

Global Security Briefing – April 2019

Tipping to Rebellion: Action and Reaction on Climate Science

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Summary

The breakdown of the global climate is happening faster than most models have predicted and the consequences are likely to be physically and economically ruinous on a global scale. Yet, as the Extinction Rebellion protests demonstrated, there remains a gulf of expectation between an increasingly informed and activist public and established political, security and economic interests.

Introduction

During April the issue of climate change and the risk of climate breakdown came to public attention, due in large part to the extensive nonviolent demonstrations mounted by Extinction Rebellion in the UK and similar initiatives in many other parts of the world. This coincided with the publication of yet more evidence from climate scientists that the world's climate was changing more rapidly than models had predicted and that at least one major "tipping point" was more imminent than expected. This briefing examines the change in mood and aims to put it in a wider frame.

The Context

For the past two decades ORG has seen climate breakdown as a hugely important security challenge that has to be prevented well in advance of potentially disastrous events. It has published frequent analyses of the issue as part of its work on sustainable security, including recent briefings in this series in [July](#) and [December](#) last year and [January](#) this year. The briefing from three months ago quoted the changing scientific view:

"The climate science community, as reflected in the Intergovernmental Panel on Climate Change ([IPCC report to COP24](#)), is insisting that the issue is hugely urgent, with the need for radical action within the next 12 years. It is uncompromising in its argument that there is now no alternative to the rapid decarbonisation of current economies and the development of ultra-low carbon emission by emerging economies."

More detail had been summarised in last [November's](#) briefing arguing that "change has to come rapidly in two broad areas:

1. Firstly, the agreed timescales for rapid economic decarbonisation have to be radically shortened. The rate of progress has to be rapid in the 2020s and zero carbon economies have to be implemented by the mid-2030s, not the late 2040s as often currently assumed. The internal combustion engine should be seen as already obsolete, renewable energy capture and storage must be accelerated greatly, there have to be radical improvements in the efficiency of household heating and cooling and industrial use of fossil carbon as an energy source together with numerous changes in agricultural practice. Put simply, what is already beginning to be undertaken by a few countries must be expanded to comprehensive global change and done so in less than a decade.
2. Secondly, as economies across the global south expand, it is essential that such growth becomes carbon neutral, not least through the accelerated uptake of renewable energy technologies. This demands considerable support from those countries in the global north that have been responsible for the overwhelming majority of carbon emissions until very recently.”

That briefing also pointed to the major handicap that any such moves faced at the global level, with clear political opposition in three key states, the United States, Russia and Brazil, and considerable uncertainty over the prospects for meaningful control of carbon emissions in India and China. Even with these serious obstacles, though, there have been two substantial developments in the past month: further disturbing new evidence on the rate of climate change, and a change in public mood.

Climate Science and Tipping Points

One of the persistent concerns of climate scientists is that the trend towards global warming and the development of a more energetic atmosphere is that there is potential for positive feedbacks that mean that the overall process of change accelerates. The best known of these is the albedo effect where melting sea-ice leads to more open water that absorbs more heat from the sun than the floating white ice, which reflects solar radiation.

This is already happening in the Arctic, but a potentially more powerful form of feedback is the release of methane from decaying vegetation in melting permafrost, methane being a much more potent climate change gas than carbon dioxide. A paper published in [Nature Communications](#) was reporting on the potential £54 trillion (US\$70 trillion, by 2300) cost of permafrost thawing as it accelerated climate breakdown.

What is relevant here is that the change in the world's climate is down to two factors. One is the human-induced release of climate change gases, especially carbon dioxide, but the second is that this release is itself destabilising natural systems such as sea ice and permafrost. In short, it is not just that we, through our actions, are changing the climate but that the very nature of the climate system means that as we do so long-term

natural processes make the impact much worse. Moreover, this is not something for the future, it is happening now.

On top of this, data published right at the end of April gives several indications of the rate of change. One is that 2019 is already on track to be one of the three warmest years since accurate recording began over 150 years ago, joining 2016 and 2017 in that trio.

The second is that one of the least mentioned elements of the changing climate is the extent to which the world's oceans are warming. As [Carbon Brief](#)'s quarterly *State of the Climate* report put it on 26 April:

“...perhaps most striking of all is the news that ocean heat content (OHC) set a new record in early 2019, with more warmth in the oceans than at any time since OHC records began in 1940.”

Many scientists see OHC as a more reliable indicator of global warming than surface temperatures since over 90% of atmospheric heat is absorbed into the oceans, which are much less susceptible to seasonal and annual variations in temperature. Unsurprisingly, OHC is closely linked to the melting of polar ice and the rising of sea levels, both of which are also generating alarming indicative data. The *State of the Climate* report finds that:

“Arctic sea ice spent much of early 2019 at the low end of the historical range and has fallen to record lows for this time of year during the past month. Antarctic sea ice hit record lows in early January...”

Melting ice both at sea and on land in the form of glaciers or permafrost is then a major driver of global sea level rise. But the process is also exacerbated by the general warming of the oceans as, unlike ice (which has a lower density than sea water), warm water expands relative to cool water. The report concludes that:

“The latest data shows that the level of the world's oceans continued to rise in 2019, with sea levels around 8.5 centimetres (cm) higher than in the early 1990s.”

