

Chapter Two: How are people and nature experiencing climate change?

In recent years, the effects of human-induced climate change have become more and more apparent. Rising temperatures are leading to increased droughts and desertification, melting ice caps that increase sea-level rise, and changing ocean temperatures in a way that alters hurricane strength and frequency.

According to the Intergovernmental Panel on Climate Change (IPCC), in the last 150 years, the planet has warmed by 1.1 degrees Celsius. If warming and emissions continue at current rates, Earth is expected to cross the 1.5 degree Celsius threshold between 2030 and 2052, and potentially warm as much as 2.9 degrees Celsius by 2100 ([source](#)).

Just how bad are the impacts of climate change? Climate change is already causing catastrophic and irreversible damage to Earth with just 1.1 degrees Celsius of warming. Droughts, heat, wildfire, and flood records are threatening food, water, and livelihood security. For example, every year since 2008, floods have forced more than 20 million people from their homes ([source](#)). Warmer temperatures are also increasing the spread of diseases, like West Nile virus, malaria, and cholera. Across Africa, crop productivity has shrunk by a third due to climate change since 1961 ([source](#)).

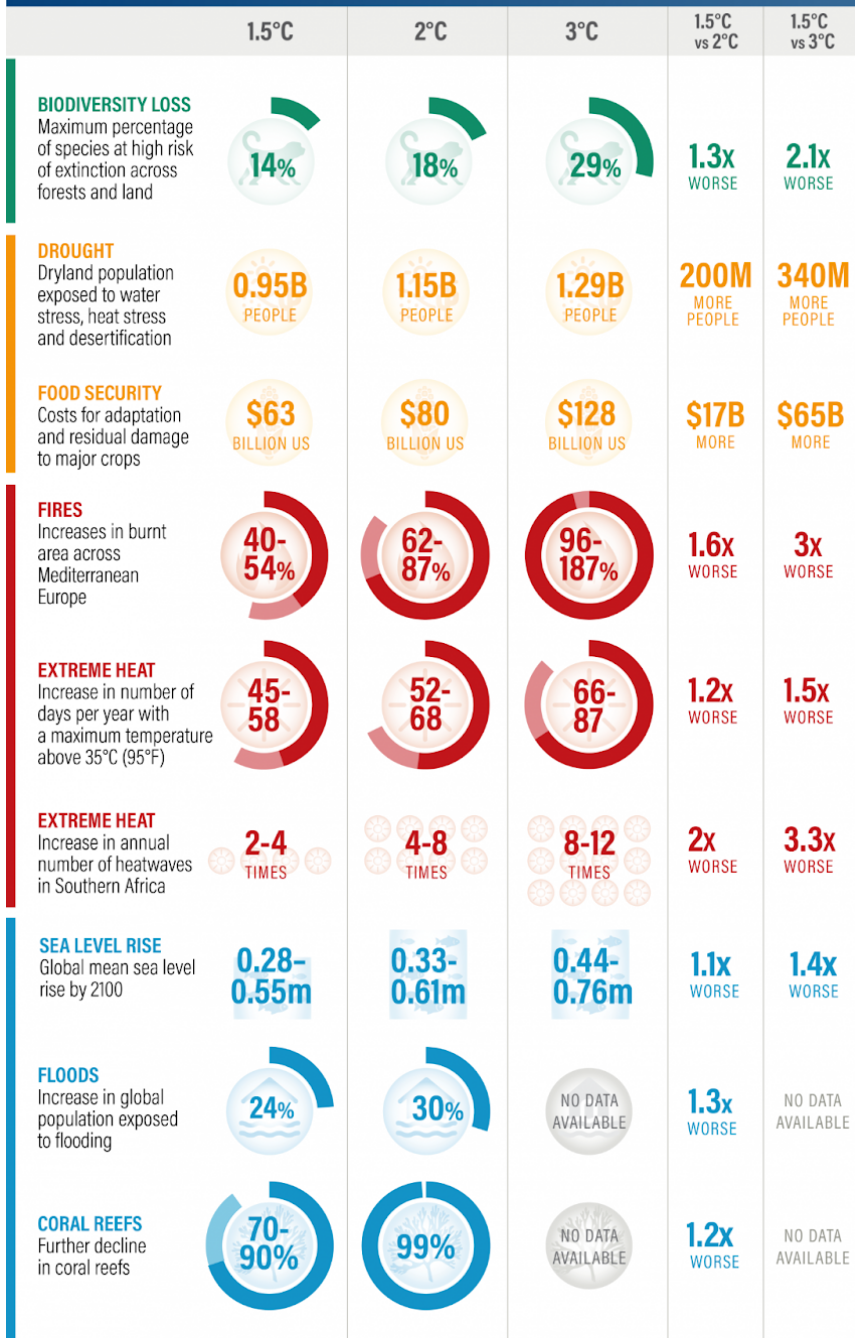
More than half of the global population lives in countries highly vulnerable to climate change. The IPCC estimates that climate change will drive 31-132 million more people into extreme poverty and 350 million into water scarce living situations in the next decade. Global warming will threaten food security due to increased droughts and desertification, while increasing the potential for heat-related deaths ([source](#)).

