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‘Averting Global Meltdown’: Report Details Ice Risks Beyond 1.5°C - and Paths to Return

Stockholm/Nairobi (Nov. 2): Overshooting the 1.5°C Paris Agreement target will bring large-scale, and in many cases irreversible, impacts from the Earth’s melting ice sheets, permafrost, glaciers, sea ice and polar oceans. These losses can still be limited if overshoot is kept to a minimum by deep emissions reductions followed by scaled-up carbon drawdown. Global ice is unforgiving in its response to even temporary overshoot. Faster transition from fossil fuels means the difference between manageable losses -- and a planet overwhelmed by serial disasters like that in Nepal in August.

These are the key takeaways from two reports released jointly today: *Overshoot and the Cryosphere: Averting Global Meltdown* and *State of the Cryosphere 2026: The Cost of Overshoot.*

The reports set out the global impacts of ice loss with overshoot, exploring which ones are locked in – and how more urgent climate action can still stop or slow the worst of this damage, delivering vital evidence ahead of COP31 in Türkiye.

“There are no good outcomes in exceeding 1.5°C. To contain the global fallout and damage from ice loss in the world’s polar and mountain regions, overshoot needs to be kept to the absolute minimum. Temperatures must be returned to well below 1.5°C again as quickly as possible to reduce the risks," said Dr. James Kirkham, coordinating lead author of *Overshoot and the Cryosphere* together with a team of over 80 polar and mountain scientists.

Produced by the International Cryosphere Climate Initiative (ICCI) in coordination with the UN Environment Programme (UNEP), *Overshoot and the Cryosphere* is a thematic companion report to UNEP’s recent Limiting Overshoot Report, the first of its kind from a UN agency. The similarly peer-reviewed annual *State of the Cryosphere 2026*, this year titled *The Cost of Overshoot*, builds on the UNEP-ICCI report.

"Every extra fraction of a degree and every year spent in overshoot means more devastating impacts”, added Kirkham, Chief Scientist at ICCI.

Both reports lay out actionable solutions to bring temperatures back down from overshoot. Renewable energy and battery technologies are booming, reliance on coal and oil is slowing, and climate policies have cut emissions in many places. Successful policies now need to be scaled up to reduce emissions by at least 5% per year, starting now, reaching net zero greenhouse gas emissions by mid-century. The reports emphasise that there can be no delay in phasing out fossil fuels to retain the possibility of bringing temperatures down in the future by drawing down carbon.

Doing so will have tangible benefits for future generations affected by global ice loss including:

- Slowing down the rate of sea-level rise to an ‘adaptable’ level. Even though several metres of sea level rise are already locked in for many centuries due to the long-term retreat of polar ice sheets, how fast it will happen matters greatly to coastal communities on the frontline of climate change today.
- Potentially halting and partially reversing glacier, snowpack and sea ice loss. A return to 1.5°C and below would initiate some sea ice and glacier re-growth within decades to centuries, and potentially re-establish healthy snowpack levels.

- Limiting the damage from impacts such as the destabilisation of permafrost, which can lead to tragic events such as that seen in Nepal and also emits carbon as it thaws. This climate feedback loop would leave even more CO_2 to be removed from the atmosphere later.

Even current levels of warming are already unsafe for the Arctic, the Antarctic, mountain glaciers and the polar oceans. The *2026 State of the Cryosphere* describes new science and observations from the past year, such as Switzerland's loss of 20% of its glacier ice in the past five years. Other impacts range from accelerating sea-level rise due to rapid ice loss, to increasing water shortages and mountain hazards as glaciers disappear and snow drought conditions spread.

Although returning to 1.5°C will slow ice loss, a truly 'safe' temperature target for Earth's ice is now thought to be closer to 1.0°C or even below over the coming centuries.

"Overshoot is a problem facing us right now. Decisions made in the next few years will lock in the scale of damage, both for youth today and future generations," said Gunjan Silwal, a young Nepali glacier researcher who will attend COP31. "The tragedy in Nepal is only a foretaste."

The pathway back to below 1.5°C requires ambitious and fast emissions reductions via fossil fuel phaseout – an "overshoot of ambition", in the words of UN Secretary-General António Guterres – as well as deep reductions in methane and black carbon emissions, which would also deliver immediate benefits for resilience, health and food security, especially in mountain regions. Massive and rapid research and investment into sustainable, long-term and scalable carbon removal from the atmosphere will be needed to bring temperatures down after reaching net zero.

Given unavoidable losses however, adaptation must be a priority. Increased efforts and financing are desperately needed to meet growing adaptation needs, build resilience, and respond to loss and damage as a result of overshoot and the impacts of global ice loss.

"When you miss an exit on the highway, you don't abandon plans to get to where you really need to be – you take your first chance to turn back. Continuing full speed ahead just makes things worse," said Pam Pearson, ICCI Director. "The road back to below 1.5°C may be difficult, but science and economics both provide a roadmap to a better future."

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About the Reports:
The *Overshoot and the Cryosphere Report* is prepared by over 80 leading international scientific experts. It is a thematic companion report to UNEP's Limiting Overshoot Report published in September 2026.

- After the embargo lifts, available here: https://iccinet.org/overshoot/
- DOI: https://doi.org/10.5281/zenodo.23477467

The *State of the Cryosphere 2026* is an annual assessment, peer reviewed by 60 leading cryosphere and climate scientists and coordinated by ICCI.

- After the embargo lifts, available here: https://iccinet.org/statecryo26/
- DOI: https://doi.org/10.5281/zenodo.23478059