

BLOG POST August 8th 2019

The IPCC report on land: what's at stake?

Auteur

Pierre-Marie Aubert

Director, Agriculture and food policies programme

 Reading time: 5 min



The Intergovernmental Panel on Climate Change (IPCC) releases a special report on the so-called "land" sector (agriculture, pastoralism, forestry, etc.). What are the issues at stake and the main lessons to be learned?

This report, released to little fanfare during the quiet summer period, analyses the interactions between climate change and the so-called "land sector", which includes agriculture, forestry, pastoralism^{[1](#)}, etc.

There are two reasons why this sector is a major climate challenge. On one hand, the land sector is one of the most directly affected by climate change: droughts, floods and heat waves affect plant growth and land use, often with direct consequences for food security, terrestrial biodiversity and ecosystem services in general. On the other hand,

it could be a key contributor to the decarbonisation objectives that can contain global warming below 2°C or even 1.5°C. It offers both opportunities for carbon storage in ecosystems and alternative biomass to fossil carbon (bio-energy, bio-plastic, other bio-materials).

In this context, the report focuses on the interactions between climate change and the land sector from the perspective of five main issues: climate change mitigation, climate change adaptation, land degradation², desertification³ and food security.

Three major lessons can be drawn from the report.

Mitigating climate change and its impact on drylands is of vital importance for 40% of the world's population

The first lesson is about interactions between the people, climate change and the land sector. The authors note that the land sector is now responsible for nearly a quarter of annual emissions of human activities⁴ and that its impact has worsened in both absolute and relative terms (notably due to the intensification of agricultural practices associated with changes in diets, which are richer in calories and animal products). But they also highlight its very high vulnerability to ongoing and future climate change.

This is particularly the case in arid areas, which occupy more than 46 per cent of the world's land mass and are home to 3 billion people (just under 40 per cent of the world's population), which are expected to face the worst impacts, particularly in terms of agricultural yields and occurrence of extreme events. The issue is all the more worrying because, as the authors point out, these are also less developed regions, where possibilities for mitigation and adaptation are limited.

Faced with these challenges, limiting global warming appears to be a vital issue for a large fraction of the world's population, poorly prepared to suffer its consequences.

Decarbonisation of the economy should not be based on large-scale land-use changes

The land sector has potential to mitigate climate change. Thus, three of the four scenarios proposed by the IPCC in its previous special report, devoted to the consequences of a warming of 1.5°C, are based on a thorough development of bioenergy, on large-scale reforestation, as well as on "Bioenergy Carbon Capture and Storage" (BECCS) projects. These projects, which are currently based on immature technologies, involve afforestation of large areas with fast-growing forest species to exploit biomass, burn it to produce energy, and capture the CO₂ emitted during its combustion to crystallize it in a stable form⁵.

However, the second major lesson of the report is to warn that basing the decarbonisation of the economy on these large-scale land use changes is incompatible with achieving a large part of the Sustainable Development Goals (SDGs) as adopted in New York in 2015.

Particular emphasis is placed on the pressure on space that would be induced by such land use changes. Such pressure would have significant social consequences, particularly in terms of access to land, as well as environmental consequences, such as the risks associated with a dramatic intensification of agricultural practices and therefore with an increased use of synthetic pesticides and fertilizers, which in turn pollute land, air and the

atmosphere.

Two priorities: quickly decarbonise all sectors and improve existing land management practices

In this context, the third and main lesson of this report is that, in order to avoid such large-scale land use changes, which are likely to have many negative side effects, it is urgent to:

- decarbonize the economy as quickly as possible and across all sectors (not just the land sector, even though it represents nearly a quarter of anthropogenic emissions);
- improve existing land management practices to promote carbon sequestration in soils.

Reducing the demand for animal products and food losses and waste has a key role to play. Regarding agricultural practices, sustainable intensification is highlighted as a significant factor to reduce emissions.

However, the authors point out that the solutions to be implemented fundamentally depend on the context. While in some regions of the world it will still be possible to increase agricultural production (i.e. increase productivity per hectare or per animal) in a sustainable way, without affecting the productive capacities of agro-ecosystems or biodiversity, this is not the case in areas where agriculture has already been strongly intensified, such as in Western Europe and more generally in OECD countries.

In these regions, the challenge is to find a new balance between agroecosystem functioning and agricultural production - which will often involve lower yields (see in particular the report's "cross-chapter box 6"). These issues of differentiated food system transformation pathways are highlighted by [the recent report of the High Level Expert Group on Food Security and Nutrition \(HLPE\) on agroecology](#), as well as by the Ten Years For Agroecology (TYFA) scenario showing [the potential contribution of a fully agroecological Europe to carbon neutrality](#).

Photo by [Patrick Hendry](#) on [Unsplash](#).

1 Breeding in natural pastures.

2 A trend of undesirable changes in soil conditions, caused directly or indirectly by human activity - including climate change - characterised by the long-term reduction or loss of at least one of the following: biological productivity, ecological integrity or human value.

3 Land degradation processes in arid, semi-arid or sub-humid environments, resulting from a combination of factors including climate change and human activities.

4 Emissions expressed in tons of CO₂eq.

5 As appealing as BECCS technologies may seem, the authors of the report warn of the many uncertainties surrounding their very effectiveness. The quantities of carbon emitted by the soil at the time of tree exploitation could be higher than those captured at the time of combustion. In addition, the energy expenditure required to effectively capture CO₂ at the time of combustion may be only marginally lower than the energy produced by the same combustion.

AGRICULTURE ET ALIMENTATION

BIODIVERSITÉ

CLIMATE

IDGM : GOUVERNANCE MONDIALE

IDGM : DÉVELOPPEMENT DURABLE

IPCC

FOOD SECURITY

DEFORESTATION

MITIGATION

ADAPTATION