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INDIGENOUS AFFAIRS

CLIMATE CHANGE AND INDIGENOUS PEOPLES

IWGIA

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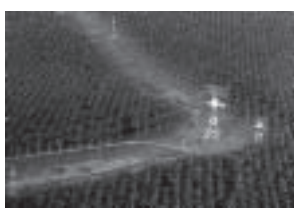

Cover: *Emission of greenhouse gases; one of the main causes of climate change - Photo: POLFOTO/Vadim Ghirda*

Indigenous Affairs is published 4 times per year

ISSN 1024-3283

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Proof reading: Elaine Bolton
Price: Single copies US$ 7.50 + postage

EDITORIAL EDITORIAL

Mark Nuttall

Recent key regional and global scientific assessments (most notably, the Arctic Council's Arctic Climate Impact Assessment, the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment, and the national Canadian assessment of climate change) confirm that the Earth's climate is changing in ways that may have irreversible impacts that will affect ecosystems, societies and economies on scales that require urgent global action. While climate change science still has its critics who seek to undermine its findings and diminish the seriousness of climate effects, there is increasing evidence – from both science and indigenous and local observations – that climate change is already having ecological, social, cultural and economic impacts in high northern latitudes, but also in high altitude mountainous terrain, desert regions, tropical areas, and near sea-level coastlines around the world. The climate of the Arctic, in particular, has shown an unprecedented rate of change over the last fifty years. We no longer see regional changes in climate in isolation, but understand them as interrelated processes affecting geographically distant ecosystems, societies, cultures and economies. The reduction of multi-year ice cover in the Arctic Ocean, as well as glacial retreat from the Greenland inland ice and other major Arctic ice masses, will have immediate regional implications with an eventual global reach. As Clift and Plumb argue in their recent book *The Asian Monsoon*, the continued melting of Greenland's vast ice sheet and the cooling of the North Atlantic could result in drought in central Asia, and in rising sea levels and increased risks of severe flooding in coastal south and southeast Asia.[1]

Climate change science, uncertainty and policy

Current and projected levels of exposure to climate-related sensitivities, as well as limits and restrictions to adaptive capacity, mean that some environments and peoples are more exposed to climate change than others and, as a result of their social, political, and economic circumstances and situations, they are significantly more vulnerable to its impacts and long-term consequences. Although the latest IPCC reports were unequivocal in their attribution of the causes of current climate change to anthropogenic activity, the language of science is still careful to use a lexicon of probability and projected likelihood when scientists talk about future climate change impacts. From a scientist's point of view, this is perhaps understandable. Scientific method continues to revolve around conjectures and refutations, but climate change science is characterised by uncertainty in the models it develops to come up with projections of the future state of ecosystems under conditions of profound change in decadal and longer time scales. No matter how sophisticated or complex these models are, climate change science and the large assessments that synthesise research findings can only offer 'most likely' scenarios and possible storylines for the future, in which climate change 'could have' or 'may have' certain effects. The Arctic Climate Impact Assessment, for example, struggled with the challenges in projecting responses of Arctic ecosystems to climate change because of the limited understanding of how Arctic and global climate systems are coupled to, and influence, physical and biophysical processes.[2]

Climate models become even less effective when they attempt to assess and represent the complexity of everyday social, cultural, political and economic life for purposes of probabalistic analysis. There may be widespread consensus that climate change has anthropogenic causes, yet how the world and its climate are transformed by human action remains a critical area of research. Policy and decision-making processes depend on a 'sound scientific basis' for their success in terms of consensual understanding of how to take action on climate change. The unreliability of models provides a way to question the legitimacy of science. The uncertainty of climate change science, together with the unreliability of models for representing social and ecological interactions remain an obstacle to moving forward and addressing environmental dilemmas. There is perhaps at least one thing that is certain about scientific uncertainty concerning the effects of climate change – it affects the policy and decision-making process, and in a recent paper Stainforth *et al*. argue for a reassessment of the role of climate models for use in the development of policy and societal decision-making.[3]

Despite the uncertainty inherent in climate change science, as many indigenous peoples around the world can already argue and testify to, climate change is not something that may or may not happen in the future – it is already a reality. Wherever they live, and whatever the diversity of ecosystems they inhabit, they are witness to local manifestations of a global phenomenon.

Inuit communities in the Arctic are among the first to experience the effects of climate change, Greenland - Photo: Jens Dahl

The uncertainty that characterises much scientific knowledge about climate change and its effects is partly explained because of the large-scales at which scientists gather their data. Indigenous peoples feel the effects of climate change in the way the weather is experienced, and their observations and knowledge of climate effects in specific geographical localities are of critical importance for scientific analysis and decision-making. Indigenous knowledge, combined with indigenous peoples' experiences of the environment, may also prove to be better placed to deal with uncertainty. Yet indigenous peoples remain marginalised in many scientific assessments and public policy processes, and the impacts of this are less a focus than the impacts of climate change. However, their exclusion has far-reaching implications too. Fortunately, this situation is being rectified in some parts of the world, most notably in the circumpolar North, where discussions at the level of the intergovernmental Arctic Council include indigenous perspectives on climate change monitoring and adaptation. The Arctic Climate Impact Assessment was notable in this regard for the way it attempted to incorporate indigenous knowledge with the pure science.

Climate change is a complex interplay of physical processes, environmental, historical, social and economic factors. Its effects are highly variable and regionally specific and will be significant for people and for local and regional economies in many different ways. For indigenous peoples around the world, climate change brings different kinds of risks, brings threats to cultural survival and undermines indigenous human rights. But climate change also magnifies the issues of pressing contemporary concern that already affect indigenous peoples despite its occurrence. Whatever the diverse effects, the consequences of ecosystem changes have implications for the use, protection and management of wildlife, fisheries, forests, and pasture lands, affecting the customary uses of culturally and economically important species and resources. Furthermore, the World Health Organization considers the effects of climate change as one of the greatest public health challenges for the 21st century, and this is reinforced by the IPCC's stark warning that deteriorating social and economic circumstances brought on by climate change could have significant effects on human health. Nonetheless, indigenous peoples have long had to confront and cope with these challenges – climate change brings them

into sharper focus, but also adds to the experience of the effects.

Climate change in context

Climate change must be seen in the wider context of other pressing social, cultural, economic and political changes, and indigenous peoples are exposed in multiple ways to the impacts. In the Arctic, tropical forests, mountain regions, around the arid and semi-humid edges of deserts, and in low-lying coastal areas and on islands, indigenous peoples depend on traditional resource practices either directly or indirectly – living on the geographical, economic and political margins of mainstream societies makes them among the most vulnerable in terms of the impacts of climate change. Ecological, social, cultural, economic and political changes erode adaptive capacity and community resilience, diminish land rights, and threaten food security, thus further challenging the abilities of indigenous peoples to respond, cope with, and adapt to environmental changes. At the same time, we are told that climate change brings opportunities as well as threats. But little attention has been given to explaining exactly what these opportunities are on may be, and it is here that the policy discourse on adaptation falls short.

As states, environmental NGOs and indigenous peoples' organisations continue to prepare for COP 15, the United Nations Conference on Climate Change, in Copenhagen in late 2009, and as attention turns increasingly to adaptation, we lack sufficient understanding of how societies build adaptive capacity in the face of change, what makes people, communities and regions vulnerable to climate change, and what the different meanings are that indigenous peoples attribute to adaptation. We fail to subject the whole idea of adaptation to critical examination. Perhaps the question should not be posed in terms of how people can adapt to climate change, but in terms of what prevents them from responding and adapting to climate change. Like sustainable development, there are many different understandings of what adaptation really is. There is not one single strategy or methodological framework for how best to implement adaptive strategies and policies, even if there is agreement on what those strategies and policies actually are. As policy discussions focus increasingly on adaptation, we must also focus on identifying the political, legal, social, cultural, economic and institutional barriers to adaptation.

At the same time, what makes people vulnerable and what hinders resilience? Adaptation to climate change is not only a function of, or response to political decision-making and technical solution, it can be difficult to achieve if there is a loss of cultural identity and meaning in a small community or wider society. Adaptive capacity and resilience, therefore, depend on the strength of culture, of human-environment relations, cohesiveness of community, identity, and of strong social relationships. Adaptation is also about decision-making processes at various levels and scales – from the ways individuals, households, and communities think about, devise, select and enact adaptive responses to climate change, to the broader international processes and institutional contexts that shape those local decisions.

