SPOTLIGHT
ON REGIONAL AFFAIRS

June 2024, Vol.42, No.6 (1)

State of the Climate Crisis and Priorities for COP-29

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Introduction

Humanity has "opened the gates to hell." This was the UN Secretary-General Antonio Guterres's remark on the current state of the climate crisis.[1] As temperatures continue to rise, fossil fuel companies continue to make record profits of trillions while being the 'godfathers' of climate chaos.[2]

According to the latest World Meteorological Organisation (WMO) findings, the global mean near-surface temperature in 2023 was 1.45±12°C, compared to pre-industrial averages.[3] That year, the El Nino phenomenon amplified temperatures and for the first time also in recorded history, humanity is experiencing an overshoot scenario (>1.5°C) which unleashed worsening heatwaves, floods, and wildfires. It was the hottest year in recorded history. As per the international disaster database (EMDAT) reports, in 2023 alone, a total of 399 disasters occurred with 86,473 fatalities and 93.1 million people impacted.[4]

Humanity must act swiftly to return to the safe operating limits of planetary boundaries. In light of the upcoming 29th Conference of Parties (COP-29) to be held in Baku, Azerbaijan this year, it is worth taking stock of the current global weather conditions and their impacts across the world as well as on a regional level, in order to determine priorities and appropriate next steps.

State of Global Climate Crisis

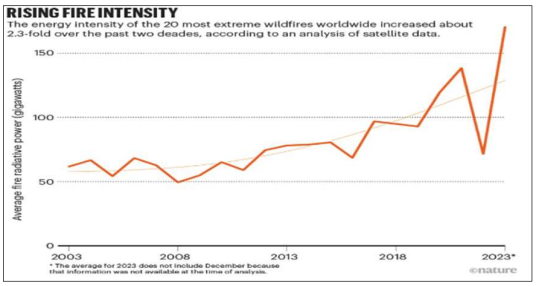
Global Carbon Budget

We are rapidly running out of the global carbon budget, that is, the maximum amount of carbon dioxide (CO_2) we can afford to emit before crossing a certain temperature limit. Latest assessments show that the remaining carbon budget to have a chance of holding a 1.5 °C limit has declined from 500 $GtCO_2$ to only 200 $GtCO_2$ today.[5] Global emissions, meanwhile, rose by about 1.1 per cent in 2023, when they need to be cut by 7 per cent per year. Approximately 40 $GtCO_2$/year is emitted from burning coal, oil, and gas.[6] From this we can infer that whatever we choose within the next 5 years in terms of our carbon budget will dictate the future of the planet.

Cataclysmic Infernos

In the past two decades, the frequency at which extreme fires occur around the world has doubled. Endless series of cataclysmic infernos scorch ecosystems and communities. On average there was a 2.3-fold boost in the top twenty most intense fires each year and a 2.2-fold increase in frequency of extreme events globally in 2003-23.[7] Researchers observed that higher temperatures are drying out ecosystems, with increased night-time temperatures leading to nocturnal wildfires. As shown in Figure 1, these fires grow more extreme with each passing year.

Figure 1- Wildfire intensity



Source: Nature

Earth Resilience and Biosphere Boundaries

In the Anthropocene age, the exponential rise in our population has amplified greenhouse gas emissions through economic activities, increasing the risk of intersecting critical limits, and disrupting multiple biophysical systems that regulate the state of the entire earth system. Persisting in business-as-usual could eventually destabilise the earth's feedback loop.[8]

One major concern is the accelerating rate of global warming. From 1970 to 2008, global mean surface temperatures rose by 0.18°C per decade, but since 2010, the rate has jumped to 0.3°C per decade.[9] Science has yet to fully explain this acceleration, but environmentalists around the world see it as a sign of instability within the earth system. The oceans, which are crucial for stabilising the planet, have absorbed around 90 per cent of the heat generated by human activities and sequestered about 25 per cent of CO_2.[10] However, in the last five decades, ocean temperatures have risen by approximately 0.6°C, and by 0.9°C since pre-industrial levels. Climate models did not predict this and clear explanations are still lacking.[11]

Environmentalists also observe similar signs in

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other systems. For example, permafrost in Siberia is rapidly thawing, releasing methane and carbon;[12] polar ice sheets and inland glaciers are melting quickly, causing shifts in reflectivity of incoming solar radiation as darker surfaces absorb more heat;[13] and large forest systems like parts of the Amazon in Brazil are shifting from carbon sinks to carbon sources. In simple terms, these systems, which previously helped cool the planet, are now contributing to its warming, pointing towards a loss in earth's resilience.

