

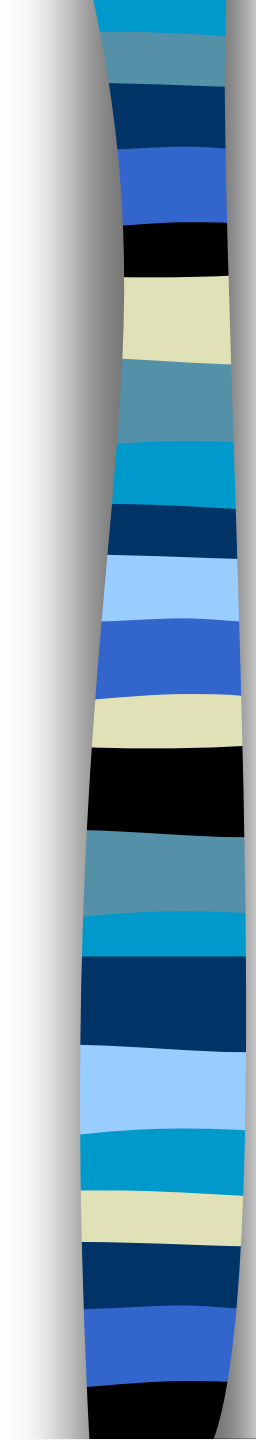
# *The Problem*

*This Fragile Earth, Our Island Home*

Session 2 of 6

Interfaith Association of Greater Long Beach, NY



- 
- Greenhouse Effect and the Carbon Cycle
  - CO<sub>2</sub> in the Atmosphere
  - It's Not Only CO<sub>2</sub>
  - Food System, the Soil
  - Temp Results, Urgency
  - Culprits and Saviors (Sources and Sinks)
  - Barriers – Skeptics, Deniers, Special Interests
  - Summary
  - Q&A
  - What's next

