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THE CIRCLE

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The forgotten Arctic:

A CRISIS OF GLOBAL INACTION

THE FORGOTTEN ARCTIC: A CRISIS OF GLOBAL INACTION

The Circle 2.2025

COVER: A wildfire burns in Siberia, Russia in August 2019.
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THIS PAGE: A melting ice sheet, Tasiilaq, Greenland
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EDITORIAL

Better governance could protect the Arctic—and the world

A walrus lounges on an ice floe in Svalbard, Norway.

Photo credit: Christopher Michel via Flickr.com, CC BY-NC-ND 2.0

THE ARCTIC is bearing the brunt of a changing climate. It is warming with a speed that is already having profound consequences for its people and nature—to the point that we may see the first-ever ice-free Arctic in our lifetime. At lower latitudes, the changing Arctic threatens both natural and human systems. The colossal Greenland ice cap is melting, adding to sea-level rise. Warming Arctic waters and diminishing sea ice are disrupting ocean currents and weather patterns across the northern hemisphere. Thawing permafrost will release significant amounts of methane that will amplify the greenhouse effect. Some of the resulting impacts will be felt for centuries.

The stakes could not be higher. Yet the Arctic often remains an afterthought in international treaties designed to address climate and nature crises and support adaptation—as well as in broader development frameworks that tend to focus on the Global South.

For example, financial mechanisms within the UN Framework Convention on Climate Change (UNFCCC) are designed to support developing countries, but the Arctic is under the jurisdiction of eight developed economies: Canada, Finland, Greenland (Kingdom of Denmark), Iceland, Norway, Russia, Sweden and the US. This leaves the protection of its vast expanse to the discretion of individual nations, which have multiple priorities.

Global climate governance must find a way to prioritize the Arctic. For all its shortcomings, the UNFCCC contains mechanisms that could be harnessed to help protect the region. The Local Communities and Indigenous Peoples' Platform, with strong representation from Arctic Peoples, could rally like-minded parties to call for and support a dedicated workstream under the Climate Convention and Paris Agreement.

Special attention should also be given to the UNFCCC Race to Resilience campaign. Launched in 2020, it aims to drive climate resilience across the world by mobilizing companies, academia and municipalities to ensure front-line voices are heard.

Global climate governance must find a way to prioritize the Arctic.

Finally, the international community should create a financial mechanism to provide direct access to funding for Arctic Indigenous Peoples. The eight Arctic countries must work together to make this much-needed support become a reality.

The Global Biodiversity Framework requires countries to protect at least 30 per cent of their land and oceans and responsibly manage the remainder. Arctic nations could include as much of their Arctic territories as possible within the national biodiversity strategies that they have already committed to produce under the framework. Countries with Arctic territory should also include measures to protect and respond to climate impacts in their climate and biodiversity targets and national adaptation plans.

The High Seas Treaty, when it comes into force, will offer a framework to protect the Arctic seas in areas beyond national jurisdiction. But so far, none of the eight Arctic nations have ratified it.

The bottom line: Arctic nations must work with likeminded governments around the world to secure recognition of the peril facing the region and the need to flex global governance in response. Failure to do so will be felt throughout the world. ●

MANUEL PULGAR-VIDAL is WWF's Global Climate and Energy Lead and was President of the 20th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change.

Photo credit: © Brais Lorenzo via hive.panda.org

In October 2024, an extreme weather system brought intense rainfall and flash flooding to Spain's Valencia region, causing extensive damage and claiming more than 200 lives.

A WORLDWIDE INFLUENCE

Melting sea ice reshaping regional weather patterns

THE ARCTIC MAY be trying to tell us something.

Drier weather and worsening droughts in the southwestern United States and wetter conditions in Spain and Portugal are linked to disappearing ice in the Arctic, according to a study published in *Nature* by researchers from the Barcelona Institute for Global Health.

The study found that changing weather patterns in North America and Europe are the result of disruptions in air currents caused by the loss of Arctic ice. These disruptions are altering storm tracks and precipitation patterns.

Previous studies often examined long-term climate trends or added extra heat sources to models, making it harder to isolate the effects of Arctic ice loss. This study took a different approach: researchers compared past Arctic ice levels with a scenario where ice was significantly reduced, without introducing artificial factors. By running two sets of simulations, they could pinpoint how ice loss alone affects atmospheric patterns. Their findings suggest that melting sea ice disrupts jet streams and ocean currents, ultimately reshaping global climate conditions.

The researchers caution that the Arctic is only one piece of the puzzle. Climate is also shaped by interconnected factors, including greenhouse gas emissions, ocean currents, vegetation changes and Antarctic ice loss.

AN ENVIRONMENTAL WIN

Controversial Arctic Ice Project shuts down

THE ARCTIC ICE PROJECT, a US-based initiative, has officially shut down, citing environmental risks. The project had proposed spreading synthetic silica-based microspheres on Arctic ice to slow melting, focusing on areas near communities that rely on ice and routes where melting ice flows into the wider ocean. But it faced heavy criticism from Indigenous communities and climate justice groups for potentially causing ecological harm and delaying more permanent climate solutions.

Opponents argued that geoengineering projects like this one pose risks to ecosystems and communities while failing to address the root causes of climate change. The shutdown follows similar failures of other geoengineering experiments, reinforcing the de facto global moratorium on geoengineering reaffirmed at the 2024 UN Biodiversity Conference in Colombia.

Advocacy groups say this decision highlights the power of community-led resistance and the growing rejection of speculative climate interventions. They urge governments to focus on phasing out fossil fuels rather than investing in risky technological fixes.

AN IMPOSSIBLE PACE OF CHANGE

Melting Arctic ice threatens vital microorganisms

A NEW UNIVERSITY of Exeter study has found that microscopic organisms living under Arctic sea ice are at risk of extinction as the ice melts. These specialist species, uniquely adapted to the harsh Arctic environment, cannot survive exposure to ultraviolet light and competition from more common microorganisms.

While most species have some capacity to adapt, the swift timescale of climate change in the Arctic could make it difficult or impossible for these microorganisms to endure, according to one of the study's lead scientists.

Their loss could destabilize marine food webs because these tiny organisms form the foundation of ocean ecosystems. If they disappear, species that rely on them for food may also decline, affecting biodiversity and potentially influencing marine food chains, with possible downstream effects on seafood resources. While there's no immediate solution, reducing carbon emissions remains the most effective way to slow ice loss and protect Arctic ecosystems.