Globally, mental health and peace will likely decline as resource scarcity and loss of community resources increase. In 2030, increased flood risk could lead to an additional 48,000 deaths in children under 15 years old. Biodiversity loss will skyrocket as sea-level rise drowns islands and coastlines, ice-dependent species lose their home, and invasive species grow as more geographies adopt new temperatures making it easy for them to thrive ([source](#)).

Many rural communities will also have to grapple with climate risks, particularly indigenous peoples whose livelihoods depend on sectors exposed to climate change, such as fishing, agriculture, and tourism. Climate change will likely force more people to move to cities, "forcing indigenous peoples and traditional communities to live on the margins" ([source](#)). The following figures (Fig. 5 and 6) depict just how impactful even a half-degree of difference in climate change can be in wreaking havoc on people and nature:

COMPARING RISKS FROM RISING TEMPERATURES:

EXPLAINING THE IPCC'S WORKING GROUP II REPORT (AR6)



Note: For climate risks with projected ranges, we used the midpoint of the ranges to compare risks at different temperature thresholds. Sea level rise projections correspond to SSP1-1.9, SSP1-2.6, SSP2-4.5, which are roughly approximate to global warming of 1.5°C, 2°C, and 3°C, respectively.

Figure 5: Comparing risks from rising temperature ([source](#))



OUR WINDOW TO AVOID CLIMATE CATASTROPHE IS CLOSING RAPIDLY

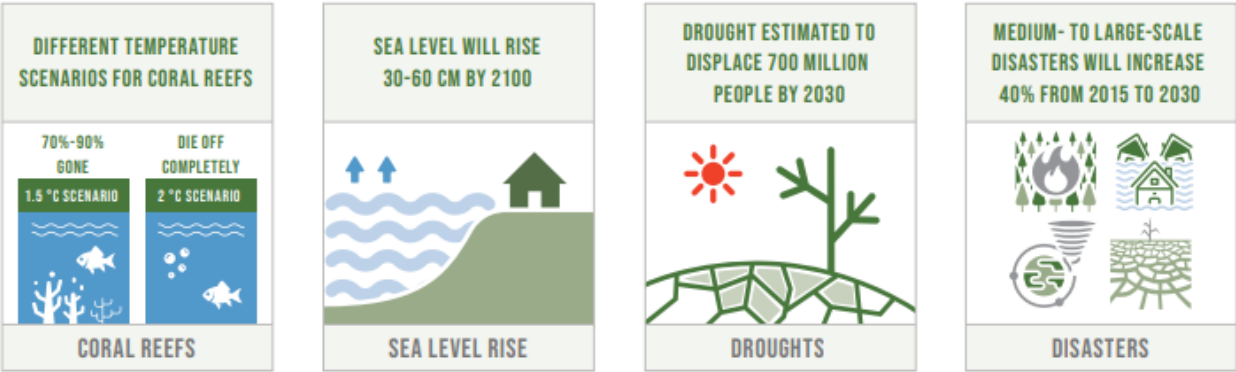


Fig. 6: Several impacts of climate change [source](#)

CLIMATE CHANGE & SOCIAL JUSTICE

Climate impacts are already being felt in society and on Earth itself. As impacts unfold and new science emerges, it's important to acknowledge and confront the significance of who is paying the price of climate change. Though contributing the least to climate change, it is low-income countries, people of color, Indigenous People, women, children and youth, and people with disabilities who are paying the price of climate change due to their increased exposure to the devastating impacts of climate change ([source](#)). As a result, we cannot acknowledge and address climate change without considering social justice as climate change is causing detrimental social, economic, health, and other impacts on the vulnerable. In short, climate change is making existing injustices and inequalities significantly worse.

The most effective approach to addressing climate change starts with recognizing that some communities are more at risk of feeling its impacts than other communities. Keep reading to learn more about the connection between climate and social justice, and why tackling climate change effectively requires us to view the issue through an intersectional lens.