Climate change also risks triggering biosphere boundaries across various ecosystems. For instance, marine heatwaves have led to mass coral bleaching and damaged almost half of the shallow-water coral on Australia's Great Barrier Reef. Almost 99 per cent of tropical corals are projected to be lost even at 2°C of warming.[14] This could activate immediate carbon release back into the atmosphere, amplifying climate change and reducing the remaining carbon budget (200 GtCO2). On the current pathway, in the best-case scenario, surface mean temperature is likely to hit a catastrophic 2.5°C within this century, significantly exceeding the limit stipulated in the Paris Accord (2016).[15]

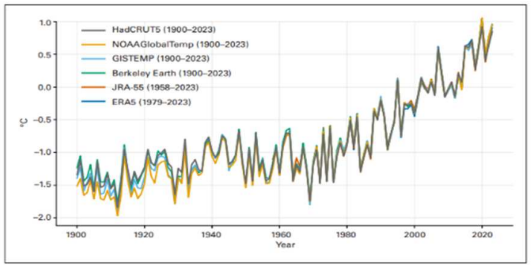
This brings risks to all societies. Earth's resilience is reducing each decade due to inaction to protect the climate and biosphere. When warming surpasses 1.5°C, there is a higher risk of crossing multiple biophysical systems safe operating limits, making the process unstoppable and self-reinforcing.

Regional Impacts

State of Climate in Asia

WMO's recently published *State of the Climate in Asia* reports that the mean temperature over Asia in 2023 was the second highest on record, 0.91°C above the 1991-2020 average and 1.87°C above the 1961-1990 average, as shown in Figure 2.[16]

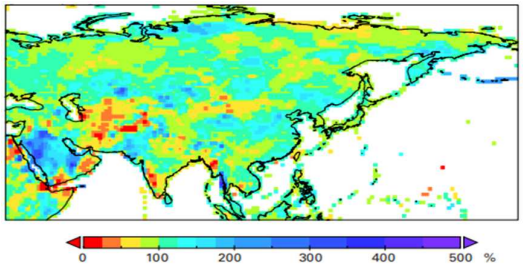
Figure 2 - Annual mean temperature anomalies (°C), 1900 –2023, averaged over Asia, relative to the 1991–2020 average, for the six global temperature datasets indicated in the legend.



Source: WMO 2024

These observations indicate a rising trend, with the temperature spikes on land being larger than over the marine ecology. Precipitation, a key climate parameter for drinking water, domestic use, agriculture, and hydropower, has seen increased frequency and intensity of droughts and floods in this era of adaptation, as shown in Figure 3. In 2023, significant precipitation deficits were observed in Turkmenistan, Uzbekistan, Kazakhstan, Afghanistan, Pakistan, India, Bangladesh, and Myanmar.

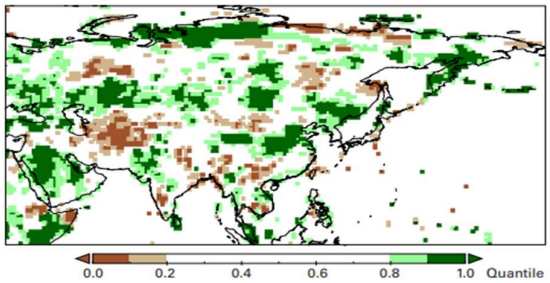
Figure 3 – Precipitation anomalies for 2023, expressed as a percentage of the 1991–2020 average.



Source: WMO 2024

The highest absolute precipitation occurred into the lower course of Pakistan, Myanmar, Russia, China, Kazakhstan and Saudi Arabia, as shown in figure 4. In Mid-June to Mid-July 2023, multiple hydro-met events resulted at least 599 reported deaths across Pakistan, India and Nepal. In April-May 2024, large regions of Central Asia were hit by extreme hydro-met events in the form of flash flooding and heavy downpours.

Figure 4 – Total precipitation in 2023, of the 1991–2020 reference period, for areas that would have been in the driest 20% (brown) and wettest 20% (green) of years during the reference period, with darker shades of brown and green indicating the driest and wettest 10%, respectively.



