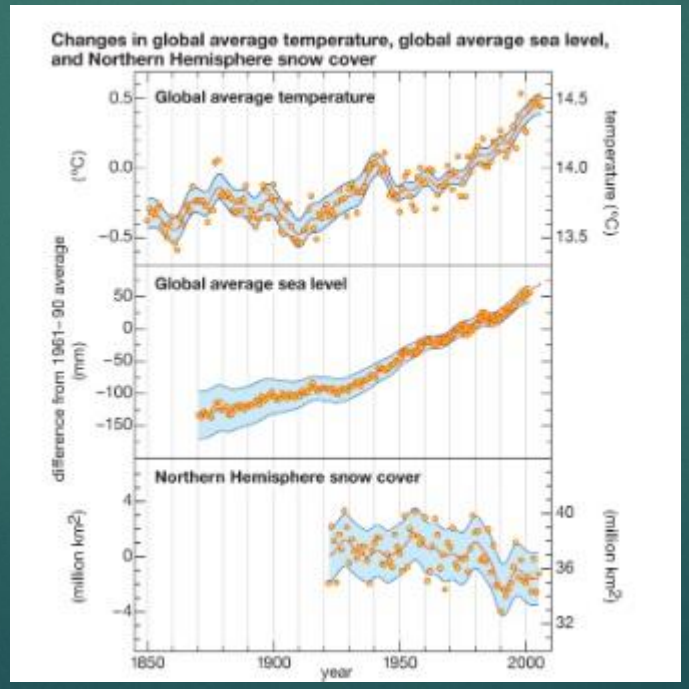
The Effect of Agriculture on Global Warming

BY OMAR FIKRET

- “We know more about the movement of celestial bodies than about the soil underfoot.” **Leonardo Da Vinci**

Global Warming

- **Global warming**, is the phenomenon of increasing average air temperature near the surface of earth over the past one to two centuries. This phenomenon lead to various changes in weather and climate by changing precipitation patterns, storms, ocean currents.



What is Global Warming

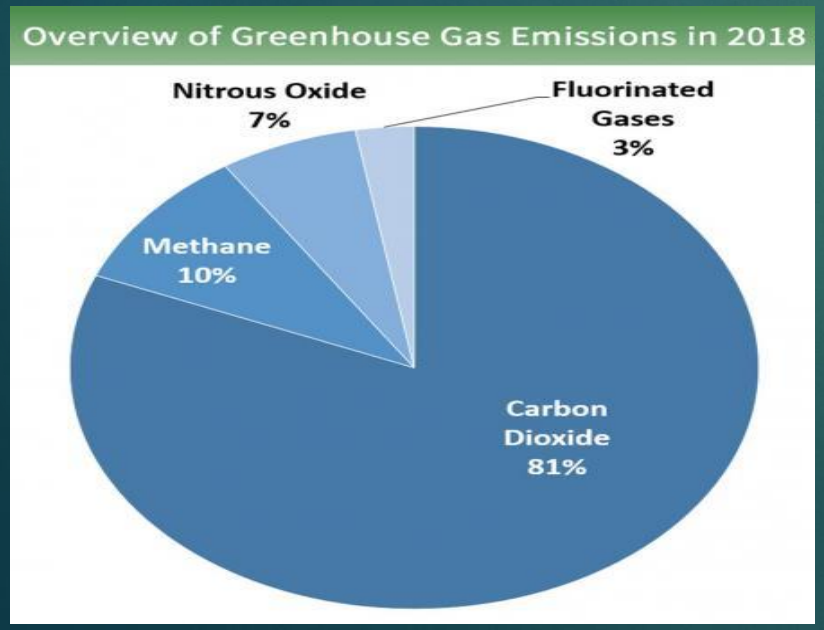
Mount Gould in Glacier National Park, Montana, in 1938, 1981, 1998, and 2006 (from left to right).