Photo credit: Michael Tjernström via imagegeo.egu.eu. CC BY-ND 3.0

Ponds of melted freshwater (snow) on top of sea ice in the Arctic in summer.

AN INITIATIVE TO STRENGTHEN COMMUNITIES

Nordic Council launches Arctic Resilience Programme

THIS WINTER, the Nordic Council of Ministers launched an Arctic programme aimed at strengthening local communities facing social, economic and environmental challenges. The initiative will allocate €4 million over three years to enhance resilience in Arctic regions.

Unveiled in late January ahead of the Arctic Frontiers conference in Tromsø, Norway, the programme reflects the Council's long-standing commitment to Arctic affairs. It will support community engagement, sustainable economic growth, and environmental initiatives to help Arctic communities adapt to changing conditions.

Youth engagement will be a key focus. To that end, an Arctic Youth Conference took place from January 24 to 26. The council views young people's voices as essential in shaping the Arctic's future.

The Nordic Council represents Denmark, Finland, Iceland, Norway, Sweden, and the autonomous regions of Greenland, the Faroe Islands and Åland.

Once the posterchild of serenity, the Arctic has morphed into a space of shifting power dynamics, polarization, militarization and rampant extractivism.

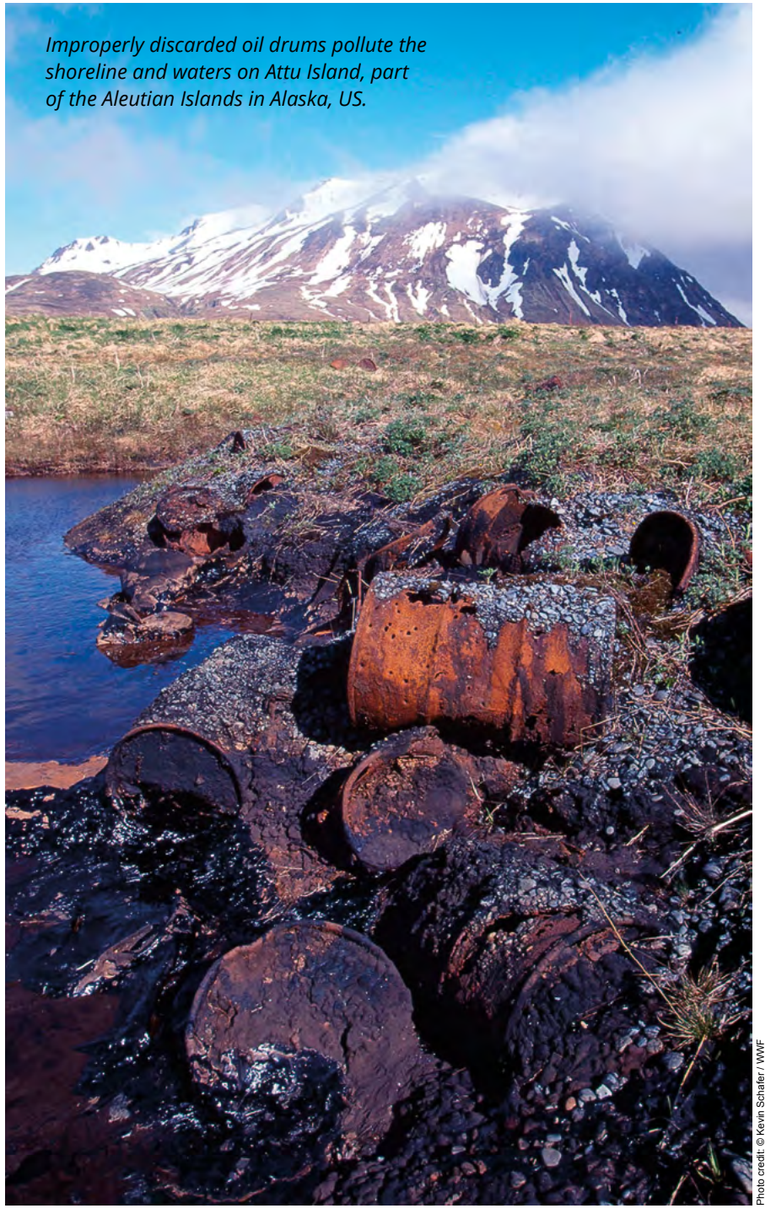
Three polar bears investigate the surfaced Los Angeles-class fast attack submarine USS Honolulu *(SSN 718) approximately 450 kilometres from the North Pole.*

Photo credit: U.S. Navy photo, public domain

Profit over protection

BUSINESS AS USUAL WILL LEAVE THE ARCTIC ON THIN ICE

The Arctic, a pristine region whose fragile ecosystems and rich Indigenous cultures are threatened by climate change, faces existential challenges from within. Its alleged guardians, the Arctic states, are busy competing for natural resources, playing geopolitical power games, and starting another arms race. As **CLAUDIU EDUARD NEDELCIU** writes, this reckless pursuit of control is pushing Arctic ecosystems and communities to the brink.



Improperly discarded oil drums pollute the shoreline and waters on Attu Island, part of the Aleutian Islands in Alaska, US.

Photo credit: © Kevin Schafer / WWF

PICTURE THIS: It's late at night, and you're sound asleep when a deafening, screeching noise jolts you wide awake. Your ceiling is torn apart, headlights pierce through the darkness, and dust fills the air, suffocating you. Does this sound like your worst nightmare? Because that is how deep-sea mining could feel for creatures who live on the ocean floor.

In January 2024, an overwhelming majority in the Norwegian Parliament voted to allow deep-sea mining exploration in Norwegian waters against the advice of scientists who urged caution to protect fragile ecosystems. The area enclosed for exploration is about the size of Italy, and almost all of it lies in Arctic waters.

This is just the latest in a long list of decisions giving extraction a green light. For decades, the Arctic has been treated like a deserted land to be exploited—from copper mining in Norway to coal and gas in Russia to zinc-lead mining in Greenland and uranium extraction in Canada. Corporate players have relentlessly pushed to extract non-renewable minerals and fossil fuels in the name of "development" as the West understands it: overconsumption, profit, power and dominion over nature.

CLAUDIU EDUARD NEDELCIU is a systems thinker and Shaping European Research Leaders for Marine Sustainability (SEAS) postdoctoral fellow at the University of Bergen, Norway.

