

# GASPED

GASP Education Committee  
Update & Resources

IPCC 2022 Report on Climate Impacts,  
Adaptation & Vulnerability

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GASP has taken excerpts of an excellent summary of the latest IPCC report published by the World Resources Institute on February 27, 2022 - <https://www.wri.org/insights/ipcc-report-2022-climate-impacts-adaptation-vulnerability>

### Six Big Findings from the IPCC 2022 Report on Climate Impacts, Adaptation and Vulnerability

The IPCC 2022 Report provides one of the most comprehensive examinations of the intensifying impacts of climate change and future risks, particularly for resource-poor countries and marginalized communities. UN Secretary-General Antonio Guterres called the report *"an atlas of human suffering and a damning indictment of failed climate leadership."*

#### #1 Climate impacts are already more widespread and severe than expected.

Climate change is already causing widespread disruption in every region in the world with just 1.1 degrees C (2 degrees F) of warming.

Withering droughts, extreme heat and record floods already threaten food security and livelihoods for millions of people. Since 2008, devastating floods and storms have forced more than 20 million people from their homes each year. Since 1961, crop productivity growth in Africa shrunk by a third due to climate change.

#### #2 We are locked into even worse impacts from climate change in the near-term.

Even if the world rapidly decarbonizes, greenhouse gases already in the atmosphere and current emissions trends will make some very significant climate impacts unavoidable through 2040. The IPCC estimates that in the next decade alone, climate change will drive 32-132 million more people into extreme poverty. Global warming will jeopardize food security, as well as increase the incidence of heat-related mortality, heart disease and mental health challenges.

**"Our atmosphere is on steroids, doped with fossil fuels. This is leading to stronger, longer, and more frequent extreme weather events.**

**Climate change-induced disasters come with high human and economic impacts,"**

Petteri Taalas, Secretary General of the World Meteorological Organization

### #3 Risks will escalate quickly with higher temperatures, often causing irreversible impacts of climate change.

The report finds that **every tenth of a degree of additional warming will escalate threats to people, species and ecosystems**. Even limiting global warming to 1.5 degrees C (2.7 degrees F) — a global target in the Paris Climate Agreement — is not safe for all. The charts below show the risks associated with higher temperatures.

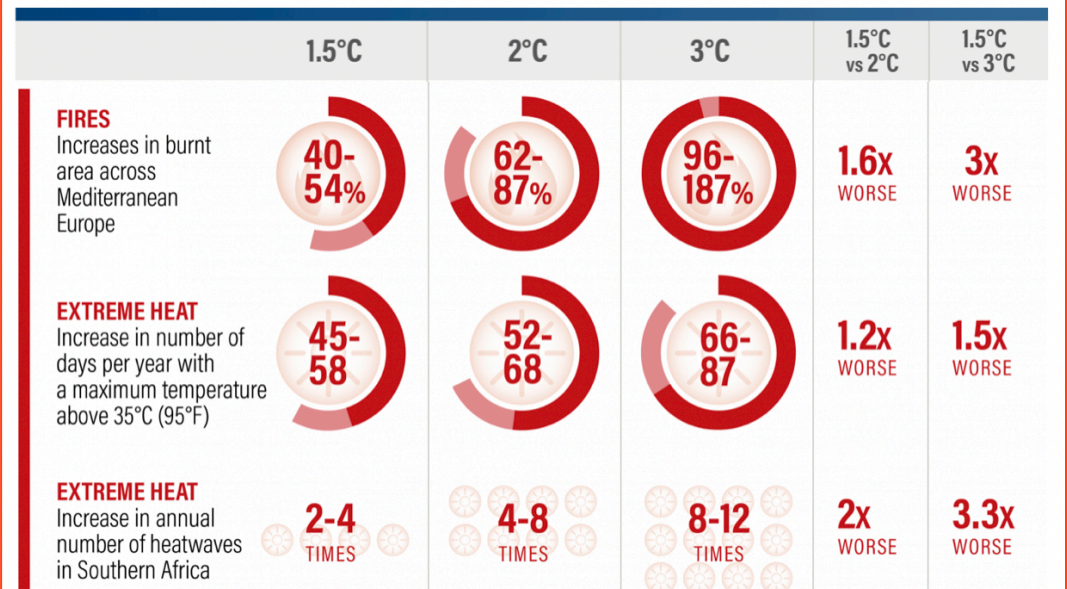
From the IPCC report

“If global warming transiently exceeds 1.5°C in the coming decades or later (overshoot), then many human and natural systems will face additional severe risks, compared to remaining below 1.5°C (high confidence).