The experience of climate change, the exposure to its negative impacts or the abilities of communities to seize the opportunities it may bring depends on the social, cultural, and physical locations of indigenous peoples, but also how they are positioned in terms of institutional, political and legal contexts. Adaptation may well begin at the local level in individual, household and community decisions, but it also requires strong policy measures that, for example, support traditional practises of hunting, fishing and pastoralism, agricultural production, food security, resource management, infrastructure development, and education.

Navigating shifting terrain

Indigenous peoples are navigating shifting terrain, from diminishing sea ice and changes to animal migration routes in the Arctic, to receding glaciers in high altitude regions, to increased fires in tropical rainforests and reductions in rainfall in temperate ecosystems, to increased coastal erosion and rising sea levels in the Pacific. This issue of *Indigenous Affairs* has gathered together a collection of articles illustrating how climate change affects indigenous communities in a number of places around the globe, from the High Arctic to the high Himalaya, to the arid regions of east Africa, the low-lying South Pacific islands, tropical South East Asia, and southern South America, as well as in the highly-charged negotiating rooms of the United Nations and the reflective atmosphere of IWGIA's own recent conference on climate change. The authors show how indigenous peoples are struggling to fight the loss of biodiversity, and how they are pondering strategies of adaptation. But beyond the social, cultural and economic impacts of physical and biophysical change, indigenous peoples are also negotiating their way around a rapidly shifting climate change policy environment. The articles in this issue, while giving a sense of what indigenous peoples are seeing, witnessing and experiencing, also go beyond descriptions about the impact

of climate change on indigenous peoples. Several authors focus on how global agreements, political processes, adaptation discussions, and mitigation measures, as well as policy processes and restrictive regulations can hinder indigenous peoples in their aim to respond to climate change.

Indigenous peoples must be assured that they will play a key role in the regional and global dialogues that will determine the kind of responses to climate change and the social and economic changes that will take place in their homelands. Recognition of human, cultural, and linguistic rights of indigenous peoples is a prerequisite for their effective participation in policy discussion and contribution to international decision-making that will influence new forms of economies, patterns of global consumption, governance and livelihoods necessary to meet the challenge of climate change. ❑

Notes

Clift, Peter and R. Alan Plumb (2008): *The Asian Monsoon: causes, history, effects*. Cambridge: Cambridge University Press

Stainforth, D.A., M.R. Allen, E.R. Tredger and L.A. Smith (2007): Confidence, uncertainty and decision-support relevance in climate predictions. *Philosophical Transactions of the Royal Society* 365: 2145-2161.

ACIA (2005): *Arctic Climate Impact Assessment: scientific report.* Cambridge: Cambridge University Press

NEWS FROM IWGIA

In late March, the Human Rights Council adopted, without a vote, the list of candidates for the special procedures mandate holders proposed by the President of the Council. The list includes the name of the new Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people, Professor S. James Anaya. He will be replacing Prof. Rodolfo Stavenhagen.

Professor Anaya has been recognized as one of the world's leading human rights advocates and legal scholars for many years. His advocacy and legal work on behalf of indigenous communities has garnered worldwide attention. Anaya has an extensive list of publications, many of which are considered the seminal writings in the field.

IWGIA would like to congratulate Professor James Anaya on his appointment as new United Nations Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people. We are convinced that James Anaya will make full use of his expertise and experience in his new and important position, and we look forward to collaborating with Mr Anaya in the future.

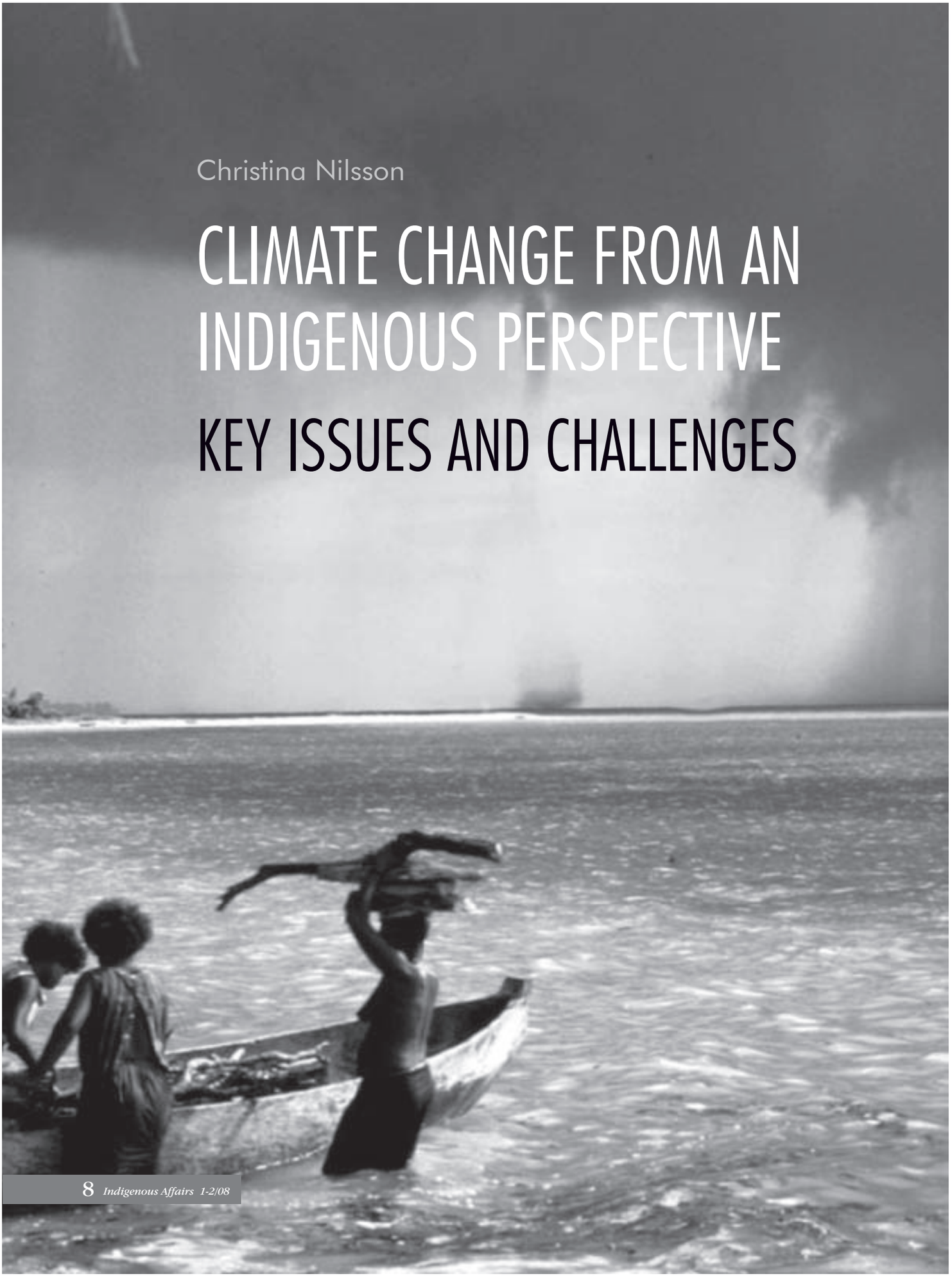
Another important event is the re-establishment of the international Chittagong Hill Tracts Commission (CHT Commission) with a renewed mandate on 1 June 2008 during a two-day meeting in Copenhagen, Denmark. The core mission of the re-established CHT Commission is to promote respect for human rights, democracy, and restoration of civil and political rights, participatory development and land rights in the Chittagong Hill Tracts in Bangladesh. The Commission considers the implementation of an equitable system of land title registration, and of settlement of land rights disputes, to be the key to a peaceful and harmonious future for the peoples of the CHT. The CHT Commission is composed ofcomprises concerned experts from inside and outside Bangladesh and will build on the work already undertaken by the original CHT Commission between 1990 and 2001. The CHT Commission members elected Ms. Sultana Kamal, Ms. Ida Nicolaisen and Lord Eric Avebury as co-chairs of the re-established CHT Commission.