Sea level rises have thus far continued at a relatively consistent rate of about 3.1 mm per year over the satellite-monitored period. That means that they would be expected to rise by just over one foot (31 cm) over the course of this century – a major challenge for low-lying coastal communities, especially in storm surges – but only in the eventuality that tipping points elsewhere in the climate system do not create a similar surge in ocean volume. The Carbon Brief report also highlights a post-2014 acceleration in methane emissions, which could be another such tipping point, although its causality and trend remain uncertain.

OHC at a more localised level is also highly relevant to the generation of tropical storms (hurricanes, cyclones and typhoons), all of which have demonstrated devastating trends towards higher intensity in recent years. Typhoon Haiyan in the Philippines (2013), Hurricanes Katrina (2005) and Harvey (2016) in the southern United States, and Cyclones Idai and Kenneth, which have devastated southern and northern Mozambique, respectively, in the last few weeks are deadly and costly recent examples from across the world.

The Upsurge in Activism...

Even as new evidence of the current and future impact of climate disruption was being published and its evidence felt in southeast Africa, an upsurge in citizen activism was making itself apparent on the streets of Britain and the world. This included the student-led Global Climate Strike for the Future, which mobilised an estimated 1.4 million people in 2,200 co-ordinated protest events in over 120 countries on 15 March, as well as the Extinction Rebellion protests in the UK throughout April.

The significance of Extinction Rebellion and similar movements lies in two elements. One is that the numbers involved and the levels of organisation and training are exceptional, with thousands of people willing to be arrested, and the second is the resolute practice of nonviolence. The scale of the nonviolence has caused many problems for the public authorities and in Britain at least it has made it much more difficult for the many antagonistic elements of the mass media to criticise those involved.

The second is that the power of nonviolent protest is hardly recognised in the security thinking of most countries yet there are numerous precedents which point to its potential. In the twentieth century, for example, four major elements of social and political change involved substantial nonviolent action. In each case, other factors were involved, and these may have included some violence, but that should not minimise the significance of the powerful nonviolent element.

In the first two decades of the century, movements for women's suffrage included substantial elements of nonviolence, especially in the early years, and the pioneering use of nonviolent protest in British India of in the 1930s had a huge influence in the early post-war moves to independence as well as the wider acceptance of the inevitable end of the colonial era. In the 1960s the civil rights movement in the United States was highly influential there and inspired other movements elsewhere and it is too often forgotten that the political changes in Eastern Europe in the late 1980s were greatly energised by numerous civil society movements espousing nonviolence.

...and Reactivism

This said, not all responses to the scientific consensus on the imminently catastrophic impact of climate disruption has been citizen-led or inherently nonviolent. During April, the US Coast Guard – the wing of the US Military tasked with defence in the Arctic region

– released its first new [Arctic Strategic Outlook](#) since 2013. While this contextualises its focus by stating that, “the renewal of global strategic competition has coincided with dramatic changes in the physical environment of the Arctic”, it avoids challenging the Trump Administration’s position that these “dramatic physical changes” are not influenced by man-made climate change. This is a shame given that the US Military, and naval officers in particular, have tended to be among the staunchest national advocates of the need to address climate change.

In response to this challenge, the US proposes to begin closing the “Icebreaker gap” with its polar competitors, building its first new such vessel in over 40 years. China is meanwhile building its first nuclear-powered icebreaker and Russia is building three more (all unarmed) in addition to its large fleet of conventionally powered paramilitary icebreakers. It aims to capitalise on its geographic dominance of the most likely Arctic navigation route between Atlantic and Pacific. Canada and Norway have also invested recently in new coast guard icebreakers. While far from being major warships, this does point to an important and expensive contemporary trend in militarising Arctic coasts and waterways.

The [United Kingdom](#), which has referred to itself as a “near-Arctic state”, is not aloof from this trend, although the Royal Navy’s only paramilitary icebreaker is fully committed to the Antarctic, where the UK claims territory. A new “Defence Arctic Strategy” is awaited from the Ministry of Defence this year. Meanwhile, British and US forces have strengthened their training and “rotational” presence in northern Norway, where NATO held its largest post-Cold War training exercises last November, and their nuclear-powered submarines have refocused on under-ice operations.

While all sides have talked up the positive economic potential of the unfreezing of Arctic sea routes, it is important to note that the Nature Communications report predicts that the cost of adapting to the loss of Arctic permafrost alone will be about ten times that of the potential economic gain of this great Arctic thaw.

Conclusion

In a single month, multiple indications of the potentially catastrophic impacts of climate disruption have been felt and published in parallel with an unprecedented surge in climate activism in over 120 countries. Taken together they support the view that after many years of determined analysis and action, the issue of climate breakdown is at last starting to get the attention it urgently needs among the general public, young and old.

It also means, though, that time is even shorter than feared and the action needed over the next decade will require a singularly high order of political leadership backed by persistent and determined activism and campaigning supported by climate scientists being prepared to be uncompromising in their insistence on the need for immediate action. If to paraphrase Swedish activist Greta Thunberg’s original protest, climate

should be the most important electoral issue, there is little sign that mainstream politicians have yet embraced the urgency of action.

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