

Mohamed Behnassi · Himangana Gupta  
Fred Kruidbos · Anita Parlow *Editors*

# The Climate- Conflict- Displacement Nexus from a Human Security Perspective



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 Springer

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# Foreword 1: Climate Change or Climate Disruption?

When reading this impressive volume about the key dynamics of the nexus between climate change, conflict and displacement, one might wonder whether the label ‘climate change’ is the most appropriate one. The volume clearly shows how mankind is being launched into a new era. An era with an increasing gap between the demand and supply of basic human needs. An era in which our current way of living is not sustainable anymore and where current concepts can’t provide the required solutions. Moderate forecasts show how our world population will probably increase by another 50% to some 11 billion people, all needing food, water, sanitation and a place to live. Meanwhile we are running out of resources to meet these increasing demands. Clean drinking water is becoming scarcer, resulting in food shortages and sanitation problems. It is often stated that water is the future oil. Climate change speeds up the process and aggravates that growing gap between demand and supply. Parts of our planet are becoming uninhabitable because of the increasing drought, flooding, sea-level rise and severe weather incidents, affecting human security in many ways. Climate change is clearly much more than just an environmental problem. It is also a risk multiplier that has a disruptive effect on our ways of living and our human security. It is a whole-of-society and an existential problem leaving no place on this planet untouched as this volume clearly shows from different regional perspectives.

The current COVID-19 crisis probably provides just an indication of the effects we can expect from a changing climate. This crisis should teach us how vulnerable we are on a global scale. We live in different neighbourhoods of the same global village. We can’t hide behind oceans, national boundaries or sea dikes for changes in other parts of our intertwined and globalized world. Global problems demand global answers. The COVID-19 crisis should also teach us the importance of not ignoring the signs but to be prepared. Hardly ever before in the human history did we possess so much advanced knowledge of the next crisis awaiting us. We have the luxury of foresight as this volume makes painfully clear, which gives us a brief window of opportunity to be prepared, to prevent and mitigate the worse from happening, and to adapt in order to be able to deal with the unavoidable.

It is becoming evidently clear that climate change is the biggest challenge of this century, calling for a paradigm shift in our approaches to find the right answers. That paradigm shift starts with the fundamental understanding of the underlying social-ecological mechanisms we act upon, acknowledging the need to mainstream mitigation and adaptation efforts in our policymaking, in our action and outreach programmes, in our activities, and in the technologies we develop. It needs to be more than just another item on our world agenda. Courageous leaders are needed to look beyond the next election and to invest in the future of the next generation. Leaders who possess the political courage and wisdom as shown after the floodings in The Netherlands right after the Second World War when the dikes broke during a spring flood, threatening large parts of the population living below the sea level. In that period, the country was in a deep recession, struggling to recover from the destructions of the war. Political leaders decided to do more than just fix the broken dikes. Despite all the economic problems, they decided to invest in a future-proof coastal defence system called the Delta Works, a system that has protected the country for almost 70 years now and for which we still owe them.

Another part of that paradigm shift is about breaching the functional stovepipes, recognizing the need for comprehensiveness, and maximizing the synergy between departments and stakeholders. Breaching those stovepipes is hard to do when the political and public debate is polarized. However, climate change is a shared and existential threat that should unite us. None of us can deal with its effects by itself, we can only deal with it if we reach out and treat it through a collective effort and find ways to reinforce each other.

As an extension of existing capabilities to prevent further escalation of the current and future security challenges, the security sector, and especially defence organizations, needs to be part of both the comprehensive team and the solution. All over the world, security experts and military leaders experience the impact of a changing climate. They experience how increasing droughts lead to friction over access to drinking water, how access to water is being weaponized by extremist organizations, how herders and farmers are driven away from their traditional grounds leading to frictions elsewhere, and how fishermen turn into pirates because of depleting fishing grounds and warming seas. They also experience an increasing call for humanitarian assistance and disaster relief, and how climate change affects the geopolitical landscape, like in the Arctic area, where the melting ice triggers a new run for resources and like the energy transition leading to a new run for rare minerals and affecting the position of countries whose economies largely depend upon the revenues of fossil fuels. They are also aware of the fact that military organizations are amongst the largest emitters of CO<sub>2</sub> in any country.

