

THE CONVENTION ON PLANETARY HYDROLOGICAL SECURITY AND CRYOSPHERE STABILITY

Introduction

From a civil society perspective, this Convention is being introduced not as a government initiative, but as a proposal from the global community of scientists, pastoralists, Indigenous Peoples, and environmental advocates who have witnessed firsthand the accelerating loss of the world's frozen freshwater systems and the devastating consequences for downstream communities, drylands, and the planet's climate stability. It is a call from the ground—from the steppes, the mountains, and the Arctic—to the international community, urging States to recognize the cryosphere as a global commons requiring dedicated legal protection, and to act before irreversible thresholds are crossed.

The Convention on Planetary Hydrological Security and Cryosphere Stability represents the culmination of decades of scientific research, growing political awareness, and increasing recognition that the cryosphere is a critical component of the Earth's life support system. For the first time, this Convention is being introduced at UNCCD COP17 in Ulaanbaatar—not in a distant diplomatic capital, but here, where the cryosphere meets the steppe, where scientists sit alongside pastoralists, and where the land, climate, biodiversity, and rangeland communities finally speak with one voice.

The Convention is not a theoretical exercise. It builds on existing agreements, existing institutions, and existing momentum. It fills a gap that has been recognized by the international community for years. It connects the cryosphere to the steppe, the heights to the lowlands, the herders to the glaciers, and the present to the generations yet to come.

The time for such a Convention is now—as the glaciers retreat, as the permafrost thaws, as the snowpack declines, and as the need for coordinated global action becomes undeniable. Mongolia, as the host of COP17 and the champion of rangelands and pastoralists, is providing the platform for this new international framework to emerge.

A New International Legal Framework

The Convention on Planetary Hydrological Security and Cryosphere Stability is a proposed international legal instrument designed to fill a critical gap in global environmental governance. It is being introduced at the United Nations Convention to Combat Desertification (UNCCD) COP17 in Ulaanbaatar, Mongolia, during these COP days—a moment when the world's attention is focused on land degradation, rangelands, and the interconnectedness of climate, biodiversity, and land systems.

The Convention emerges from a growing recognition that the cryosphere—the frozen freshwater systems of the Earth, including glaciers, ice sheets, seasonal snowpack, permafrost, and sea ice—constitutes the largest reservoir of freshwater on the planet and regulates the global hydrological cycle upon which billions of people depend. Yet no

comprehensive international legal instrument exists specifically dedicated to the conservation, protection, and sustainable management of these frozen freshwater systems. The cryosphere is governed by a coherent and interlinked network of scientific organizations that have long recognized its planetary importance, though none possess the legal authority of a dedicated convention.

The International Association of Cryospheric Sciences (IACS), established in 2007 as the eighth association of the International Union of Geodesy and Geophysics, is the only global scientific organization dedicated exclusively to the cryosphere, organizing its work into six divisions covering snow and avalanches, glaciers, ice sheets, sea ice, cryosphere-atmosphere interactions, and planetary ices. Its objectives include promoting cryospheric research, facilitating standardized data collection, and providing an international platform for discussion and publication. The operational arm for cryospheric observations is the World Meteorological Organization's Global Cryosphere Watch (GCW), which provides science-based information on the state of the cryosphere and supports WMO Members in enhancing their observation capabilities across all cryospheric components.

The World Glacier Monitoring Service (WGMS), a service of IACS working under the auspices of UN Environment, UNESCO, and WMO, has maintained systematic glacier observations since 1894, tracking mass balance, front variations, and glacier contributions to sea-level rise. The Global Terrestrial Network for Glaciers (GTN-G), officially recognized as a GCOS affiliated network since 2026, coordinates glacier monitoring through the joint efforts of WGMS, the US National Snow and Ice Data Center, and the Global Land Ice Measurements from Space initiative. For permafrost, the International Permafrost Association (IPA), founded in 1983, promotes research and disseminates findings on permafrost to decision-makers, the general public, and educators. The Climate and Cryosphere (CliC) project, a core initiative of the World Climate Research Programme founded in 1996, encourages research into cryosphere-climate interactions and highlights emerging issues to policy makers and funding agencies. Regional organizations such as the Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science Committee (IASC) coordinate research in the polar regions.

Existing governance frameworks address elements of the cryosphere indirectly and incompletely. The UN Framework Convention on Climate Change addresses the causes of cryosphere degradation but focuses primarily on emissions reduction. The Convention on Biological Diversity recognizes the importance of mountain and polar ecosystems but lacks a specific mandate for cryosphere conservation. The UNCCD addresses land degradation downstream but does not address the upstream cryosphere systems that regulate water availability. The Convention is designed to complement these existing instruments by explicitly addressing the cryosphere-water-land nexus.

