CLEAN AIR TASK FORCE

Impact of Methane on the Environment and Human Health

February 2023

CATF: Who We Are

- Our mission: We push the change in technologies and policies needed to get to a zero-emissions, high-energy planet at an affordable cost for a world where **the energy needs of all people are met efficiently without damaging the atmosphere.**
- Founded in 1996 in the U.S., now present around the world.
- 150+ global staff from Berlin to Brazil, San Francisco to China, Mexico City to Abuja

CLEAN AIR TASK FORCE

Why Methane?

Methane and Global Warming

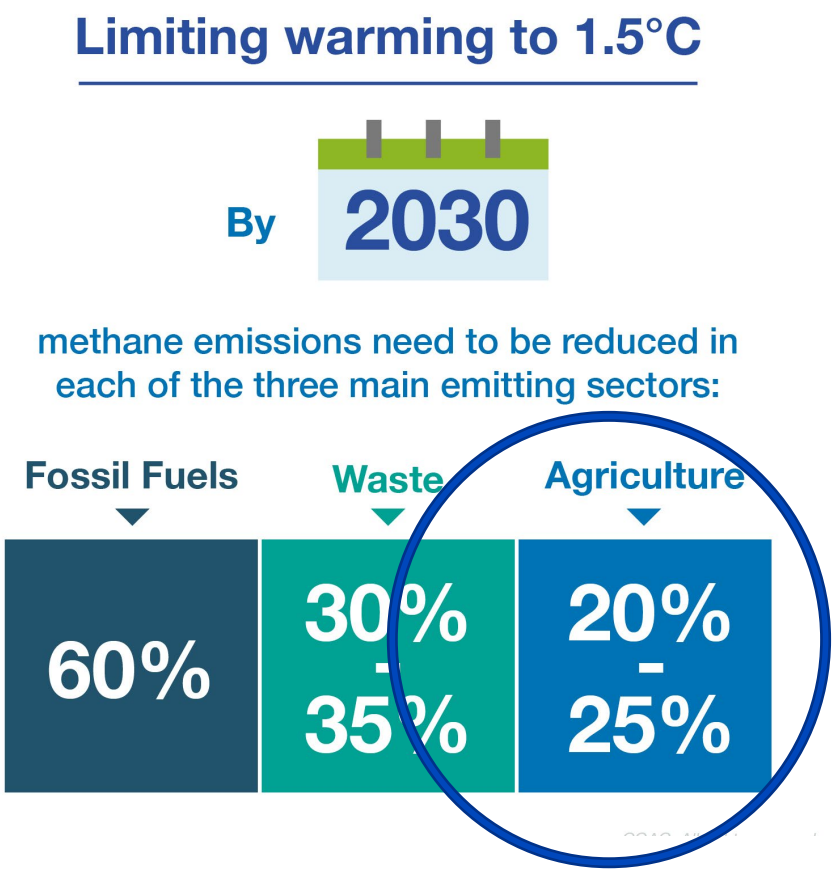
- Reducing methane is the fastest way to slow global warming, avoid near-term and irreversible impacts
- CO2 measures are simultaneously necessary but won't show impact on global warming quickly, as it stays longer in the atmosphere
- Atmospheric concentrations of methane increasing faster now than at any time in the observational record -- now more than 270% above pre-industrial levels
  - Driven by three anthropogenic sources: fossil fuels, agriculture, and waste
- Methane concentrations have skyrocketed & projected to continue rising through at least 2040; current concentrations well above levels in the 2° C scenarios envisioned by the IPCC

If the methane rise continues, meeting almost any climate goal **will not be possible**, even under *very* optimistic CO_2 scenarios.

Deep and rapid cuts to methane emissions are essential to limiting warming in the near term and reducing peak warming.

Global Methane Assessment

Urgent steps must be taken to reduce methane this decade



METHANE (CH_4)

Methane emissions caused by human activities are one of the most significant drivers of climate change. Methane is also the main precursor of tropospheric ozone, a powerful greenhouse gas and air pollutant.

SOURCES

Methane is one of the fastest growing greenhouse gases in the atmosphere. Human activity causes ⅔ of emissions.

