

## Meeting a Global Temperature Goal of 1.5°C

Michelle Cain and Alyssa Gilbert

Where are we? Where do we want to go? How do we get there? These three questions frame the UNFCCC's "Talanoa Dialogue" introduced by the Fijian presidency to establish a basis for working together globally towards achieving the goals of the Paris Agreement on climate change.

The release of the Intergovernmental Panel on Climate Change's (IPCC) special report on 1.5°C in October reinvigorated our sense of urgency about the climate change challenge. Its findings – the result of a thorough scientific review across disciplines – go some way to answering those Talanoa questions. This most recent IPCC report was the topic of the Royal Meteorological Society's Climate Science Special Interest Group meeting on 14 November 2018, which covered not only the scientific overview of the report, but also its importance for policy making and wider society, including for example issues of climate justice. This was no ordinary report for several reasons. It was a cross-working group report, meaning it combines an understanding of climate science (WGI), the impacts of climate change and needs to adapt to it (WGII) and potential pathways to a low-carbon future (WGIII). It was also timely, providing an assessment of the best available science to the UNFCCC for the Conference of the Parties (COP 24) in Katowice, Poland. It has informed countries about the scale of the challenge, and provides a strong evidence base on the urgent need to put the Paris Agreement into action if we are to limit warming to 1.5°C. Meeting talks can be viewed at <https://www.rmets.org/event/meeting-global-temperature-goal-15-c>.

The report's release followed a year of extreme weather, making it all the more powerful. It shows that rapid and global action is needed to achieve net-zero carbon dioxide (CO<sub>2</sub>) emissions, which the report states is essential for limiting, and stabilising, warming at any given temperature. Even if we succeed in reducing CO<sub>2</sub> emissions to zero and stabilise all other anthropogenic radiative forcing in 2040, there is still a chance that we will exceed 1.5°C. The report is clear: people and ecosystems are already being affected by climate change, and every part of a degree of warming makes a difference. The evidence presented shows how limiting warming to 1.5°C rather than 2°C would have huge benefits. For example, ten million fewer people would be at risk from sea level rise for a warming of 1.5°C compared to 2°C, and by slowing the rise in global temperature also gives society more time to adapt. There is a reasonable chance that some coral reefs will survive 1.5°C of warming, but few would survive a warming of 2°C.

Much of the discussion was about scenarios of global greenhouse gas emission reductions over the coming decades that limit warming to 1.5°C. The diverse scenarios produced by a range of different organisations such as Shell, the Royal Society and those included in the IPCC report show that there are a multitude of ways to achieve the goal, and, of course, many situations or pathways that will lead to us missing that goal.

The science shows that geophysically and technologically, the target of limiting warming to 1.5°C is attainable. Whether it is feasible politically and culturally, however, remains to be seen. Each country or region will have to choose an approach that fits their cultural context. Furthermore, in addition to deep emissions cuts, removal of CO<sub>2</sub> from the atmosphere is

likely to be required, through afforestation, bioenergy with carbon capture and storage, or emerging technologies such as direct air capture.

Attendees were challenged to consider the moral, as well as the scientific challenges of climate change: as we are capable of limiting global warming, we are morally obligated to make the necessary changes, and where it is within our power, to take steps to enable others to do so too. Most of the burden of climate change will fall on those who did little or nothing to cause the problem, especially the least developed countries and future generations, making climate change adaptation funding a moral priority too.

This report demonstrates how action to reduce emissions can also deliver significant additional benefits across a range of other Sustainable Development Goals (SDGs) from health through to water management and peace keeping. However, there will be some challenging trade-offs too. Sub-state and local organisations have great potential to act on climate - with more creative solutions and are often much closer to vulnerable communities as well as individual actors.

So, what do we need to do to keep warming below 1.5°C? The report shows we need to halve our annual greenhouse gas emissions by 2030. How do we get there? We need to act now across all sectors of the economy and we need to co-operate internationally.