

# Investments to address climate change are good business

September 19 2019

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An internationally respected group of scientists have urgently called on world leaders to accelerate efforts to tackle climate change. Almost every aspect of the planet's environment and ecology is undergoing

changes in response to climate change, some of which will be profound if not catastrophic in the future.

According to their study published in *Science* today, reducing the magnitude of climate change is also a good investment. Over the next few decades, acting to reduce climate change is expected to cost much less than the damage otherwise inflicted by climate change on people, infrastructure and ecosystems.

"Acting on climate change" said lead author, Prof Ove Hoegh-Guldberg from the ARC Centre for Excellence in Coral Reef Studies at the University of Queensland in Australia "has a good return on investment when one considers the damages avoided by acting."

The investment is even more compelling given the wealth of evidence that the [impacts of climate change](#) are happening faster and more extensively than projected, even just a few years ago. This makes the case for rapidly reducing [greenhouse gas emissions](#) even more compelling and urgent.

Prof Hoegh-Guldberg explained the mismatch. "First, we have underestimated the sensitivity of natural and human systems to climate change, and the speed at which these changes are happening. Second, we have underappreciated the synergistic nature of climate threats—with the outcomes tending to be worse than the sum of the parts. This is resulting in rapid and comprehensive climate impacts, with growing damage to people, ecosystems, and livelihoods."

For example, sea-level rise can lead to higher water levels during storm events. This can create more damage. For deprived areas, this may exacerbate poverty creating further disadvantage. Each risk may be small on its own, but a small change in a number of risks can lead to large impacts.

Prof Daniela Jacob, co-author and Director of Climate Services Centre (GERICS) in Germany is concerned about these rapid changes—especially about unprecedented weather extremes.

"We are already in new territory" said Prof Jacob, "The 'novelty' of the weather is making our ability to forecast and respond to weather-related phenomena very difficult."

These changes are having major consequences. The paper updates a database of climate-related changes and finds that there are significant benefits from avoiding 2 C and aiming to restrict the increase to 1.5 C above pre-industrial global temperatures.

Prof Rachel Warren from the Tyndall Centre at the University of East Anglia in the UK assessed projections of risk for forests, biodiversity, food, crops and other critical systems, and found very significant benefits for limiting global warming to 1.5 C rather than 2 C.

"The scientific community has quantified these risks in order to inform [policy makers](#) about the benefits of avoiding them," Prof Warren stated.

Since the Paris Agreement came into force, there has been a race to quantify the benefits of limiting warming to 1.5 C so that policy makers have the best possible information for developing the policy required for doing it.

Prof Warren continued. "If such policy is not implemented, we will continue on the current upward trajectory of burning fossil fuels and continuing deforestation, which will expand the already large-scale degradation of ecosystems. To be honest, the overall picture is very grim unless we act."

A recent report from the United Nations projected that as many as a

million species may be at risk of extinction over the coming decades and centuries. Climate change is not the only factor but is one of the most important ones.

The urgency of responding to climate change is at front of mind for Prof Michael Taylor, co-author and Dean of Science at the University of the West Indies. "This is not an academic issue, it is a matter of life and death for people everywhere. That said, people from small island States and low-lying countries are in the immediate cross-hairs of climate change."

"I am very concerned about the future for these people," said Professor Taylor.

This urgency to act is further emphasized by the vulnerability of developing countries to climate change impacts as pointed out by Francois Engelbrecht, co-author and Professor of Climatology at the Global Change Institute of the University of the Witwatersrand in South Africa.

"The developing African countries are amongst those to be affected most in terms of impacts on economic growth in the absence of strong climate change mitigation," Prof Engelbrecht explains.

Prof Hoegh-Guldberg reiterated the importance of the coming year (2020) in terms of climate action and the opportunity to strengthen emission reduction pledges in line with the Paris Agreement of 2015.

"Current emission reduction commitments are inadequate and risk throwing many nations into chaos and harm, with a particular vulnerability of poor peoples. To avoid this, we must accelerate action and tighten emission reduction targets so that they fall in line with the Paris Agreement. As we show, this is much less costly than suffering the

impacts of 2 C or more of climate change."

"Tackling [climate](#) change is a tall order. However, there is no alternative from the perspective of human well-being—and too much at stake not to act urgently on this issue."

'The human imperative of stabilizing global [climate change](#) at 1.5°C' is published in *Science* on September 19.

**More information:** O. Hoegh-Guldberg at University of Queensland in St. Lucia, QLD, Australia et al., "The human imperative of stabilizing global climate change at 1.5°C," *Science* (2019).

[science.sciencemag.org/cgi/doi ... 1126/science.aaw6974](https://science.sciencemag.org/cgi/doi/10.1126/science.aaw6974)

Provided by University of East Anglia

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