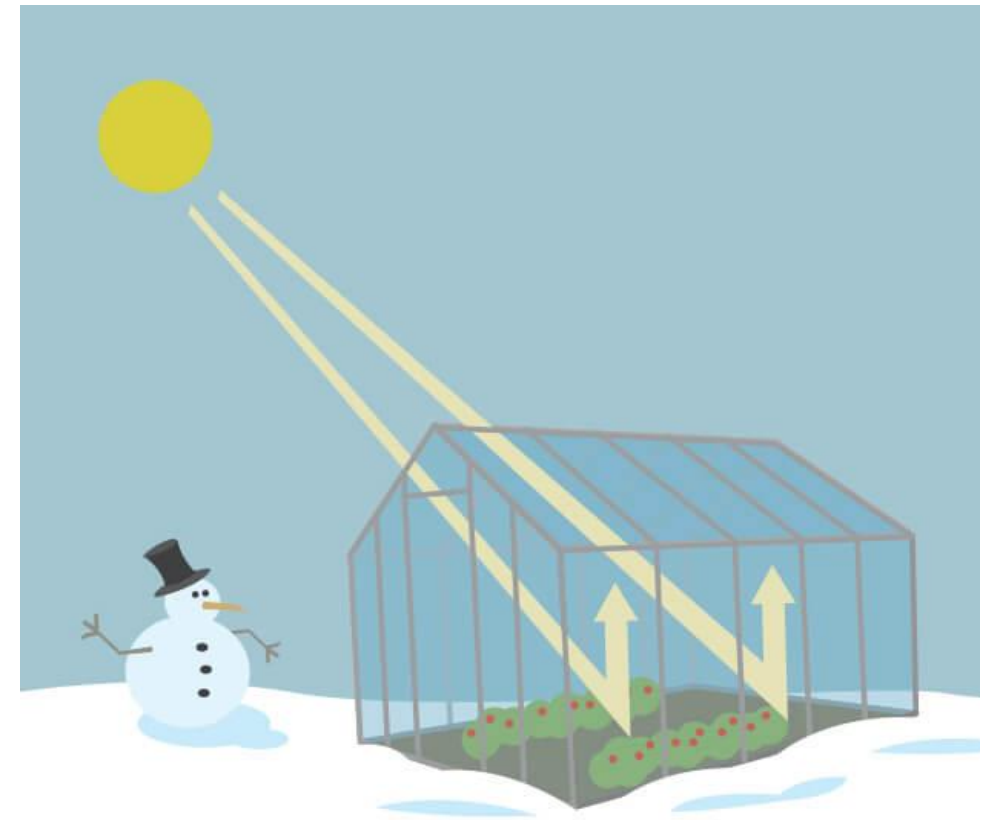
2/11/2021

## Agenda

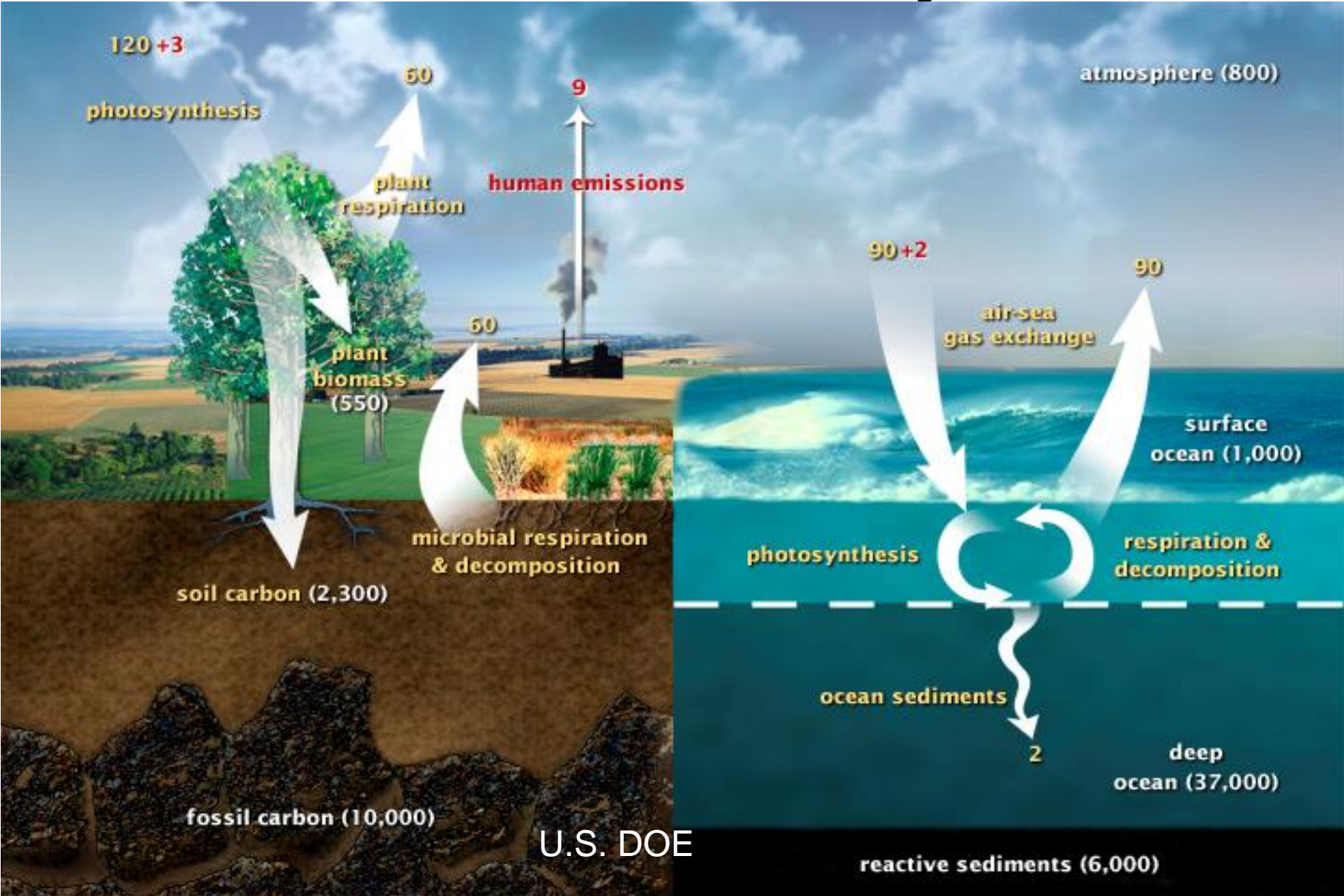


# How does the greenhouse effect work?

The greenhouse effect is a process that occurs when gases in Earth's atmosphere trap the Sun's heat. This process makes Earth much warmer than it would be without an atmosphere. The greenhouse effect is one of the things that makes Earth a comfortable place to live (NASA Climate Kids)



