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A CLIMATE CHANGE SURVIVAL GUIDE TO ACT ON

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

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A water meter stands on a dry wetland at the Donana natural park, southwest Spain | Photo Credit: AP

This week, the Intergovernmental Panel on Climate Change (IPCC) released the synthesis report of its Sixth Assessment Report (AR6) cycle, drawing together key findings from its six most recent reports. The report gains added legitimacy as its summary for policymakers is approved line-by-line by governments of the world. The United Nations Secretary General has called it a 'survival guide for humanity'. The report can shape our collective response in this critical decade, which may be make-or-break for humanity, and is likely to be the last IPCC report for a few years.

Editorial | **Final solution: On giving earth a chance to escape climate change effects**

The report confirms that human activity is 'unequivocally' driving global temperature rise, which has reached approximately 1.1° C above pre-industrial levels. While the rate of emissions growth has slowed in the past decade, humanity is estimated to be on a 2.8° C(2.1°-3.4° C range) trajectory by 2100. This temperature rise has already led to rapid and widespread impacts on climatic systems. It flags that "For any given future warming level, many climate-related risks are higher than assessed in AR5". This new realisation underpins the considerable attention in the IPCC report to trajectories that constrain global warming to 1.5° C rather than 2° C. This relative focus on 1.5° C has two implications.

First, the amount of carbon that the world can cumulatively emit before reaching key temperature limits, i.e., the world's 'carbon budget', is far lower for the 1.5° C than the 2° C target. Modelled global pathways suggest that limiting warming to 1.5° C (with a probability of >50% requires greenhouse gas (GHG) emissions to be reduced by 43% by 2030 (median estimate), while the same number for limiting warming to 2° C (probability of >67%) is 21%. Strikingly, it notes that the projected CO2 emissions over the lifetime of existing fossil fuel infrastructure without additional abatement already exceed the remaining carbon budget for 1.5° C.

Striving for a 1.5° C target implies deep and immediate reductions in emissions in all sectors and regions, which makes more salient different national circumstances and questions of climate equity and operationalisation of the United Nations Framework Convention on Climate Change's core principle of Common but Differentiated Responsibility and Respective Capabilities. The IPCC report points out that humanity had already consumed 4/5ths of its total carbon budget for

1.5° C by 2019, with developed economies consuming the lion's share. The report also notes that existing modelling studies, which are often used to assess emission trajectories, do not explicitly account for questions of equity. While from an impacts point of view, it is important to aspire to a 1.5°C target, the correspondingly lower carbon budget heightens questions of equity and who bears the responsibility for achieving these ambitious targets.

Second, the recognition of greater risks at lower temperatures points to the necessity of early climate adaptation. The report highlights that adaptation itself has limits, which implies that some losses and damages of climate change are inevitable. For example, the report finds that some coastal and polar ecosystems have already reached hard limits in their ability to adapt to a changing climate. The effectiveness of some of the adaptation options that are feasible and effective today (such as urban greening and restoration of wetlands) decreases with increasing warming. Importantly, the report cautions against certain forms of adaptation such as poorly planned seawalls — dubbed maladaptation — which can defer and intensify the impacts of climate for short term and often iniquitous adaptation gains. It also argues that at higher levels of warming, climate change could lead to cascading risks such as food insecurity, leading to migration, which are intensely challenging to manage. A logical corollary of these findings would be that because countries cannot entirely develop their way out of climate risk and vulnerability, mitigation remains essential.

So while the diagnosis is dire, what of the prognosis?

The leading message of the report is that of urgently adopting 'climate-resilient development' — a developmental model that integrates both adaptation and mitigation to advance sustainable development for all. If this sounds like aiming high, that is because it is; countries no longer have the luxury of focusing on adaptation or mitigation or even development alone.

The report assesses the plethora of technologies and design options, such as solar energy or electric vehicles, that can help countries reduce emissions or become more resilient today at low costs, and in a technically feasible manner. It also points to the fact that there are more synergies than trade-offs between mitigation and adaptation actions and Sustainable Development Goals, although it warns against paying inadequate attention to these trade-offs. Prioritising and addressing equity and social justice in transition processes are shown to be key to climate-resilient development. The report strikes a particularly upbeat note on the co-benefits of climate action for air quality. A cost-benefit analysis suggests that the air quality and health benefits of mitigation outweigh its costs.

While a climate-resilient development pathway is the journey, the destination is net zero emissions at the global level. If sustained, net-zero GHG emissions will result in a gradual decline in global temperatures. However, this may be contingent upon significant carbon dioxide removals, which are challenging to achieve at scale.

How is the world doing in this regard? The report finds some tangible evidence of progress in the proliferation of laws and policies, and confirms the effectiveness of existing policy tools such as regulations and carbon markets. A promising, yet potentially unsung story is that of policy packages, which are a coherent and comprehensive set of policies tied to a particular policy objective that can help countries meet short-term economic goals.

At the same time, several gaps remain in humanity's response so far. The report points out that there are gaps between modelled sustainable pathways and what countries have pledged (ambition gaps) as well as substantial gaps between what countries pledge and what they actually do (implementation gaps). Delayed action risks locking-in to high carbon infrastructure in this decade, and creating stranded assets and financial instability in the medium term.

Therefore, high upfront investments in clean infrastructure are imperative. However, despite sufficient global capital, both adaptation and mitigation financing need to increase many-fold: between three to six times for annual modelled mitigation investments, from 2020 to 2030. The report, thus, paints a picture of progress and innovation in the face of inadequate ambition, implementation, climate finance and investment despite the cost-effectiveness of several response options.

The IPCC AR6 synthesis report is a landmark report because it offers a blueprint for sustainable development, while presenting a sobering account of present and future damages to ecosystems and the most vulnerable amongst us. It is now up to governments and people of the world to act.

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