Impacts of climate change

From increasingly frequent heat waves and intense storms to sea level rise and biodiversity loss, climate change is already impacting societies across the world, providing an uncomfortable preview of an unstable climate future. Climate change is an existential threat as it risks disrupting the remarkably stable temperatures that have allowed human civilisation to flourish over the past 16,000 years.

To adequately respond to climate change we must decarbonise the entire economy, and recarbonise our soils and ecosystems as soon as humanly possible. The build-up of historical emissions and the Paris Agreement's emphasis on "negative emissions technologies" that remove carbon from the atmosphere, mean that societies must go beyond complete decarbonisation to actively reduce atmospheric carbon by becoming net positive. This can be achieved largely through the use of renewable technologies, but also through methods like carbon capture, afforestation and regenerative agriculture. Businesses as well as governments have a role to play in this process, and since environmental impacts will negatively disrupt operations, it is within their interest to lead the way in zero carbon and net positive approaches. The challenge of climate change is global and complex. Industries, governments, citizens and communities will need to collaborate on an unprecedented scale in order to both mitigate and adapt to its effects.

In a world marked by climate instability, much is uncertain. Disruption will come in a variety of ways: through upheaval of fundamental systems, including energy, food, transport and economics; from the impacts of climate change on human settlements, infrastructure and supply of resources; from societal, regulatory and attitude shifts; and from increasingly radical political responses to the crisis.

Implications

- Climate change will shape the 21st century regardless of whether climate targets are met, either through mitigation or adaptation to a world characterised by violent climate disruption.
- It is also transforming the operational context for every organisation on the planet. As well as its direct physical impacts, it is affecting where people live, their capacity to work, feed and nourish themselves, and relationships between people and powers.
- As understanding of the implications of climate change grows, the pressure on governments and institutions to act is rising, along with accountability or comeuppance, including uprisings, for any failure to do so. These pressures - from civil society, regulators, investors and legislators - are fundamentally reshaping the context in which countries and companies operate. Any forward-planning business has to start preparing for inevitable disruption, or else risk losing the societal license to operate. Targets should therefore be informed by what's required to decarbonise rapidly, over what's achievable.
- Climate leadership is already being defined in terms of tackling direct emissions and more by efforts to be actively net positive and restorative.
- Climate change will also require widespread adaptation of key services and infrastructure. The most expensive adaptation measures involve modifying infrastructure and improving coastal and flood protection. Costs will not necessarily be highest where vulnerability is greatest, but in regions with lots of infrastructure that needs to be climate-proofed.

Current trajectory

- Global average temperatures have been increasing steadily in the last 150 years: 2016 was the hottest year since records began, reaching 0.99°C above the mid-twentieth century mean. The world's nine warmest years since records began have all occurred since 2005, and the five warmest since 2010.
- It now seems close to impossible that we will meet the target of 1.5°C of warming. A 2018 landmark report by the Intergovernmental Panel on Climate Change (IPCC) said this would involve bringing CO2 emissions down by 45% from 2010 levels by 2030. Beyond 2°C, the Earth's non-linear feedback loops and tipping points, such as melting sea-ice and the release of reserves of methane in permafrost and seabeds, become very difficult to predict. The fear is that they could lock us into major and potentially irreversible changes, and trigger runaway climate change – a scenario commonly referred to as 'Hothouse Earth'.
- Those who will be most affected by the impact of climate change are often those least responsible for it. Oxfam estimates that the poorest half of the global population is responsible for 10% of global emissions, while the richest 10% of humanity are responsible for 51%.
- Over 100 influential businesses have joined the RE100: a collaborative, global initiative striving for businesses to run on 100% renewable energy, launched in 2014.
- Other companies have set targets to become 'net positive'. These include carpet manufacturer Interface, which since 1994 has reduced the carbon impact of its products by 60%, and also Unilever and Ikea.
- Some countries are also decarbonising. Sweden and Denmark obtain approximately 50% of electricity from renewable sources, whereas Costa Rica has nearly all of its electricity from renewable sources and is aiming to become carbon neutral by 2021. Saudi Arabia, the 11th most oil-dependent nation in the world, has said it wants to "end its addiction to oil", without giving a timeline.
- A growing suspicion of globalisation and multilateralism is threatening international agreements on climate change, epitomised by President Donald Trump's decision to abandon the Paris Climate Agreement in 2017.
- While progress on decarbonisation has accelerated in recent years it is clear that the pace of change is inadequate. In the words of UN Secretary General Antonio Guterres, "climate change is moving faster than we are".

External resources

- https://www.nasa.gov/press-release/nasa-noaa-data-show-2016-warmest-year-on-record-globally