An increasing number of leaders feel the need to help solve the problem, realizing that climate change is probably the biggest game changer of this century. They are concerned and want to do something about it, so they linked up in a new and unique global security network called the International Military Council on Climate and Security (IMCCS). Within 2 years, leaders from more than 40 countries out of all regions in the world joined this non-political and voluntary network, a good example of the required global collectiveness. IMCCS rapidly developed into a

platform for security experts to exchange experiences and best practices, to build awareness of the climate-security nexus and to develop the role of the security sector. Four research institutes in Europe and the USA form the nucleus of the network and 16 other research centres are affiliated, resulting in a powerful scientific base. In the first 2 years of its existence, the IMCCS put its efforts in raising the awareness of security institutions around the world that climate change is also a matter of national and international security.

And they help change the tide. An increasing number of security institutions are recognizing the security implications of a changing climate. The IMCCS produced its World Climate and Security Report, the NATO developed its Climate and Security Action Plan, and the EU published a Climate Change and Defence Roadmap. Several countries have started recognizing the nexus and started realizing that the security sector has a role to play. Recently, the USA released four distinct climate security reports from the Department of Defense, the Office of the Director of National Intelligence, the Department of Homeland Security and the National Security Council. A clear signal of President Biden's intention to integrate and mainstream climate change planning across the national security institutions. All these reports underline the findings in this volume on how climate change affects human and physical security. It makes climate change also a matter of national security, and the security sector needs to develop its role as part of the whole-of-society efforts.

There are many misconceptions about climate change, such as 'our climate is changing slowly', 'it is all happening far away in the Arctic and desert areas', and 'it is an ecological change not affecting our way of living'. The label 'climate change' is probably not alarming enough since it suggests a gradual ecological process over a longer time period. This volume clearly proves they are wrong. Like political regime shifts, ecological regimes can also undergo sudden catastrophic changes resulting in massive species loss and significantly changed habitats, most clearly seen in deforested landscapes. It frighteningly shows how large parts of our planet are becoming uninhabitable, resulting in regional frictions, large migration flows, and breeding grounds for organized crime and extremist organizations. You don't need to be a climate activist to be concerned about the potential disruptive effects of a changing climate on our way of living. We are facing global climate disruption leading to large-scale human insecurity. If ever there was a threat requiring global cooperation, this is it. This is not the time to hide in nationalist corners and protectionism. It is our collective responsibility to be prepared and to act while we still can.

Tom Middendorp



*Tom Middendorp was the Netherlands Chief of Defence for 5.5 years and spent 38 years serving his country. He commanded soldiers on all levels, led a large multinational taskforce in the south of Afghanistan and was involved in over 20 different military missions as the director of operations. Middendorp led the defence organization through an intense period of transition and has extensive operational and strategic experience of building unity of effort with different nations, governmental- and non-governmental organizations, international institutions, and civil stakeholders in order to deal with a wide range of security risks. He has joined Clingendael and The Hague Centre for Strategic Studies (HCSS) as a strategic expert and is chairman of the International Military Council on Climate and Security. He is also the Netherlands' Special Envoy on European Defence Cooperation and a senior advisor in the areas of security, defence and strategic leadership.*



## Foreword 2: Tackling Climate-Related Distress, Conflict and Displacement Is the Need of the Hour

Climate change, migration, and conflict are age-old phenomena that started even before the birth of human civilization in its present form. Fossil and archaeological evidence suggest that modern humans moved out of Africa into Eurasia, Australia, and the Americas between 50,000 and 150,000 years ago. Beginning over 120,000 years ago, wild climatic swings triggered waves of human migration every 20,000 years, corresponding to periodic orbital variations. At the end of last glacial, *Homo sapiens* arrived in their new settings and outcompeted their near relatives – *Homo neanderthalensis* (Neanderthals) and *Homo erectus* – who became extinct ultimately. In those times, migration was not limited by national boundaries.

A major difference between then and now is the national boundaries and population explosion. World population at the end of the last glacial period, some 12,700 years back, was between 1 million and 10 million. Now it is over seven billion or 7000 million. While the last major migration, which is also termed as exodus from Africa, enabled man to colonize the world, there is hardly any place left for the next migration to take place. The last one led to human evolution, which placed man at the top of the pyramid, the next one may lead to extinction just like the Neanderthals and *Homo erectus* if we do not pay heed to the straws in the wind.