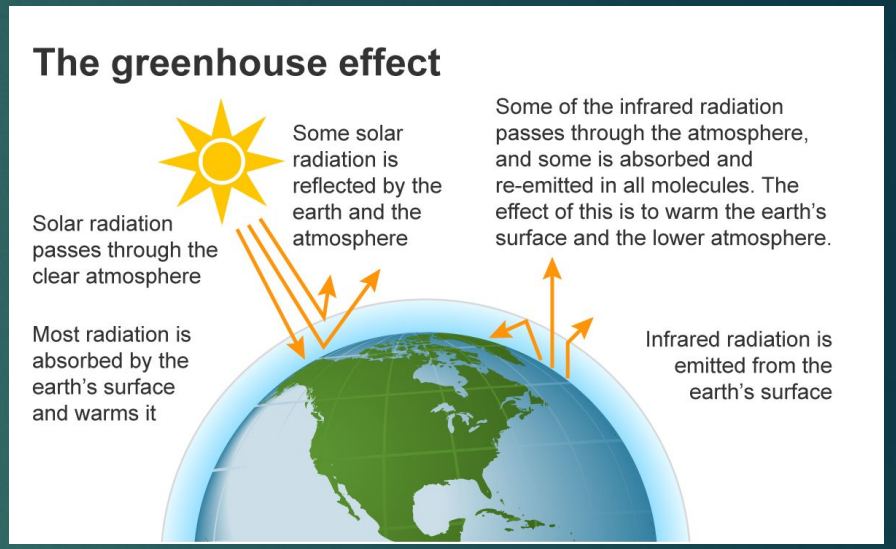
What are the various effects of global warming?

- Melting glaciers
- Rising sea levels
- Forests, farms, and cities will face troublesome new pests
- Disruption of habitats
- Allergies, asthma, and infectious disease outbreaks will become more common due to increased growth of pollen producing ragweed
- Ocean acidification

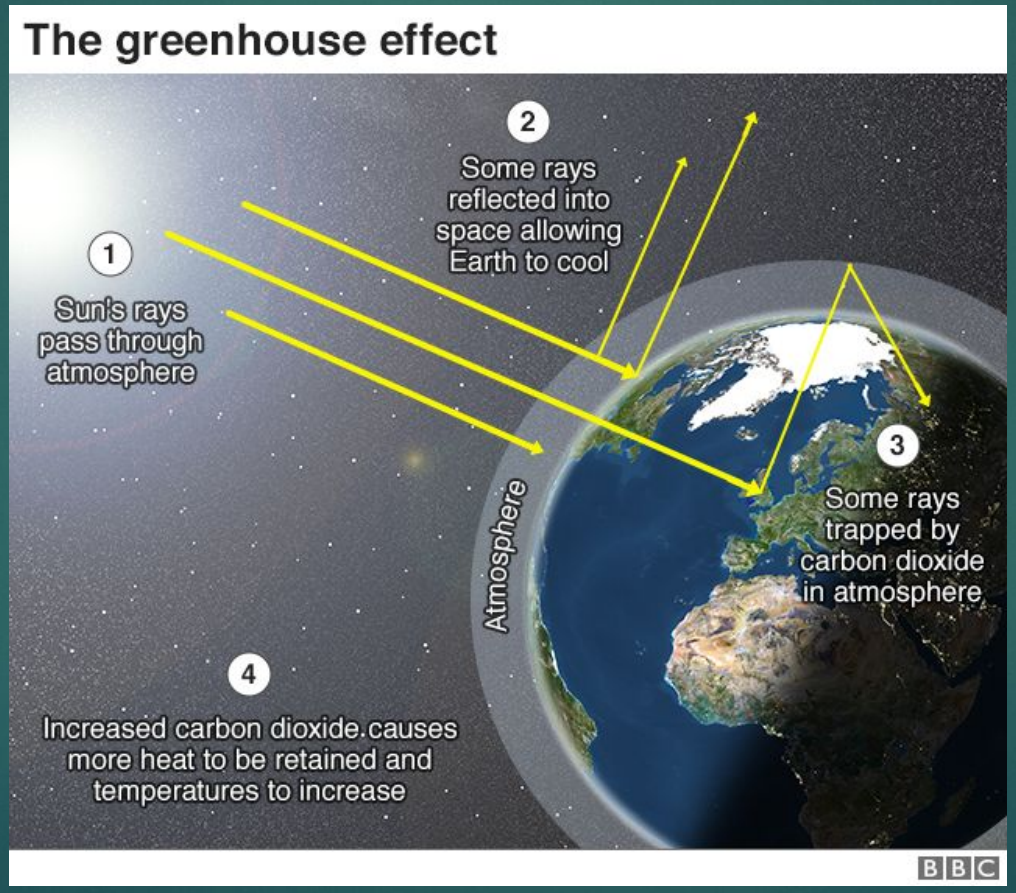
Greenhouse Gases

A greenhouse gas is a gas that absorbs infrared radiation and radiates heat in all directions.