In May 2008, IWGIA participated in the 43rd session of the African Commission on Human and Peoples' Rights, that was held in Swaziland. IWGIA continues to render support to the African Commission to enable it to further develop its work on promoting and protecting the rights of indigenous peoples. A major three-year programme aimed at strengthening the work of the African Commission's Working Group on Indigenous Populations has recently been completed, and a new three-year programme is expected to be initiated soon. ❑

Christina Nilsson

CLIMATE CHANGE FROM AN INDIGENOUS PERSPECTIVE

KEY ISSUES AND CHALLENGES



In February 2008, the International Work Group for Indigenous Affairs (IWGIA) organised and held a two-day conference on "Indigenous Peoples and Climate Change", in Copenhagen, Denmark. The conference was considered as part of the preparations for IWGIA's input to the 7th session of the UN Permanent Forum on Indigenous Issues[1] as well as the UN Climate Change Conference (COP 15) in Copenhagen in 2009.

Sixty people – indigenous peoples' representatives, Danish Foreign Ministry staff, Greenland Home Rule representatives, development practitioners and members of IWGIA – participated in the conference. The event focused on the key issues facing indigenous peoples in the context of climate change, including the human rights aspects. The discussions went beyond the observations and impacts of climate change and looked at how global mitigation policies, political processes and regulations facilitate or prevent indigenous peoples in their efforts to respond and adapt to climate change. This article summarises the discussions held during the conference and the key issues identified.

Indigenous peoples and climate change

Regional and global assessments confirm that the Earth's climate is changing. Current and projected levels of exposure to climate-related sensitivities, as well as limits and restrictions to adaptive capacity, mean that some environments and peoples are more exposed to climate change and are significantly more vulnerable to its impacts and long-term consequences than others.

Indigenous peoples depend on natural resources for their livelihood and they often inhabit diverse but fragile ecosystems. At the same time, indigenous peoples are among the world's most marginalized, impoverished and vulnerable peoples. Hence, while indigenous peoples bear the brunt of the catastrophe of climate change, they have minimal access to resources to cope with the changes.

For indigenous peoples around the world, climate change brings different kinds of risks and opportunities, threatens cultural survival and undermines indigenous human rights. The consequences of ecosystem changes have implications for the use, protection and management of wildlife, fisheries and forests, affecting the customary uses of culturally and economically important species and resources.

Despite the impact of climate change on indigenous peoples and their traditional knowledge, international experts most often overlook the rights of indigenous peoples as well as the potentially invaluable contributions that indigenous peoples' traditional knowledge, innovations and practices can bring to the global search for climate change solutions. As the global discourse on climate change focuses on understanding how we can scientifically and technologically adapt to, as well as mitigate climate change, indigenous peoples are faced with the prospect of climate change further challenging their abilities to adapt to and cope with environmental and social changes.

Increasingly, international and national climate change mitigation strategies pose an additional threat to indigenous peoples' territories and coping strategies. When the development of hydro-electricity is suggested as part of a government's mitigation strategy, it often involves removing indigenous peoples from their traditional lands and territories. Monocrop plantations for agro-fuels affect the ecosystem, the water supply and the whole anatomy of the landscape on which indigenous peoples depend.

Additionally, a number of national and international mitigation institutions have been created – institutions which do not necessarily take into consideration the views and interests of indigenous peoples but which indigenous peoples, nevertheless, have to relate to and negotiate with.

Climate change in the global context

Despite having contributed the least to greenhouse gas emissions, indigenous peoples are the ones most at risk from its consequences due to their dependence upon and close relationship with the environment and its resources. Their livelihood systems are often vulnerable to environmental degradation and climate change, especially as many indigenous peoples inhabit economically and politically marginal areas of fragile ecosystems in the countries likely to be worst affected by climate change. Massive changes in ecosystems are occurring and have in many cases been accompanied by opportunistic resource exploitation. To indigenous peoples, this means that climate change is not something that comes in isolation; it magnifies already existing problems of poverty, marginalization and non-inclusion in national and international policy making processes and discourses.

In some cases, climate change also has the potential to bring opportunities for indigenous peoples for industrial development, resource extraction and

(left) Cyclone hitting the Solomon Islands – Photo: IWGIA archive

IWGIA conference on "Indigenous Peoples and Climate Change" - Photo: Espen Wæhle

transport. The opening of the Arctic Ocean and the North West Passage due to the melting of sea ice are cases in point where some indigenous peoples see the reduction of ice cover as providing economic opportunities, e.g. as minerals become accessible, and thus as a way for Greenland to gain greater autonomy and even possible independence from Denmark. However, such developments intensify the question of indigenous peoples' rights to land and sea and to be involved as partners in the design of new activities affecting their territories.

Some indigenous groups have expressed optimism in adapting to climate change because the increased demand for renewable energy from wind and solar energy could make indigenous lands an important resource for such energy, replacing fossil fuel-derived energy and limiting greenhouse gas emissions. The focus on initiatives to combat climate change could also prove to be an opportunity if part of the substantial amount of funding is made available for indigenous peoples to, for example, participate in the development of adaptation initiatives and forest and biodiversity conservation. It is important that indigenous peoples start engaging in these initiatives and try to influence their design and implementation to ensure that their interests are taken into account

Climate change: a human rights issue

To indigenous peoples, climate change is not simply a matter of physical changes to the environments in which they live. Many consider climate change a threat to their livelihoods and they fear that their economy and resource use will be threatened, followed by an erosion of social life, traditional knowledge and cultures. Climate change brings additional vulnerabilities to indigenous peoples, which add to existing challenges, including political and economic marginalization, land and resource encroachments, human rights violations and discrimination. The potential threat of climate change to their very existence, combined with various legal and institutional barriers that affect their ability to cope with and adapt to climate change, makes climate change an issue of human rights and inequality to indigenous peoples – not merely an environmental issue.

Legal and institutional barriers

Indigenous peoples are experiencing local manifestations of climate change and find their livelihoods and cultures threatened because various legal and institutional barriers reduce their ability to respond. These legal and institutional barriers include the following:

(right) Drought in Kenya leaving Pastoralist communities to struggle for survival – Photo: MPIDO

- Indigenous peoples have been marginalized, isolated and excluded from key international decisions and processes, although their right to participate in decision-making is confirmed in the UN Declaration on the Rights of Indigenous Peoples and Agenda 21.
- Indigenous peoples' rights are not recognized when national and international climate change policies and initiatives are designed and implemented. In some cases, these policies and initiatives lead to, for example, the eviction of indigenous peoples from their traditional lands.
- Inappropriate policies mean that, for example, pastoralists are provided with maize when what they really need is restocking of their livestock.
- The recognition of indigenous peoples' rights is, in some cases, linked to past livelihood practices and these rights are not being adjusted to climate changes. Climate change has affected certain animals' migration and breeding patterns in the Arctic, which means that Inuit hunters are no longer able to hunt these species because the hunting seasons are not being changed by the authorities.
- Territorial limitations prevent mobility, for example as experienced by East African pastoralists and Saami reindeer herders.
- Indigenous peoples lack access to information as well as technology and resources to tackle the causes of climate change and adapt to its impacts. Long-term adaptation to climate change requires anticipatory actions, which would require considerable investment of capital, labor and time and, in many indigenous regions of the world, there are already constraints on resources and a lack of access to technology.

Participation in international climate change processes

Indigenous peoples recognise the importance and urgency of developing policies and schemes to address climate change. Most of the concerns and protests raised by indigenous peoples relate to the violation of

Burning bush in Central Kalahari Game Reserve, Botswana – Photo: Christian Erni

their internationally-recognised rights to involvement and the consequences for decision-making and implementation.

Despite the fact that climate change is impacting intensely on indigenous peoples, they are very rarely considered in public discourse on climate change. In the national, regional and international processes, such as the UN Framework Convention on Climate Change (UNFCCC), where climate change mitigation policies are discussed, negotiated and designed, indigenous peoples have found it very difficult to get their voices heard and their concerns taken into consideration. Unlike the Convention on Biological Diversity (CBD), where the International Indigenous Forum on Biodiversity (IIFB) is an advisory body to the Convention, the UNFCCC is not providing similar space for indigenous peoples. In addition to the obstacles to their participation and influence, most indigenous peoples find the UNFCCC too scientific and difficult to understand and are not aware of the various processes in the UNFCCC such as the Clean Development Mechanisms (CDM), carbon emissions trading and Reduced Emissions from Deforestation and Degradation (REDD).

The many climate change mitigation and adaptation policies and schemes currently being developed are likely to have impacts on indigenous peoples' tenure security, livelihoods and economies because their rights are not sufficiently taken into account. Despite the danger of further undermining their livelihoods, indigenous peoples are not sufficiently involved, which means that the legal and institutional framework guiding climate change initiatives potentially reinforces inequalities. Hence an important element in mitigation schemes relates to power structures and revolves around questions about who will control the processes and who will benefit from them.