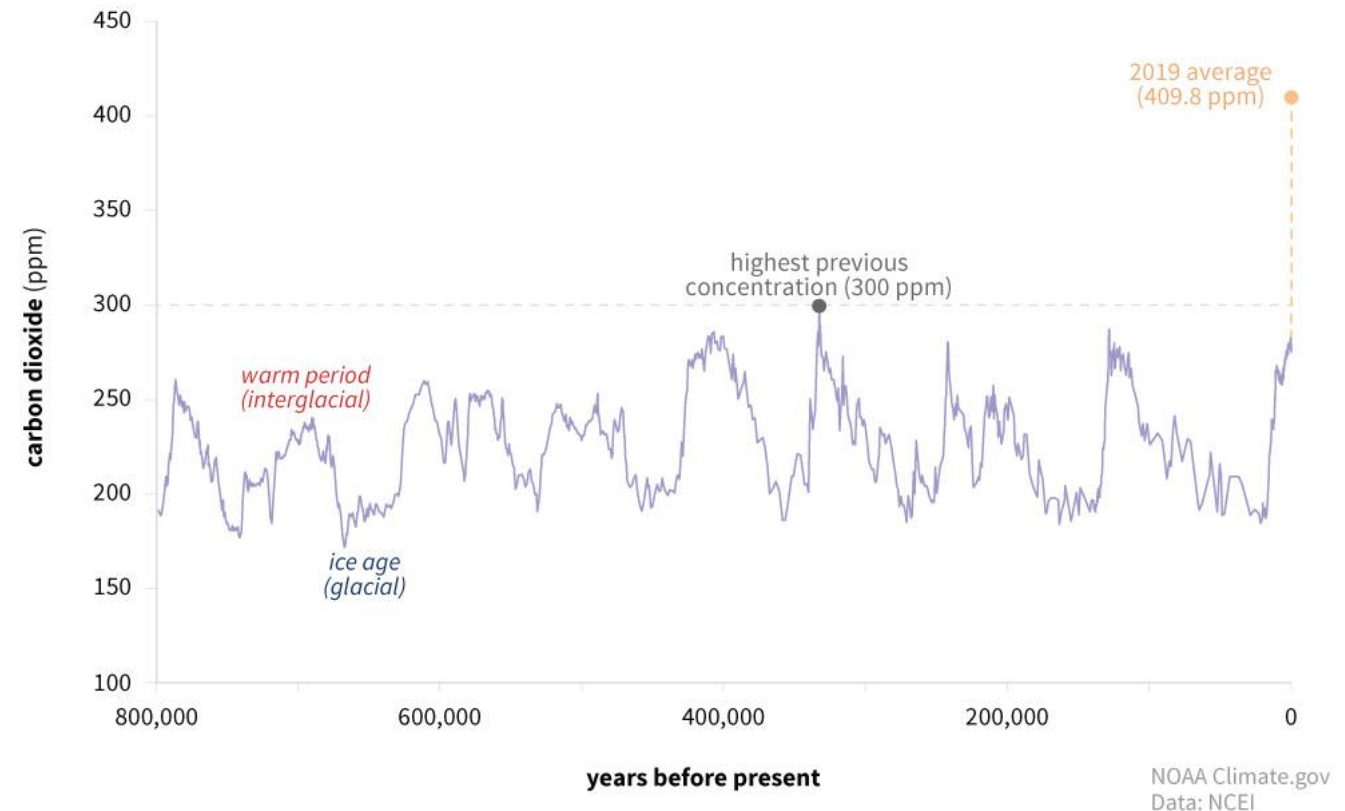
# The Carbon Cycle



# CO<sub>2</sub> in the Atmosphere

- Most important Greenhouse gas – 2/3 of total warming effect
- Lasts longer – centuries
- More abundant than all but water vapor
- Dissolves like fizz in water > ocean acidification

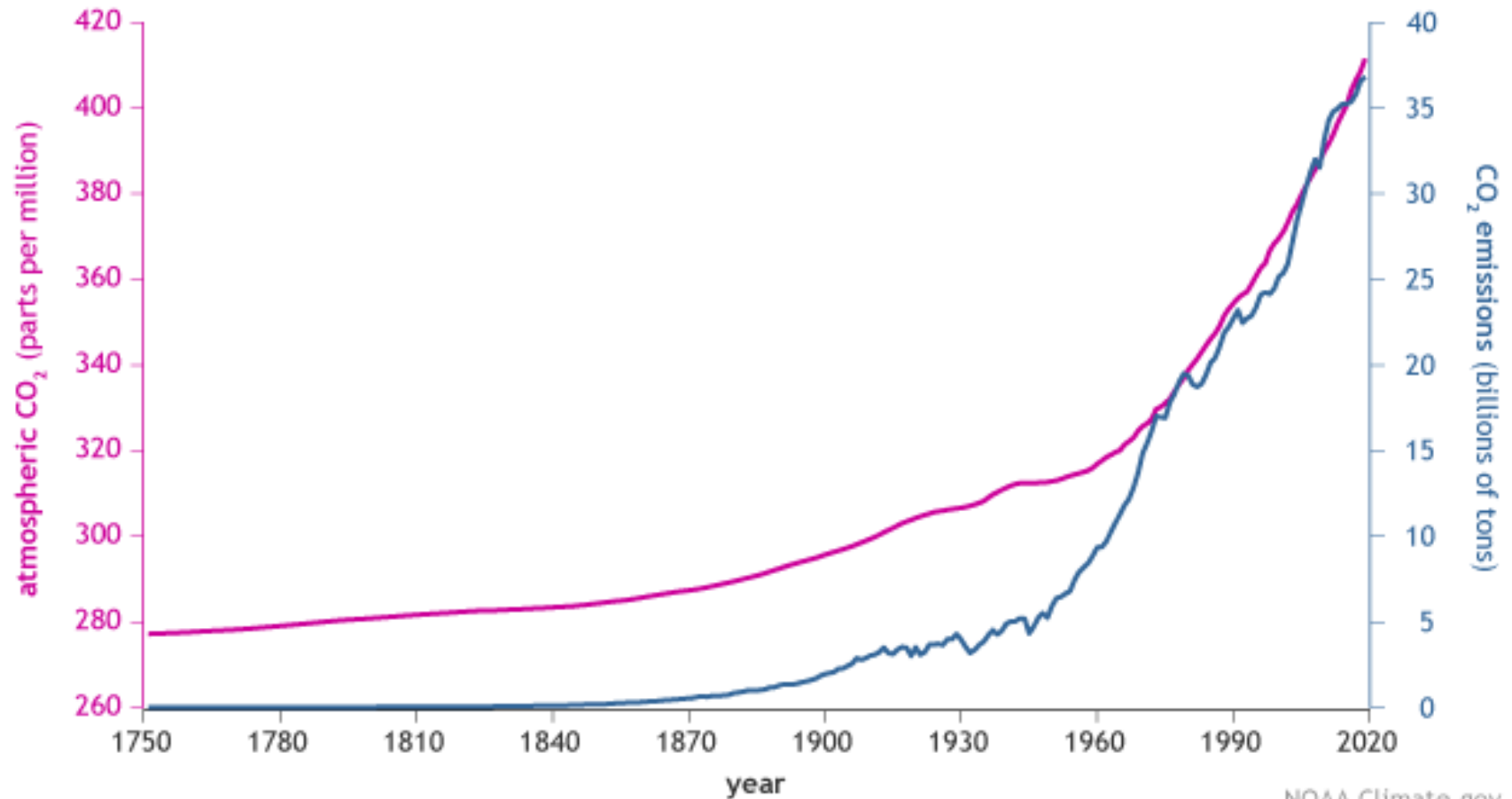
CARBON DIOXIDE OVER 800,000 YEARS



2/11/2021

# CO<sub>2</sub> in Atmosphere, Annual Emissions

CO<sub>2</sub> in the atmosphere and annual emissions (1750-2019)



