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What We Eat Is Central to The Climate Crisis

What is causing global warming?

The carbon cycle occurs naturally when carbon dioxide is released into the atmosphere as a result of waste production and cellular respiration by living organisms (IPCC Fifth Assessment Report, 2014). The cycle closes when atmospheric carbon dioxide is utilized by photosynthetic species to produce oxygen to sustain the living organisms of the planet. Human activity causes the release of excessive amounts of CO2, pushing the natural cycle out of equilibrium. Carbon dioxide is one of the four major greenhouse gases (GHG) along with methane (CH4), nitrous oxide (N2O), and water vapor. CO2, CH4, and N2O prevent heat from being released into space, leading to increases in global temperatures (Clark et al., 2020). These changes have damaging impacts that could become irreversible if actions are not taken soon.

What are the major contributors of greenhouse gases?

Fossil fuel combustion, electricity production (other than hydroelectricity), industry, deforestation, fertilizer use, and food waste constitute enormous contributors of GHG (Clark et al., 2020). Between 2012 and 2017, the global food system was alone responsible for the emission of approximately 16 billion tonnes of CO2 per year. Thus, the regulation of fossil fuels alone is insufficient to constrain the increase in global temperature to under 2°C as stated in the Paris climate agreement (Rogelj et al., 2016).

How does the food system affect global emissions of GHG?

The food system is responsible for land clearing, deforestation, fertilizer runoff, meat production, and the use of fossil fuels (Clark et al., 2020). Each of these have negative impacts on the planet, but the production of meat is one that has the largest net negative effects. Ruminants like cows, sheep, and goats require

immense amounts of food and water for maintenance (Hoekstra, 2012). As a by-product of their digestion, ruminants produce methane, and their manure contains nitrous oxide. Globally, meat consumption has increased as a result of growing portion sizes, economic expansion, and rising population sizes. Unfortunately, the benefits of meat consumption do not outweigh its costs, especially in terms of what it does for human health. Studies have found that the consumption of meat is strongly correlated with the development of cancer (Ferguson, 2010), heart disease, and Type 2 diabetes (Richie et al., 2015).

Another disadvantage of the current food system stems from the quantity of food it wastes (FAO, 2011). Annually, the world is estimated to waste 1.3 billion tonnes of food. Food waste occurs when food quality is compromised as a result of improper storage (i.e., lack of refrigeration) and overproduction (Clark et al., 2020). Such losses have put the global food industry under scrutiny when considering that 135 million people routinely suffer from hunger and malnutrition across 55 countries and territories (Global Report on Food Crises, 2020).

The agriculture industry is also responsible for global warming because of fertilizer runoff (Clark et al., 2020). Nitrogen runoff disturbs the natural nitrogen cycle as it creates an excess in the amount of reactive nitrogen present in the atmosphere. On land, nitrogen can seep into water bodies (e.g., lakes, oceans) where it can disrupt entire ecosystems (Beman et al., 2005).

Who can help and how?

The global food system is controlled by farmers, industries, governments, and consumers. Hence, the reduction in emissions from the food system necessitates a joint effort. At the government level, policies can be put in place to regulate how farmers and industries conduct their business. For example, in 1991, the European Union put in place the "Nitrates Directive" which helped diminish the amount of nitrogen runoff from agriculture (Clark et al., 2020). Similar policies need to be put in place as soon as possible as warned by scientists; however, while these are in the process of implementation, the consumer holds the power to act immediately and with a large influence too.

At the consumer level, changes in diet and shopping behaviour represent the top two solutions. In terms of diet, environmental researchers suggest a shift to plant-based diets as they waste less water and produce fewer emissions (Clark et al., 2020). Plant-based diets have also been found to have better health outcomes than diets high in meat and dairy products (Kahleova et al., 2018).

How can one overcome the challenges of a plant-based diet?

Dietary habits are deeply embedded within culture; therefore, altering them can present a serious challenge. For this reason, scientists often recommended a reduction in meat consumption as opposed to going cold turkey (Lea et al., 2006). Several organizations have started campaigns like "Meatless Mondays", which encourage people to avoid animal products on certain days of the week (Zenoff et al., 2014). To be successful at eating mostly plant-based foods, one must start slow. Here are some tips on how to create the shift:

- Estimate how many of your meals contain meat, dairy, and eggs per day and/or per week.
- Eliminate one meat, dairy, or egg product per meal. This can be done by substituting with a plant-based protein. For example, if your dinner consists of rice, chicken, and vegetables, you might want to substitute the chicken with a plant protein source like beans, lentils, or tofu instead.
- Create a quick list of possible substitutions for animal products so that it is easier to pick plant-based options at the grocery store. This will require some research, so plan in advance.
- Once you get accustomed to the smaller changes, consider trying to eliminate more products. For example, try going completely plant-based for three days a week. To make things simpler, websites like Forks Over Knives provide complete guides to make the switch to a plant-based lifestyle easier so make sure to check them out.
- Remember that you can reduce your meat consumption without having to abandon the food traditions of your culture. It is all about moderation.
- Lastly, remind yourself of the importance and benefits of a plant-based diet to keep your motivation up.

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