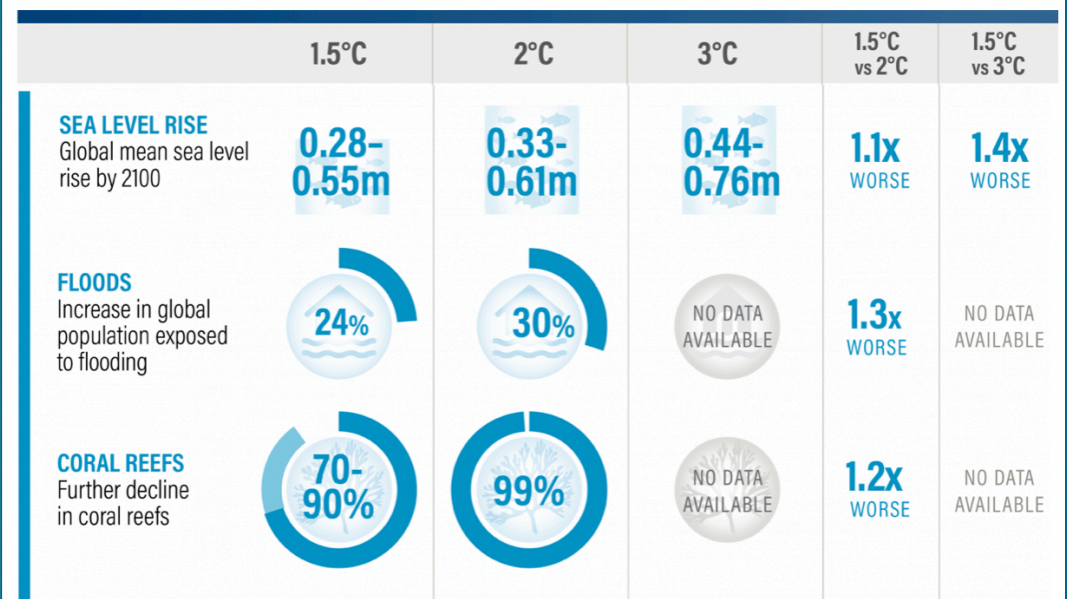
Depending on the magnitude and duration of overshoot, some impacts will cause release of additional greenhouse gases (medium confidence) and some will be irreversible, even if global warming is reduced (high confidence).”

Source: [https://report.ipcc.ch/ar6wg2/pdf/IPCC\\_AR6\\_WGII\\_SummaryForPolicymakers.pdf](https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf)

#### Comparing Risks from Rising Temperatures - Explaining the IPCC's Working Group II Report (AR6) - Source: World Resources Institute



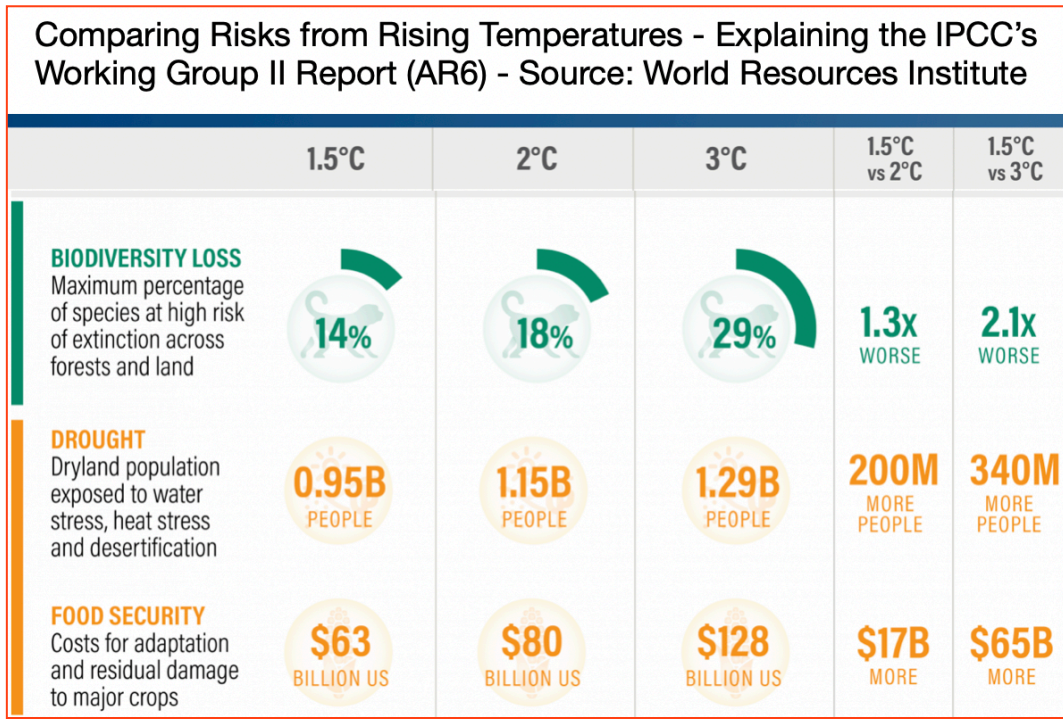
#### Comparing Risks from Rising Temperatures - Explaining the IPCC's Working Group II Report (AR6) - Source: World Resources Institute



*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.