NOAA Climate.gov

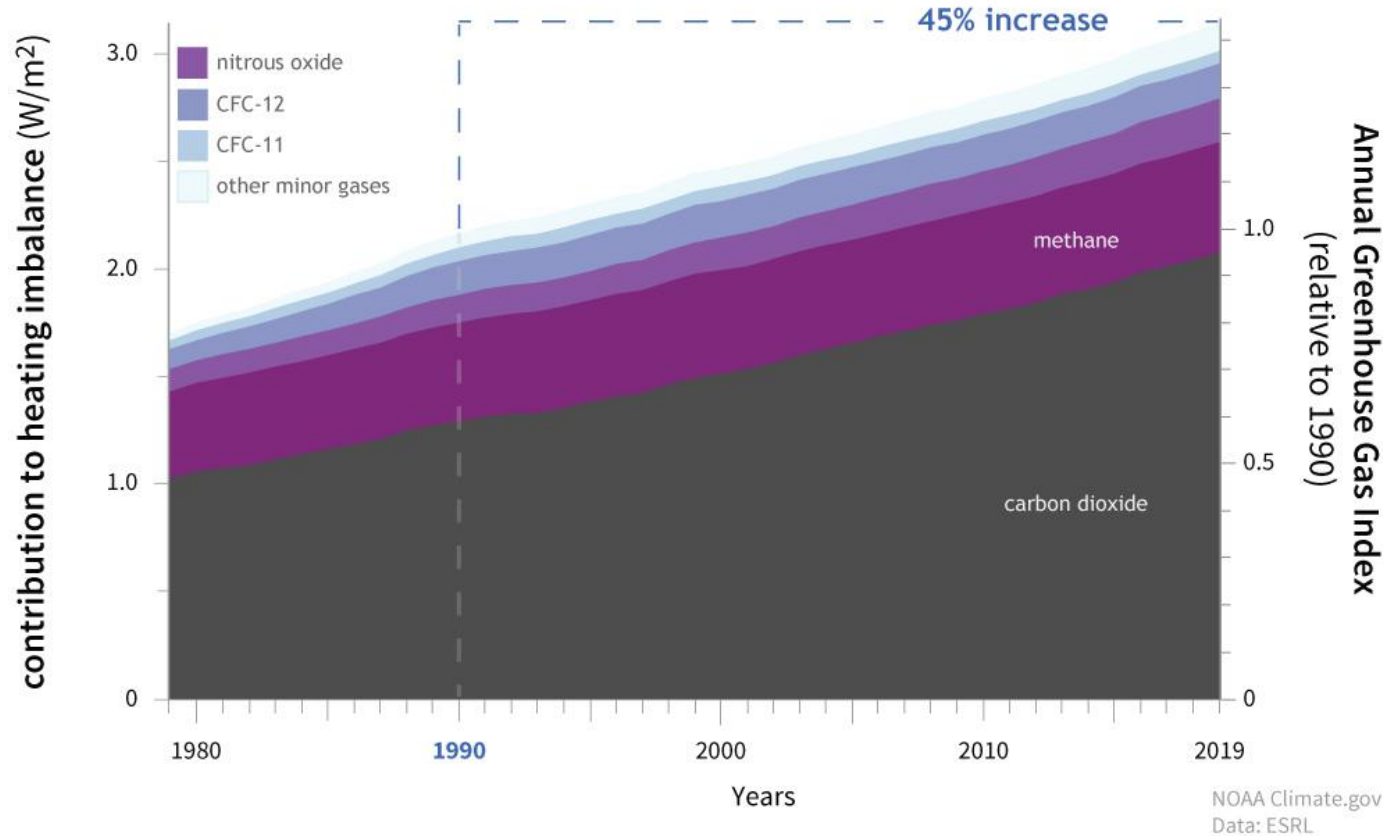
Data: NOAA, ETHZ, Our World in Data

2/11/2021

This Fragile Earth, Our Island Home  
Session 2 The Problem

# Its not only CO<sub>2</sub>

## COMBINED HEATING INFLUENCE OF GREENHOUSE GASES



## Methane (CH<sub>4</sub> Natural gas)

- 25 times more potent than CO<sub>2</sub>
- Food system, orphaned wells,

## Nitrous Oxide (laughing gas, N<sub>2</sub>O)

- 300 times more potent than CO<sub>2</sub>
- Stays in atmosphere a long time
- Food system link

## F Gases

- Potent heat trappers
- Refrigerant management #1 Drawdown solution

# Food System, Farm Practices

- Nourishment > diabetes & heart disease
- Strong communities, good living > exploits workers, racial & income inequality, drains money from local economies
- Sustaining & regenerating soil, air, water > despoils the landscape, pollutes air and water, accelerates climate change

