

Quiz session 2 – The Problem

Quiz

- Which of the following are true of the Greenhouse Effect?
 - A process that occurs when gases in Earth's atmosphere trap the Sun's heat from escaping back into space.
 - Makes Earth warm enough to live comfortably
 - Human activities are changing Earth's natural greenhouse effect
 - Too much of these greenhouse gases can cause Earth's atmosphere to trap more and more heat, causing Earth to warm up
 - All the above
- True or False? The Carbon Cycle is a natural process that moves Carbon between land, atmosphere and oceans. This process is presently out of balance causing ocean acidification and global temperature to rise.
- Which of the following are true about Carbon Dioxide (CO₂) in the atmosphere?
 - Until the 20th century, the amount of CO₂ in the atmosphere has regularly cycled between about 150-300 parts per million (ppm) over the last 800,000 years.
 - The peaks (of high CO₂) corresponded to warmer, interglacial period, and the valleys (periods of low CO₂) happened during ice ages.
 - During these cycles, CO₂ never exceeded 300 ppm until the twentieth century revolution.
 - The amount of CO₂ in the atmosphere tracks directly with the amount of CO₂ emissions from human activity, and reached 400 parts per million in 2015.
 - All the above
- True or False? Methane (CH₄) is not as powerful heat trapping gas as CO₂ but it is more abundant than CO₂.
- Which is true about Nitrous Oxide (N₂O)?
 - Our dentist may use it as an anesthetic.
 - 300 times more potent than CO₂.
 - Stays in the atmosphere a long time.
 - Linked to the climate crisis thru agricultural soil management.
 - All the above.
- 1.5°C is considered by the consensus of the global scientific community (which includes US scientists) as the threshold – the highest possible global average temperature increases above pre-industrial levels, that would sustain the kind of life as we enjoy now. Which is true about global average temperature?
 - It reached 1.0°C above pre-industrial levels in 2017
 - At the present rate, global temperatures would reach 1.5°C above pre-industrial levels around 2040.
 - Blowing thru the 1.5°C threshold would likely cause the loss of rainforests, an ice-free arctic summer, and thaw frozen soils before 2040– all accelerating the rate of climate change
 - All the above
 - None of the above.

7. Which of the following is true about the US food system?
 - a. It is responsible for 20-30% of US greenhouse gas emissions
 - b. Most agricultural emissions are methane (from cow belching and animal manure stored in waste lagoon) and nitrous oxide (from synthetic fertilizer), although CO₂ is also emitted by activities such as production of inputs, food processing, transportation and refrigeration.
 - c. Agricultural (mal) practices such as plowing and the use of pesticides result in 20-40% of carbon being returned to the atmosphere.
 - d. Industrial agricultural processes are destroying the very soils needed to feed us
 - e. All the above.
8. *Project Drawdown* estimates the share of global emission from various sources. Match the percentage with the source (Hint: look at slide #15 in the [presentation](#))

Emission Source	Percent Contribution
Generation of electricity ____	A. 6%
Food, agriculture and land use _____	B. 14%
Industry ____	C. 21%
Transportation _____	D. 24%
Buildings _____	E. 26%

9. What can be said about vested interests as barriers to achieving a stable climate?
 - a. Some would rather kill off life as we know it than leave profits in the ground.
 - b. Powerful/wealthy corporations/individuals can buy political favor
 - c. Sponsor sophisticated disinformation campaigns like the ones used in the past for the tobacco industry
 - d. All of the above
 - e. None of the above
10. True or False? The primary cause of the climate crisis is human activity in two areas especially: (1) the emission of heat trapping gases, for the most part but not exclusively by the combustion of fossil fuels, and (2) deforestation/ineffective soil management

Answers: 1e, 2 True, 3e, 4 False. (Methane which amounts to about 15% of GHGs is 25 x more potent than CO₂ which makes up about 75% of GHGs. Methane is increasingly worrisome because of orphaned wells and its emissions from our food systems). 5e, 6d, 7e, 8 Generation of electricity: E (26%), Food, agriculture and land use: D (24%), Industry: C 21%), Transportation: B 14%), Buildings: A (6%) (The relative amounts of the contributions are important as we seek solution – for example, electricity being the biggest culprit should be a priority target for action). 9d, 10 True