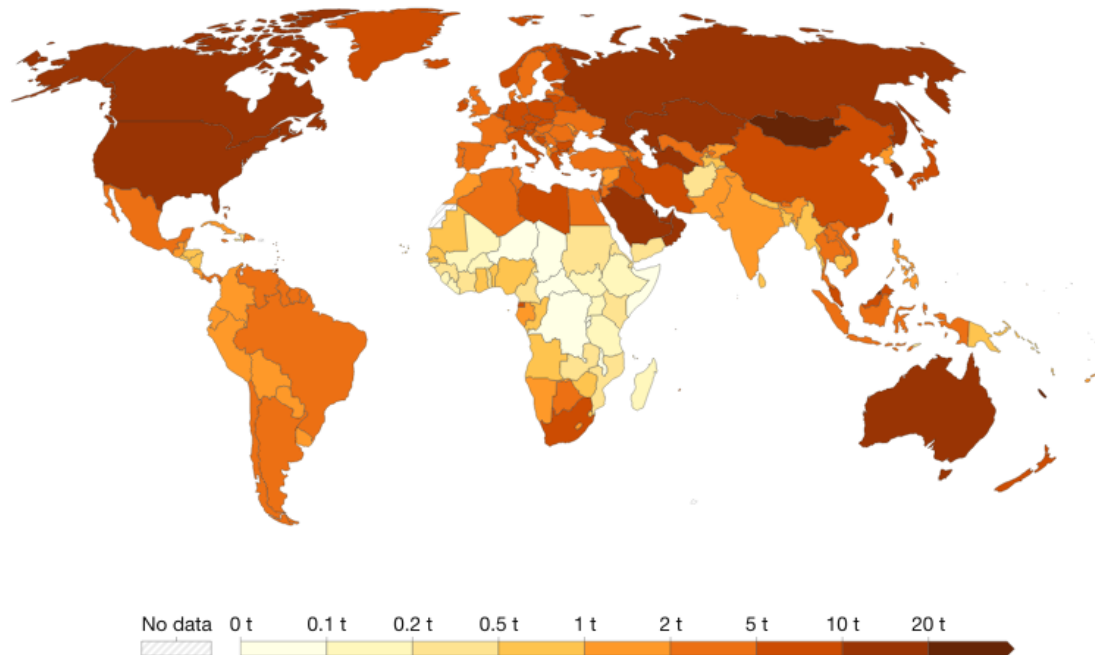
Climate Justice

Climate justice links human rights, development, and climate action. It recognizes that while everyone must do their part to tackle the climate crisis, it also emphasizes that "the world's

richest 10% are responsible for 50% of GHG (fig.7) emissions and the poorest 50% are only responsible for 10% (fig. 8) despite population and energy consumption increasing" ([source](#)). It also acknowledges that lack of climate action is due to the loss of connections between nature and people as well as failure in ensuring equal representation from those most vulnerable to climate change vs. those most responsible. For example, one of the key tenets of the climate justice movement is the clear fact that a majority of countries least responsible for the climate crisis are those feeling its effects most acutely. As you can see in these diagrams, countries with the highest per cápita CO2 emissions are not only the wealthier countries, like the US, UK, and Russia, but also less vulnerable comparatively to developing countries, like the Malawi, Peru, and Small Islands.

Per capita CO₂ emissions, 2020

Carbon dioxide (CO₂) emissions from fossil fuels and industry. Land use change is not included.



Source: Our World in Data based on the Global Carbon Project

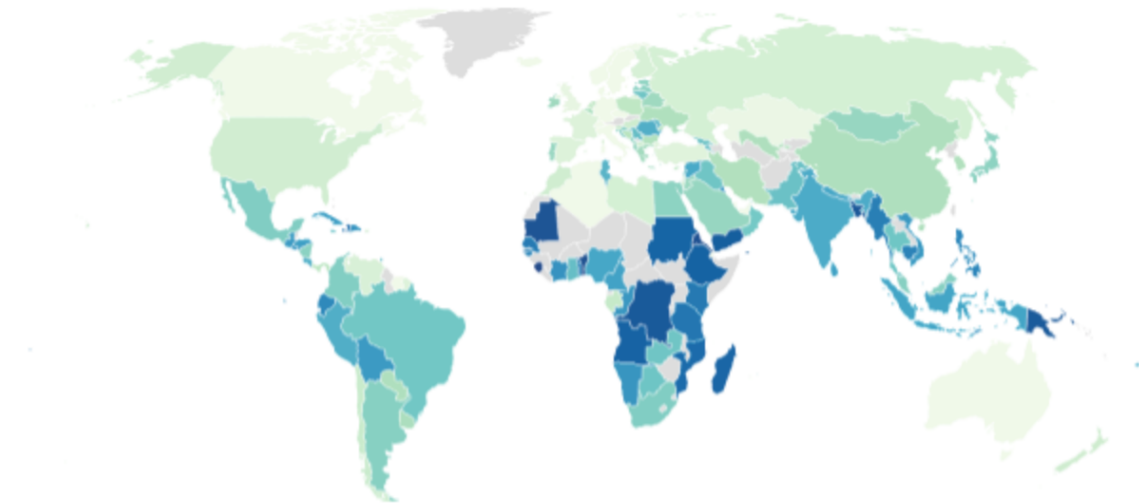
OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/ • CC BY