### #3 (Cont'd from page 2) Risks will escalate quickly with higher temperatures, often causing irreversible impacts of climate change.



Vulnerability of ecosystems and people to climate change differs substantially among and within regions (very high confidence), driven by patterns of intersecting socio-economic development, unsustainable ocean and land use, inequity, marginalization, historical and ongoing patterns of inequity such as colonialism, and governance (high confidence). Approximately 3.3 to 3.6 billion people live in contexts that are highly vulnerable to climate change (high confidence)

<https://report.ipcc.ch/ar6wg2/pdf/>

### #4. Inequity, conflict and development challenges heighten vulnerability to climate risks.

Right now, 3.3 billion - 3.6 billion people live in countries highly vulnerable to climate impacts, with global hotspots concentrated in Small Island Developing States, the Arctic, South Asia, Central and South America, and much of sub-Saharan Africa.

Inequity, conflict and development challenges such as poverty, weak governance, and limited access to basic services like healthcare not only heighten sensitivity to hazards, but also constrain communities' ability to adapt to climatic changes. In highly vulnerable nations, for example, mortality from droughts, storms and floods in 2010-2020 was 15 times greater than in countries with very low vulnerability.

### #5. Adaptation is crucial. Feasible solutions already exist, but more support must reach vulnerable communities.

At least 170 countries' climate policies now include adaptation, but many have yet to move beyond planning into implementation. The IPCC finds that efforts today are still largely incremental, reactive and small-scale, with most focusing only on current impacts or near-term risks. A gap between current adaptation levels and those needed persists, driven in large part by limited financial support. The IPCC estimates that adaptation needs will reach \$127 billion and \$295 billion per year for developing countries alone by 2030 and 2050, respectively. (Cont'd on page 4)

### #5. Adaption is crucial (cont'd from page 3)

Inequity, conflict and development challenges heighten vulnerability to climate risks. **The good news is that existing adaptation options can reduce climate risks if they're sufficiently funded and implemented more quickly.** The 2022 IPCC report breaks new ground by analyzing various climate adaptation measures' feasibility, effectiveness and potential to deliver co-benefits like improved health outcomes or poverty reduction.

#### **Three assessed climate change adaptation approaches include:**

**Social programs that improve equity and justice:** These measures are especially effective when coupled with efforts to improve access to infrastructure and basic services, such as clean water, sanitation and healthcare.

**Ecosystem-based adaptation:** This approach encompasses a wide range of strategies, from the protection, restoration and sustainable management of ecosystems to more sustainable agricultural practices like integrating trees into farms, increasing crop diversity and planting trees in pastures. Meaningful collaboration with Indigenous Peoples and local communities is key.

**New technologies and infrastructure:** Emerging evidence suggests that coupling nature-based solutions

with engineered options like flood control channels may help reduce water-related and coastal risks, particularly in cities.

### # 6. But some impacts of climate change are already too severe to adapt to.

The world needs urgent action now to address losses and damages.

With the 1.1 degrees C of global warming the world is already experiencing, some highly vulnerable people and ecosystems are beginning to reach the limits of what they can adapt to.

#### **A Rapidly Closing Window of Opportunity for Climate Action**

The science is unequivocal: Climate change endangers the well-being of people and the planet. Delayed action risks triggering impacts of climate change so catastrophic our world will become unrecognizable.

The next few years offer a narrow window to realize a sustainable, livable future for all. Changing course will require immediate, ambitious and concerted efforts to slash emissions, build resilience, conserve ecosystems, and dramatically increase finance for adaptation and addressing loss and damage.

<https://www.wri.org/insights/ipcc-report-2022-climate-impacts-adaptation-vulnerability>

### **Worth Quoting**

Guterres called the report “an atlas of human suffering and a damning indictment of failed climate leadership,” showing nearly half of humanity “living in the danger zone” and many ecosystems at the point of no return - right now. “With fact upon fact, this report reveals how people and the planet are getting clobbered by climate change.”

António Guterres, secretary-general of the United Nations describes the IPCC 2022 Report on Climate Impacts, Adaptation & Vulnerability:

Currently, political leaders are attempting to scale up renewables and maximize fossil fuel revenue at the same time, but this is effectively climate denial: no matter how much we invest in clean energy, if we're still polluting the atmosphere, we haven't solved the problem.

