THE CLIMATE SCIENTISTS ARE SPEAKING - IS THE WORLD LISTENING?

IPCC warns that too little is being done to adapt to climate change, and the planet is running out of time

In late February, the Inter-governmental Panel on Climate Change (IPCC), a body representing 195 governments that is charged with providing policymakers with scientific assessments of the risks and implications of climate change, issued a second report as part of its Sixth Assessment of climate science. The IPCC report – titled Impacts, Adaptation and Vulnerability – represents the views of 270 climate scientists who reviewed over 34,000 scientific papers.

UN Secretary-General António Guterres characterizes the second IPCC report as "an atlas of human suffering and a damning indictment of failed climate leadership." He referred to the first IPCC report (Climate Change 2021: The Physical Science Basis), issued last August, which unequivocally tied human activity to the warming of the planet's climate at a rate not seen for at least 2,000 years and predicted temperatures will continue to rise if drastic action is not taken, as a "code red for humanity." (See also UN news release.)

A third report (Climate Change 2022: Mitigation of Climate Change), which is to address options to reduce GHG emissions, is expected to be released in April. A Synthesis Report (the fourth in the series) is scheduled for release in September.

The Second IPCC Report

The second IPCC report focuses on the implications of global warming, and represents a stark warning about inaction. (I set out in the annex below the key findings in greater detail.) It offers solutions to what, in its words, are the unequivocal threat posed by climate change to human well-being and the health of the planet, but concludes that further delay will miss the window to secure a viable future.

As the World Economic Forum, in a March 3 release, noted, the second IPCC report indicates that breakdown of the climate is occurring faster than expected and the window to act is closing fast. The IPCC report represents a clarion call for governments and the private sector to take drastic action to fight climate change. The WEF release cites an April 2021 Swiss Re Institute set of projections that the world could lose 18.1% of total economic value by 2050 if net zero targets are not met and the planet experiences a 3.2°C increase in temperature (Asia could lose 26.5% of GDP by 2050, while Africa and the Middle East could lose up to 27.6% of GDP by 2050) (See Economics of climate change: no action not an option.)

Essentially the IPCC message, beyond what we already know – the "code red" nature of the global threat leading to water scarcity, severe constraints on food production and security, and significant biodiversity loss due to heatwaves and droughts, is that in addition to the imperative of coordinated global action to *reduce GHG emissions*, urgent action is needed to *adapt* to the effects of climate change – to create climate resilience. In short, after considering the *impacts* of climate change across the different regions of the world and *vulnerability* of different populations, the report urges that mitigation (that is the reduction of GHG emissions) be accompanied by adaptation, within a framework of sustainable, inclusive development. It assesses adaptation across the globe, country by country, and addresses feasibility of a range of adaptation strategies.

Adaptation

The IPCC report posits that not nearly enough has been done on the adaptation front – actions to date are "fragmented, small in scale, incremental, sector-specific, designed to respond to current impacts or near-term risks, and focused more on planning rather than implementation" – and we do not have much time in which to take urgent, effective action. The report notes that "[a]t current rates of adaptation planning and implementation the adaptation gap will continue to grow." The challenge though is that, as adaptation options typically have lengthy implementation times, long-term planning and accelerated implementation will be critical given the short window for effective action.

Adaptation requires countries, at the very least, to incorporate into national climate strategies adaptation measures such as flood barriers, drought-resistant crops and early-warning storm systems. These are not likely to be enough, as the threat calls for more transformational change and sustainable investment to achieve that change. The WEF release notes that companies must also adopt adaptation strategies, focused not only on the risks posed by climate change but also the opportunities embedded in climate transition.

On a positive note, the IPCC report notes that effective governance, adaptation finance and nature-based solutions are important contributors to closing the adaptation gap.

Adaptation Finance

The IPCC notes that "feasibility and effectiveness of adaptation responses, particularly for urban areas, is constrained by institutional, financial and technological access and capacity." The IPCC reports that, although climate-targeted global finance is increasing, the "overwhelming majority" is targeted at mitigation, rather than adaptation. Adaptation finance typically comes from public sources. There is a vicious cycle: "Adverse climate impacts can reduce the availability of financial resources by incurring losses and damages and [impede] national economic growth, thereby further increasing financial constraints for adaptation, particularly for developing and least developed countries."