Livelihood and climate change

In many regions, the negative effects of climate change on indigenous peoples' traditional livelihoods are becoming increasingly evident. Indigenous peoples are affected by climate change in multiple ways, with the effects varying according to the different locations and ecosystems in which they live: from diminishing sea ice and shifting animal migration routes in the Arctic, to increased fires in tropical rainforests and reductions in rainfall in temperate ecosystems, to intensified threats to water and food security, increased coastal erosion and forced evictions of communities from their traditional territories. In many instances, indigenous peoples are also affected by the solutions proposed to reverse the negative impacts of climate change, such as the appropriation of indigenous lands to establish oil palm plantations to produce agro-fuels.

Deforestation and forest degradation accounts for up to 25% of global greenhouse gas emissions – Photo: Fernandez/IWGIA

Migration and displacement

In the Pacific, indigenous peoples are being displaced from their traditional lands and territories due to coastal and land erosion caused by large storm-driven waves. However, indigenous peoples are not only being displaced or forced to migrate due to the effects of climate change but also as a result of initiatives and policies to address climate change and the loss of biodiversity. There is a high correlation between the location of indigenous territories and the areas with the highest biodiversity. The focus on biodiversity protection and renewable energy has led to a dramatic increase in the establishment of protected areas on indigenous peoples' traditional lands and territories, resulting in restrictions on resource use and, in some cases, resettlement. A case in point is Tanzania, where indigenous pastoralists have been forcibly evicted from their traditional land in the Usangu plains due to the creation of a national park to protect a water catchment area that will provide water for a hydropower plant. The affected families were neither compensated nor provided with essential amenities.

Food and water security

As a result of climate change, some regions experience frequent and prolonged droughts while other areas are affected by increased and unpredictable precipitation leading to flooding. In both cases food security is undermined and vulnerability is increased. Fresh water supply is threatened by the increase in the frequency of droughts and the incursion of seawater into flood prone and coastal areas. In Kenya and Tanzania, these extreme weather conditions lead to crop failure, scarcity of pasture, livestock deaths and conflicts over scarce resources, which destroy traditional livelihoods, cause economic losses and make indigenous peoples dependent on emergency food and water relief. In the Himalayan region and in the high Andes, glaciers are melting due to an increase in temperature, which affects agriculture and the natural resources on which indigenous peoples depend. In the Amazon region, climate changes due to deforestation, forest fragmentation and the transformation of tropical rainforest into dry grassland savannah leads to critical loss of biodiversity and severe droughts and has put indigenous livelihood strategies under increased stress.

Traditional knowledge and culture

Climate change has a harmful effect on biological diversity and the related knowledge, innovations and practices of indigenous peoples. Traditional knowledge is an inseparable part of indigenous culture, social structures, economy, livelihoods, beliefs, traditions, customs, customary law, health and their relationship to the local environment. With unprecedented climate changes, cultural institutions, authorities and livelihood strategies come under increased stress

as knowledge based on known indicators and patterns becomes inadequate to cope with the changes. In the Himalayan region, many glacial lakes are on the verge of bursting due to the increase in water from the melting glaciers. Glacial lakes have cultural, religious and spiritual value for indigenous peoples but the danger these lakes now pose in terms of flash floods and landslides means that indigenous peoples in the region have lost important sites for worship.

Adaptation and mitigation

Indigenous peoples must not be seen as passive and helpless victims of climate change. They are active in maintaining the ecosystems in which they live and can play an important role in enhancing ecosystem resilience. Being dependent on a natural resource base that has always to a certain extent been unstable and unpredictable means that indigenous peoples have always adapted to changing environments. Indigenous peoples observe, interpret and react to climate change impacts in creative ways, drawing on traditional knowledge and other technologies to find solutions. Since climate change affects indigenous peoples differently depending on the environments in which they live, the adaptation strategies are just as diversified. The adaptation strategies include selecting animal breeds and combining animals suitable for the environment, diversifying economic activities, changing crop varieties and farming in higher altitudes.

In spite of a long history of adapting to changing environmental conditions, indigenous peoples today realise that their traditional and other tried and tested coping strategies alone are no longer sufficient to cope with the intensity and frequency of current climate changes. They also see their adaptation possibilities and abilities hampered by limited resources, lack of technology and various legal and institutional barriers. Climate change must therefore be seen in the wider context of indigenous peoples being among the world's most marginalized, impoverished and vulnerable people. Climate change magnifies already existing problems because the unprecedented changes in the environment and natural resource base and policies to address these changes erode indigenous peoples' adaptive capacity and community resilience.

An important programme to learn from in terms of involving indigenous peoples and their traditional knowledge in climate change adaptation initiatives is the Ealát Network Study, which aims to prepare reindeer herders and national authorities in the Arctic for climate change and find adaptation strategies that integrate indigenous traditional knowledge and scientific knowledge.[2]

Recommendations

In order to overcome the above-mentioned challenges facing indigenous peoples' ability to respond to climate change adequately and effectively, the participants in IWGIA's conference adopted the following recommendations directed at the relevant stakeholders. These recommendations are based on the principles of Agenda 21 and the UN Declaration on the Rights of Indigenous Peoples and stress in particular the indigenous peoples' right to participate and to make decisions based on their free and prior informed consent.

a) To the Danish Government and Greenland Home Rule

- Take a lead in ensuring indigenous peoples' meaningful participation in COP 15 in Copenhagen in 2009, including in the meetings and negotiation processes leading up to COP 15 in Copenhagen and in other climate change meetings and negotiation processes leading up to the 2012 agreement;
- Ensure that the official *Strategy for Danish support to Indigenous Peoples* is implemented in the government's commitment and initiatives to address climate change; and
- Support indigenous peoples' own initiatives to develop mechanisms on how to cope with, adapt to or mitigate the effects of climate change on their livelihoods and environments.

b) To governments and inter-governmental institutions (UN agencies, the World Bank Group and regional development banks)

- Ensure full and effective participation of indigenous peoples in the conception, design and implementation of sustainable solutions to combat climate change. Indigenous peoples' right to participate has been confirmed by Agenda 21 and, most recently, in Article 18 of the UN Declaration on the Rights of Indigenous Peoples;
- Ensure the full and effective participation of indigenous peoples in the UN Framework Convention on Climate Change, including in the

meetings and negotiation processes leading up to COP 15 in Copenhagen;
- Make binding commitments to ensure that climate change policies and programmes potentially affecting indigenous peoples are in full conformity with and promote the implementation of international human rights standards, including the UN Declaration on the Rights of Indigenous Peoples and the principles of Free, Prior and Informed Consent. This commitment must encompass all multi- and bilateral agreements and initiatives on climate change;
- Make binding commitments specifically to ensure that all agreements made under the UN Framework Convention on Climate Change are in full conformity with and promote the implementation of international human rights standards, including the UN Declaration on the Rights of Indigenous Peoples and the principles of Free, Prior and Informed Consent;
- Develop mechanisms to avoid ill-conceived climate change mitigation policies and schemes that risk violating the rights of indigenous peoples;
- Respect and take into account indigenous traditional knowledge when identifying and designing climate change mitigation policies and programmes;
- Refrain from supporting policies and programmes that lead to forced eviction of indigenous peoples from their lands and forests in the name of combating climate change;
- Address legal and institutional barriers that prevent indigenous peoples from coping with climate change impacts;
- Develop mechanisms to ensure that information on planned and current mitigation and adaptation schemes is made available to indigenous peoples;
- Support initiatives to conduct participatory and multi-disciplinary research with and among indigenous peoples in the context of climate change; and
- Engage in constructive dialogue with civil society partners, especially with indigenous peoples' organizations.

c) To universities and research institutes

- Allow indigenous traditional knowledge to become an integral part of climate change research while ensuring the full and effective participation of indigenous peoples in the research process;
- Identify and promote best practices and lessons that can influence climate change interventions to have positive impacts on indigenous peoples;
- Conduct participatory and multi-disciplinary research with and among indigenous peoples in the context of climate change; and
- Ensure that relevant research is made available to indigenous peoples and to national, regional and international policy makers.

d) To civil society partners (international and national)

- Support indigenous peoples' meaningful participation in international and national climate change fora;
- Support indigenous peoples' participation in the search for sustainable solutions to combat climate change;
- Support indigenous peoples' capacities to manoeuvre and negotiate with private companies and governments both in national contexts and in international meetings on climate change issues;
- Support indigenous peoples' networking on climate change issues;
- Use the mechanisms of the UN Expert Mechanism on the Rights of Indigenous Peoples under the Human Rights Council and the UN Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people to further research and advocate on indigenous peoples' rights in relation to climate change and climate change policies;
- Facilitate dissemination of relevant research, information and documentation to indigenous peoples and partners;
- Engage in constructive dialogue with sectors involved in climate change e.g. the energy sector and automotive industry; and
- Conduct advocacy and lobbying work with governments, institutions and the private sector to accept and adhere to these recommendations.