Climatic changes and their impact are happening at such a pace that they are eroding the resilience of human adaptability. The increasing frequency and intensity of natural disasters such as storms, drought, flooding, heat and cold waves, and disease are triggering shifts in the human and ecological systems. Climate change impacts are stressing the ecosystems beyond recovery in many parts of the world. This has made the poor and vulnerable countries a hub of climate-related displacement and conflict, especially in Africa and Asia. This burdens the neighbouring countries with influx. However, studies on climate and displacement nexus are currently limited, which makes it difficult to predict the long-term consequences of such linkages.

The IPCC AR6 demonstrates the urgency of tackling climate change issues. There would be increase in displacement of people, especially due to lack of resources and higher exposure to extreme weather events, particularly in low-income developing countries. Migration, in fact, is increasingly being perceived as

an adaptation strategy as the climate patterns change. However, this may also increase the conflict risks and lower the adaptive capacity of the receiving community due to competing resources, in addition to socio-political unrest.

This volume, which is a compilation of research articles from 20 authors from different parts of the world, is unlike others on climate change and migration as it considers the important aspect of human security from a socio-ecological perspective. It explores local, regional, and global response mechanisms and evaluates their effectiveness, examines the latest trends in literature, and addresses the legal, security, and economic implications of the climate-migration-conflict nexus. It explores the linkages between biodiversity, natural resources, food, and health, also in the context of social and political issues that could exacerbate climate impacts. It is a forewarning of things to come if we do not mend our ways.

In this context, this volume also proposes pathways to manage the complex implications and build socio-ecological systems resilience with the engagement of local communities in the context of their needs. This book has the potential to steer further debate and scientific research on such an important topic.

Rajib Shaw



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# **Foreword 3: Sea Ice, Marine Ecosystems and Climate in the Arctic's Bering Sea: A Subsistence Marine Mammal Hunters' Roadmap for Research and Policy**

Here in Savoonga, on St Lawrence Island on the Bering Sea, our ability to eat and to survive depends upon the seasons that bring the migrating fish, seals, walrus and whales for us to hunt and fish in the rich marine ecosystem that surrounds us and of which we are a part. Our lives are intertwined with the rich ecosystems that we have protected for more than 2,500 years as the marine mammals begin their long summer migrations deep into the Arctic North following the open waters created by receding sea ice. Everybody is poised for the hunt and fishing, with spirits rising all across the village. We prepare in many ways. Our elders remind us to stay safe and be aware that the ice locations are changing, so we cannot depend upon the ice maps passed to us from earlier generations. We prepare our hunting gear, with particular attention to sharpening our harpoon heads and knives to butcher our catches and meat with efficiency and protecting ourselves from getting injured by a dull knife. We have to be able to butcher a walrus, maklak (bearded seal) or whale quickly or the meat will freeze for the whole winter and we will be without food. Also, time is important because the northerly Bering currents are unforgiving. If you are slow, you can be stranded far from the Island with insufficient gasoline and lubricants to get you out and back. We bring rain gear to prepare our crew for any weather.

Before we push off, we scan the horizon, take note of the currents, communicate by radio or sat phone with other hunters, and double and triple check everything as we glass the horizon to chart a course. We know the ice systems and formations from previous years, but the sea ice is no longer as predictable with climate change. We make certain to steer toward the far end of the ice (*sivulitangani*) because that is where the marine mammals locate. Walrus favour locations ahead of the ice or at the tail end of the ice systems. From the high points on the ice, we look around for game. We mark each stop on our compass to pinpoint where home is located. We stay in touch with the other hunters by communications radio for safety and also the best location for concentration of herds of walrus, or seals or migrating whales. We check our fuel level constantly to make sure we have more than enough to make it home safely. It is harder now, with the ice breaking up earlier in the season, and into small pieces along the coast, it is harder to get home. Sometimes we don't go out because we might not get back. So, that leaves us with less food for the year.

