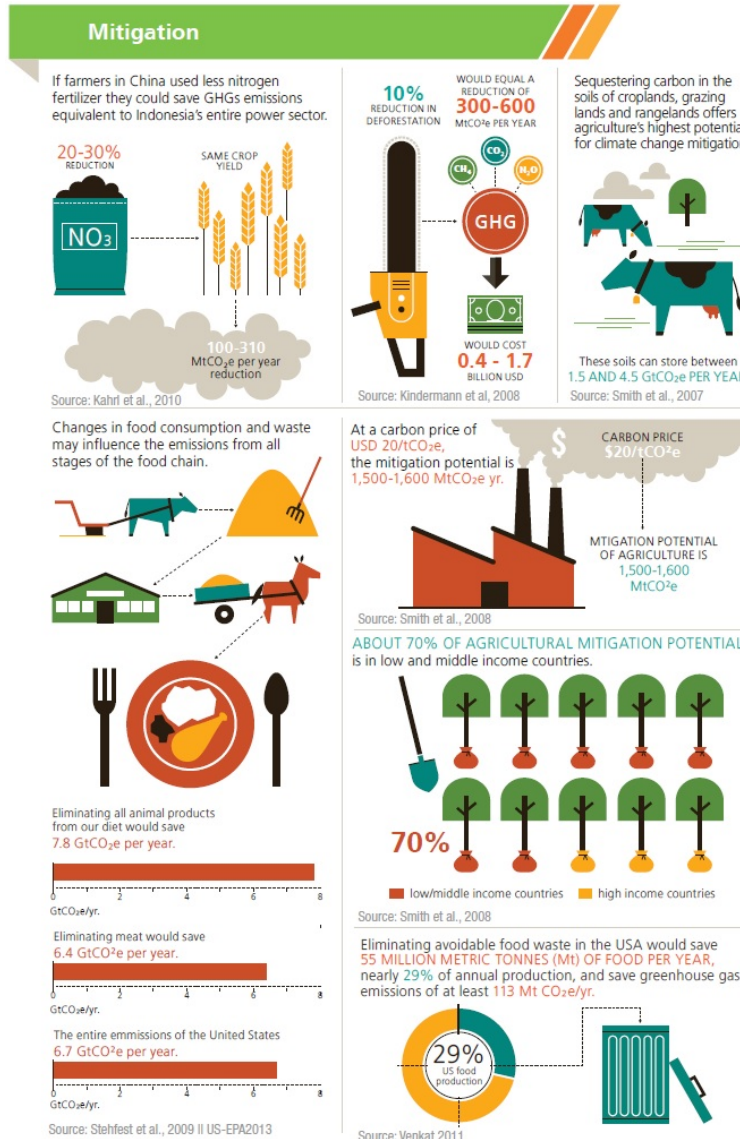


Mitigation

Mitigation refers to ways of slowing global warming. We do not yet have approaches that could take enough greenhouse gases out of the atmosphere to reverse global warming. This means that we need to focus on reducing emissions for now.

The world's richest half-billion people (about 7% of the world population) are responsible for 50% of the world's CO₂ emissions. The poorest 50% are responsible for 7%. Since we are the cause of the increase, we can be the source of solutions! What are some of the solutions?



Source: cgiar.org

1. We can reduce **fossil fuel use** through:

- Increased efficiency (e.g., appliances, autos, buildings)
- Changing our habits (e.g., biking instead of using the car, reducing consumerism, reducing food waste)



- Switching to power sources that don't emit greenhouse gases (e.g., wind and solar).
2. We can reduce emissions related to our **food supply**. For example, cows emit CO₂ and huge amounts of methane. Manure from pigs and cows is stored in holding ponds, and these also produce methane. Methane is a powerful greenhouse gas. Each molecule has about 25x the heat-trapping power of a CO₂ molecule. Some of these emissions could be mitigated. For example, there are some farms that use the manure as a source of power. The best option is to greatly reduce meat in our diets.
 3. **Trees** are important tools in mitigating climate change. They absorb and store CO₂ during photosynthesis, before it can reach the upper atmosphere and trap heat. While all living plants absorb CO₂, trees store significantly more CO₂ than smaller plants in their biomass due to their large size and extensive root structures. They are nature's most efficient carbon reservoir. This makes planting trees a form of mitigation. We have cut down a large percent of the world's forests. This has reduced the ability of the biosphere to pull CO₂ out of the atmosphere. We can remedy this by planting an enormous number of trees. We can also let farmed or developed areas grow wild. Between 2005 and 2014, deforestation accounted for around 30% of carbon emissions. During this period, reforestation helped to store 20% of emissions. However, reforestation will not do nearly enough to slow global warming.
 4. Another solution is to **prevent deforestation** in the first place. Some organizations give payments to those who manage forests sustainably. In the US, the Department of Agriculture is encouraging an industry that makes wood panels by gluing smaller pieces of wood together. This gives forest managers a way to use diseased and dying trees before they burn in forest fires. The carbon from these forests is ultimately be stored inside of buildings rather than being released in fires.
 5. We can also find other ways to use plants to take up CO₂. For example, some engineers are developing large systems that **use algae** to trap it. The carbon in these tiny plants can be stored away in a solid form as another carbon reservoir.
 6. Some engineers are investigating methods for managing solar radiation. These include painting roofs white, or putting fleets of white reflectors out at sea. Both would increase the planet's albedo, and reflect more solar energy back into space.

More information on Mitigation

- The website of a youth organization that is suing the federal government to secure a healthy atmosphere:
<http://ourchildrenstrust.org/>
- The Princeton stabilization wedges are a way to plan a decrease in carbon emissions by combining multiple "green" power sources to replace fossil fuels:
<http://cmi.princeton.edu/wedges/intro.php>
- The Alliance for Climate Education gives presentations at high schools and helps high school students take action on climate change:
<https://acespace.org/>



- Renewable energy and energy conservation resources (7:24)
https://www.youtube.com/watch?v=_JWxAAeQXe0
- A brief look at different kinds of renewable energy from Earth: The Operator's Manual (7:24)
https://www.youtube.com/watch?v=_JWxAAeQXe0
- Yale Climate Connections on green roofs (1:30)
<https://www.youtube.com/watch?v=1W64-CI7Ir4>
- Yale Climate Connections on insects for food (1:30)
<https://www.youtube.com/watch?v=3bDcSM3JE5o>
- Yale Climate Connections on urban solar power (1:30)
<https://www.youtube.com/watch?v=aFZmZJvsMc4>