Source: WMO 2024

According to a recent *World Weather Attribution* study, the most distressed country in Asia was Afghanistan with 540 fatalities in March alone.[17] In Pakistan, 124 deaths were reported in severe flooding in April, while eighteen people died in Iran. Additionally, biblical rainfall impacted thousands of acres of submerged agricultural lands and homes. Human-induced carbon emissions are the main driver making these events more likely. However, the report notes that observational datasets and models have

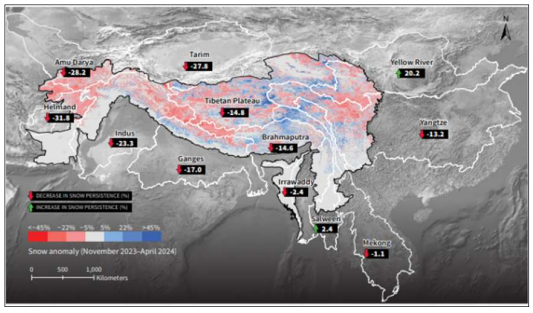
shown different behaviours over the last 40 years of meta-analysis. Pakistan and Afghanistan are highly vulnerable to flooding, with vulnerability increased by factors such as limited data sharing on transboundary water management, deforestation, and unplanned urban river expansion which exacerbate flood risks within this region.

Snow-Cover 2024

Snow persistence refers to the fraction of time that snow remains on the ground. An assessment is conducted in the Hindu Kush Himalaya (HKH) region annually in this regard. The International Centre for Integrated Mountain Development (ICIMOD) found significant fluctuations in snow persistence during the snow accumulation season (November-April), with several anomalies occurring in the last two decades. [18]

A significant 23.3 per cent decline in snowfall has been observed in the Indus River basin, depleting average snow cover across the HKH region. This threatens water supplies for 1.65 billion individuals in the Indus Basin, as shown in Figure 5. In 2018, there was a significant decrease in seasonal snow persistence, with a deviation of 9.4 per cent from the average. In comparison, 2020 recorded the maximum snow persistence above normal, at 15.5 per cent.

Figure 5 – Snow cover persistence anomaly during Nov 2023–April 2024 (Compared to historic observations during the reference period 2003-2023



Source: HKH snow update 2024, ICIMOD

Similarly, in Amu Darya River Basin, in the last two decades, random changes are observed periodically in snow persistence, reaching its lowest (17.7 per cent) and highest point (32.1 per cent). The year 2024 has the lowest snow persistence with 28.2 per cent compared to normal.

Helmand River basin showed a decline in seasonal snow persistence in the last twenty-two years, with 31.8 per cent deviation. Similarly, Ganges River Basin prior in 2018 had the lowest persistence at 15.2 per cent. For the year 2024 it has shown the lowest snow perseverance point of 17 per cent.

The HKH region saw multiple significant deviations within 2024 as shown in figure 5. The below normal snow persistence directly impacts water accessibility for early summer which generates drought conditions. The decreasing trend was observable for snow persistence from east to west in the region.

Transformation for safe operating space

To solve the climate crisis and return to 1.5°C by the end of this century after an overshoot, humanity must decarbonise the global economy by 43 per cent within this decade and restore all planetary boundaries that provide Earth with resilience, enabling it to buffer heat stress, shocks, and warming. Currently, six of the nine scientifically established planetary boundaries are assessed as breached. Today, focusing solely on phasing out fossil fuels is insufficient; we have reached a transformative moment. Linear change is no longer an option—we need to enhance the speed and scale of all actions with a systemic shift. This requires ensuring that sustainable solutions are more attractive in terms of prosperity and equity.

Climate Solutions and the Priorities for COP-29

Climate change is a global problem with regional solutions, and solutions only work if they are actionable and collaborative in nature. Humanity needs to coordinate actions from different players across economic systems to achieve genuine steps towards progress:

- **Just energy and Industry Transition:** Decarbonising power and heavy industry while addressing supply, demand, policy, and investment to ensure a just transition in all of Asia should be top priority to halve emissions by 2030. During COP-29, new targets should be set for electrification, methane reduction, energy accessibility, energy security, economic growth, and sustainability to strengthen regional resilience.
- **Equitable Financial Flows:** Financial liquidity should be accessible as grants rather than loans. Developing countries argue that developed nations should provide financial assistance due to historical emissions. While high-income countries do provide finance, the majority is in the form of loans. According to the OECD, developed countries met the long-standing USD 100 billion per year promise in 2022, but 69 percent of this was provided as loans.[19] Pakistan should demand clarity on the definition of climate finance, insist that climate finance should not include development finance, and caution against double-counting at COP-29.
- **Nature and Inclusion:** Nature should be at the heart of climate negotiations at this year's COP-29, emphasizing the importance of indigenous people in leading stewardship. Solutions should include a full

set of 2030 targets for nature-based solutions, spanning land, ocean, agriculture, food, and water.

Adaptation and Resilience: South Asia needs adaptation and resilience to tackle the climate crisis, change the reality of insufficient action, and avoid a 'too late, too little' approach. This is not only a moral imperative but also economically advisable to the Pakistan pavilion at COP-29.

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