We have to be careful to avoid alerting the mammals of our presence with our human smell. So, we look for a route that is downwind of the herd, so they won't smell our approach, but one that brings us close enough for the hunt. We have to be very quiet when approaching the herds with our motor running idle. We seek the ideal walrus for its meat and hide along with ivory for carving. The whales also hear our boats, so we don't even talk. And, we don't harpoon a pregnant or nursing whale.

When the walrus herds are away from the ice edge, we don't hunt them, instead, to save time and energy, we usually steer clear of pack ice where we could easily become trapped as the ice shifts rapidly. The ice can also act as a wind barrier that allows us to hunt in windier conditions. We keep looking for an opportunity to take advantage of the best conditions, sticking close to the ice edge, but away from pack ice.

When traveling north or northeast, depending upon ice patterns, we like to go point to point of the ice to get to the front of the ice, an approach that saves gas, time and energy so we can concentrate on getting to the game at or near the front of the ice. As I told an interviewer, "it all depends on the weather, ice and sea conditions and it takes constant observation, being vigilant, communicating with your crew on best practices and following through".

We rely on the ice to provide us safe passage and food. This is where I am most comfortable and happy when any hunting or whaling success happens, just like anywhere in the world. I always like to take the most direct route when heading home. But, storms or weather might mean we need to stick close to the ice edge. But, even in the fog, we can see the ice mirrored from the water. Sometimes we face challenges that sap our energy. But, the bonds with our fellow hunters are life long. We help and respect each other, the mammals, fish and whales to whom we give ceremonial thanks for feeding us, and allowing us to be part of this marine ecosystem for which we were taught to be stewards by oral history, ceremony and experience.

The fog limits your ability to see ahead so you use your other senses to look for mammals: sense of smell and hearing become very important. Communicating with others and knowing where they are become very important. Manoeuvring through the ice, you see the reflection of open water mirrored above the water in the fog and you can also see the bright reflection of the ice. This guides us through the ice, saving time and energy heading home. If it does not work out, we head away from the ice and look for an opening to the west, remembering to work with the current.

To get to the marine mammals, you learn where to go, learn their environment, their behaviour patterns and the most ideal conditions. Our traditional science and knowledge, in addition to academic science, have been used for more than hunting. Traditional knowledge can help us identify approaches to marine ecosystem management, as well as in developing appropriate regulations. Hunters and whalers know intimately the numbers and behaviours of migrating species.

The Kukuklget Mountains serve as our compass when we come towards shore. We stick close to the western edge of the ice to navigate the prevailing currents. Near shore, the ice tends to pack so we look for an opening to the west of the village and make better time working with the current. Lookouts on high points direct

traffic for the best routes. Crews tend to form a group in tightly packed sea ice to manoeuvre over the ice as we look for the best path from the high point. Then, working cooperatively, when it's flat, we can glide our boats over the ice.

With climate change, hunters and whalers should be involved in the assessments of likely impacts to assist with the design of appropriate management measures. We have much to contribute and will have greater confidence that our ways of life will be adequately maintained and protected. Bowhead whale hunters have long pointed out that the whales can be affected by smells associated with human activity. Whales downwind can smell a human that leads them to dive or move away from the source of smell. This behaviour is the same for other mammals, as part of their ability to survive in the Arctic. As expressed in an earlier article, "biologists recently confirmed our observations that whales do in fact have a sense of smell, which had previously not been accepted by non-Yupik scientists".

That greater recognition being given to our observations in recent years is a welcome advance. And more can be done both to incorporate the knowledge itself and to improve the participation of traditional fishers, hunters and whalers in research and management. As I told a think tank several years ago, we need to be aware of the demands that this level of interest places on those who hold the information. Too many studies mean too many demands on our time and can lead to "research fatigue" and decreased interest in taking part. Paying people for their consulting is appropriate and can help sustain a willingness to participate in scientific studies and related activities.