42%
AGRICULTURE

36%
FOSSIL FUEL OPERATIONS

18%
WASTE

3%
OTHER

% = global emissions

IMPACTS

CLIMATE

Responsible for **40% of warming** since the industrial revolution

84x times more powerful than carbon dioxide over a **20-year period**

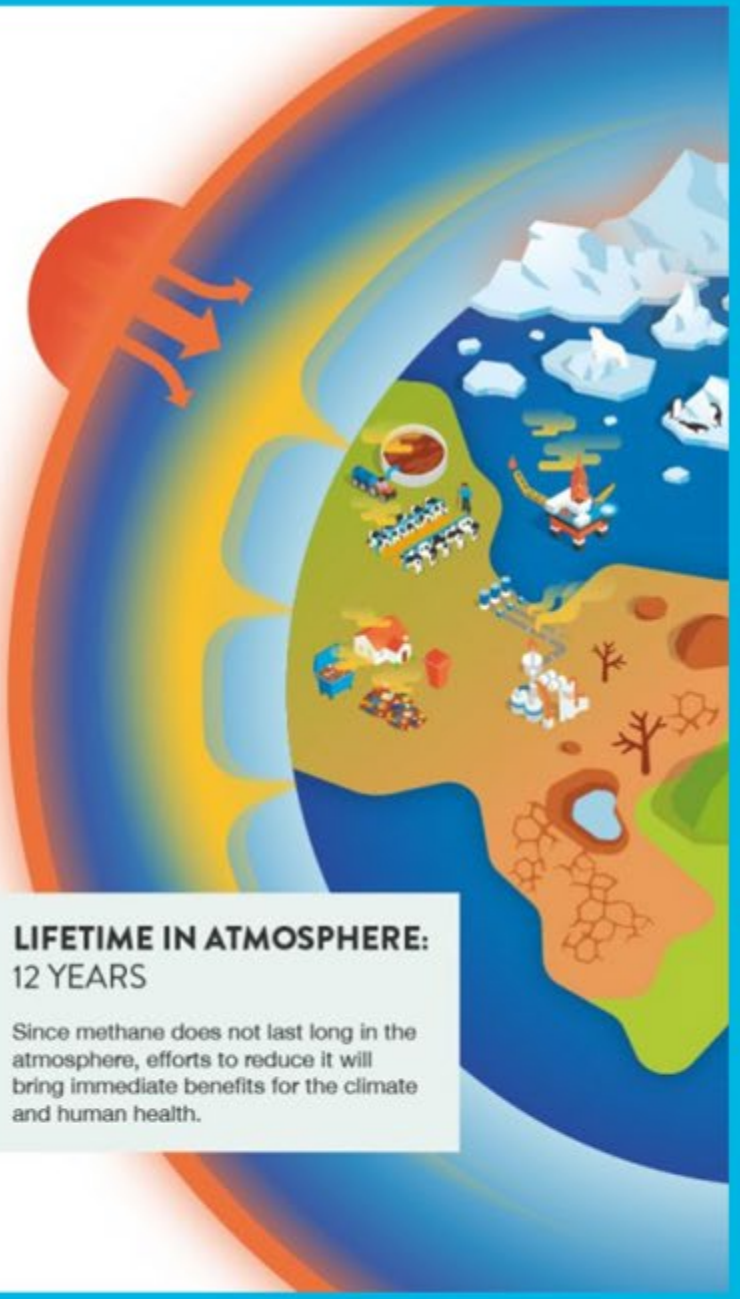
HEALTH

Increasing emissions are driving a rise in tropospheric ozone air pollution, **causing 1+ million premature deaths annually**