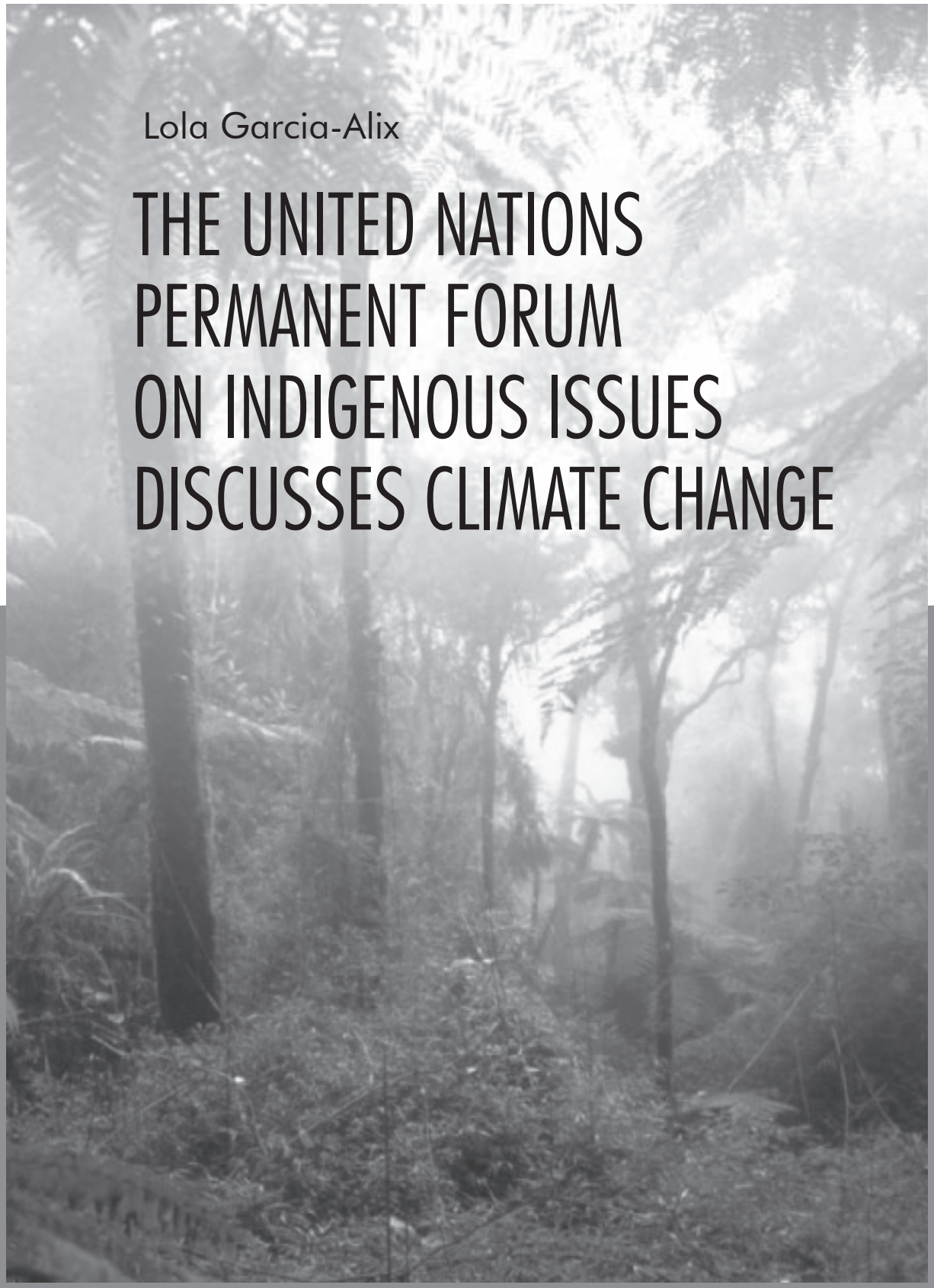
Notes

1 The special theme of this year's session is "Climate change, bio-cultural diversity and livelihoods: the stewardship role of indigenous peoples and new challenges".
2 http://arcticportal.org/en/icr/ealat

Christina Nilsson *holds a Master's degree in international development studies and geography and is IWGIA's focal person on climate change.*

Lola Garcia-Alix

THE UNITED NATIONS PERMANENT FORUM ON INDIGENOUS ISSUES DISCUSSES CLIMATE CHANGE



Annual session of the Permanent Forum on Indigenous Issues in New York – Photo: Pablo Lasansky/IWGIA

The United Nations Permanent Forum on Indigenous Issues (Permanent Forum) was established in 2000 and is an advisory body to the Economic and Social Council with a mandate to discuss indigenous issues related to economic and social development, culture, the environment, education, health and human rights.

The Permanent Forum comprises 16 independent experts, functioning in their personal capacity, who serve as Members for a three-year term and may be re-elected or re-appointed for one additional term. Eight of the Members are nominated by governments and eight are nominated directly by indigenous organizations in their regions. The government-nominated members are elected by ECOSOC in line with the five regional groupings usually followed by the United Nations. The indigenous-nominated members are directly appointed by the President of ECOSOC after consultation with indigenous organisations and states. The indigenous members represent seven socio-cultural regions that are established to give broad representation to the world's indigenous peoples. The regions are Africa, Asia, Central and South America and the Caribbean, the Arctic, Central and Eastern Europe, North America and the Pacific.

The Seventh Session of the Permanent Forum

The Seventh Session of the Permanent Forum was held from 21 April – 2 May 2008 in New York. This was the first session since the adoption of the UN Declaration on the Rights of Indigenous Peoples (UNDRIP or the Declaration), which was adopted by the UN General Assembly in September 2007. Around 3,000 indigenous representatives and other attendees, including parliamentarians, NGOs, academia, representatives of Member States, UN agencies and other inter-governmental organizations participated.

Each year, the Permanent Forum has a special theme and this year it was "Climate change, bio-cultural diversity and livelihoods: the stewardship role of indigenous peoples and new challenges". This article summarises the discussions that took place.[1]

Preparatory activities

Prior to the Permanent Forum session, a number of preparatory meetings were held and various reports prepared on the issue of indigenous peoples and climate change.

(left) Indigenous peoples fear their forests will be taken from them as a consequence of climate change mitigation initiatives such as the protection of carbon sinks – Photo: Christian Erni

Preparatory meetings

In April 2008, a UN international expert meeting on indigenous peoples and climate change was held in Darwin, Australia. The expert meeting discussed the effects of climate change on indigenous peoples, adaptation measures to climate change, carbon projects and carbon trading, and factors that enable or obstruct indigenous peoples' participation in the climate change processes.[2]

A number of regional preparatory meetings were held, among others in Asia, Latin America and in the North America Region, at which the indigenous representatives discussed the special theme, prepared statements and strategized on how to ensure that indigenous peoples' concerns are taken into consideration in the climate change discussions.

- The regional meeting in Latin America to prepare for the 7th session of the Permanent Forum was held in Sta. Cruz de la Sierra, Bolivia. The meeting focused on issues related to indigenous peoples and climate change as well as the current global discussion on mitigation and adaptation measures. The participants came up with concrete recommendations that were later presented at the session of the Permanent Forum.
- Other meetings included a two-day conference organised by IWGIA on "Indigenous Peoples and Climate Change" in February 2008. The event focused on the key issues facing indigenous peoples in the context of climate change, including its human rights aspects (see the article by Christina Nilsson in this issue).

Reports informing the Permanent Forum discussion on climate change

In September 2007, the Inter-Agency Support Group on Indigenous Issues (AISG)[3] held a meeting on climate change and indigenous peoples and a collated paper was prepared.[4] The paper presents an overview of the impact of climate change on indigenous peoples, particularly the social, cultural, human rights and development impacts, along with the work of the different UN agencies that are part of the AISG on the issue of climate change and indigenous peoples.

