CLIMATE ACTION

FAST FACTS

1.5°C: what it means and why it matters

- ✓ The science is clear: **to avert the worst impacts of climate change** and preserve a liveable planet, global warming needs to be limited as much as possible and as a matter of urgency. (IPCC)

- ✓ **Under the Paris Agreement**, countries agreed to substantially reduce global greenhouse gas emissions to enable the long-term global average surface temperature increase to be kept well below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C. (Paris Agreement)

- ✓ At COPs 26, 27, and 28, countries emphasized that the impacts of climate change would be much lower at a temperature increase of 1.5°C, compared with 2°C, and expressed their firm resolve to pursue efforts to **limit global warming to 1.5°C**. (COP outcomes; IPCC)

- ✓ **Monthly and annual breaches of 1.5°C** do not mean that the world has failed to achieve the Paris Agreement's temperature goal, which refers to a long-term temperature increase over decades, not individual months or years. Temperatures for any single month or year fluctuate due to natural variability, including El Niño/La Niña and volcanic eruptions. Consequently, **long-term temperature changes are typically considered on decadal timescales.** (WMO)

- ✓ Nevertheless, breaches of 1.5°C for a month or a year are **early signs of getting perilously close to exceeding the long-term limit**, and serve as clarion calls for **increasing ambition and accelerating action in this critical decade**. (UNEP).

- ✓ Global temperature changes are typically **measured against the average temperature over a historical, pre-industrial baseline** of 1850–1900. This baseline is the earliest period for which high-quality observations of surface temperatures over the land and ocean are available. (IPCC)

- ✓ The first **months with an average temperature that was more than 1.5°C** above the pre-industrial average occurred during 2015-16, driven by both human-caused climate change and a strong, naturally occurring El Niño. The latter part of 2023 and early 2024 also experienced monthly average global temperature anomalies above 1.5°C. (WMO)

- ✓ **The first 12-month period to exceed 1.5°C as an average** was February 2023 – January 2024**,** boosted by El Niño, when the average temperature worldwide was estimated to be 1.52°C higher than 1850–1900, according to one scientific dataset (Copernicus Climate Change Service). The likelihood of the annual average global temperature exceeding 1.5°C above pre-industrial levels for at least one year over the coming five years has increased significantly since 2015, when it was close to zero (WMO).

- ✓ The global average temperature for the **most recent 10-year period**, from 2014 to 2023, is estimated to be the warmest 10-year period on record, at around **1.2°C** above the 1850-1900 average (WMO). The 20-year average warming for 2001–2020 relative to 1850–1900 is 0.99°C (IPCC).

- ✓ **Every fraction of a degree of warming matters.** With every additional increment of global warming, changes in extremes and risks become larger. For example, every additional 0.1°C of global warming causes clearly discernible increases in the intensity and frequency of temperature and precipitation extremes, as well as agricultural and ecological droughts in some regions. (IPCC)

- ✓ **Limiting global warming to below 1.5°C** will significantly reduce the risks, adverse impacts, and related losses and damages from climate change. Failing to do so will lead to increasingly frequent and dangerous extreme weather events including heatwaves, droughts, wildfires, and heavy precipitation and flooding (IPCC). Extreme heat causes the greatest mortality of all extreme weather, with an estimated 489,000 heat-related deaths per year between 2000 and 2019 (WMO). **Exceeding 1.5°C could also trigger multiple climate tipping points** — such as breakdowns of major ocean circulation systems, abrupt thawing of boreal permafrost, and collapse of tropical coral reef systems — with abrupt, irreversible, and dangerous impacts for humanity (Science).

- ✓ **Even at current levels of global warming,** we are already seeing devastating climate impacts, including intensifying extreme weather events, alarming reductions in ice sheets, sea ice, and glaciers, and several mass coral bleaching events, with widespread harms to people, economies, and nature (IPCC). In the last two decades, the 55 most climate-vulnerable economies alone have already experienced climate damages exceeding US$ 500 billion (UNEP). In 2022, disasters triggered a record 32.6 million internal displacements, of which 98% were caused by weather-related hazards such as floods, storms, wildfires and droughts (UNHCR).

- ✓ **Human health impacts from climate change have been apparent for at least 20 years, but the climate crisis is still not treated like other global public health emergencies.** The cumulative death toll from climate change since 2000 will pass 4 million in 2024. This number is likely a substantial underestimate since it only focuses on climate-related malnutrition, diarrheal disease, malaria, floods, and cardiovascular diseases, whereas climate change is a threat multiplier of many other extreme weather events and public health risks. (Nature; PLOS)

- ✓ **Many climate impacts**, especially sea-level rise from ice sheets, disappearance of mountain glaciers, and ocean acidification, **are essentially permanent for many generations to come and will take centuries to thousands of years to restore to even today's conditions.** To minimize losses and damages, it is crucial to minimize the **magnitude and duration of temporarily exceeding 1.5°C** by urgently and significantly **reducing greenhouse gas emissions and phasing out fossil fuels**. (New insights; IPCC)

- ✓ Under global modelled **pathways that limit warming to 1.5°C** with no or limited temporary overshoot, global greenhouse gas emissions peak by 2025, and are reduced by 43% by 2030 relative to 2019. Global carbon dioxide (CO_2) emissions reach net zero by 2050. (IPCC)

- ✓ **However, global CO_2 emissions, largely from fossil fuels, continue to rise and reach record levels.** At the current rate of emissions, the remaining "carbon budget" for limiting long-term global warming to 1.5°C with a 50% chance (around 250–275 billion tonnes of CO_2) would be depleted by 2030. (UNEP; Global Carbon Project)

- ✓ Countries' commitments to reduce greenhouse gas emissions under the Paris Agreement have contributed to reducing the projected global warming by the end of the 21st century from 3.7–4.8°C to 2.4–2.6°C or possibly even lower. While this is far from sufficient, it shows that **collective commitments under the Paris Agreement have made a difference** (UNFCCC).

- ✓ At COP28 in December 2023, governments also agreed to **increase the ambitions of their national climate commitments** — due in 2025 — to be in line with limiting global warming to 1.5°C, as informed by the latest science, covering the whole economy and all greenhouse gases and sectors (COP28 outcome).

- ✓ Commitments and net-zero pledges must also be backed up by concrete action and implementation. **We need to bend the global emissions curve — and the production and consumption of coal, oil, and gas — downwards, starting now** (UNEP).

- ✓ **A wide range of solutions exist, many of which have already been deployed successfully.** Well-designed climate policies and economic measures — with close linkages between mitigation, adaptation, and development pathways — can also help to achieve sustainable development, deliver equity, eradicate poverty, and protect public and planetary health (IPCC).