Ironically, it is not just nature that is left bruised by development. Local communities—many of them home to Indigenous Peoples—often bear the brunt of the consequences of extraction and exploitation. Their lands have been flooded by hydroelectric dams, used as nuclear testing sites, and contaminated by millions of tons of toxic chemicals. Rivers that once teemed with life lie barren and oil spills have darkened coasts. It is all for development, but development is not for all.

AN EXISTENTIAL THREAT

Transforming this system geared towards extraction and exploitation at the cost of people and the planet requires cooperation, pooling of resources, and knowledge-sharing on a global scale. But instead, Arctic states are rushing to militarize the region. Their goals are to assert jurisdiction and gain geopolitical advantage to secure opportunities for future resource extraction. In this environment of fragmentation and isolationism, formerly strong alliances are crumbling.

The Arctic Council, which once aspired to solve complex Arctic issues through collaboration, has been undermined by the invasion of Ukraine by Russia. Arctic research has also suffered a blow. With Russian scientists excluded from collaborations with research institutions based in other Arctic states, data are missing for almost half the Arctic, with dramatic consequences for climate science. Worse, a new administration in the US means Russia is not even the council's only problem.

Once the posterchild of serenity, the Arctic has morphed into a space of shifting power dynamics, polarization, militarization and rampant extractivism.

WHERE DOES THIS ALL LEAVE US?

Every crisis is an opportunity. We heard this during the COVID-19 pandemic, and we hear it again every time a recession looms: "next time, we will do better." Yet we rarely do.

It is time for some soul-searching. Policymakers are still living under the illusion of "development." They refuse to see that repeating old development patterns in the Arctic will only fuel the crisis. They have the responsibility to create a better future for our world—and we have the right and the responsibility to demand that they do so.

After all, the Arctic is a mirror for the world. As its ice melts, so too does the illusion that business as usual is still working. The Arctic—indeed, the world—needs collaboration and a vision for the future that puts people and planet first. Such a vision requires a political class that is brave and inclusive. It also requires us to raise our standards.

We can, and we must, do better.

Questioning climate-altering technologies

WHY GEOENGINEERING ISN'T THE ANSWER TO CLIMATE CHANGE

Climate-altering technologies are increasingly viewed as a possible solution to the climate crisis—from creating or preserving polar ice to removing greenhouse gases from the atmosphere to using particles to reflect solar radiation. Many of these geoengineering projects have set their sights on the Arctic. But the implications of using geoengineering are still largely unknown.

MARTIN SEEGER is a glaciologist and polar scientist at the University of Exeter. He's one of more than 40 researchers from around the world who contributed to a paper examining the risks that geoengineering pose for the polar regions. He told *The Circle* why these risks are just too high.

Why is geoengineering increasingly seen as a solution to the climate crisis?

We know that we need to decarbonize to reduce the world's average level of warming to the 1.5-degree mark, or as close as we can to that. That's our mission. And we've actually come quite a long way in that journey. But there are still some people who think it's not enough and that an alternative approach is needed, either as a supplement to reducing carbon emissions or a replacement to it. These techniques, bundled together, are often called geoengineering. But we've already geoengineered the planet ourselves by burning fossil fuels, increasing the concentration of greenhouse gases and warming the world.

I think it's unfortunate that all geoengineering ideas—there are more than 100 known ideas on reducing the impact of carbon emissions in global heating—are kind of lumped together

Glaciologist Martin Seeger has studied the risks of geoengineering in the polar regions.

Augustine Volcano in Alaska during its long eruption in 2006. The idea to inject aerosols into the upper atmosphere stems from the cooling effects of some volcanic eruptions.

Introducing intentional pollutants into the Arctic would make it a very different place from what it is right now.

as geoengineering. Because you can plant a tree, for example, and that might be geoengineering because you'd be removing carbon dioxide from the atmosphere, especially if you do it at scale. Those approaches are nature-based solutions. We should be doing those things anyway, because they support biodiversity.

But some geoengineering projects are more problematic, such as those that propose to intentionally introduce a pollutant into the world to solve a problem. Our paper addresses those types of interventions, specifically in the polar regions.

Why is the Arctic viewed as a place to launch more invasive geoengineering projects?

When the polar regions change, there are global consequences. So a geoengineering project that aims to halt or reverse the change is quite appealing for some people. If you could resolve that change, you would have a positive impact on the rest of the world. The work I've been doing with many, many other authors has examined some of these initiatives, and we have concluded that none of them stack up as a solution to the immediate issue, which is that continuing to burn fossil fuels will amplify global warming over the next few decades. We know that to resolve this, we need to get to net-zero greenhouse gas emissions.

What are some examples of the kinds of projects that are being proposed?

A well-known idea is to inject aerosols into the upper atmosphere to cause it to reflect sunlight rather than allowing the sun's energy to hit the Earth's surface. It's very controversial. It stems from the idea that if you have a volcanic eruption, huge amounts of volcanic material can be pushed into the atmosphere, and that can have a temporary but noticeable cooling effect. So the idea is: What if we just did that ourselves, and did it to permanently cool the planet? You might be able to do that. But the logistics behind it are challenging, and it doesn't resolve other aspects of global warming, such as ocean acidification. In fact, it will contribute to further ocean acidification. As an intervention, it would be colossally irresponsible because we don't know what the consequences might be.

For the Arctic in particular, there are projects that are trying to increase or enhance the albedo—or reflectivity—of the sea ice that exists, because that does the world a great favour by bouncing solar energy back out into space rather than absorbing it. Arctic sea ice is retreating really quickly, and the idea is that by increasing the albedo, we can either preserve more sea ice or put measures in place to grow sea ice artificially. There's no reason to assume that you couldn't artificially grow sea ice at a really small scale. There are some experiments that have tried to do that, and they kind of worked. But the colossal scale of the Arctic Sea ice that you would have to adjust makes the whole thing practically impossible.

What risks do these geoengineering projects pose for the Arctic?

Well, it depends on what you want to do. Many of them introduce risks to the environment. Sometimes they're called "unintended consequences," but that's a misnomer because we kind of know what the consequences might be. Still, some people seem happy to go along with them.

Suppose that thickening sea ice can work and that we could bring thousands of devices into the Arctic to do it. That would require a level of presence in the Arctic that is far in excess of what we have at the moment. Consultation with Indigenous Peoples would need to happen. And who would make the decision to do it? It is very difficult to see how we would ever have any governance to support it on an international level.