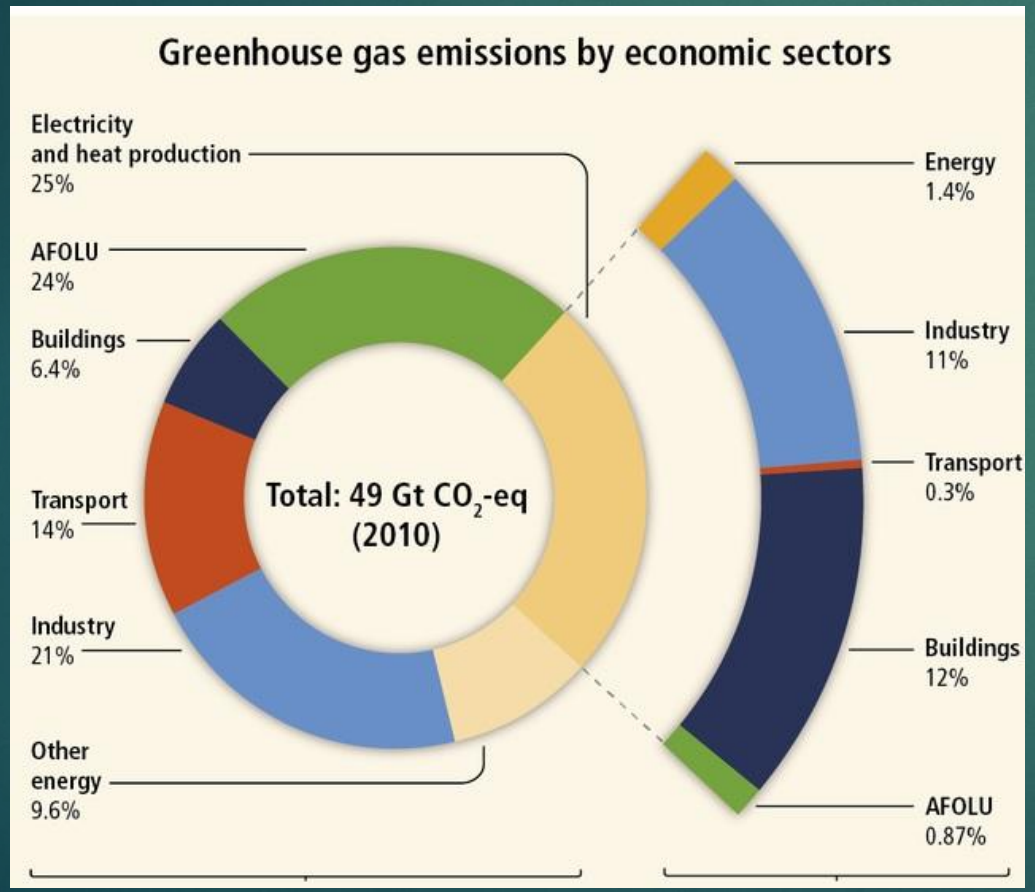




The Greenhouse effect

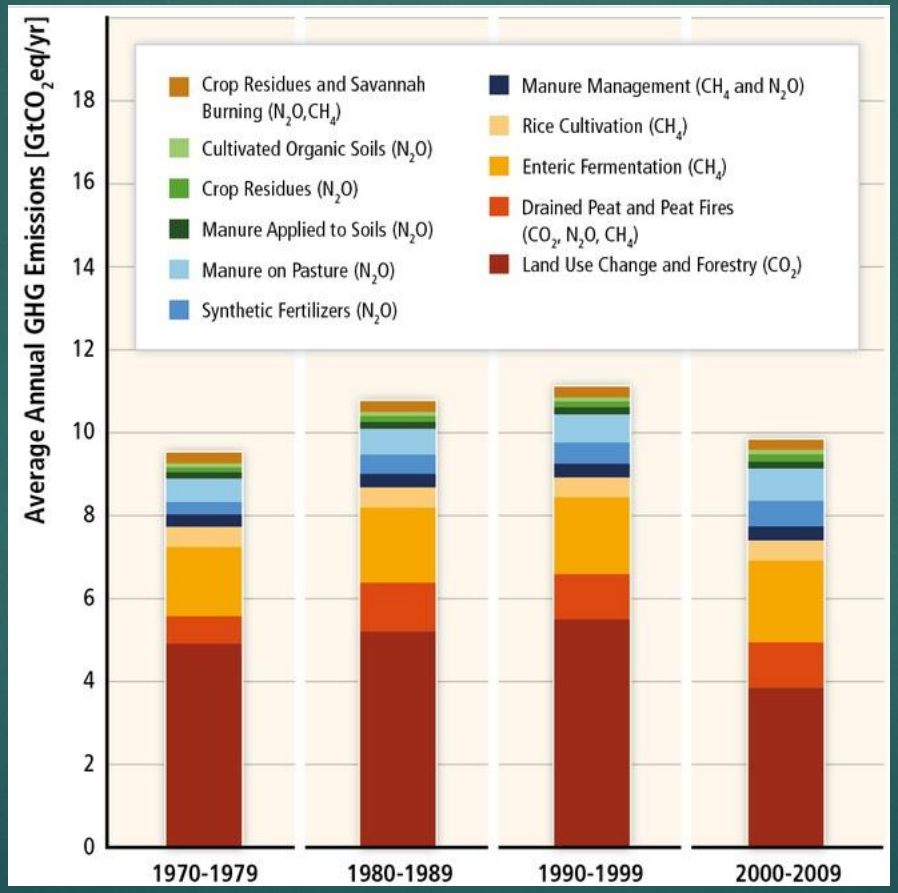


Contribution of Different Economic Sectors on GHG Emission



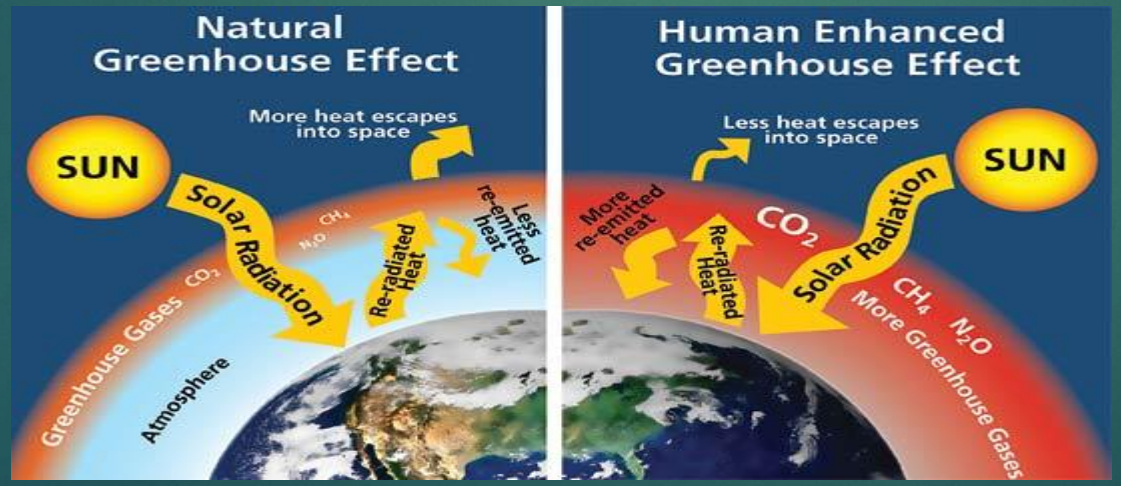
AGRICULTURE FORESTRY AND OTHER LAND USE (AFOLU)

Contribution of Agriculture Sectors on GHG Emission



Agriculture and Global warming

- Agriculture contributes to climate change both by anthropogenic emissions of greenhouse gases and by the conversion of non-agricultural land such as forests into agricultural land. In 2010, agriculture, forestry and land-use change were estimated to contribute 20–25% of global annual emissions.