The following four points might be included in increasing interest in the development of climate change policies, relevant science and new regulations:

- *First*, "traditional knowledge" and traditional science in Arctic context should be placed on a website for a general accessibility.
- *Second*, regular monitoring should occur to keep the knowledge of climate change impacts up to date. By monitoring new information, the science community will understand changes as they occur. Hunters, fishers and whalers spend a great deal of time out on land and sea, and cover a large territory with nuanced observations. This will provide a broader and different picture of ecosystems that are available from other methods such as remote sensing and space-monitoring methods.
- *Third*, because our science, observations and knowledge are often placed at a lower level of hierarchy than Western science, we are not paid for our observations and time spent to share our information for publication or regulatory changes. Further, we are generally not invited a seat at the table where climate-related decisions are made, even though we are on its frontlines.
- *Finally*, as conveyed to an American think tank, traditional hunters and whalers and our observations of environment, especially marine ecosystems, have sustained the lives of Arctic peoples "since time immemorial". Our values remain high today, especially to help figure out how to use our 1000-year approach to protect ecosystem balance with greater authority as the climate changes and

development increases. New ecosystems are happening daily, new air, new water and sea ice that can bring something new anytime; you just have to be close.

From my conversations with Anita Parlow, the author of the chapters on the Bering Sea in this publication, I know that this volume tells a story of people like us – Yupiks who live on St. Lawrence Island in the Bering Sea – who depend upon understanding, navigating and protecting the ecosystem balance that sustains and feeds us as we hunt, fish and whale. Each of the stories in this volume is different, depending upon what part of the world is being discussed. But, this book shows that all living species are tied together as part of nature and depend upon each other in what some call this “Turtle Island”. The changes that we see – walrus and seals getting skinnier, more fish coming north, whale migrations almost out of reach given less sea ice, birds falling from the cliffs and more flooding – is at a scale we haven’t seen in our lifetimes. This volume both confirms the changes by people most directly affected and offers Western science a roadmap for climate research and policy.

George Noongwook

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*Siberian Yupik from St. Lawrence Island in the Bering Sea. Whaling Captain, Walrus Hunter, Former Chair of the Alaska Eskimo Whaling Commission, American Attendee to the International Whaling Commission, and Author.*

# Acknowledgments

The initial idea to publish a contributed volume on the climate-conflict-displacement nexus from a human security perspective stemmed from the outcome of the International Conference on Social-Ecological Systems: From Risks and Insecurity to Viability and Resilience (SES2019) organized by the Center for Environment, Human Security and Governance (CERES) in October 2019 in Marrakech, Morocco. From the onset of the project so far, humanity has gone through multiple crises that have triggered many shifting dynamics. In addition to an unprecedented global pandemic, which has demonstrated the consequence of a deep anthropogenic-induced disruption of the ecosystem's balance, coupled with a context of resource scarcity, climate urgency, disasters, increasing social inequalities, violent conflicts, and mass displacement, the relevance and originality of this book project are increasing over time. During a 2-year process, the scope and objectives of the publication have been refined in order to remain very sensitive to the evolution of many dynamics worldwide, especially in some particular regions covered by the book such as the MENA region.

It was my deep honor to serve as the chair of SES2019 and to lead the editorship of this volume. I would like to express here my deep gratitude and thanks to the editorial team members: Dr. Himangana Gupta (JSPS-UNU Postdoctoral Fellow at the United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS) and the University of Tokyo, Japan); Fred Kruidbos (KRUIDBOS Ecologisch onderzoeks- en adviesbureau, Helmond, the Netherlands); and Anita Parlow (Founding Team Lead, Woodrow Wilson International Center for Scholars' Polar Code Program and Research Associate and Advisor, Harvard-MIT Arctic Fisheries Project, USA). Their pro-active and fruitful collaboration during the publishing process has made the edition of this volume a real passion and an exciting experience.

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Agadir, Morocco

Mohamed Behnassi



# About the Publishing Institution



**The Center for Environment, Human Security and Governance (CERES), Morocco**

CERES, previously the North-South Center for Social Sciences (NRCS), 2008–2015, is an independent and not-for-profit research institute founded by a group of Moroccan researchers and experts in 2015 and joined by many partners worldwide. It aspires to play the role of a leading think tank in the Global South, and to serve as a reference point for relevant change processes. Since its creation, CERES managed to build a robust network involving various stakeholders such as researchers, experts, PhD students, decision makers, practitioners, and journalists from different spheres and scientific areas. These achievements are being rewarded by the invitation of CERES members to contribute to global and regional assessments and studies (especially Ipbes, Medecc, EuroMeSco, etc.) and the invitation of the Center to become a member of the MedThink 5+5, which aims at shaping relevant research and decision agendas in the Mediterranean Basin. The Center has organized so far five international conferences and several training/building capacity workshops, provided expertise for many institutions, and published numerous books, scientific papers, and studies which are globally distributed and recognized. These events and publications cover many emerging research areas mainly related to the human-environment nexus from a multidimensional, multiscale, interdisciplinary, and policy-making perspectives. Through its initiatives, CERES attempts to provide expertise to advance science and its applications, and to contribute to effective science and policy interactions.

