

Addressing Food Supply and Public Health Concerns Related to Climate Change

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Connection Between Climate Change and Food Supply

Climate change negatively affects [food production](#) in non-Arctic areas through altered precipitation patterns, extreme weather events, rising temperatures, and shifting pest and disease patterns. These changes lead to [reduced crop yields](#), crop failures, decreased ability to produce [livestock](#), and diminished agricultural productivity, affecting [global food supply and security](#). Climate change also worsens soil degradation, water scarcity, and resource competition, challenging the sustainability of agriculture.

While growing food in the contiguous U.S. will get increasingly more difficult and climate change is [harming current Arctic subsistence food systems](#) (i.e., legally [subsistence is defined as](#) hunting, fishing, and gathering food, but to Indigenous Peoples subsistence is a way of life, a connection to ancestors, and part of spirituality) and permafrost cellar storage, one silver lining is that climate change could [enable Alaska to grow more food](#) due to warming temperatures, allowing for agriculture in more areas of the state and resulting in longer growing seasons. Currently food shipped to Alaska is [not always regular and reliable](#); additionally, it takes a long time and may arrive poorer quality. Alaska growing its own food also helps create [more sustainable living](#) as current subsistence food systems are challenged with [changing ocean temperatures, acidification, and melting permafrost](#).

Climate Change and Food-Related Public Health Risks

The World Health Organization calls climate change the [single biggest health threat facing humanity](#). Climate change's effects on food production and availability can harm human health. Reduced agricultural productivity can [lead to malnutrition](#) in low-income communities and [increased risk of non-communicable diseases](#) like diabetes and heart disease in high-income communities, and changes in environmental conditions [can increase the risk of infectious diseases](#) (e.g., foodborne illnesses).

Disproportionate Effects of Climate Change on Food Insecurity

Climate change disproportionately affects [people systemically disadvantaged](#), which can widen health inequities associated with food insecurity:

Indigenous populations

- [Between 2000 and 2010](#), 25% of American Indians and Alaska Natives (AIAN) were consistently food insecure, double the rate of white Americans. These numbers are similar to Native Hawaiians and Pacific Islanders of whom 20.5% were food insecure in a [2014 survey](#).
- [Factors](#) such as a unique relationship with the natural environment, socioeconomic deprivation, and political marginalization put Indigenous peoples at disproportionate risk of food insecurity.
- The lands to which Indigenous peoples were [forcibly migrated](#) by colonial settlers and the U.S. government have been reduced by nearly 99%, contain fewer economic resources, and experience increased exposure to climate change risks (which [threatens ecosystems](#) that provide traditional foods for Indigenous communities). Consequences of [land dispossession include reduced agricultural suitability](#) and greater vulnerability to food insecurity. This includes [state and federal laws on land and water management that restrict](#) Indigenous Peoples from engaging in their traditional food subsistence practices.

Some communities of color & low-income individuals

- Discriminatory housing practices such as [redlining](#) and blockbusting that segregated communities of color have resulted in disproportionate vulnerabilities to climate change impacts, including food insecurity. Due to the historical lack of resources and development in these neighborhoods, people living in formerly red-lined or blockbusted [neighborhoods](#) are more likely to [experience food inaccessibility](#).
- More information on communities disproportionately marginalized in this climate crisis can be found on the CDC's [Justice, Equity, Diversity, and Inclusion in Climate Adaptation Planning](#) website.

Immediate and Long-term Strategies

- Short-term actions include promoting sustainable agricultural practices, funding agriculture in the Arctic, implementing early warning systems, providing resources to smallholder farmers and marginalized communities experiencing food insecurity, and [integrating health concerns](#) into climate change adaptation and mitigation policies
- Long-term strategies involve investing in [research](#) to produce climate-resilient crops, diversifying food systems, and reducing food waste. Reducing greenhouse gas emissions and supporting global climate change mitigation goals for a sustainable future that safeguards food security and human well-being are also necessary.
- Addressing environmental injustices by prioritizing the voices of marginalized communities and engaging with Indigenous Peoples (who hold millennia of [Indigenous Knowledge and see the earth through kinship perspectives](#)) are key to addressing climate change, creating equitable adaptation strategies that mitigate uneven vulnerabilities, and promoting sustainable land and water stewardship for nutritional health, food security, and public health.

Policy Recommendations

For optimal impact, policies and programs aimed at conveying health risks should:

- Increase funding and incentives for climate-smart farming practices, including using the best genetic material, technology, and management practices, to decrease yield gaps (i.e., the difference between a crop's actual and potential productivity).
- Fund peer-to-peer and other food waste prevention assistance programs for food service providers, including dining services at primary and higher-level learning institutions, and restaurants.
- Fund research for and implementation of technological innovations for intensifying food production. These techniques should allow producers to use less land, water, energy, fertilizer, and pesticides, while reducing greenhouse gas emissions. Examples include moisture sensors that allow for reductions in water use and indoor vertical farming.
- Engage through partnership with and [build capacity](#) in marginalized and systematically disadvantaged communities around climate adaptation and resilience strategies, listening and learning from local knowledge holders.
- Partner with Indigenous Tribes and communities (respecting their sovereignty and knowledge) for climate change decision making, including: community relocating and rights to traditional subsistence foods, as Indigenous Peoples carry millennia of Indigenous Knowledge and [sustainable stewardship practices](#) for Earth.