The political momentum for such a Convention has been building for years. In December 2022, the UN General Assembly adopted resolution 77/158, declaring 2025 the International Year of Glaciers' Preservation and establishing 21 March as World Glacier Day. In August 2024, the Assembly adopted resolution 78/321, declaring 2025-2034 the Decade of Action

for Cryospheric Sciences. On 12 December 2025, the UN Environment Assembly adopted a resolution on glacier and cryosphere conservation at its seventh session in Nairobi. The High-Level International Conference on Glacier Preservation in Dushanbe (May 2025) endorsed the Dushanbe Declaration on Glaciers and a Call to Action, emphasizing the interlinkages between cryosphere preservation and climate change, biodiversity loss, desertification, and disaster risk reduction.

The Convention on Planetary Hydrological Security and Cryosphere Stability is being introduced in Ulaanbaatar because Mongolia, as the host of UNCCD COP17 and the chair of the Rangelands Flagship Initiative, has positioned itself as a global leader in dryland governance. The International Year of Rangelands and Pastoralists (IYRP 2026), championed by Mongolia, has created a historic opportunity to elevate rangelands and nomadic pastoralism on the global policy agenda. By linking the cryosphere to rangelands, pastoralists, and land restoration, the Convention connects the "heights"—the frozen water systems that regulate global hydrology—to the "lowlands"—the steppes and drylands that depend on them.

The Convention is being introduced at a moment when the UNCCD is actively advancing the implementation of the Riyadh–Ulaanbaatar Action Agenda, which seeks to turn political commitments into concrete solutions. The Ulaanbaatar Technical Dialogue on Rio Synergies is exploring how land restoration and Nature-based Solutions can create a framework for concrete synergies across the climate, biodiversity, and land agendas.

Core Principles and Provisions

The Convention is built on several core principles that reflect the scientific understanding of cryosphere systems and the governance lessons of existing environmental agreements.

The Principle of Planetary Hydrological Security recognizes that the cryosphere is a global commons—a system that sustains life across continents and must be governed as such. The Convention establishes that all states have a shared responsibility to protect and sustainably manage the cryosphere, regardless of whether frozen freshwater systems lie within their territories.

The Principle of Interconnectedness acknowledges the cryosphere-water-land nexus. The Convention explicitly links the conservation of glaciers, snowpack, and permafrost to land degradation, water availability, and the health of drylands and rangelands. It recognizes that protecting the cryosphere is a form of preventive land restoration—that healing the lowlands requires protecting the heights.

The Principle of Prevention reflects the understanding that cryosphere degradation is accelerating and that many of its effects are irreversible on human timescales. The Convention emphasizes early intervention, proactive governance, and the avoidance of irreversible thresholds. It establishes that preserving the cryosphere is a strategic investment in climate resilience, disaster risk reduction, and long-term ecological stability.

The Principle of International Cooperation recognizes that cryosphere systems do not respect borders. The Convention establishes mechanisms for transboundary monitoring, data sharing, joint research, and coordinated adaptation. It builds on existing regional mountain agreements such as the Alpine Convention and the Carpathian Convention, extending their principles to the global cryosphere.

Institutional Framework

The Convention establishes a Conference of the Parties (COP) as its supreme decision-making body. The COP is responsible for reviewing implementation, adopting decisions, and providing strategic guidance. A Secretariat supports the COP, facilitates cooperation, and ensures continuity.

A Scientific Advisory Body provides the COP with scientific and technical advice. The Body is composed of representatives from the Intergovernmental Panel on Climate Change, the World Climate Research Programme, the International Association of Cryospheric Sciences, and other relevant institutions. It assesses the state of the cryosphere, identifies emerging risks, and makes recommendations for action.

A Technical Committee, composed of experts nominated by Parties, develops guidelines, standards, and best practices. It addresses topics such as glacier monitoring, permafrost stabilization, snowpack management, and cryosphere-related hazard assessment.

Key Mechanisms

Monitoring and Transparency: The Convention establishes a global cryosphere monitoring system that integrates existing observation networks and satellite data. Parties are required to submit regular reports on the state of their cryosphere systems, the measures taken to protect them, and the implementation of national adaptation plans.

Technical Cooperation: The Convention promotes technical cooperation between states and regions, supporting capacity building, technology transfer, and knowledge exchange. It encourages South-South cooperation, drawing on the experience of countries that have already developed domestic glacier protection legislation.

Financial Support: The Convention establishes a financial mechanism to support implementation, particularly in developing countries. The mechanism leverages existing climate and development finance channels while creating new funding pathways dedicated to cryosphere protection. It supports monitoring infrastructure, adaptation projects, and restoration initiatives.