<https://www.nationalobserver.com/2022/03/02/news/fossil-fuels-are-killing-planet-why-dont-we-stop-using-them?>

## The IPCC 2022 Report on Climate Impacts, Adaptation and Vulnerability

### How will climate change impact Canada?



The Canadian Press reports on a briefing document that distilled the major impacts and costs facing Canada, including:

- Overall adaptation costs that have risen from C\$400 million to \$1.9 billion per year since 1983;
- Wildfire costs - and the attendant human and community impacts - that could hit a combined \$459 billion by 2080;
- Above-average sea level rise in Atlantic Canada, with one Mi'kmaq community already looking into its options for relocation;
- Damage to fisheries, including squid, cod, halibut, and kelp beds off the Nova Scotia coast;

- Water scarcity from Ontario through British Columbia, and north to Yukon and the Northwest Territories, that could offset the advantage of longer growing seasons and warmer temperatures by the 2050s;
- Damage to northern transportation and infrastructure due to permafrost melt, beginning with the rail line to Churchill, Manitoba;
- Disruptions to international supply chains, markets, finance, and trade.

Across North America, the fact sheet says higher temperatures have already shifted wildlife habitats, particularly in the Arctic,

with escalating climate impacts on land, in the oceans, and in freshwater systems compounding other threats to species and their habitats.

Climate change has driven an increase in disease and death, "with the severity of impacts influenced by age, gender, location, and socio-economic conditions," and those risks are on track to increase- that much more so with higher levels of warming.

<https://www.theenergymix.com/2022/03/01/richest-nations-wont-escape-impacts-as-global-warming-accelerates/>

## The IPCC 2022 Report on Climate Impacts, Adaptation and Vulnerability

### Focus on Indigenous Rights and Knowledge

For North America, the IPCC says a focus on Indigenous rights and knowledge is "critical to reducing climate change risks to achieve adaptation success," along with other "equitable, inclusive, and participatory approaches" to adaptation.

The European fact sheet calls for behaviour change and building retrofits to combat heat stress, changes in farming practices to address crop loss, water efficiency measures and land use changes to deal with drought, and a combination of early warning systems, adaptation options, and managed retreat to reduce the impact of flooding.

<https://www.theenergymix.com/2022/03/01/richest-nations-wont-escape-impacts-as-global-warming-accelerates/>

## Maladaption Strategies

We haven't yet peaked fossil fuel use as a civilization, but we're already investing significant time and energy in trying to suck it back out of the sky, through accounting tricks (like carbon offsets) and techno-optimism (like geoengineering) and just old-fashioned colonialism (like tree-planting projects in developing countries).

Such actions end up being worse than doing nothing, because they can lull us into a false sense of optimism that actually entrenches fossil fuel use. The

report calls these kinds of actions maladaptation — and cites a major example as carbon-dioxide removal technologies. The best solution, according to the report, is just not putting the carbon up in the sky in the first place.

Basically, "net zero" is not enough. We've got to fight for zero. Zero fossil fuels is the only safe amount.

<https://thephoenix.earth/ipcc-summary/>

## Why doesn't Canada stop using fossil fuels?

We should, but Bay Street and Big Oil are getting in the way because there's still profit to be made.

Canada is the world's fifth-largest oil producer and has the third-largest oil reserves on the planet behind only Saudi Arabia and Venezuela. The vast majority of our oil is sent to the United States, and over the past 30 years — roughly as long as Canada has been setting emission reduction targets — Canadian crude oil exports have exploded.

In 1990, crude oil exports were worth about \$5.5 billion, or 3.6 per cent of total exports. By 2019, they represented 14.1 per cent and were valued at \$84.3 billion. Canada produces lots of oil and gas because it's valuable to the economy. Still, it's a

misconception that fossil fuels are vital to the Canadian economy.

Since 2000, oil and gas extraction has contributed, on average, just five per cent to the country's GDP each year, according to Statistics Canada. Compare that with other sectors, like manufacturing or real estate, which make up more than 10 per cent each, and the country's true economic identity comes into clearer focus. Like other developed countries, Canada's economy is largely dominated by the service sector, representing about 70 per cent of GDP.

Even though the country is producing more oil and gas than ever, the writing is clearly on the wall for the industry - there's no long-term future in fossil fuels.

Still, many companies are doubling down on trying to find marginally cleaner ways to continue business as usual. Some are using emerging but questionable technologies like carbon capture to help greenwash their climate goals.

The world's leading energy forecasting authority, the International Energy Agency, projects annual demand for oil is predicted to drop, peaking by the mid-2030s at the latest.

[https://www.nationalobserver.com/2022/03/02/news/fossil-fuels-are-killing-planet-why-dont-we-stop-using-them?utm\\_source=National+Observer&utm\\_campaign=ca929bef67-](https://www.nationalobserver.com/2022/03/02/news/fossil-fuels-are-killing-planet-why-dont-we-stop-using-them?utm_source=National+Observer&utm_campaign=ca929bef67-)

IPCC lead author Ed Hawkins wrote on Twitter:

"Burning fossil fuels kills people and ecosystems."

<https://thephoenix.earth/ipcc-summary/>