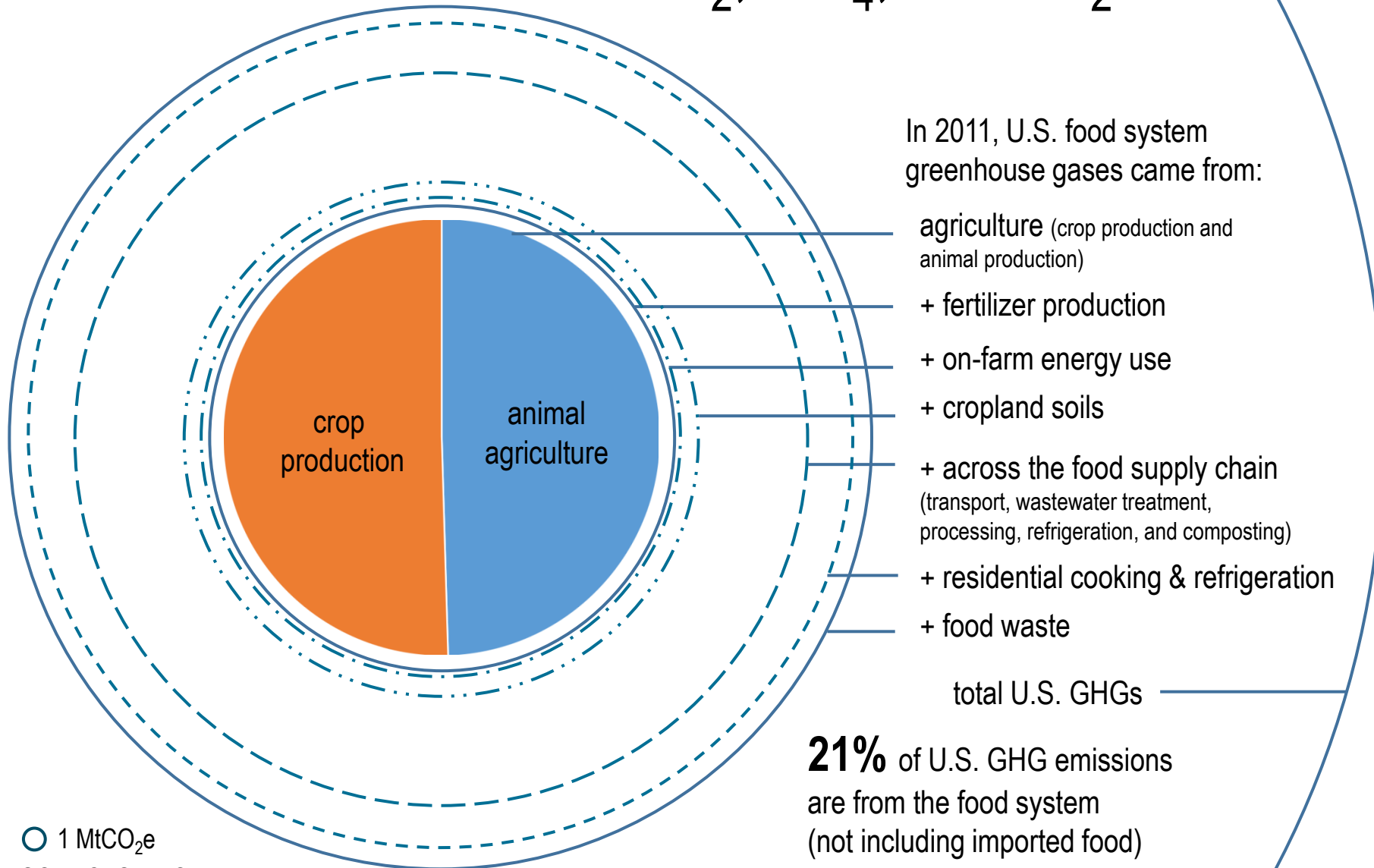


Union of Concerned  
Scientists



This slide is courtesy of Earthjustice

# CLIMATE HARMS: CO<sub>2</sub>, CH<sub>4</sub>, AND N<sub>2</sub>O



○ 1 MtCO<sub>2</sub>e

SOURCES: FAO, EPA

# METHANE

This slide is courtesy of Earthjustice

29,233 kt CH<sub>4</sub> = 730.8 MMT CO<sub>2</sub>e = 10.6% U.S. GHG Emissions

>33% of CH<sub>4</sub> Emissions Associated with Food System



# NITROUS OXIDE

This slide is courtesy of  
Earthjustice

1,354 kt N<sub>2</sub>O = 403.5 MMT CO<sub>2</sub>e = 5.9% U.S. GHG Emissions

>83% of N<sub>2</sub>O Emissions Associated with Food System



# CARBON DIOXIDE

5,556,007 kt CO<sub>2</sub> = 5,556 MMT CO<sub>2</sub>e = 80.9% U.S. GHG Emissions