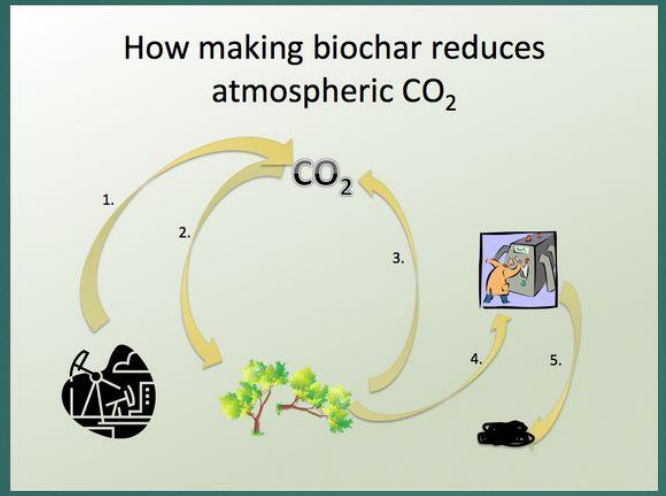


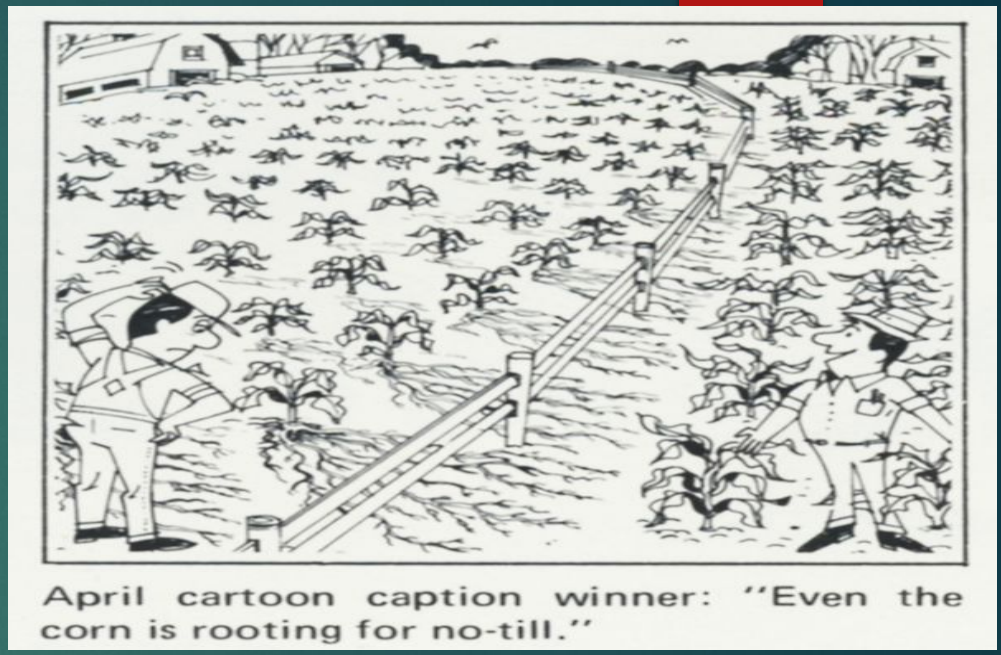
Climate change impacts

- Floods
- Droughts
- Changes in crop and livestock viability

Proposals for soil carbon sequestration:

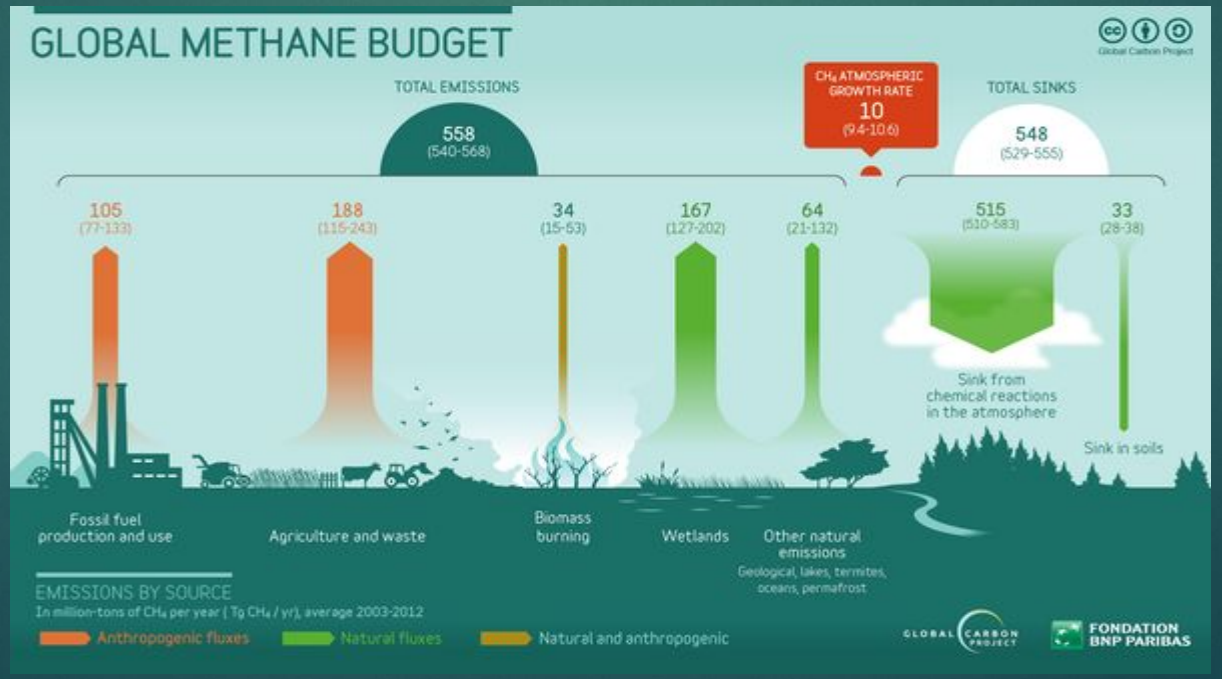
- Non-tillage
- Biochar




April cartoon caption winner: "Even the corn is rooting for no-till."

Methane (CH4)

- Methane (CH4) is the most significant greenhouse gas released within the agriculture sector. Most of the methane releases come from paddy fields (91%) and less significantly from animal husbandry (7%) and the burning of agricultural wastes (2%).



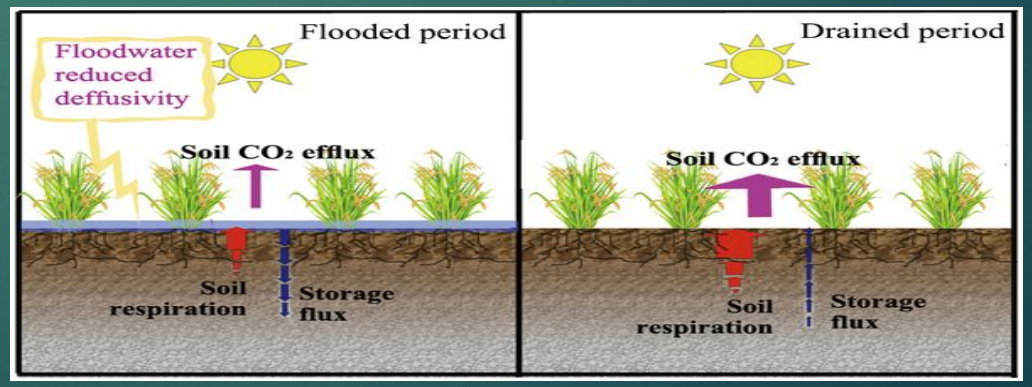
Nitrous Oxide (N_2O)

- Most of the agriculture-based N_2O emissions come from nitrogen fertilizer usage, legume cropping and animal waste. Some N_2O emissions are also released during biomass burning. Many farmers use nitrogen fertilizers on their fields to enhance crop growth.

