

# EMISSION REDUCTIONS AND REMOVALS OF AGRICULTURE, LIVESTOCK, FORESTRY AND FISHERIES SECTORS

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# ABBREVIATIONS

<b>FAO</b>	Food and Agriculture Organization
<b>GHG</b>	Greenhouse Gas
<b>REDD</b>	Reducing Emissions from Deforestation and Forest Degradation

# 1. CONTEXT

The latest IPCC Assessment Report (IPCC 2022) clearly showcases the urgent need for climate action to limit global warming to 1.5°C. The agriculture, forestry and other land-use sectors are major contributors to anthropogenic greenhouse gas (GHG) emissions and consequently, nations should strive to exploit the maximum potential to mitigate emissions emerging from these sectors (Frank et al. 2021). To achieve this goal, instruments such as carbon markets have been successfully used to provide incentives to businesses in the sectors.

Against this backdrop, the Food and Agriculture Organization (FAO) assigned Perspectives Climate Group to give advice on how to harness carbon markets in an efficient yet ambitious manner. We have identified the need for a clear and comprehensive distinction to address sources and sinks of GHGs (also referred to respectively as emission reductions and removals) in the four sectors relevant for FAO.

This policy brief aims to provide an overview of possible GHG emission reductions and removals associated to the agriculture, forestry, livestock and fisheries sectors and illustrate them in easy-to-understand graphic form. The target groups include project proponents and decision-makers alike.

## 2. EMISSION REDUCTIONS AND REMOVALS IN THE AGRICULTURE, FORESTRY, LIVESTOCK AND FISHERIES SECTORS

The four sectors offer a diverse range of sources and sinks of greenhouse gases (Fig. 1).

### **Forestry sector:**

Afforestation and reforestation as well as agroforestry contribute to removals, while avoided deforestation reduces CO<sub>2</sub> emissions. Some practices like improved forest management practices have the potential for both emission reductions and removals, depending on the practice and context where it is implemented.

### **Agriculture sector:**

Improved agricultural practices and pasture management can reduce emissions from soils and eventually remove CO<sub>2</sub> from the atmosphere, storing it in the soil. Emission reduction can be achieved through the reduction of fertilizer use, though it is crucial to mitigate the risk of excessive nitrogen application in order to reduce N<sub>2</sub>O emissions. For rice cropping, improved water management results in reduced anaerobic decomposition of organic matter and consequently, reduced CH<sub>4</sub> emissions. and savannas also reduces emissions.

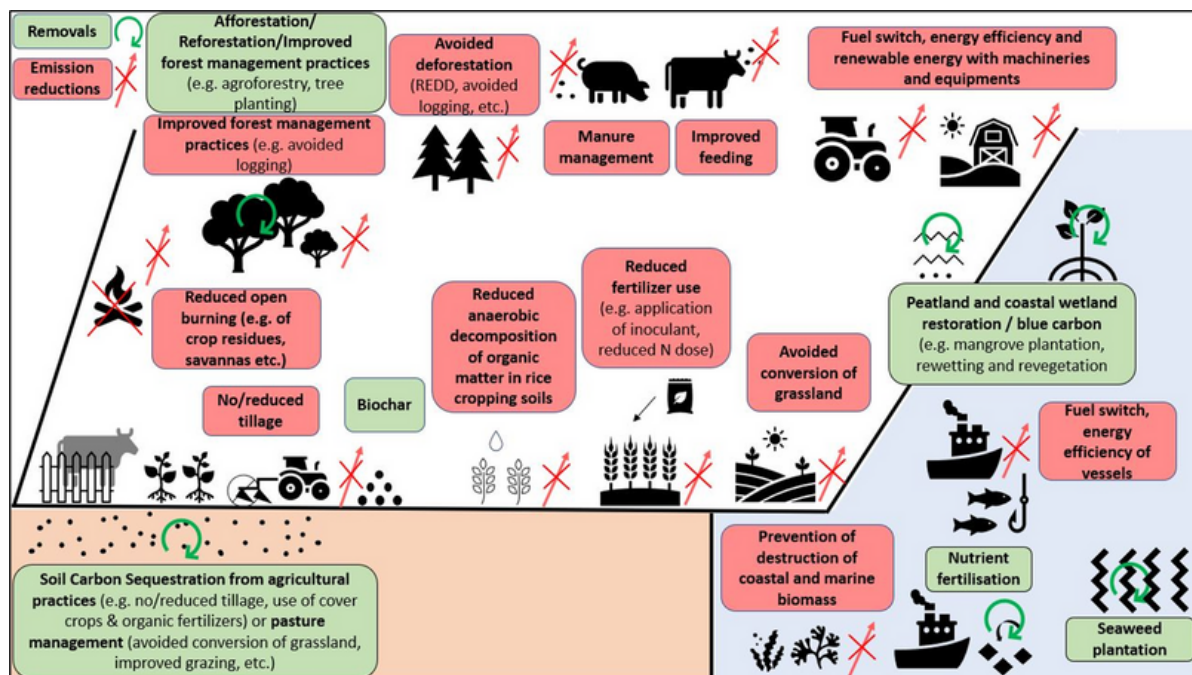
On farm-level emissions can be diminished by reducing fossil fuel use through upscaled energy-efficiency and replacement of fossil fuels with renewable energy sources. In addition, reduction of open burning of residues and savannas also reduces emissions.

**Livestock sector:**

Livestock emissions can be reduced by strategic feed supplementation which reduce the level of methane emissions from animals, or by improving manure management in order to capture methane and burn it/use it energetically.

**Fisheries sector (including blue carbon):**

Regarding blue carbon, prevention of destruction of coastal and marine biomass generates emissions reductions. Peatland rewetting, costal wetland restoration, ocean fertilization and seaweed plantation all sequester carbon. Similar to machineries and equipment in agriculture, fuel switch and increased energy efficiency of vessels can reduce CO2 emissions for the fisheries sector.



Source: Authors

FIGURE 1: EMISSION REDUCTIONS AND REMOVALS IN THE FOUR SECTORS

## 6. REFERENCES

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