The Cryosphere: Earth's Frozen Freshwater System

The global cryosphere—comprising glaciers, ice sheets, seasonal snowpack, permafrost, and sea ice—constitutes the largest reservoir of freshwater on Earth. It regulates the planet's hydrological cycle, supports unique ecosystems, and provides drinking water and irrigation for more than two billion people. Yet this critical system is undergoing unprecedented and

accelerating degradation. According to the Intergovernmental Panel on Climate Change (IPCC), rapid glacier melt in the Himalayas, the Andes, and Central Asia threatens to trigger catastrophic consequences including droughts, floods, and mass population displacement.

The cryosphere is not merely a passive indicator of climate change. It is an active regulator of global climate stability. Its reflective surface (albedo) helps cool the planet. Its stored water buffers seasonal flows for rivers that sustain agriculture, energy production, and human settlements across continents. As the cryosphere retreats, the world faces a cascading crisis: rising sea levels, disrupted freshwater supplies, permafrost thaw releasing greenhouse gases, and the loss of unique ecosystems and cultural heritage.

The Governance Gap

Despite the cryosphere's planetary importance, international law has been slow to respond. Existing legal frameworks address elements of the cryosphere indirectly and incompletely. The UN Framework Convention on Climate Change addresses the causes of cryosphere degradation, but its primary focus is emissions reduction, not the active protection of frozen freshwater systems. The Convention on Biological Diversity recognizes the importance of mountain and polar ecosystems but lacks a specific mandate for cryosphere conservation. The UN Convention to Combat Desertification addresses land degradation downstream but does not address the upstream cryosphere systems that regulate water availability. Regional mountain agreements—such as the Alpine Convention and the Carpathian Convention—provide useful models for transboundary cooperation on water and ecosystems, but they are geographically limited and do not cover the global cryosphere.

A few countries have begun to enact domestic glacier protection laws. Argentina passed a national glacier law in 2010, prohibiting mining in glacier and permafrost areas. Tajikistan adopted a law in 2024 establishing the legal, economic, and organizational foundations for glacier protection. Chile and Kyrgyzstan have proposed similar legislation. But these are national efforts addressing a global system. No comprehensive international legal instrument exists specifically dedicated to the conservation, protection, and sustainable management of the cryosphere.

The Emerging Global Consensus

The period from 2022 to 2025 marked a decisive turning point. In December 2022, the UN General Assembly adopted resolution 77/158, declaring 2025 the International Year of Glaciers' Preservation and establishing 21 March as World Glacier Day. In August 2024, the Assembly adopted resolution 78/321, declaring 2025-2034 the Decade of Action for Cryospheric Sciences. These resolutions, initiated by the Republic of Tajikistan in cooperation with Peru, reflected a growing international consensus that the cryosphere is a global priority requiring coordinated action.

On 12 December 2025, the UN Environment Assembly adopted a resolution on glacier and cryosphere conservation at its seventh session in Nairobi, further consolidating this political momentum. This resolution emerged from the High-Level International Conference on

Glacier Preservation in Dushanbe (May 2025), where representatives from over 50 countries endorsed the Dushanbe Declaration on Glaciers and a Call to Action. The documents emphasized the interlinkages between cryosphere preservation and climate change, biodiversity loss, desertification, sea-level rise, and disaster risk reduction.

The International Year of Glaciers Preservation 2025 and the Decade of Action for Cryospheric Sciences have provided a platform for international scientific collaboration, public awareness, and policy development. They have also laid the political foundation for a dedicated international legal instrument.

The Case for a Convention

The growing recognition of cryosphere degradation, the fragmentation of existing governance frameworks, and the political momentum generated by the International Year and Decade have created a window of opportunity for a comprehensive international convention. The proposed Convention on Planetary Hydrological Security and Cryosphere Stability would fill the governance gap by establishing a dedicated legal and institutional framework for:

Conservation: Protecting glaciers, snowpack, permafrost, and ice sheets as critical components of the global hydrological system.

Sustainable Management: Ensuring that water derived from cryosphere systems is managed sustainably, with attention to the needs of downstream communities.

International Cooperation: Facilitating transboundary cooperation on cryosphere monitoring, research, and adaptation.

Integration: Connecting the cryosphere to climate, biodiversity, land, and water governance frameworks.

Finance: Mobilizing resources for cryosphere protection and adaptation.

The Convention would complement existing agreements such as the Alpine Convention and the Carpathian Convention, which demonstrate that transboundary legal frameworks for mountain and water systems are both feasible and effective. It would also strengthen the implementation of the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework by explicitly addressing the cryosphere-water-land nexus.