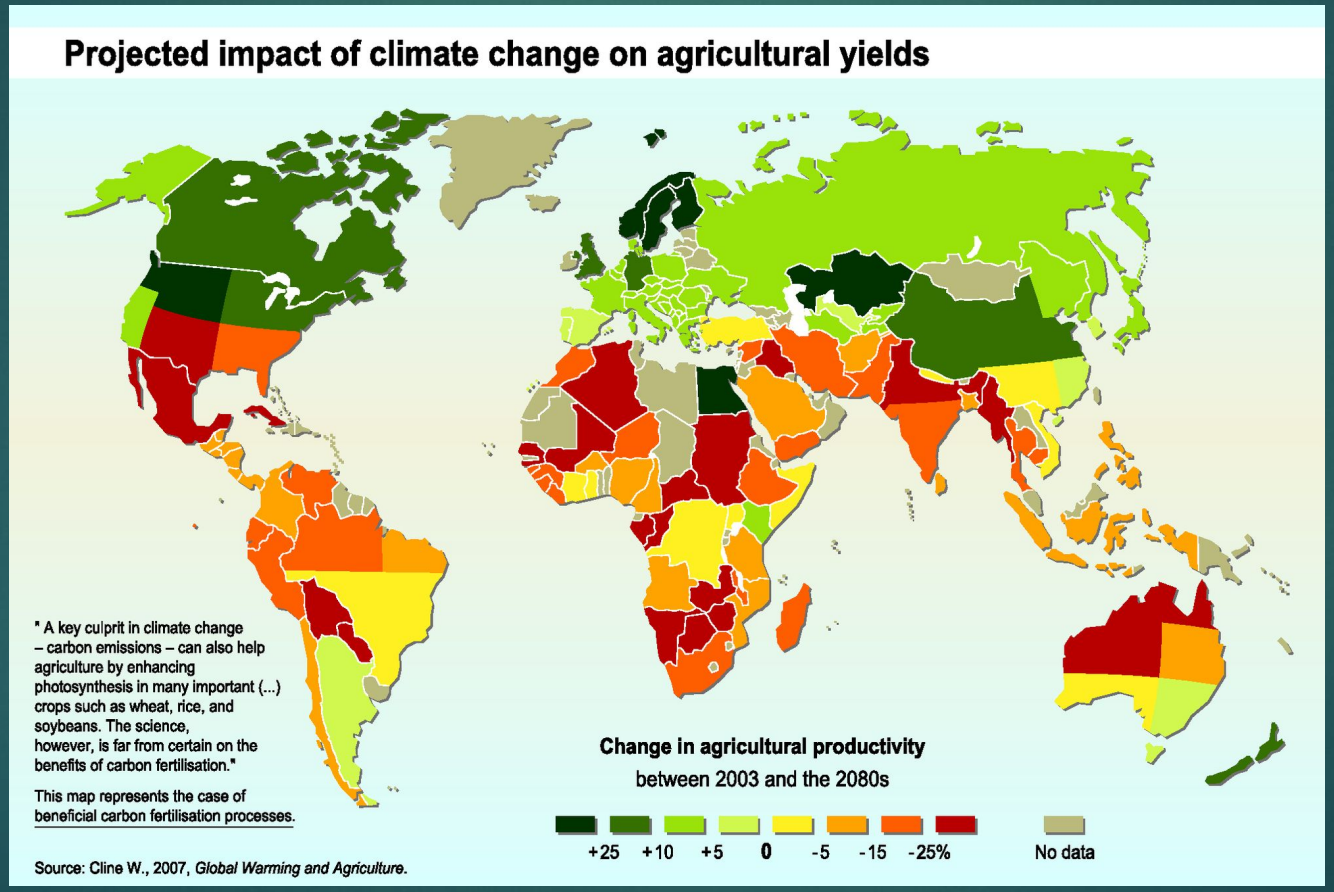
The environmental activist group Greenpeace produced this photo to dramatize agriculture's contribution of nitrous oxide to the air.

Carbon dioxide (CO2)

- **Carbon dioxide (CO):** Primarily, deforestation due agricultural expansion and land speculation was caused a major source of carbon emissions. When natural vegetation is converted into agricultural land, a large proportion of the soil carbon can also be lost as plants and dead organic matter are removed. This event contributes approximately a third of the total CO2 emissions globally.



Projected impact of climate change on agricultural yields



How to Reduce GHG