In the context of the urgent need to reduce GHG emissions while at the same time enabling adaptation to protect against physical risks posed by climate change, the challenge for the investment community is to be able to assess and manage the concomitant risks. The lynchpin of all of this is corporate disclosure of the physical and transition risks businesses face and associated financial impacts thereof, as well as the strategies for climate resilience they expect to pursue (both for managing the risks and the financial impact thereof as well as the opportunities for adaptation). See, for example, the Institutional Investors Group on Climate Change (IIGCC) Member Expectations and Focus on Adaptation and Resilience.

War and Politics Intervene

At a time when climate scientists are calling for global action to address mitigation and adaptation before it is too late, war and politics have intervened.

The Russian invasion of Ukraine has forced energy security to the top of the policy agenda given Europe's significant dependence on Russian natural gas and oil. Russia is the world's second largest producer of natural gas after the United States (responsible for 17% of global output in 2020) and the third largest producer of oil after the United States and Saudi Arabia (responsible for 12% of output in 2020). Around 72% of Russian natural gas exports and

48% of its oil exports go to Europe. (See US EIA Report.) According to the New York Times, the European Union receives about 40% of its natural gas and more than 25% of its oil from Russia.

Germany has halted certification of Nord Stream 2 (the natural gas pipeline linking Germany directly with Russia), and Western policymakers are considering directly targeting Russia's energy exports, though they are reluctant to do so because sanctions would likely lead to higher energy costs at a time of already high inflation. These policymakers could be pre-empted should Putin cut supplies of natural gas in retaliation for the financial sanctions that have been levied to date.

Europe is grappling with questions such as whether it needs to create the infrastructure to replace Russian natural gas with gas from other sources (principally liquified natural gas (LNG) from the United States, as well as Australia and Qatar) or should it migrate more quickly away from fossil fuels altogether, and embrace energy efficiency measures and investments in renewable sources of energy in line with the European Green Deal. (See my earlier post on European Sustainable Finance.) In the meantime, Germany has announced plans to build two LNG terminals (a memorandum of understanding for the first terminal was signed today) and an earmark of €1.5 billion to buy LNG from outside Russia. Had Europe acted on the IPCC warnings years ago, Putin's leverage over Europe would have been drastically reduced.

It is noteworthy that, in addition to the potential for fundamental changes in public energy security policy, the invasion has prompted a number of international fossil fuel projects in Russia to be abandoned by private sector actors.

There is an additional element to this which is that, as raised in a Carnegie Europe interview with one of the lead authors of the IPCC report, François Gemenne (Russia's Ukraine Invasion and Climate Change Go Hand in Hand), Ukraine is one of the most significant breadbaskets of Europe (as a major source of grain and corn) and, therefore, central to global food security. In the short term, the invasion has the potential to create massive food insecurity.

More long-term, the interview raises the concern that Russia is seeking greater influence in areas, such as Ukraine and countries in Africa, that are key to the transition to renewable sources of energy. Russian and Chinese efforts to create dependency relationships have the potential to imperil climate transition efforts, over and above Russia's undeniable interests in stymying the transition away from fossil fuels. As noted in the interview, "This is why climate finance is becoming one key aspect of a sustainable future for all; we all depend on this ability to redistribute resources and to transition as a transformative power for equalization and for equity across the world." Ultimately, even in the world of renewable energy, who will countries want to depend on?

An article published in POLITICO (The link between Putin and Climate Change) raises another issue. The IPCC report identifies governments that lack institutional structures, political will or accountability as likely to fail to protect their citizens against the effects of climate change. Russia faces consequences of melting permafrost, among others.

And miles away from Ukraine, the invasion has impacted the eight-member Arctic Council, formed to enhance collaboration and cooperation of states in the region to help manage the

region's resources, including to address the effects of climate change. The United States, Canada, Norway, Iceland, Sweden, Denmark and Finland are boycotting future talks in response to the invasion. From a climate change perspective, navigating the geopolitical issues triggered by the invasion could have significant consequences for ongoing collaboration on combatting oil pollution and on development plans for an area that is experiencing global warming far faster than the rest of the world.