In the example of intentionally putting a pollutant into the Arctic system, the other risk is to the marine biology. These are fragile ecosystems, and introducing anything that might interfere with them could be felt permanently, or at least for a very long time.

Overall, introducing people, industry and intentional pollutants into the Arctic would make it a very different place from what it is right now.

If these ideas pose such risks, why do you think they are being considered?

When I started to see these ideas being presented at climate COPs and other climate meetings without challenge, I realized that the people who were accepting the ideas as feasible were doing so because that's how they're presented. But I and others know that these are actually unworkable.

There are also vested interests when it comes to geoengineering. Suppose you're an oil and gas company that is making huge amounts of money as people continue to burn fossil fuels. It would be very tempting to support a geoengineering idea that, frankly, will never happen. There is just the pretence that they are contributing to a solution by spending a little money on research, when they know full well it will never actually happen. That is something I think we all need to keep our eyes open for.

What about the European Arctic?

INCLUDING INDIGENOUS PERSPECTIVES IN EU CLIMATE ADAPTATION WORK

The Arctic's rapid warming has dire consequences for ecosystems and livelihoods in the region. But the impacts will also be felt in European Union (EU) countries because several member nations are home to the Sámi Peoples. Numbering about 100,000, the Sámi live in the Sápmi region that winds across the upper reaches of Norway, Sweden, Finland and Russia. As **DAN ZIEBARTH** writes, the Indigenous People of the Sápmi region should not be forgotten as the EU looks for ways to adapt to climate change. Protecting the Arctic environment—and Sámi culture and livelihoods—will depend on finding a way to embed Sámi knowledge into EU climate frameworks.

SÁMI TRADITIONAL activities—reindeer herding, fishing and foraging—are deeply intertwined with the Arctic environment. Their knowledge systems emphasize a relational worldview and long-term ecological vision rooted in respect for nature.

But climate change is disrupting this equilibrium, causing unpredictable snow conditions and ecosystem shifts that threaten reindeer herding practices and the Sámi cultural identity that is tied to them.

DAN ZIEBARTH is a PhD candidate and Ernst Mach Fellow working with the Austrian Institute for International Affairs. His research focuses on international affairs and law in the context of climate change, the environment, human rights, migration and democracy.

To address challenges like these, the European Commission—the executive body of the EU—and the Sámi must collaborate. The commission has a crucial role to play in proposing new legislation, implementing the decisions of the European Parliament and Council, managing EU policies, allocating funding, and ensuring the enforcement of EU law across member states. The challenge for the Sámi will be figuring out how to contribute their traditional knowledge within the framework of the EU's broader climate policies.

PROVIDING THE NECESSARY FUNDING AND LEADERSHIP

There are two critical first steps along the path to this cooperation.

First, the EU must budget more funds to consider and make use of Indigenous Knowledge in climate adaptation measures to enhance the effectiveness of its Arctic policies. This funding should support the braiding of Indigenous and scientific knowledge and the participation of Indigenous Knowledge holders in the co-production of knowledge processes—along with climate adaptation practices, infrastructure development, civil society collaboration, and a think tank focused on climate change and Indigenous Knowledge in the Arctic.

Saami reindeer herdsman Jon-Einar Utsi keeps a close watch on the herd, Kautokeino, Finnmark, Norway.

The EU must budget more funds to consider and make use of Indigenous Knowledge in climate adaptation measures to enhance the effectiveness of its Arctic policies.

Photo credit: © Staffan Widstrand / WWF

Second, to ensure the relevance and effectiveness of these initiatives, Indigenous leaders and local communities should have primary control over the use of these funds. For example, the EU must include Indigenous representatives in its delegations to international climate summits and negotiations.

Establishing a diplomatic envoy to advocate for Indigenous communities would amplify the reach and impact of Indigenous knowledge on the global stage, contributing to more informed and inclusive climate policies.

The Arctic is undergoing rapid environmental disruptions due to climate change. To address these successfully, funding is important, but it is just the first step. Political leadership is also key to fostering more effective climate policies and promoting greater recognition and respect for Indigenous Knowledge and rights in the face of global environmental challenges. ●

A flock of terns in Svalbard, Norway.

Research has found that pollution concentrations in seabird guano can be up to 60 times higher than in the surrounding Arctic environment.

Photo credit: Siobhan McDonaldvia imaggeo.egu.eu. CC BY-NC-ND 3.0.

A slow-moving disaster

THE POLLUTION POLAR VORTEX

The environmental movement was born out of the recognition that pollutants were harming our planet. As long ago as the early 1960s, Rachel Carson's *Silent Spring* awakened the world to the dangers of pesticides—and the resulting wave of environmental activism led to landmark policies tackling pollution. But as **BECKY CHAPLIN-KRAMER** writes, pollution is now overshadowed by the climate crisis in many global discussions, and nowhere is this oversight more apparent than in the Arctic.

AS THE ARCTIC warms nearly four times faster than the rest of the planet, the impact of pollution on biodiversity, Indigenous communities, and food security is escalating to a breaking point.

The Arctic is often perceived as a remote, untouched wilderness. But in reality, it is a sink for pollutants originating thousands of miles away. I was surprised to learn this when I first began researching transboundary biodiversity risks, and my own ignorance on the ➤

BECKY CHAPLIN-KRAMER is WWF's Global Biodiversity Lead Scientist.

topic coincides with how little attention this crisis receives internationally.

Pollution is one of the five main drivers of biodiversity loss, but it has received little study compared to the others. This lack of attention belies the severity of the issue. Air and ocean currents funnel industrial and agricultural pollutants—including heavy metals, persistent organic pollutants (POPs), and radionuclides—into the region, where they have been accumulating on frozen surfaces for decades. Now, as Arctic ice melts and ground thaws, these once-trapped toxins are being released into the environment, spreading through food webs and water sources.

POLLUTION PATHWAYS' IMPACTS

One particularly concerning pathway is that of migratory birds. Species that travel vast distances accumulate contaminants from agricultural and industrial landscapes in southern areas and carry them to Arctic breeding grounds. Research has found that pollution concentrations in seabird guano can be up to 60 times higher than in the surrounding Arctic environment. These pollutants find their way into Arctic ecosystems, where they are taken up by invertebrates and fish, with cascading effects up the food chain.

Permafrost is another major pathway. As it thaws, mercury and other long-buried toxins enter Arctic rivers, raising contamination levels in fish that are later consumed by both wildlife and Indigenous communities. This phenomenon is particularly alarming, given that pollutants now travel faster and farther than before. The melting of glaciers exacerbates the problem, unleashing pollutants that have been trapped since the peak industrial emissions of the 20th century.