- Respiratory diseases
- Heart disease
- Damages airways and lung tissue

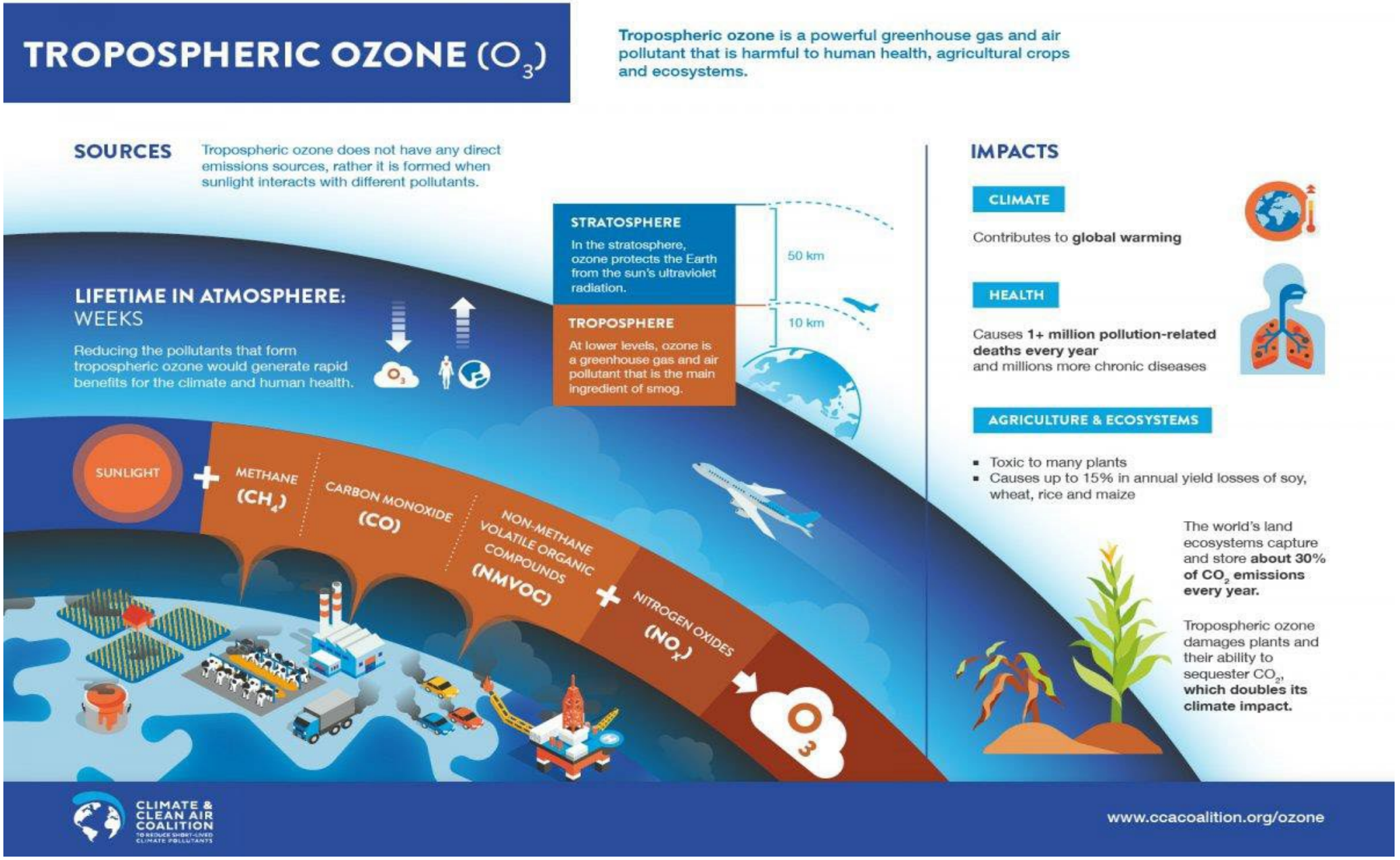
AGRICULTURE & ECOSYSTEMS

Up to **15%** **annual yield losses** of soy, wheat, rice and maize



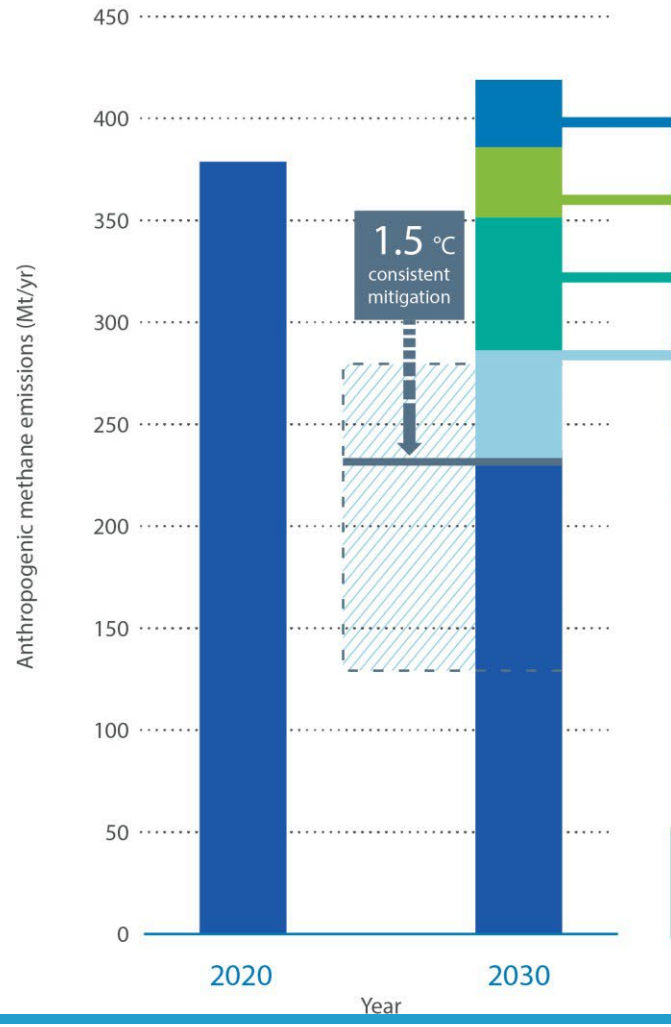
LIFETIME IN ATMOSPHERE:
12 YEARS

Since methane does not last long in the atmosphere, efforts to reduce it will bring immediate benefits for the climate and human health.

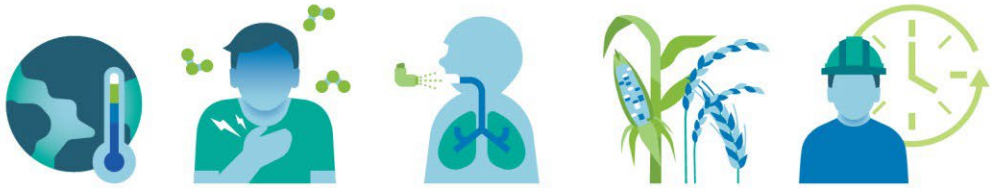


Source: Climate and Clean Air Coalition

Environmental Benefits by Sector



	Avoided warming (C) 2040-2070	Avoided deaths ozone (per year)	Avoided asthma-related ER visits (per year)	Avoided crop losses (Mt/yr)	Lost work hours avoided (billion hrs/yr)
AGRICULTURE	0.04	40 000	120 000	4	11
WASTE	0.05	45 000	135 000	5	13
FOSSIL FUELS	0.09	80 000	250 000	8	24
ADDITIONAL	0.10	90 000	270 000	9	25
TOTAL	0.28	255 000	775 000	26	73



Remaining global anthropogenic methane emissions

Range of methane mitigation consistent with the IPCC 1.5°C pathways

Source: Climate and Clean Air Coalition

The Role of Coal

Global Coal Mine Methane Emissions

- According to the *IEA's Global Methane Tracker 2023* coal mine operations released around 40 Mt of methane into the atmosphere in 2022
- Steam coal and ignite accounted for around 75% of CMM emissions and coking coal 25%
  - But nearly 55% could be avoided with existing technologies; deploying wide-scale mitigation measures is imperative