In November 2007, the Secretariat of the Permanent Forum prepared an overview paper analysing the threats and challenges faced by indigenous peoples in relation to climate change. The paper notes that, despite the fact that climate change is having a severe impact on indigenous peoples, they are very rarely considered in public discourse on climate change. It concludes that, given past experiences of adjusting to environmental and socio-economic changes, an assessment of the adaptive capacity of indigenous peoples and their communities must take into account not only their inherent resiliences, but also differential rights, discrimination and other social processes that limit access to resources, power and decision-making.[5]

At its Sixth Session, the Permanent Forum appointed Victoria Tauli Corpuz and Aqqaluk Lynge as special rapporteurs to investigate the impact of climate change mitigation measures on indigenous peoples and on their territories and lands. The report (E/C.19/2008/10) summarizes the effects of climate change on indigenous peoples and includes a review of the impacts of mitigation and adaptation measures. The report concludes that there are many strategies that can be used effectively to mitigate climate change and to facilitate adaptation to climate change, such as sustainable forest management and sustainable agriculture, but that these strategies need to take into account ecological and human rights dimensions in order to ensure that indigenous peoples are not further adversely affected by climate change and its proposed solutions.[6]

Opening session

In the first-ever address to the Forum by a Head of State, President Evo Morales of Bolivia urged the Permanent Forum to develop a model for "how to live well", in order to counter an economic system in which a thirst for wealth had overwhelmed a sense of respect for sustainable living. With regard to the session's special theme on climate change, President Morales focused much of his address on the notion of Mother Earth as the wellspring of life, to be cherished and respected rather than treated as a tradable commodity. Indigenous peoples have the moral authority to shape a new model for living based on that philosophy, he stressed, having lived closely with Mother Earth and defended it over the ages.

President Morales' opening speech was followed by a video message from the United Nations Secretary-General Ban Ki-moon, in which he applauded the choice of climate change as the special theme, stating that indigenous peoples "can and should play a role in the global response" due to their accumulation of first-hand knowledge on the impacts of environmental degradation, including climate change. Indigenous peoples know the economic and social conse-

quences, and they can and should play a role in the global response.

In her opening intervention, the Permanent Forum's Chair Victoria Tauli-Corpuz said that climate change is a major concern to indigenous peoples all over the world, not only because they are affected by both the problem and the solutions but, more importantly, because of the contributions they can make to mitigate it and the ways they are adapting to it. She said that she regarded climate change as the ultimate evidence of how unsustainable the dominant development model is and the strongest argument as to why indigenous peoples should radically change the unsustainable consumption and production systems perpetuated in their midst. While indigenous peoples have adapted to climate change for thousands of years, the magnitude and accelerated pace of climate change in this present era is unprecedented, presenting major challenges to indigenous peoples' capacity to adapt. This is not only because of the magnitude of the impacts but also because support from the international community has not been forthcoming. As stewards of the world's biodiversity and cultural diversity, and with their traditional livelihoods and ecological knowledge, indigenous peoples can significantly contribute to designing and implementing more appropriate and sustainable mitigation and adaptation measures. Victoria Tauli Corpuz also said that indigenous peoples could help craft the path towards developing low-carbon and sustainable communities.

Dialogue with governments and UN agencies

In the dialogue with governments, government representatives acknowledged that climate change poses a threat to indigenous livelihoods and that capacity building and more research into the impacts on indigenous peoples is needed urgently. Despite being most adversely affected, indigenous peoples are only rarely consulted in discussions on climate change. Numerous governments emphasized indigenous peoples' roles as primary actors on the frontline of climate change and fragile ecosystems, and argued that they should be included in climate change planning as their traditional knowledge could help to confront the challenge of widespread environmental degradation.

The UN agencies were almost unanimous in reporting on their efforts to implement the provisions of the UNDRIP and on their plans to use the Declaration as a framework for formulating their future programmes for indigenous peoples, including on the issue of climate change. This year, 17 UN agencies made written submissions to the Permanent Forum, which is an important milestone on the path towards enshrining the provisions of the Declaration in customary international law, thus strengthening its binding nature.[7]

In the numerous statements from the various regional and thematic caucuses, as well as the collective statements, indigenous peoples told very similar stories of how they have the smallest ecological footprint and yet are the most severely affected by the adverse effects of climate change due to their dependence upon and close relationship with the environment and its resources. They emphasised that climate change exacerbates the difficulties already faced by indigenous communities, including political and economic marginalization, loss of land and resources, human rights violations, discrimination and unemployment.

They also raised concerns over the solutions to climate change currently being offered by the international community as they tend to overlook the rights of indigenous peoples. Indigenous peoples therefore called for the implementation of the UNDRIP as an effective response to climate change. The main issues that arose during the dialogue included the effects of climate change on indigenous peoples' human rights, concerns over proposed climate change mitigation initiatives and a call to the industrialized countries to reduce their greenhouse gas emissions.

The effects of climate change on indigenous peoples' human rights

Indigenous peoples stressed that the UN system and governments should recognise the critical importance of the effects of climate change on indigenous peoples' human rights. Indigenous peoples see the negative impacts of climate change on their land, forest and marine resources as a matter of life and death. The growing impact of climate change which, in some cases, has led to the loss of lives and has forced indigenous peoples to leave their lands, is a violation of the rights of indigenous peoples to self-determination along with an entire range of other fundamental rights.

Climate change mitigation initiatives

Indigenous peoples expressed concern with both the problem of climate change and the proposed solutions. They also criticised the fact that they were not invited by the UN Framework Convention on Climate Change (UNFCCC) to participate in creating a new

Glaciers are melting in Nepal Himalaya– Photo: Marianne Olesen

Extreme weather conditions are more frequent as a consequence of climate change – Photo: IWGIA archive

climate change framework and the closed-door environment that prevails in the meetings of the UNFCCC, including those concerning the Kyoto Protocol. Indigenous peoples, as stewards of biological diversity and with their traditional knowledge, could contribute significantly to identifying proper and sustainable solutions as opposed to the present market-based solutions such as carbon trading and agro-fuels production, which are questionable both ethically and environmentally because they violate the rights of indigenous peoples and often result in more greenhouse gas emissions.

Indigenous peoples also expressed concern at the Clean Development Mechanism (CDM) projects, some of which have caused the deaths of indigenous peoples who refused to hand over their territories for the purpose specified in the projects, as well as the recently adopted programme on Reducing Emissions from Deforestation and Forest Degradation (REDD), which makes no reference to indigenous peoples' rights. Carbon trading has turned the Earth into a commodity while the promotion of agro-fuel production, monotree plantations and other similar initiatives are countering the efforts to find sustainable solutions by contributing to further environmental degradation.

Indigenous peoples therefore urged the world's decision-makers to show caution when planning climate change mitigation strategies. Despite having contributed the least to the acceleration of climate change, many indigenous peoples are bearing the brunt of misguided mitigation measures when, for example, hydro-power plants are flooding their lands, geothermal plants are displacing their sacred sites and nuclear power plants are affecting their health.

The industrialised countries must act

Indigenous peoples stressed that the industrialised countries are responsible for global climate change, with their wastefulness and over-consumption. The polluter, i.e. the industrialised countries, must take responsibility for their share of the harm that climate change has brought to indigenous peoples' lives and prevent further acceleration of climate change by developing a respect for the world and its environment.

Indigenous peoples also expressed concern at the fact that industrialised countries promote the reduction of greenhouse gas emissions in developing countries as a precondition for taking responsibility for reducing emissions at home. The industrialised countries must demonstrate leadership by reducing emissions within their own borders and committing to substantial emissions reductions.

The recommendations of the Permanent Forum on climate change

Based on the dialogues with UN agencies, governments and indigenous peoples, and the recommendations presented in their statements, as well as the reports from the preparatory activities, the Permanent Forum members made their general observations on the issue of climate change and indigenous peoples.

The Permanent Forum noted that the unprecedented magnitude, accelerated pace and compound effects of climate change today present major challenges to indigenous peoples. Further, some of the mitigation measures seen as solutions to climate change are having negative impacts on indigenous peoples. As stewards of the world's biodiversity and

Glacial lakes are bursting in Nepal Himalaya – Photo: Kamal Rai

Qassiarsuk, South Greenland - Photo: Mark Nuttall

cultural diversity, indigenous peoples have ecological knowledge and experiences of adapting to a changing environment that could significantly contribute to designing and implementing holistic, appropriate and sustainable mitigation and adaptation measures. Indigenous peoples can also assist in crafting the path towards developing low-carbon release and sustainable communities.