All to say that climate warnings and global policy prescriptions so clearly set out in the IPCC report around climate transition, as well as urgent mitigation and adaptation, and geopolitics are inextricably bound.

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Annex

The key findings of the second IPCC report (emphasis added)

- Human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related losses and damages to nature and people, beyond natural climate variability. Some development and adaptation efforts have reduced vulnerability. Across sectors and regions, the most vulnerable people and systems are disproportionately affected.
- The rise in weather and climate extremes has led to some ***irreversible impacts*** as natural and human systems are pushed beyond their ability to adapt.
- Approximately 3.3 to 3.6 billion people live in contexts that are highly vulnerable to climate change. Current unsustainable development patterns are increasing exposure of ecosystems and people to climate hazards
- Global warming, reaching 1.5°C in the near-term, would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans. Near-term actions that limit global warming to close to 1.5°C would substantially reduce projected losses and damages related to climate change in human systems and ecosystems, compared to higher warming levels, ***but cannot eliminate them all***.
- Beyond 2040 and depending on the level of global warming, climate change will lead to numerous risks to natural and human systems. For 127 identified key risks, assessed mid- and long- term impacts are up to multiple times higher than currently observed. The magnitude and rate of climate change and associated risks depend strongly ***on near-term mitigation and adaptation action***s, and projected adverse impacts and related losses and damages escalate with every increment of global warming.
- Global warning has caused significant disruptions, and climate change is affecting the lives of billions of people. The effects of human-induced intensification of tropical cyclones, sea-level rises and heavy rainfall has caused significant loss. The impact in cities is magnified, with heatwaves exacerbating levels of air pollution. Critical infrastructure has been compromised by extreme weather events.
- Climate change impacts and risks are becoming increasingly complex and more difficult to manage. Multiple climate hazards will occur simultaneously, and multiple climatic and non-climatic risks will interact, resulting in compounding overall risk and risks cascading across sectors and regions. Some responses to climate change result in new impacts and risks.
- If global warming transiently exceeds 1.5°C in the coming decades or later, then many human and natural systems will face additional severe risks, compared to remaining below 1.5°C. Depending on the magnitude and duration of overshoot, some impacts will cause release of additional greenhouse gases and some will be irreversible, even if global warming is reduced.
- Progress on adaptation has been uneven. Many initiatives prioritize immediate and near-term climate risk reduction, which reduces opportunities for transformational adaptation.

- There is increased evidence of maladaptation. Maladaptive responses to climate change can create lock-ins of vulnerability, exposure and risks that are difficult and expensive to change and exacerbate existing inequalities. Maladaptation can be avoided by flexible, multi-sectoral, inclusive and long-term planning and implementation of adaptation actions with benefits to many sectors and systems.
- Enabling conditions are key for implementing, accelerating and sustaining adaptation in human systems and ecosystems. These include political commitment and follow-through, institutional frameworks, policies and instruments with clear goals and priorities, enhanced knowledge on impacts and solutions, mobilization of and access to adequate financial resources, monitoring and evaluation, and inclusive governance processes.
- Worldwide climate resilient development action is more urgent than previously assessed. Climate resilient development is enabled when governments, civil society and the private sector make inclusive development choices that prioritise risk reduction, equity and justice, and when decision-making processes, finance and actions are integrated across governance levels, sectors and timeframes. Safeguarding biodiversity and ecosystems is fundamental to climate resilient development, in light of the threats climate change poses to them and their roles in adaptation and mitigation.
- Past and current development trends (past emissions, development and climate change) have not advanced global climate resilient development. Societal choices and actions implemented in the next decade determine the extent to which medium- and long-term pathways will deliver higher or lower climate resilient development. Importantly climate resilient development prospects are increasingly limited if current GHG emissions do not rapidly decline, especially if 1.5°C global warming is exceeded in the near term. These prospects are constrained by past development, emissions and climate change, and enabled by inclusive governance, adequate and appropriate human and technological resources, information, capacities and finance.