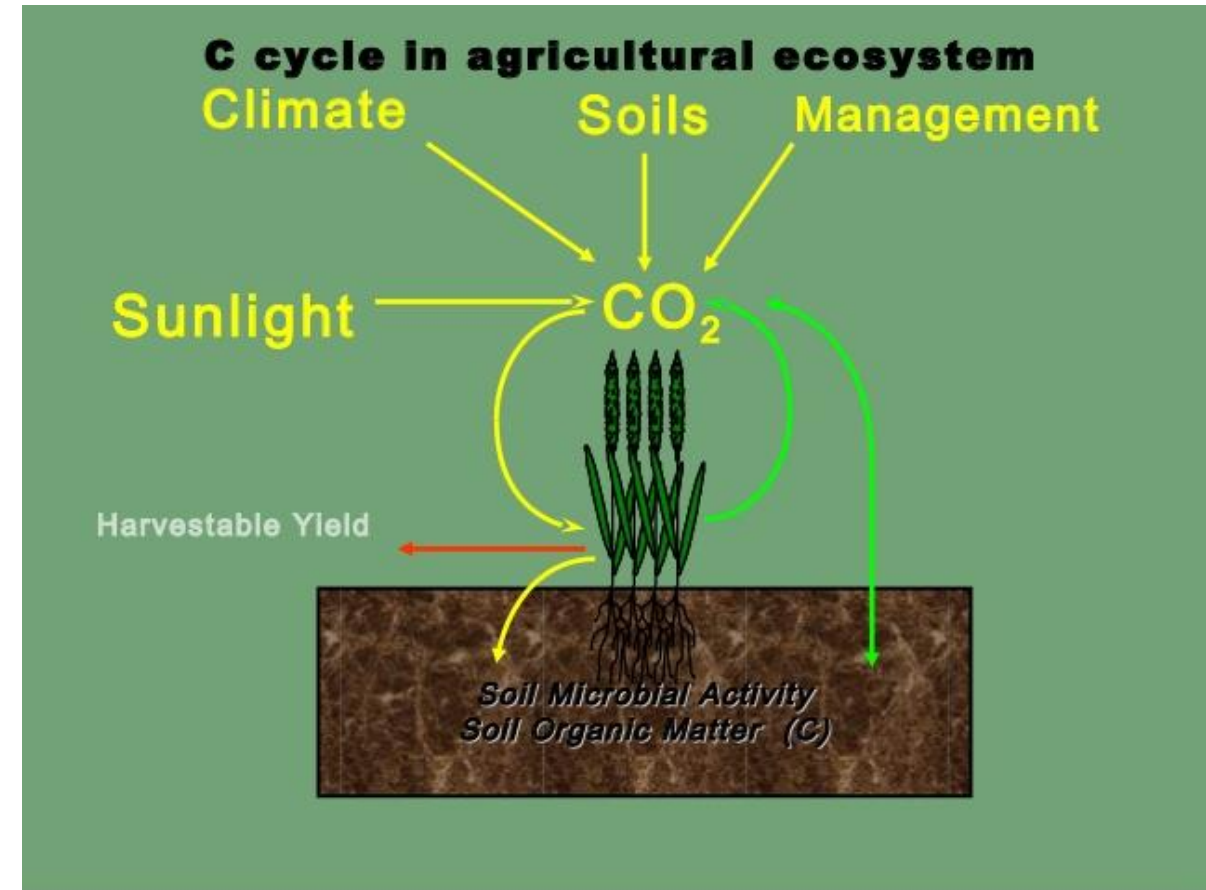
~ 8% of CO<sub>2</sub> Emissions Associated with Food System



This slide is courtesy of Earthjustice

# Soil health, sequestration

- Underground ballet, commodity exchange
  - Sugars > plant & soil food web
  - Nutrients to plants
- Agricultural malpractice
  - Plows and pesticides
  - Destruction of living community
- Results
  - 20-40% CO<sub>2</sub> returned to atmosphere
  - Less fertile soil
  - Less retention of water
  - More erosion



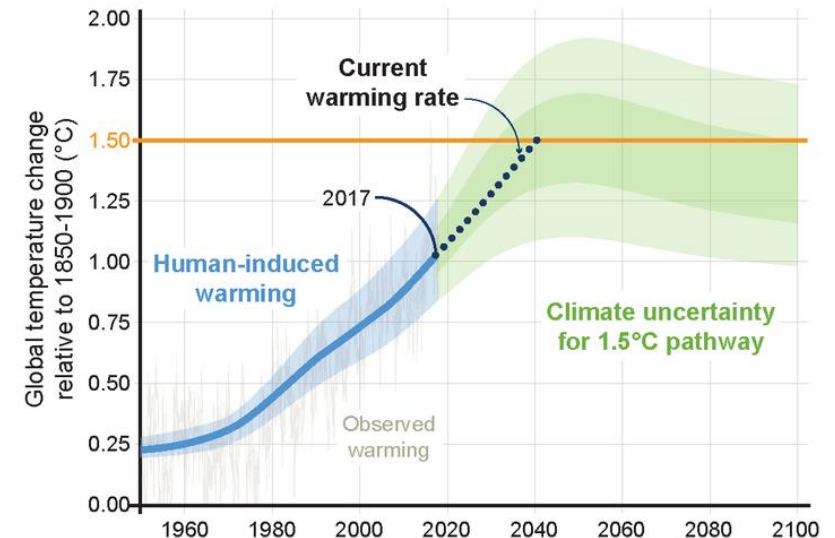
Pravash Chandra Moharana

# Temperature Result, Urgency

- Economic collapse, national security degraded, climate injustice
- 2030 – Rainforest lost, arctic ice free summer (CC accelerated)
- 2040 – Frozen soils thaw, releasing methane (CC accelerated)
- 2050 Ocean heat > coral reefs die, fish populations crash
- 2080 Food production crashes, pollinators disappear, weather unpredictable
- 2100 – 4 degrees C warmer, large parts of earth uninhabitable, 6<sup>th</sup> massive extinction underway, millions homeless