Figure 7: CO₂ emissions by countries

The countries most vulnerable in the face of climate change

Scientists assessed countries' vulnerability based on food security, water availability, human health and living conditions, ecosystem services and infrastructure, including energy. The most vulnerable countries are in sub-Saharan Africa, South Asia and small island states.

Vulnerability index score



Vulnerability rises with higher scores. Data not available for regions in gray.

Map: The Conversation/CC-BY-ND • Source: [Edmonds, Lovell and Lovell, 2020](#) • [Get the data](#) • [Download image](#)

Figure 8: Distribution of climate vulnerability among countries

The impacts of climate change don't just disproportionately affect marginalized countries. They also impact vulnerable and marginalized populations within countries, including indigenous peoples, people living with disabilities, women and children, and other groups. This has brought to limelight the intersection of social justice and climate change.

Scholars, activists, and those living among climate catastrophes share that climate injustice persists due to systemic inequalities perpetuating the patriarchal decision-making, racism, ageism, segregation, colonialism, capitalism that sees nature and people as nothing more than a means to an end goal of mass economic growth. In other words, according to [Mary Annaïse Heglar](#), a climate justice essayist, "the practice of an extractive economy where everything is for sale, led to racism and historical neglect of people and ecosystem health that created the climate injustices we see today".

As a result, communities of color, women, indigenous groups, people of low-income, and young people (among others) all face a larger vulnerability to climate change. For example, according to UN Women, women are increasingly being seen as more vulnerable to the impacts of climate change than men because they represent the majority of the world's poor and are proportionally more dependent on threatened natural resources. Climate change may also indirectly contribute to injustices by compounding existing gender inequalities with respect to human rights, political

and economic status, land ownership, housing conditions, exposure to violence, education and health already faced by many women around the world.

Another example of climate injustice revolves around indigenous communities. Although they comprise less than 5% of the world population, Indigenous peoples protect 80% of the Earth's biodiversity in the forests, deserts, grasslands, and marine environments in which they have lived for centuries. Despite their history stewarding land, promoting peaceful coexistence with others, and recognized significance as holders of key knowledge and solutions for developing and implementing countries' national climate action plans ([NDCs](#)) and National Adaptation Plans ([NAPs](#)) under the [Paris Agreement](#), they are not included in decision making spaces and are among the first to be impacted by climate change due to their tight knit relationship with nature. Further, climate change exacerbates difficulties already faced by indigenous communities including political and economic marginalization, loss of land and resources, discrimination and unemployment. One specific example from the UN includes the indigenous peoples in Africa's Kalahari Desert who are forced to live around government drilled bores for water and depend on government support for their survival due to rising temperatures, dune expansion and increased wind speeds which have resulted in a loss of vegetation, and negatively impacted traditional cattle and goat farming practices.

Principles of Climate Justice ([source](#))

1. Respect and Protect Human Rights

According to the Human Rights Department at the United Nations, "human rights include the right to life and liberty, freedom from slavery and torture, freedom of opinion and expression, the right to work and education, and many more. Everyone is entitled to these rights, without discrimination" ([source](#)). Respect and protection of human rights highlights the importance of implementing actions that only positively impact these rights.

2. Share Benefits and Burdens Equitably

The benefits and burdens of climate change, including who pays and who is impacted, must be shared among generations and rooted in responsibility for the climate crisis. Those who are most responsible for greenhouse gas emissions and most capacity to act must be the ones to cut emissions first. Additionally, current and outgoing generations must use their capacity as holders of power today to act on climate change rather than waiting for young and future generations to take over and make changes.

