Two roads diverge

The past year has seen climate change manifest in wildfires, storms and flooding, in some cases simultaneous with outbreaks of the COVID-19 pandemic that restricted human activity and impacted global emissions. Despite these trials, other developments hint at the potential for positive steps in climate mitigation.

It is difficult to reflect back on 2020 without resorting to clichés. Suffice it to say that for many around the world, this past year has been an unusual and challenging one. In our January Editorial[1], we discussed the climate impacts and developments in 2019, including a very active wildfire season across the globe, and asked what 2020 would bring, looking ahead to countries' updated nationally determined contributions (NDCs) and the 26th Conference of the Parties to the UN Framework Convention on Climate Change (COP26), which was to be held in the UK in the November of this year.

The year started with fire continuing to be a major topic in the news as unprecedented fires persisted across Australia, with preliminary estimates of related gross emissions at nearly a thousand $MtCO_2$ equivalents[2]. Moreover, the growing incidence of climate change impacts like fire in countries bearing more responsibility for global CO_2 emissions increasingly put climate change on the political agenda. This further raised awareness of individual impacts, as evidenced through the mounting popularity of reducing meat consumption in many developed countries and heightened social pressure around such carbon-intensive activities such as flying with the rise of 'flygskam'. Fire has returned during the latter part of the year, with devastating fires raging on the west coast of the USA and elsewhere, destroying much of the Pantanal wetland in South America[3].

As omnipresent as fire has been, however, the major theme arising in 2020 across sectors was the outbreak of the COVID-19 pandemic, with which countries across the world as still struggling. Lockdowns in the Northern Hemisphere spring, particularly in China, Europe and the USA, led to a reduction in carbon-intensive activities such as commercial flights and transport, bringing concomitant decreases in air pollution and GHG emissions, and causing many to postulate hopefully that the pandemic could have a positive impact on slowing climate change. However, whilst the fall in emissions was extraordinary, it only represented a 4–7% drop in total emissions[4], highlighting the relatively small impact that even drastic changes to individual routines

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— including avoidance of flying — have in light of the inertia of existing infrastructure driving emissions.

In part due to its immediate impacts on human health, energy use and activity, the pandemic intersected with the deepening impacts of climate change to draw attention to the risk borne by vulnerable communities in the face of such events, particularly when compounded by co-occurring climate events such as cyclone Amphan in Bangladesh[5]. These disparities are not only evident in differences between the Global North and South, but also among groups within countries, as demonstrated by the disproportionate impacts the virus has had on ethnic and racial minorities in the USA and UK[6]. These communities are also more likely to bear a higher burden of other environmental issues, including climate change. They are, for example, less likely to have access to resources like urban green spaces[7] that can mitigate some of the impacts of heating, increasing vulnerability to current and future climate change.

These issues have become part of a larger conversation around race and systemic racism, driven in part by the Black Lives Matter movement in the USA, which regained momentum and sparked global conversation after the killing of George Floyd and Breonna Taylor by the police. This conversation has again drawn attention to the importance of racial and geographic diversity in science, including in the earth and geosciences and climate activism, as well as the work still needed to be done to end discrimination.

Dare we ask what 2021 has in store? Despite the challenges of the past year, there is room for hope as we approach the fifth anniversary of the Paris Agreement this month. China's recent announcement of its goal to reach net zero by 2050 represents a major step forward in reducing carbon emissions and was followed by similar announcements from Japan and South Korea. COP26, postponed to next year due to COVID-19, is still a chance for countries to strengthen their commitment to mitigating climate change. The economic recovery from the pandemic represents another opportunity for change, with politicians in many countries, including the European Union and USA, debating 'green recovery' plans that include divestment from fossil fuels and increased investment in more sustainable energy and jobs. And the election of Joe Biden as President in the USA in November has implications for the environment and climate policy, including US participation in the Paris Agreement[8].

In this context, the decisions that politicians, businesses and individuals take in the coming year will point the way to the sort of world we want to create. One road reaches backwards to the ways of previous decades, in support of fossil fuel infrastructure and upholding current social order. However, the events of the past year have created major disruptions to the fabric of society, reaching individual lifestyles as well as larger infrastructure and institutions, providing a unique opportunity to choose a new road and rebuild consciously at all levels, with consideration of the future we would like to partake in. ❐

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