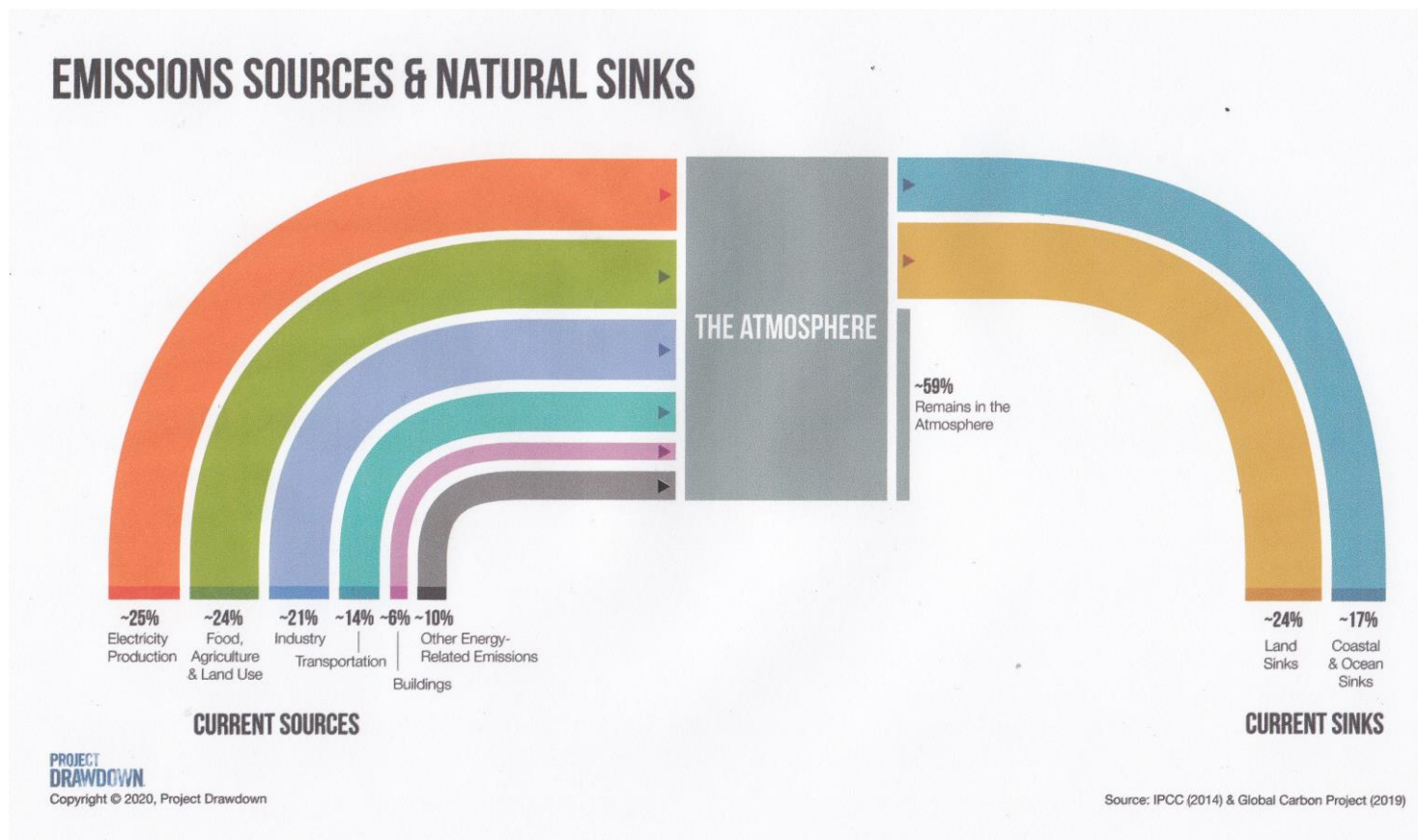
## FAQ1.2: How close are we to 1.5°C?

Human-induced warming reached approximately 1°C above pre-industrial levels in 2017



UN IPCC Special Report on Global Warming 2018

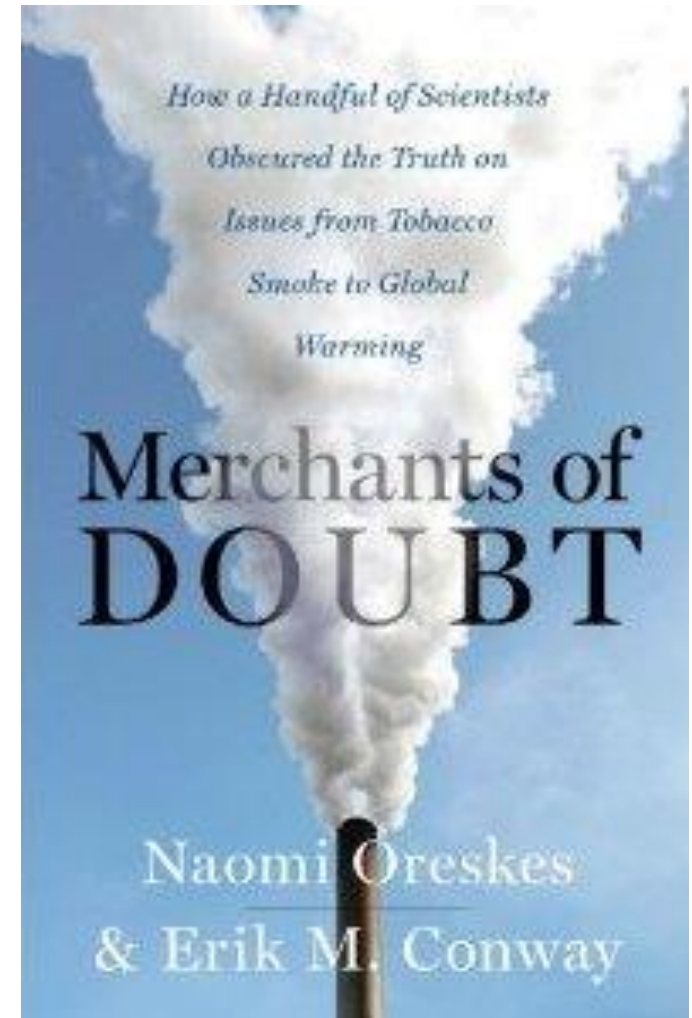
# Culprits & saviors- towards solutions



26% generation of electricity  
24% food, agriculture and land use  
21% industry  
14% transportation  
6% buildings