- Estimates that around 70% of CMM from underground mines can be abated; 20% of CMM from surface mines; differences in abatement potential for steam coal and lignite (about 50% of CMM can be avoided) and coking coal (about 60% of CMM can be avoided).
- Robust policies are imperative to reach climate goals

Source: *IEA Global Methane Tracker 2023*

A Path Forward

2021: The Global Methane Pledge

- **Global Methane Pledge** was formally launched by heads of State at COP 26, in 2021, with more than 100 countries participating.
- Now 150+ have joined and have developed/are developing Methane Action Plans and Roadmaps.
- Commits the collective supporters to a 30% reduction below 2020 levels by 2030.
- Includes agriculture, waste, **coal**, and oil and gas.
- The Pledge is designed to bring high level political attention to methane. Next steps include removing from pledge to action.

Moment to Momentum and Action

- Colombia finalized regulations for oil and gas in 2022
- Nigeria finalized its Methane Guidelines to reduce emissions from its oil and gas industry in 2022
- US Inflation Reduction Act ‘s Methane Emission Reduction Program (MERP)
- Canada launching second round of regulations with a 75% reduction goal
- EU methane regulations
- Countries like the EU, Japan, South Korea are discussing import standards
- Ecuador, Argentina and Nigeria are also working on regulations
- CCAC M-RAP program assisting countries in developing methane action plan roadmaps