3. Ensure Participatory, Transparent and Accountable Decision making

Every voice, especially those of the most impacted by climate change, must be heard, acted upon, and included in climate policy decision-making and implementation. Furthermore, all components and reasoning behind climate policies must be transparent and decision-makers should be held accountable for acting upon decisions made without excuses for inaction.

4. Support the Right to Development

The wealth gap between countries and even individuals within countries is one of the greatest failures and injustices of human existence. Climate change both highlights and exacerbates massive wealth inequality, while presenting an opportunity to implement actions that close the

wealth gap, such as transferring green technologies and funding climate action efforts in low-income communities first .

5. Highlight Gender Equality and Equity

Climate change impacts women differently than men, with women significantly more likely to bear the burden of childcare in disaster scenarios, face gender-based violence due to resource scarcity, and depend on farming for income. Because of how much closer women are to climate change and cascading impacts compared to me, women play a vital role as change agents within their communities.

6. Use Effective Partnership to Secure Climate Justice

The climate crisis does not adhere to political or geographic boundaries; thus, neither should the solutions. Climate justice requires global effort to pool resources and a share of skills across the world. Thus, openness to partnership is a vital aspect for tackling climate change, and must involve partnership with those most affected and with the least capacity to respond or prepare for impacts. .

7. Harness Transformative Power of Education for Climate Stewardship

Climate education under-pins most of the other climate justice principles. Tackling climate change requires radical changes in our lifestyle and behaviors. Climate education provides the tools and skills to recognize impacts and burdens, then empower people to make informed decisions on the best way to act. Further, effective climate education empowers self-reflection on ethics and justice, empowering people to better understand their role in contributing to and adapting to climate change. Education can be formal, such as in schools and universities, and informal, such as in public facilities or online adult education training. Both forms increase climate consciousness that is essential for everyone to obtain in order to tackle climate change.

Intergenerational Equity

Climate justice is linked to peace and prosperity for future generations who will inherit the climate and most severe impacts. This idea is known as a concept called intergenerational equity, which, in short, is the recognition that the human community is a partnership among all generations. Intergenerational equity reminds us that each generation has the right to inherit a liveable planet with the same or enhanced natural, cultural, and economic resources enjoyed by previous generations as well as equitable access to enjoy all of these resources. As such, young people play an important role in shaping policies, holding leaders accountable for action, and taking action in their communities today so that we collectively create a better future for tomorrow. To steward intergenerational equity, young people must be woven into all climate policies and actions.

Climate Justice is a Gender Justice Issue

Climate change affects the entire world, not half of it. Women and girls disproportionately bear the burden of harsh droughts, floods, fires and storms, affecting their food security, water, careers and livelihoods. For example, 80% of climate refugees are believed to be female and female environmental defenders consistently experience disproportionately high rates of gender-based violence as a result of their activism ([source](#))

Despite facing disproportionate impacts of climate change, women are underrepresented at every level when it comes to responding to the climate crisis, with men filling 67% of climate-related decision making positions ([UN Women 2021](#)). Governments and individuals must take responsibility to support women as leaders to enable solutions for women's differentiated climate needs.

Environmental Racism

Environmental racism refers to the unequal access to a clean environment and basic environmental resources based on race as a direct result of institutional rules, regulations, and policies by governments and corporations that deliberately target specific communities for locally undesirable land uses and lax enforcement of zoning and environmental laws ([source](#)). Environmental racism can take many forms, from contaminated drinking water and lack of regulations for fossil fuel power plants in communities of color to lack of inclusion of people of color in environmental decision-making.

For example, more than half of those that live in close proximity to hazardous waste are people of color ([source](#)).

Environmental racism can impact air quality, well-being, and health of many communities. For example, although African Americans represent 13 percent of the US population, a startling 68 percent of this population live within 30 miles of a coal-fired power plant, compared to 56 percent of White people ([Aneesh et al., 2020](#)). Often these facilities don't have strict enforcement of zoning or environmental laws, creating both an environmental and health problem for the communities in which these power plants operate.

Globalization has increased the spread of environmental racism at an international scale. This often includes dumping of pollutants, such as e-waste, in low-income countries where safety laws and environmental practices tend to be more relaxed. For example, around 80% of the 44 million tons of e-waste generated globally in 2017 was exported to Asia ([source](#)).

Climate change is more than an environmental issue, it affects every thread of the societal fabric we depend on from access to healthy, natural environments and education, to the realization of human rights and inclusion in decision-makerspaces. In the next chapter, we will dive into solutions for tackling the climate crisis through an equity and justice lens.