The mechanisms designed to fight climate change must respond to the needs of indigenous peoples and include them as partners in designing and implementing programmes that are responsive to local problems and to the goals and visions of indigenous peoples. A human rights-based approach to development and an ecosystem approach should therefore guide the design and implementation of local, national, regional and global climate policies and projects.

At the conclusion of its seventh session, members of the Permanent Forum issued clear recommendations on a range of areas, including climate change, which are contained in their report on the Seventh Session.[8] The Permanent Forum made general recommendations and recommendations related to participation, adaptation and mitigation, which must be implemented in accordance with the principles and rules of the UNDRIP.[9]

General recommendations

- The discussions and negotiations on climate change should respect the rights of indigenous peoples to nurture and develop their traditional knowledge and their environment-friendly technologies.
- The UNDRIP should serve as a key and binding framework in the formulation of plans for development and should be considered fundamental in all processes related to climate change at the local, national, regional and global levels. The safeguard policies of the multilateral banks and the existing and future policies on indigenous peoples of UN bodies and other multilateral bodies should be implemented in all climate change-related projects and programmes.
- States, UN agencies, bodies and funds, other multilateral bodies and financial institutions and other donors are urged to provide technical and financial support to protect and nurture indigenous peoples' natural resource management, environment-friendly technologies, biodiversity and cultural diversity and low-carbon, traditional livelihoods (pastoralism; rotational or swidden agriculture; hunting/gathering and trapping; marine and coastal livelihoods; high mountain agriculture; etc.).
- In relation to research, further studies into the impacts of climate change and climate change responses on indigenous peoples should be undertaken by the United Nations University Institute of Advanced Studies, university research centres and relevant UN agencies. Two members of the Permanent Forum were appointed as special rapporteurs to prepare a report on various models of and best practices for mitigation and adaptation measures undertaken by indigenous peoples from various parts of the world.
- States responsible for major sources of pollution and emission of greenhouse gases are

urged to be accountable by enforcing and upholding stricter global pollution regulations that will apply to polluting parties.
- It is recommended that States develop mechanisms by which they can monitor and report on the impacts of climate change on indigenous peoples, mindful of their socio-economic limitations as well as spiritual and cultural attachment to lands and waters.

Participation

- The UNFCCC and relevant parties are urged to develop mechanisms for indigenous peoples' participation in all aspects of the international dialogue on climate change, particularly the forthcoming negotiations for the next Kyoto Protocol commitment period, including by establishing a working group on local adaptation measures and traditional knowledge of indigenous peoples.
- States are called upon to ensure that indigenous peoples who are undertaking their own mitigation measures are provided with policy support, technical assistance, funding and capacity-building in order to deepen their knowledge of climate change and enable them to implement more effective mitigation and adaptation strategies.
- The Intergovernmental Panel on Climate Change (IPCC) is requested to undertake a specific assessment of the opportunities and threats for indigenous peoples arising from the various greenhouse gas emission strategies that are currently in place and will potentially come into operation to mitigate the impacts of climate change and it is requested that this assessment be undertaken with the full and effective participation of indigenous peoples around the world.
- Indigenous academics, scientists and traditional knowledge holders are urged to organize their own processes to consolidate their knowledge and experiences of climate change science into a report that can feed into the IPCC, the UNFCCC and the Permanent Forum.

Adaptation and mitigation

- It is recommended that the UNFCCC, in cooperation with States, provide adaptation funds to indigenous peoples affected by climate change-related disasters. Indigenous peoples whose lands have already disappeared or have become uninhabitable or spoilt due to seawater rise, floods, droughts or erosion, and who have thus become environmental refugees or displaced persons, should be provided with appropriate relocation with the support of the international community.
- States, the World Bank and other multilateral and bilateral financial institutions are urged to consider alternative systems beyond the perpetuation of highly centralized fossil-fuel-based energy supplies and large-scale bioenergy and hydropower dams and increase their support for renewable, low-carbon and decentralized systems.
- The recommendations and proposals that emerged from the consultations of indigenous peoples and the World Bank on the Forest Carbon Partnership Facility (FCPF) and other carbon funds, such as the BioCarbon Fund, should be implemented by the World Bank and other relevant agencies. Indigenous peoples should be effectively involved in the design, implementation and evaluation of the FCPF. Displacement and exclusion of indigenous peoples from their forests, which may be triggered by projects funded by the FCPF, should be avoided at all costs. Indigenous peoples or their representatives should have a voice in and a vote on the decision-making body of the FCPF and other climate change funds that will impact on them. In the case of those who opt not to participate in reducing emissions from deforestation and degradation or in the projects supported by the FCPF, their choice should be respected. The Permanent Forum also calls on all parties to ensure that the UNDRIP is implemented when undertaking these processes.
- It is recommended that the renewed political focus on forests, stimulated by current policy debates on REDD under the UNFCCC, be used to help secure the rights of indigenous peoples living in forests and reward their historical stewardship role and continuing conservation and sustainable use of forests. According to the principle of free, prior and informed consent, indigenous peoples must not be excluded, and should be centrally involved in and benefit from deciding forest policies and programmes at all levels that deliver justice and equity and contribute to sustainable development, biodiversity protection and climate change mitigation and adaptation.

(right) Natural forests in the Himalayan region destroyed due to climate change – Photo: Kamal Rai

- The Permanent Forum notes that the current framework for REDD is not supported by most indigenous peoples. It is argued that existing REDD proposals reinforce a centralized top-down management of forests and undermine indigenous peoples' rights. In order to directly benefit indigenous peoples, new proposals for avoiding deforestation or reducing emissions from deforestation must address the need for global and national policy reforms and be guided by the UNDRIP, respecting rights to land, territories and resources; and the rights of self determination and the free, prior and informed consent of the indigenous peoples concerned.
- The Permanent Forum reaffirms the need for all actors to respect indigenous peoples' right to self-determination and hence to decide on mitigation and adaptation measures on their lands and territories.
- The Permanent Forum calls on indigenous peoples' organizations, UN agencies and NGOs to develop popular education materials on climate change and climate mitigation and adaptation measures and to undertake education and training activities at the local level.

In the context of the discussions related to the Permanent Forum's report and its recommendations on the special theme of climate change, it should be noted that, on the last day of the session, during the adoption of the Permanent Forum's report, the Latin American group raised concerns over the report. The group believed that the report did not reflect their concerns as to the devastating effects of emissions trading and deforestation. On behalf of the Permanent Forum, Victoria Tauli Corpuz responded thoroughly to the concerns raised by the Latin America Group and gave detailed explanations regarding the considerations made by the Permanent Forum on the initiatives for Reducing Emissions from Deforestation and Forest Degradation (REDD), the Clean Development Mechanism (CDM) and the carbon market. Victoria Tauli Corpuz called all participants' attention to several paragraphs in the report which the Permanent Forum members believed reflected the concerns expressed by the Latin American group on this crucial issue. ❑

Notes

1 Further information is available in various Permanent Forum documents at: http://www.un.org/esa/socdev/unpfii/en/session_seventh.html.
2 A summary report and meeting documents from the expert meeting are available at http://www.ias.unu.edu/sub_page.aspx?catID=107&ddlID=650
3 The Inter-Agency Support Group on Indigenous Issues has been established to support and promote the mandate of the UN Permanent Forum on Indigenous Issues within the United Nations system.
4 The collated paper is available at: http://www.un.org/esa/socdev/unpfii/documents/E_C19_2008_CRP.2.doc
5 The paper is available at: http://www.un.org/esa/socdev/unpfii/documents/EGM_cs08_Overview.doc
6 The report is available at: http://daccessdds.un.org/doc/UNDOC/GEN/N08/277/65/PDF/N0827765.pdf?OpenElement
7 Tebtebba Indigenous Information Service UNPFII 7th Session Update No. 5.
8 At the time of writing, only an unedited version of the report was available. The final version will be made available on the Permanent Forum's website: http://www.un.org/esa/socdev/unpfii/en/session_seventh.html
9 The recommendations presented in this article are not the complete list of recommendations made by the Permanent Forum, neither are they given in their entirety. Some of the recommendations have also been merged.