HARMS TO BIODIVERSITY, FOOD SECURITY AND INDIGENOUS RIGHTS

The Arctic is experiencing a convergence of stressors: pollution, climate change, habitat disruption and declining biodiversity. Each amplifies the other. Wildlife that are already struggling with habitat loss due to melting ice are more susceptible to disease from pollutants that build up in their bodies. For example, polar bears are not only losing their hunting grounds as the ice shrinks, but experiencing contaminant loads that weaken their immune systems and decrease their reproduction rates. Similarly, commercially important fish species, such as chinook salmon, are showing declines linked to pollution-driven ecosystem changes.

For Indigenous communities, pollution is a direct threat to food security and cultural survival. Traditional foods—fish, marine mammals and game—are increasingly contaminated, undermining both human physical health and cultural practices tied to subsistence hunting and fishing.

As Arctic ice melts and ground thaws, these once-trapped toxins are being released into the environment, spreading through food webs and water sources.

Research shows that mercury and POPs accumulate at disproportionately high levels in Indigenous populations, leading to severe health disparities. Yet, these communities have little say in the international governance structures that determine pollution control measures where they live.

Beyond food security, pollution is altering the fabric of Arctic life. The disruption of migratory patterns of reindeer and fish affect Indigenous harvesting traditions. Expanding shipping lanes, driven by ice melt, are introducing new pollutants and invasive species, further destabilizing ecosystems. These cascading stressors do not operate in isolation—they reinforce each other, eroding both biodiversity and the governance systems that are supposed to protect it.

MOVING FORWARD

The Arctic's pollution crisis is not just a regional issue—it is a global one. What happens in the Arctic affects us all, whether through disrupted weather patterns, biodiversity loss, or the health of global fisheries. Addressing this crisis requires immediate action.

Pollution may not dominate today's environmental headlines as it once did, but its impacts are no less urgent. The Arctic is on the frontline of a slow-moving disaster—one that we still have the power to mitigate. Recognizing pollution as a fundamental driver of Arctic biodiversity loss is a necessary step towards protecting this vital region for future generations. ●

Rethinking global pollution governance

■ The Global Biodiversity Framework (GBF), adopted under the Convention on Biological Diversity, recognizes pollution as a key driver of biodiversity loss. But its Target 7, which aims to reduce pollution risks to biodiversity, is insufficient for addressing the Arctic's unique vulnerabilities. The framework does not adequately account for long-range pollution transport or the special provisions needed to protect Arctic biodiversity and Indigenous communities.

The Arctic must be recognized as a distinct pollution accumulation hotspot in need of dedicated global action. International agreements on pollutants should integrate Arctic-specific strategies, including stricter regulations on pollutants known to accumulate in the region. Moreover, Indigenous communities must be given stronger decision-making roles in pollution mitigation efforts.

An Inuit fishes for Arctic char off rocks along the Sylvia Grinnell River in Iqaluit, Nunavut, Canada.

High Seas Treaty

PROTECTING BIODIVERSITY IN THE ARCTIC OCEAN—NOW

A shoal of Atlantic cod swim in a kelp forest near Þórshöfn (Thorshofn), Iceland.

Photo credit: © Alexander Mustard / WWF-UK

The Arctic Ocean is undergoing unprecedented change as the climate warms, and there is much more to come. The international community—including Arctic states—must show leadership in protecting the Arctic Ocean's biodiversity. **ERIK J. MOLENAAR** explains how the High Seas Treaty offers important opportunities to do so.

There are four pockets of high seas in the Arctic Ocean: the "Banana Hole" in the Norwegian Sea, the "Loophole" in the Barents Sea, the "Donut Hole" in the Bering Sea, and the high seas portion of the central Arctic Ocean.

Map design: Ketill Berger, filmform.no. © WWF WWF Global Arctic Programme

IN 2023, THE adoption of the High Seas Treaty was a sign of hope at a time of unparalleled ecological change in the Arctic Ocean. Despite growing geopolitical tensions, the international community was able to address the deteriorating status of marine biodiversity and ecosystems worldwide. Now, governments and stakeholders must take continued steps to bring the treaty into force and prepare for its implementation.

The High Seas Treaty—also known as the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement—protects marine biodiversity in the high seas (the water column) and the international seabed. These two areas are known as "areas beyond national jurisdiction" because they lie outside the maritime zones where coastal states have authority, such as exclusive economic zones and continental shelves.

FOUR POCKETS, FOUR APPROACHES

There are four pockets of high seas in the Arctic Ocean: the "Banana Hole" in the Norwegian Sea, the "Loophole" in the Barents Sea, the "Donut Hole" in the Bering Sea, and the high seas portion of the central Arctic Ocean (see map). There may also be a pocket of the international seabed beneath the high seas portion of the central Arctic Ocean.

The High Seas Treaty can be seen as a package deal on four topics: marine genetic resources, area-based management tools (including marine protected areas), environmental impact assessments, and capacity-building and marine technology transfer.

The treaty's provisions on area-based management tools offer a concrete new mechanism to help achieve target 3 of the 2022 Kunming–Montreal Global Biodiversity Framework, which calls for 30 per cent of land and sea to be protected by 2030. But before this mechanism can be fully used, the treaty must enter into force. Currently, only 21 states have ratified it, and 39 more are needed.

Notably, none of the eight Arctic states have ratified the treaty so far.

MOVING TOWARD AREA-BASED MANAGEMENT

Once the treaty is in force, any party to it will be able to propose area-based management tools in areas beyond national jurisdiction anywhere, including in the Arctic Ocean.

This means a proposal relating to the Arctic Ocean will not need to be submitted by an Arctic state—any treaty party would be able to do so. But to succeed, a proposal will need support from at least three-quarters of treaty parties. This will require significant engagement with all relevant states and stakeholders—not only Arctic coastal states and Arctic Indigenous Peoples, but also other "user" states, whose companies and vessels engage in activities in the high seas areas, as well as conservation organizations and industry associations.

At the heart of any area-based management tool are measures to restrict human activities, such as shipping or fishing. But before these measures can be adopted, the Conference of the Parties (COP) under the High Seas Treaty will often have to cooperate with existing international bodies that have a mandate to impose area-based restrictions on activities. Where such bodies exist, the COP cannot impose these restrictions on its own. It can only request that these bodies adopt them.