The proposed Convention is not a theoretical exercise. It is grounded in the scientific recognition that "passive mitigation (carbon reduction) is geophysically insufficient to prevent the collapse of the West Antarctic Ice Sheet and the Greenland Ice Sheet" due to the thermal inertia of the oceans. It is also grounded in the growing international legal consensus reflected in the UN resolutions and the Dushanbe Declaration.

Conclusion: Why We Must Act Now- And Why Support from Many Is Essential

The scientific community has done its work. For over 130 years, since the International Glacier Commission was established in 1894, cryosphere scientists have built the longest

continuous observation network on Earth. They have organized themselves into a coherent international structure—IACS, WGMS, IPA, CliC, SCAR, IASC—and have convened thousands of researchers across decades to document the accelerating loss of glaciers, permafrost, and sea ice. They have linked cryosphere degradation to global sea-level rise, water security, and climate feedbacks. They have presented their findings to policymakers at the UNFCCC, the IPCC, and countless other forums. They have done everything that could have been asked of them.

The failure is not in the science. It is in the governance.

The three Rio Conventions—UNFCCC for climate, CBD for biodiversity, and UNCCD for land—operate in separate silos, creating a fragmented approach that has been identified as a serious impediment to effective environmental action. The cryosphere, which sits at the intersection of climate, land, and water, has fallen through the cracks of this outdated institutional framework. In the Arctic, geopolitical tensions have turned the Arctic Council from a forum for cooperation into a space for power rivalry. The 2008 Ilulissat Declaration, where five Arctic coastal states vowed to block a "new comprehensive international legal regime to govern the Arctic Ocean," represents a deliberate effort by powerful states to maintain national control over resources and shipping routes at the expense of environmental protection.

No convention exists specifically dedicated to the conservation, protection, and sustainable management of the cryosphere. Existing frameworks are insufficient. UNCLOS does not address the unique governance challenges of a melting cryosphere. No instrument specifically regulates the status of glaciers in international law. No country or coalition has taken the political lead to champion a binding cryosphere convention. The necessary political momentum and diplomatic leadership to create a new legal instrument for the entire cryosphere have been absent.

This is why we must act now.

The glaciers are retreating. The permafrost is thawing. The snowpack is declining. The sea ice is disappearing. The window for action is closing. The scientific community has warned that "passive mitigation (carbon reduction) is geophysically insufficient to prevent the collapse of the West Antarctic Ice Sheet and the Greenland Ice Sheet" due to the thermal inertia of the oceans. Every year of delay increases the irreversible loss of frozen freshwater systems that regulate the global hydrological cycle upon which billions of people depend.

This is why support from many is essential.

No single country can solve the cryosphere crisis alone. The cryosphere is a global commons—a system that sustains life across continents and must be governed as such. The Convention on Planetary Hydrological Security and Cryosphere Stability is being introduced at UNCCD COP17 in Ulaanbaatar not as a government initiative, but as a proposal from the global community of scientists, pastoralists, Indigenous Peoples, and environmental advocates who have witnessed firsthand the accelerating loss of the world's frozen freshwater

systems. It is a call from the ground—from the steppes, the mountains, and the Arctic—to the international community, urging states to recognize the cryosphere as a global commons requiring dedicated legal protection, and to act before irreversible thresholds are crossed.

The Convention builds on existing agreements, existing institutions, and existing momentum. It fills a governance gap that has been recognized by the international community for years. It connects the cryosphere to the steppe, the heights to the lowlands, the herders to the glaciers, and the present to the generations yet to come.

The scientists have done their work. The civil society movement is gaining traction. The political window is open. Mongolia, as the host of COP17 and the champion of rangelands and pastoralists, is providing the platform for this new international framework to emerge. But it cannot do so alone.

Support from many is essential: from governments that must sign and ratify, from scientific institutions that must continue monitoring and advising, from pastoralist and Indigenous communities that must have a voice, from civil society that must advocate, from the private sector that must invest, from the international organizations that must coordinate, and from every individual who understands that the frozen freshwater systems of the Earth are not a resource to be extracted, but a global commons to be protected.

The time for such a Convention is now—as the glaciers retreat, as the permafrost thaws, as the snowpack declines, and as the need for coordinated global action becomes undeniable. The cryosphere is the planet's life-support system. Its protection is not an environmental luxury. It is a planetary necessity.

The political momentum is strong. The scientific evidence is clear. The window of opportunity is open. The time for a Convention is now.

Restoring Land, Restoring Hope by Restoring Water!

**The 0.01% Solutions—Green Web—Cryosphere Convention Initiative Team,
on behalf of Civil Society**