# Barriers

- Vested interests -rather kill off life as we know it than leave profits in the ground
- Buy policy makers favor
- Disinformation programs
- Seeming hoards of skeptics and deniers in important places and in our neighborhoods







# Summary

The Climate Crisis is real, its very bad and we have caused it

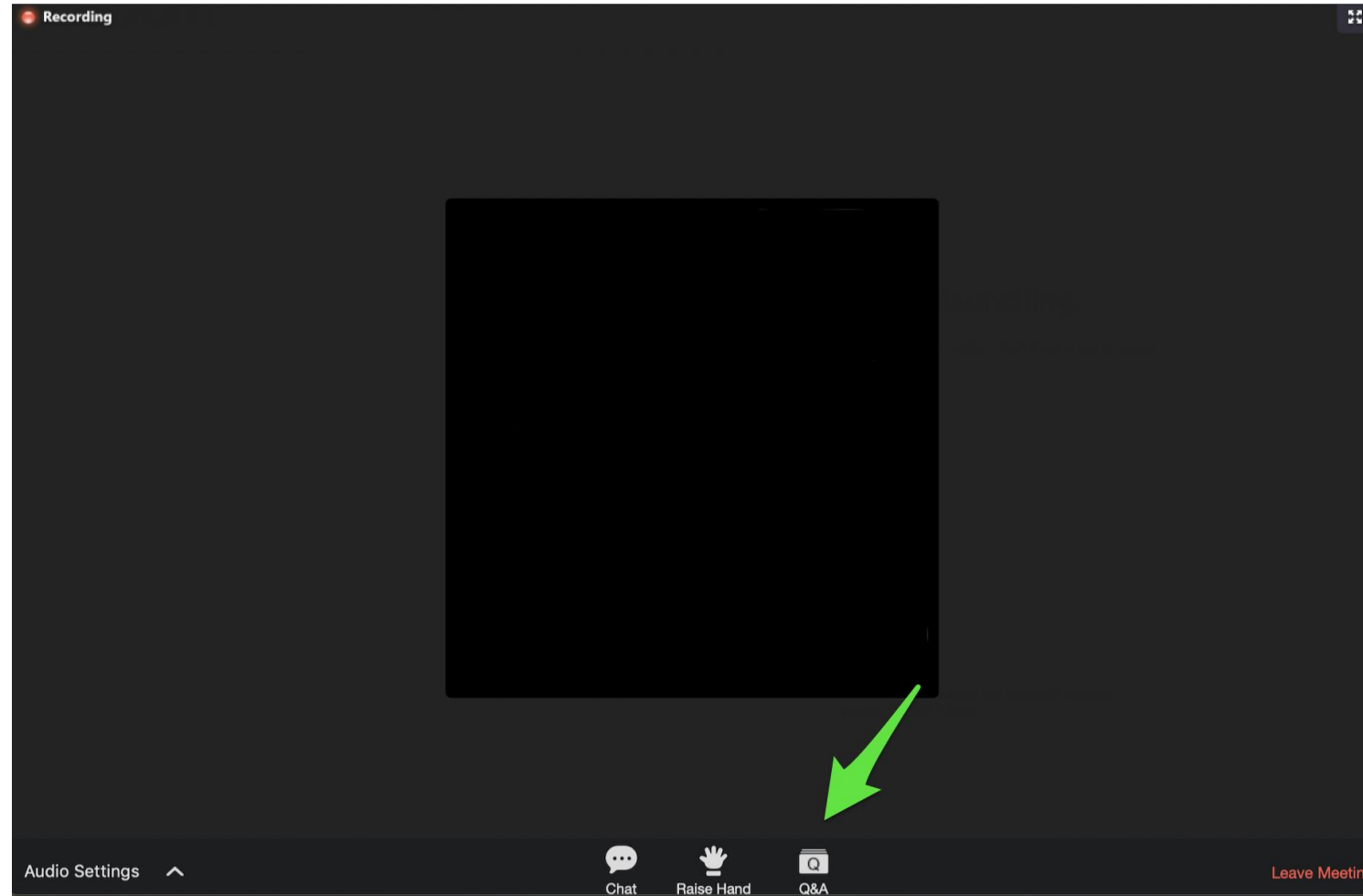
- Imbalance in nature's carbon cycle
- Root causes: emissions, deforestation, ineffective soil management
- Complicated by barriers to solutions by special interests

Context: human's blind assault on the natural world (David Attenborough)

- Bad planning, selfishness, human error
- Loss of Diversity needed to sustain life
- Freshwater systems and oceans.

Stewardship or dominion over the earth?

# Q&A



2/11/2021

This Fragile Earth, Our Island Home  
Session 2 The Problem



# What's next?

## #3 ***Bold Action (what has to happened to keep us from blowing thru the 1.5°C threshold)***

Follow up email tomorrow with homework (a quiz)

- Registration for session
- Refences
- Slide show
- Recording of this webinar

Can't wait? Go to the ***Info Page***  
<https://tinyurl.com/withGreta>