For example, in the high seas portion of the central Arctic Ocean, the International Maritime Organization (IMO) has a mandate to adopt area-based restrictions on shipping, and two regional bodies—the Central Arctic Ocean Fisheries Agreement (CAOFA) and the North-East Atlantic Fisheries Commission—are empowered to adopt area-based restrictions on fishing. But so far, none of these bodies has exercised such powers in this high seas pocket. The situation in the other three high seas pockets is similar.

> None of the eight Arctic states have ratified the treaty so far.

STEPS TO TAKE NOW

This state of play reveals significant opportunities to make better use of the mandates that these global and regional bodies have to implement area-based protections in Arctic high seas. Initiatives to achieve this should be developed now rather than waiting for the treaty to formally take effect.

An example would be developing a concrete pilot proposal for a multi-sectoral area-based management tool in the high seas portion of the central Arctic Ocean. All the relevant stakeholder states and stakeholders mentioned above would need to be involved in such an initiative. While awaiting the treaty's entry into force, the single-sectoral measures of the envisaged overarching (multi-sectoral) proposal could be submitted in a coordinated manner to all relevant global and regional bodies—including, in particular, the IMO and the CAOFA. Once these sectoral processes have led to a harmonized outcome, and the High Seas Treaty has entered into force, the overarching proposal with the sectoral measures could be submitted for adoption by the High Seas Treaty COP.

By actively engaging in these early efforts, Arctic states can demonstrate their leadership in marine conservation and responsible ocean governance and put the High Seas Treaty on a clear path to success. ●

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Trawler, Vestmannaeyjar, Iceland

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International Court of Justice

USING THE LAW TO HOLD HIGH-EMITTING STATES TO ACCOUNT

Like the Arctic, the Pacific Islands are on the frontlines of the climate crisis. Accelerating sea level rise and ocean warming and acidification threaten the existence of these islands and the people who call them home.

In 2019, a group of 27 law students at the University of the South Pacific decided it was time high-emitting states paid for the unprecedented environmental changes they were causing. The students formed a group called Pacific Islands Students Fighting Climate Change and started a campaign to persuade the leaders of the Pacific Island Forum to take the issue of climate change and human rights to the International Court of Justice.

The campaign worked. In December 2024, the group's president, **CYNTHIA HOUNIUHI**, delivered a powerful statement to the court calling for climate justice and the recognition of the principle of intergenerational equity. The case could have ramifications not just for people in the Pacific Islands, but for those in Arctic communities. Houniuhi spoke to *The Circle* about the urgent need to rein in the climate crisis and hold polluters accountable.

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What are the effects of climate change where you live?

My father is from South Malaita Island, in the Solomons, and there's an island nearby called Fanalei. Over the course of just a few years, you could just see how the sea had sort of eaten the island, and how the houses were literally standing in the sea. So, the most obvious impact is sea level rise. People have moved because they weren't able to live there anymore. It looks abandoned now, at the brink of being completely engulfed by salt water. But when I was growing up, it used to be this beautiful island where children could be seen playing on the beach.

Also, you can speak to fishermen, and they will tell you that the weather is becoming unpredictable. They can't depend on their traditional knowledge anymore—knowledge that was built from interacting with nature in their everyday lives. When they go fishing, based on this knowledge, they anticipate that it will be good because the wind is blowing in a certain direction. However, once they're out at sea, the wind blows from an unexpected direction. Sometimes they get lost at sea because they find themselves in the middle of a storm they weren't prepared for.

How did the idea come about to take the issue of climate change to the International Court of Justice?

It started in our international environmental law course at the University of the South Pacific. All 27 law students in the class were from frontline communities—those that don't have the luxury of seeing climate change in an abstract way. When they think of climate change and sea level rise, they have clear pictures in their heads. ➤

Photo credit: SPC

(Above:) Cynthia Houniuhi addresses the International Court of Justice in December 2024 on behalf of Pacific Islands Students Fighting Climate Change.

(Left:) Members of the Pacific Islands Students Fighting Climate Change. From left to right: Jason Gagame, Sahil Chandra, Roderick Hollands, Vishal Prasad, Belyndar R Sina, Cynthia Houniuhi, Sonia Jit and Siosiua Veikune.

Cynthia Houniuhi says her pursuit of climate justice became a personal journey to protect the islands where she grew up for future generations.

Photo credit: Cynthia Houniuhi

For me, it was my father's island. Seeing how it changed over a short period of time really pushed me to act. When I went to university, I started learning about climate change and the existing climate regimes, and the more I learned, the more it became not just about climate change, but about climate justice. Because you see the effects of it. You see your people being forced to move, and you know what caused it. And you ask yourself why you are carrying this burden when your country contributes almost nothing to cause this.

It became a personal journey for me. That's why I stuck with it for five years on a voluntary basis. The journey for me has always been about my people and how we can better protect ourselves, especially future generations. Finding allies along the way, those from frontline communities and those that believe in this cause, has helped realize this goal.

Why did your class decide to take this case to the International Court of Justice?

As law students, we wanted to see how we could use the law to help our people. And our lecturer, Dr. Justin Rose, challenged us to go beyond the four walls of the classroom. The more we learned about climate regimes, the more we were struck by how slow the progress has been in terms of solutions compared to the impacts of climate change on our people. As young people in that law class, we were worried about what we could do to protect our children and their children. We wanted to bring human rights into the discussion. We wanted greater protection for the principle of intergenerational equity, the idea of one generation being fair to the next. At the moment, future generations are not being considered in the context of climate change.

The issue of climate change is more than carbon markets, harmful industries and monetary gains and losses—it is literally a life-or-death fight against an assault on our human rights.

Additionally, there is something special about the Pacific region. There is a unique collaboration between states and civil society organizations that is found nowhere else. It is a basic understanding that the issue of climate change is more than carbon markets, harmful industries and monetary gains and losses—it is literally a life-or-death fight against an assault on our human rights.

What are you and your former classmates hoping to achieve by taking this case to the International Court of Justice?

We want an outcome that will reflect the reality of what we are seeing on the frontlines. One of the legal pathways we came across was the concept of "ecocide," which is any unlawful or detrimental act that is committed despite the awareness that it will cause severe, irreversible, long-term damage to the environment. We also learned about the island nation of Palau, which in 2012 attempted to seek an advisory opinion from the International Court of Justice on the question of transboundary harm, but did not succeed.

