that soil solutions offer promising options for sequestering carbon and building resilience for people and ecosystems affected by desertification, land degradation, and drought, as well as the adverse effects of climate change.

The latest findings of the IPCC and IPBES emphasize that the role of the land use sector is essential to protect livelihoods, climate and biodiversity. Combating desertification, land degradation and drought is essential for climate change mitigation and adaptation. It is a cost-effective solution, when combined with rapid de-carbonization, to reduce and sequester carbon emissions and restore biodiversity. Many sustainable land management practices have net climate benefits: actions to avoid, reduce, and reverse land degradation can provide more than one-third of the climate mitigation needed to keep global warming below 2°C by 2030. Although the science on land and climate is steadily advancing, the UNCCD says there is a need to strengthen cooperation in knowledge management and capacity building, as well as to adopt a people-centered approach, with particular emphasis on empowering women and protecting the most vulnerable.

Working on climate change at a national workshop Désertif'actions 2022

Question to be addressed: how can agroecology be integrated into the definition and implementation of nationally determined contributions?

Learn more about climate change:

- [The UNFCCC website](#)
- [The IPCC website](#)