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# Abbreviations and Acronyms

AEWC	Alaska Eskimo Whaling Commission
AIA	Aleut International Association
AMBCC	Alaska Migratory Bird Co-Management Council
AMOC	Atlantic Meridional Overturning Circulation
AMSA	Arctic Marine Shipping Assessment
ANCSA	Alaska Native Claims Settlement Act
ASTER	Thermal Emission and Reflection Radiometer
ATBA	Areas To Be Avoided
CA	Content Analysis
CAO	Central Arctic Ocean
CAR	Central African Republic
CCA	Climate Change Adaptation
CEJ	Critical Environmental Justice Studies
CELAC	Community of Latin American and Caribbean States
CERES	Center for Environment, Human Security & Governance
CF	Conventional Forces
CHCs	Cosmopolitan Harm Conventions
CMTS	Committee on Marine Transportation Systems
CODESA	Collective of Saharawi Human Rights Defenders
COED	Cost of Environmental Degradation
COP	Conference of the Parties
DA	Direct Action
DDR	Disarmament, Demobilization and Reintegration
DEM	Digital Elevation Model
DRC	Democratic Republic of Congo
DRR	Disaster Risk Management
EDD	Environmentally Driven Displacement
EDM	Environmentally Driven Migration
EDPs	Environmentally Displaced Persons
EJOLT	Environmental Justice Organizations Liabilities and Trade's
ENVI	Environmental Visualization

ERDAS	Earth Resources Data Analysis System
ESPA	Eastern Sudan Peace Agreement
EU	European Union
EWC	Eskimo Walrus Commission
FESO	Foreign Ecological Security Operations
FTZ	Free-Trade Zones
GCI	Gwich'in Council International
GEOBIA	Geographic Object-Based Classification
GNP	Gross National Product
GRC	Geneva Refugee Convention
GWEC	Global Wind Energy Council
GWR	Geographically Weighted Regression
HAB	Harmful Algae Blooms
HCP	High Commission for Planning
ICC	Inuit Circumpolar Council
ICC	International Criminal Court
ICJ	International Court of Justice's decision
IDP	Internally Displaced Persons
IMCCS	International Military Council on Climate and Security
IMO	International Maritime Organization
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least Developed Countries
LNG	Liquefied Natural Gas
LPI	Living Planet Index
LRA	Lord's Resistance Army
MA	Military Assistance
MDGs	Millennium Development Goals
MENA	Middle-East and North Africa
MMPA	Marine Mammal Protection Act
NAPAs	National Adaptation Programmes of Action
NDRE	Normalized Difference Red Edge Index
NOAA	National Center for Environmental Information
NSEDC	Norton Sound Economic Development Corporation
NSIDC	National Snow and Ice Data Center
NSR	Northern Sea Route
NTFPs	Non Timber Forest Products
OAS	Organization of American States
OCHA	UN Office for the Coordination of Humanitarian Affairs
ODA	Official Development Assistance
OLS	Ordinary Least Squares
PCB	Polychlorinated Biphenyl
PSC	Peace and Security Council
RIAC	Russian International Affairs Council
ROLAC	Regional Office for Latin American and the Caribbean

SAP	Structural Adjustment Program
SCMC	Sahrawi Center for Media and Communication
SDGs	Sustainable Development Goals
SES	Socio-Ecological Systems
SR	Special Reconnaissance
UCC	United Church of Christ Commission for Racial Justice
UNCLOS	United Nations Convention on the Law of the Sea
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNEP	United Nations Environmental Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNHCR	United Nations High Commissioner for Refugees
USGS	U.S. Geological Survey
WHO	World Health Organization
WIM	Warsaw International Mechanism for Loss and Damage Associated with Climate Change
WSRW	Western Sahara Resource Watch

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