What we want to see from the court is a progressive advisory opinion that speaks to and clarifies states' obligations to protect the rights of present and future generations from the adverse effects of climate change. Not just stating those obligations, but speaking to them. And not shying away from saying there are legal consequences for not living up to them. We're hoping for something transformative in terms of accountability, because the way we're behaving now does not align with science.

What might a favourable ruling mean for other vulnerable areas, like the Arctic?

Climate change affects all of us. That is a fact that we really want to sink in with every leader around the world. We asked the court to protect the entire climate system—and the Arctic obviously plays a very big part in this system. Although we speak from our experience in small island states, our work can benefit all regions, including the Arctic. Arctic people have been often left out of the conversation, but the International Court of Justice can provide all frontline communities with a tool—in terms of accountability and in terms of negotiations—to strengthen the mechanisms that already exist and bring us closer to climate justice. ●

The mere existence of a fossil fuel treaty—even one that major producers have not joined—may crank up the moral pressure on reluctant countries.

In search of global cooperation

WHAT WILL IT TAKE TO PHASE OUT FOSSIL FUELS?

Future and past meet in the ocean off the coast of the Netherlands.

The growing use of fossil fuels is undermining global climate goals—and it poses major risks for the Arctic and other vulnerable regions. **HARRO VAN ASSELT** explains why international cooperation on phasing out fossil fuels is essential for the future of the Arctic and how such cooperation can take shape.

IN 2023, THE Colombian government decided to stop issuing new licenses for oil and gas exploration. The decision was hailed as a major step forward for a fossil fuel-producing country.

The immediate consequence? The country's credit rating was downgraded.

This anecdote illustrates the huge challenges ahead when it comes to transitioning away from fossil fuels. Countries, particularly developing countries, cannot and should not face these challenges alone.

Burning fossil fuels is the single largest contributor to global greenhouse gas emissions. Further fossil fuel production jeopardizes the Paris Agreement to hold global warming to an increase of 1.5°C. Yet the world's major fossil fuel-producing nations plan to produce more than twice as much fossil fuel as would be consistent with that goal.

As the primary driver of climate change, fossil fuel production puts climate-vulnerable regions like the Arctic at significant risk. More immediate impacts include a higher risk of oil and gas spills and harms to Indigenous communities and Arctic ecosystems. Despite this, some countries are still expanding fossil fuel production to meet growing energy needs.

HARRO VAN ASSELT is Hatton Professor of Climate Law at the University of Cambridge in the UK. He focuses on legal responses to climate change.

THE URGENT NEED FOR INTERNATIONAL COOPERATION

The good news is that other countries are adopting measures to constrain the supply of coal, oil and gas. France and Spain no longer issue permits for new oil and gas production. Canada has established a moratorium on oil and gas development in the Arctic. In the UK, the Supreme Court recently required environmental impact assessments for new fossil fuel projects to consider the climate effects.

But to make a global difference, such measures must be complemented by international cooperation. This can help build trust that other countries are taking similar steps. Such confidence can increase governments' willingness to take further measures. It also offers clear guidance to the private sector. Further, without international coordination, there is a real risk that countries will compete to extract the last drop of oil.

Returning to the example of Colombia, international cooperation can support mechanisms that offer the financial and technical support needed to implement measures to phase out fossil fuels. A fair approach to leaving fossil fuels in the ground requires developed countries not only to take the lead, but to support fossil fuel-dependent countries that currently lack the necessary capacity to transition away from fossil fuels.

THE PATH FORWARD

There are three non-mutually exclusive ways forward for international cooperation on phasing out fossil fuels: building on the UN climate regime, creating a new fossil fuel treaty, and adopting informal commitments through club-based approaches.

It took the parties participating in UN climate talks three decades to acknowledge that tackling fossil fuels is important for addressing climate change. This is a reminder that we may need to manage our expectations for the ability of this international forum to lead to the phase-out of fossil fuels. For some countries, discussing sectoral solutions to the climate problem remains taboo.

Still, the UN climate regime offers countries the chance to lead by example by including commitments to phase out fossil fuels in their nationally determined contributions or long-term climate strategies. Moreover, the financial mechanism of the UN climate regime could be drawn upon to support just energy transition projects in developing countries.

The limited progress in the UN climate negotiations on fossil fuels has sparked a campaign to develop a dedicated, legally binding fossil fuel treaty aimed at halting the expansion of fossil fuels, phasing out existing production, and ensuring a fair and equitable transition to clean energy. The campaign was initially driven by civil society organizations, but has gained support from some governments, including small island states and fossil fuel producers like Colombia and Pakistan.

LEADING BY EXAMPLE

However, there are major hurdles to the development of a legally binding treaty. Countries will likely be reluctant to cede sovereignty on matters of energy policy. This will make it difficult to convince major fossil fuel producers, such as Saudi Arabia and the United States, to sign such a treaty. Still, the mere existence of a fossil fuel treaty—even one that major producers have not joined—may crank up the moral pressure on reluctant countries to address the climate impacts of fossil fuel production.

Countries can also pursue a club-based approach, with a smaller group setting non-binding commitments. Examples already exist, including the Denmark-led Beyond Oil and Gas Alliance, the UK/Canada-led Powering Past Coal Alliance, and a Netherlands-led initiative to phase out fossil fuel subsidies.

Such informal commitments can offer avenues for countries that are wary of entering into legally binding commitments. Another advantage of a club approach is that it can more easily accommodate participation by private sector organizations and subnational authorities—important for countries where progressive actors are held back by their governments.

A club could also adopt a regional lens: certain Arctic nations could collaborate on a joint ban on fossil fuel development in the region, building on Canada's moratorium and the EU's objective to leave Arctic fossil fuel resources in the ground. There will be major geopolitical obstacles to persuading the US and Russia to join such a club. Self-professed climate leaders, such as Norway, should be brought into the discussion.

International cooperation will play a vital role in ensuring a fair, equitable and effective transition away from fossil fuels. Parties to the Paris Agreement should strive to keep the issue on the agenda. While a fossil fuel treaty will undoubtedly face major obstacles along the way, informal commitments adopted through different coalitions of the willing could pave the way for the development of international rules on phasing out fossil fuels. ●

Without international coordination, there is a real risk that countries will compete to extract the last drop of oil.

Pipelines cross the tundra west of Prudhoe Bay in Alaska.

Photo credit: Bretwood Higman, Public Domain

Two Inuit prepare to hunt seals, Resolute Bay, Qikiqtaaluk Region, Nunavut, Canada.

