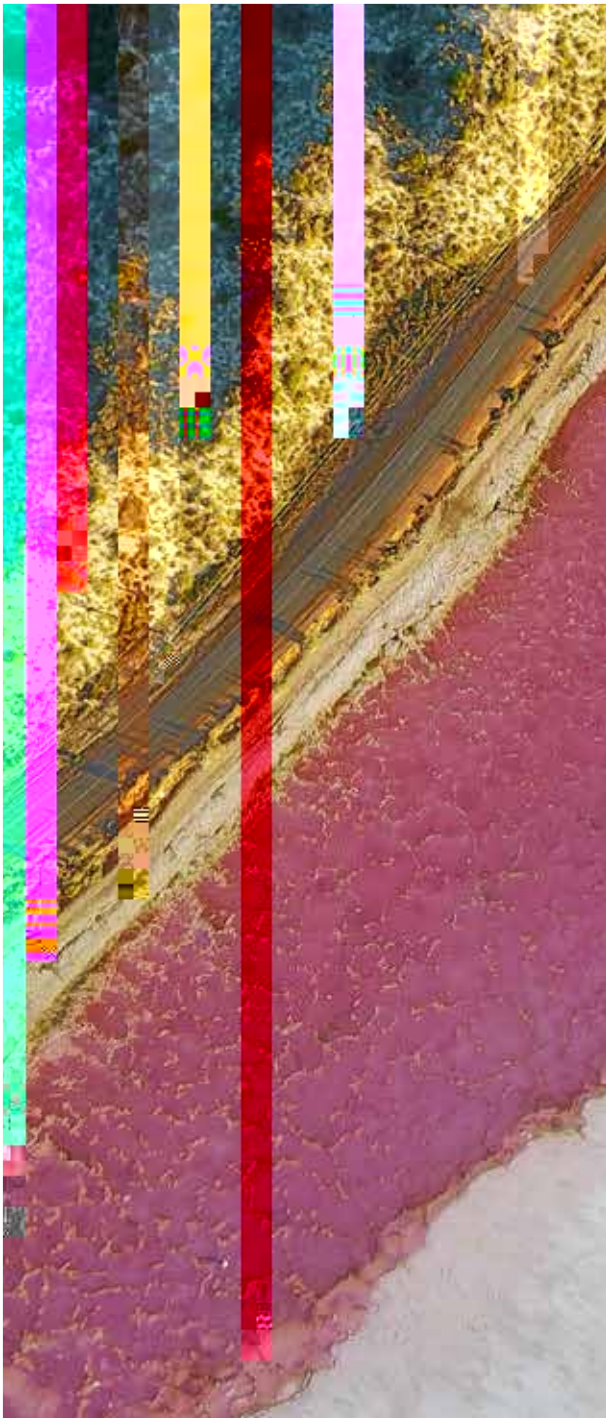




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## At a glance

- μ Average global surface temperatures were 1.1 degrees Celsius (2 degrees Fahrenheit) higher across the period 2011-2020 compared to 1850-1900.
- μ In the decade from 2010 – 2019, annual greenhouse gas emissions were higher than in any previous decade; however, the rate of growth in emissions has slowed by 40% compared to the preceding decade.
- μ Climate change has already had a pervasive effect on the global climate system, including on weather and climate extremes. This has adversely affected food and water security, human health, economies, society, nature and people.
- μ Vulnerable communities who have historically contributed the least to current climate change are disproportionately affected by its impacts.
- μ All modeled mitigation pathways or scenarios to limit warming to 1.5 degrees Celsius (2.7 degrees Fahrenheit) require rapid, deep and in most cases immediate GHG reduction in all sectors. Only a small number of the most ambitious pathways will actually achieve this target. The others will all overshoot this target to some degree.
- μ The conclusion is clear: climate change is a threat to human well-being and planetary health. If we delay comprehensive action on adaptation and mitigation any longer, we will miss the brief and rapidly closing window of opportunity to secure a livable and sustainable future for all.
- μ Strengthening climate change mitigation action will require more rapid transitions commencing in this decade and higher up-front investment, but will bring benefits from avoiding damages from climate change and reducing adaptation costs.
- μ For better or worse, the choices and actions we take in response to climate change now will have profound impacts for thousands of years.

## Current status and trends in climate, climate change impacts and climate action

### Status and trends

The IPCC concludes that human activities, principally through emissions of greenhouse gases (GHGs), have undoubtedly caused global warming, with average global surface temperature in 2011-2020 reaching 1.1 degrees Celsius (2 degrees Fahrenheit) above 1850-1900 levels.

Global GHG emissions are driven by unsustainable energy use, land use and land-use change, lifestyles, and patterns of consumption and production.

Climate change has already had an extensive effect on the global climate system, including on weather and climate extremes, which have adversely affected food and water security, human health, economies, society, nature and people. However, the impacts of climate change are not being felt equally around the globe. Vulnerable communities which have historically contributed the least to current climate change are disproportionately affected by its impacts.



Future emissions will drive future warming and

CDR can complement other mitigation and adaptation measures by lowering emissions in the near term and counterbalancing 'hard-to-abate' residual emissions (e.g., from agriculture, aviation, shipping and industrial processes).

Mitigation and adaptation can lead to synergies and trade-offs with sustainable development and are critical to achieving sustainable development.

### Counting the cost of mitigation

Strengthening action on climate change mitigation will require more rapid transitions and higher up-front investments, but brings benefits from avoiding damages from climate change and reduced adaptation costs.

Cost-benefit analysis remains limited in its ability to represent all damages from climate change; however, even without accounting for non-monetary damages, the diverse nature of damages and the risk of catastrophic damages, or the co-benefits of mitigation, the global benefits of limiting warming to 2 degrees Celsius (3.6 degrees Fahrenheit) exceed the cost of mitigation. This finding is robust against a wide range of assumptions about social preferences on inequalities and discounting over time.

Limiting global warming to 1.5 degrees Celsius (2.7 degrees Fahrenheit) would increase the costs of and disruption arising from mitigation but would also increase the benefits.

## In the near-term

Deep, rapid and sustained mitigation and accelerated adaptation reduces the risks of climate change for humans and ecosystems.

In modelled pathways that limit warming to 1.5 degrees Celsius (2.7 degrees Fahrenheit) with no or limited overshoot, global GHG emissions are projected to peak in the early 2020s followed by rapid and deep reductions.

Adaptation options often have long implementation times and many will become less effective beyond 1.5 degrees Celsius (2.7 degrees Fahrenheit) warming. Therefore, accelerated implementation, commencing in this decade, is important to close or avoid adaptation gaps.

Global warming will continue to increase in the near term to 2040, mainly due to increased cumulative carbon emissions. We will more likely reach 1.5 degrees Celsius (2.7 degrees Fahrenheit) under even very low GHG emission scenarios and are likely or very likely to exceed 1.5 degrees Celsius (2.7 degrees Fahrenheit) under higher emissions scenarios. Every region in the world is projected to face further increases in climate hazards as a result, increasing multiple risks to ecosystems and humans.



## **Hazards and associated risks at 1.5 degrees Celsius (2.7 degrees Fahrenheit) warming**

While not as extreme as global warming beyond



**Tapash Das**, Ph.D., ENV SP  
Jacobs Principal Technologist,

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