A platform for action

INCLUDING INDIGENOUS KNOWLEDGE IN GLOBAL CLIMATE GOVERNANCE

Ten years ago, at the United Nations Framework Convention on Climate Change (UNFCCC) (COP21), Indigenous Peoples' Knowledge was recognized for its importance in responding to climate change. Two years later, COP23 resulted in the establishment of the Local Community and Indigenous Peoples Platform (LCIPP). COP24 went even further, establishing the platform's Facilitative Working Group as a UNFCCC body. **GUNN-BRITT RETTER** explains the LCIPP's work, progress to date, and the challenges ahead.

GUNN-BRITT RETTER heads the Arctic and Environmental Unit of the Saami Council and is an Arctic member of the Facilitative Working Group of the Local Community and Indigenous Peoples Platform under the UNFCCC.

THE ARCTIC'S RAPID rate of climate change is having direct, immediate effects on the lands and waters that Indigenous Peoples depend upon—and Indigenous Peoples are putting their heads together to find solutions.

For example, in 2023, holders of Indigenous Peoples' Knowledge from across the Arctic met in Norway to have powerful conversations about climate solutions, drawing on time-tested knowledge passed down through generations.

The LCIPP event emphasized that Indigenous Peoples' Knowledge is crucial for developing effective strategies for climate action and resilience. Participants urged global climate decision-makers to make use of Indigenous Peoples' perspectives in policies, highlighting the Arctic's fragility and its significance to the global climate balance. They also called for direct access to climate finance to empower efforts led by Indigenous Peoples toward adaptation and mitigation.

THE LCIPP'S WORK

The LCIPP has three functions: promoting the exchange of Indigenous Peoples' Knowledge and traditional knowledge, strengthening the engagement of Indigenous Peoples and local communities in the UNFCCC process, and enhancing their contributions to climate solutions.

These functions support the sharing and safeguarding of, specifically, Indigenous Peoples' Knowledges and practices related to climate change. They also ensure the free, prior and informed consent of Knowledge Holders and promote the use of Indigenous Peoples' Knowledge Systems in climate policies and actions.

Since it was established, the LCIPP has worked towards building capacity,

Since it was established, the LCIPP has worked towards building capacity, improving the quality and outcomes of Indigenous Knowledge Holder gatherings, and getting Indigenous Peoples' Knowledge recognized.

Photo credit: © Andrew S. Wright / WWF-Canada

Photo credit: © Ola Jennersten / WWF-Sweden

A Sámi herder drives reindeer during the bull slaughter and herd division at the new Biergenis reindeer corral in Gran Sámi village, near Ammarnäs, Lapland, Sweden.

Photo credit: © Troy Enekvist / WWF Sweden

Saroni Olekuru brings his cattle home after a day of grazing in the Longido District of Tanzania's Arusha region. At annual gatherings of Knowledge Holders at COP meetings, participants from around the world discover cultural similarities that can lead to new knowledge.

improving the quality and outcomes of Indigenous Knowledge Holder gatherings, and getting Indigenous Peoples' Knowledge recognized. I have experienced this evolution myself as a member of the LCIPP's Facilitative Working Group from 2022 to 2025. Given that the working group is a constituted body equal to other UNFCCC constituted bodies, this recognition opens doors for its ability to provide input to other bodies and workstreams. In this way, Indigenous Peoples' Knowledge is given a formal status.

EXCHANGING KNOWLEDGE

The input that the working group provides to the other workstreams builds on the LCIPP workplan. The most valuable element, in my view, is the annual gathering of Knowledge Holders at COP meetings, where they have the opportunity to share their observations and solutions to climate change based on the ecosystems where they live. Through these gatherings, they get to know each other and discuss their experiences.

For example, Sámi reindeer herders might meet nomadic herders from Africa and discover cultural similarities. Based on such exchanges, knowledge can emerge—for example, that rotational use of land is a good solution for climate change adaptation. Challenges may also be shared, such as the experience of competing for land use with mining and energy industries, in the name of mitigating climate change or response measures to climate change.

The Arctic was among the sociocultural regions that was able to organize a regional gathering of Knowledge Holders during the LCIPP's second three-year workplan (2022 to 2024). This was a venue for Sámi fishers, collectors, duojárs (handcrafters) and reindeer herders to share their knowledge and convey messages that negotiators can learn from. Significantly, the report from this event became a formal UN document.

It is important to note that as Indigenous experts in the working group, we have the same duty that we ask others to take on—that is, to act ethically, to be cautious when applying Indigenous Peoples' Knowledge, and to be careful not to take things out of context. Still, this work is an opportunity to link many voices and observations to generate messages and calls to action for decision-makers at both the COP and national levels.

Although I see many opportunities where Indigenous Peoples' Knowledge can inform UNFCCC decision-making, the working group does not negotiate on behalf of Indigenous Peoples. That role is held by the Indigenous UNFCCC participants and coordinated through the Indigenous Peoples caucus, known as the International Indigenous Peoples' Forum on Climate Change.

WHAT'S NEEDED

Amid all these opportunities, the challenge is to develop and retain the capacity to engage ethically, equitably and meaningfully at numerous levels. Indigenous Peoples and their organizations are calling for greater capacity—including the financial resources to prepare for and attend UNFCCC negotiations, and for the working group to fulfil its mandate. They are also calling for direct access to climate finance, so communities can apply culturally rooted adaptation practices on their lands and territories and build resilience to climate and environmental changes. In addition, there is a pressing need for capacity-building among national government representatives and the UNFCCC more broadly to ensure equitable engagement with Indigenous Peoples at both national and global levels.

The Sámi people depend on reindeer herding, fishing, hunting and gathering—all practices that are increasingly threatened by climate change. Indigenous Peoples' Knowledge Systems provide valuable solutions for ecosystem management, sustainable resource use, and building resilience. At the Arctic Regional Gathering, participants emphasized the disproportionate climate burdens faced by Arctic Indigenous Peoples and called for urgent actions to address these inequalities.

Arctic Indigenous Peoples demand the meaningful inclusion of Indigenous Peoples' Knowledge in global climate governance.

THE BACK PAGE

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The Kyoto Protocol 20 years on

The Kyoto Protocol, the first international treaty to cut greenhouse gas emissions, came into force on February 16, 2005. Adopted at COP3 in 1997, it laid the groundwork for the 2015 Paris Agreement. At its height, the protocol had 192 parties.