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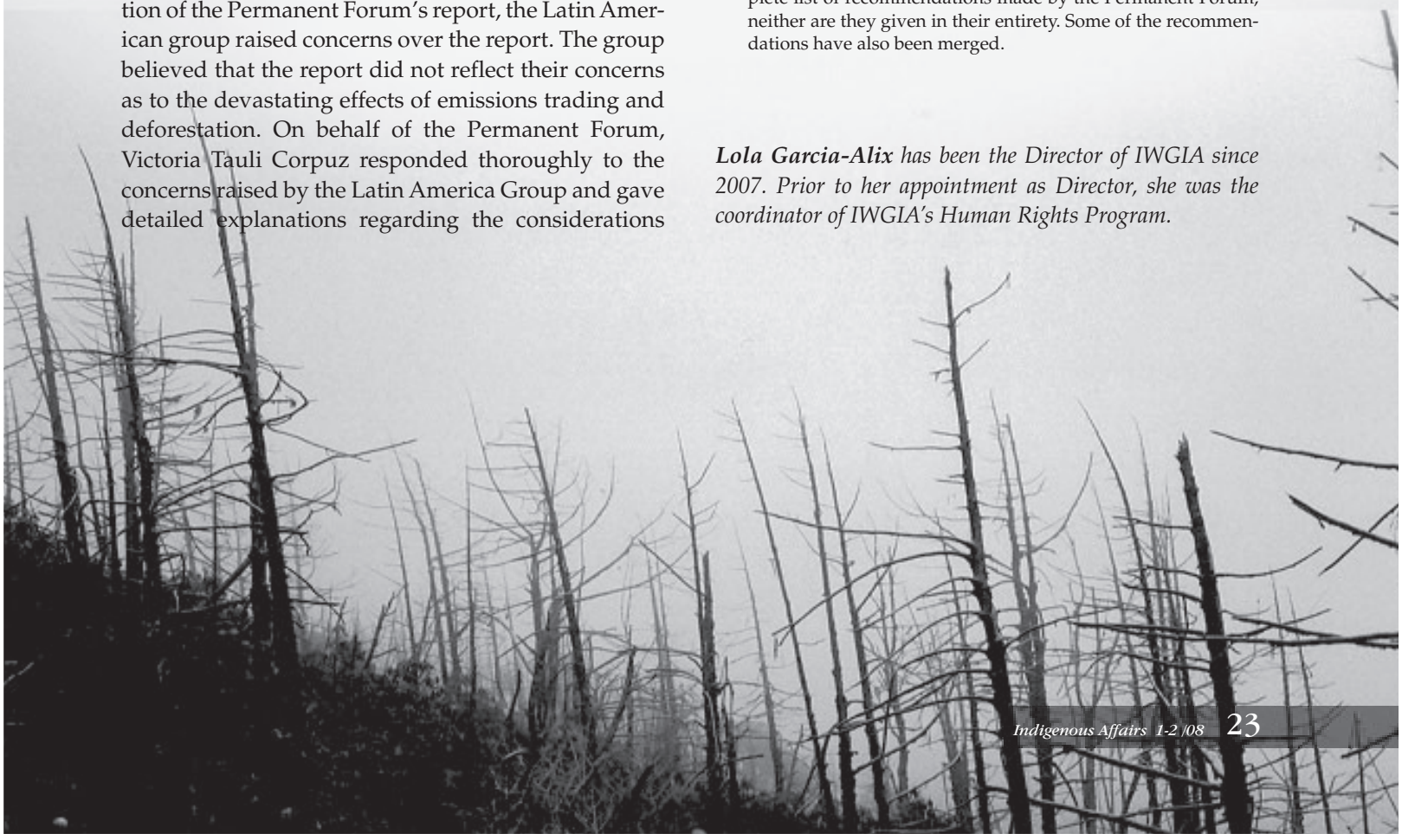


MANY STRONG VOICES

CLIMATE CHANGE AND EQUITY IN THE ARCTIC

John Crump

Melting sea ice in the Arctic - Photo: John Crump

The crisis consists precisely in the fact that the old is dying and the new cannot be born.

Antonio Gramsci[1]

When we unite for a moral purpose that is manifestly good and true, the spiritual energy unleashed can transform us.

Al Gore[2]

Introduction

The Intergovernmental Panel on Climate Change (IPCC) was unequivocal in its 4th assessment report last year: unless there are deep cuts in global greenhouse gas emissions, there will be dramatic effects on water, ecosystems, food supplies, coastal areas and human health. The number of unpredictable extreme weather events will continue to increase.

These effects will not be evenly distributed. There is no equity in climate change impacts. They adversely affect the regions that have produced the fewest emissions; usually these regions are least able to deal with this unprecedented change and are thus the most vulnerable. It is therefore imperative that there should be equity in how the world responds.

Among the most vulnerable regions are the Arctic and Small Island Developing States (SIDS). Within these regions, indigenous peoples constitute the most vulnerable population. This article explores some of the similarities between the Arctic and SIDS as they confront the challenge of climate change. Responses to the effects of climate change in these regions raise important questions of equity. The article examines how this issue of equity is being addressed,

Photos: John Crump

both legally and politically, through an example of a human rights challenge in the Arctic and the development of an alliance between the Arctic and SIDS called Many Strong Voices (MSV).

The Arctic and SIDS are considered barometers of global environmental change and, as such, they will be critical testing grounds for processes and programmes aimed at strengthening the adaptive capacities of human societies. Lessons learned through the Many Strong Voices Programme will support policy processes at the local, regional and international levels, and will provide decision-makers both in the Arctic and SIDS with the knowledge to safeguard and strengthen vulnerable regional social, economic and natural systems.

Links between the Arctic and Small Island Developing States

At first glance, the Arctic and SIDS appear to have little in common. One is cold, the other is mostly hot. One is seen as an empty and pristine wilderness, untouched by human activities or, alternatively, as a storehouse for vast mineral wealth, ripe for exploitation. The other is portrayed in vacation posters as a gentle, tropical paradise where the living is easy, the sun always shines, and the beaches are endless.

But a closer examination reveals some interesting similarities. Both regions are homelands to a diverse number of indigenous peoples who, to varying degrees, have been colonized over the last few centuries. People in both regions continue to rely on natural resources—animals, fish and plants—and the environment. In both regions, traditional knowledge contin-

ues to inform decision-making and many people retain a connection to the environment through a body of traditional knowledge developed over the centuries.

Another more unfortunate similarity is that the effects of climate change are perhaps greater and more noticeable in the Arctic and SIDS than in many other places around the globe. The 2005 Arctic Climate Impact Assessment (ACIA) predicted that the Arctic will feel the effects of climate change sooner and more severely than other regions of the earth.[3] It also emphasized the relationship between Arctic climate change, Arctic biophysical processes and global climate. The 2007 Report of the Intergovernmental Panel on Climate Change echoed and amplified the ACIA findings:

> *"Arctic human communities are already adapting to climate change, but both external and internal stressors challenge their adaptive capacities. Despite the resilience shown historically by Arctic indigenous communities, some traditional ways of life are being threatened and substantial investments are needed to adapt or re-locate physical structures and communities."*[4]

The report also identified similar effects on small islands:

> *"Small islands, whether located in the tropics or higher latitudes, have characteristics which make them especially vulnerable to the effects of climate change, sea-level rise and extreme events. Sea-level rise is expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities."*[5]

In the SIDS, the adverse effects of sea level rise and continued climate change seriously threaten sustainable development. Many small islands are already confronting risks from environmental hazards including coastal flooding, cyclones and storm surges. And on the near horizon is the spectre of populations being forced to abandon their homes for refuge in other countries.

Indigenous observations of climate change in the Arctic and Small Island Developing States

While the scientific consensus on the impacts of climate change on vulnerable[6] regions like the Arctic and SIDS has been building over the last few years, people who live there have long observed environmental changes.

In the Arctic, the nature of these observations are well-illustrated by *Voices from the Bay*, a groundbreaking study which looked at Inuit and Cree experiences in the huge watershed of Canada's Hudson Bay and published by the Canadian Arctic Resources Committee and the Community of Sanikiluaq in 1996. It found that indigenous peoples had been noticing "highly variable" weather in the northwest corner of the bay since the 1940s.

> *"There used to be more clear, calm days, winters were colder, and low temperatures persisted longer. By the early 1990s, weather changes were quick, unexpected, and difficult to predict. Blizzards, for example, would occur on clear days in the Chesterfield Inlet area, but on days when environmental indicators suggested a blizzard, it would not materialize."*[7]

The dilemma of traditional knowledge failing in the light of changing environmental conditions was summed up by Helen Atkinson from the Cree community of Chisasibi, Québec:

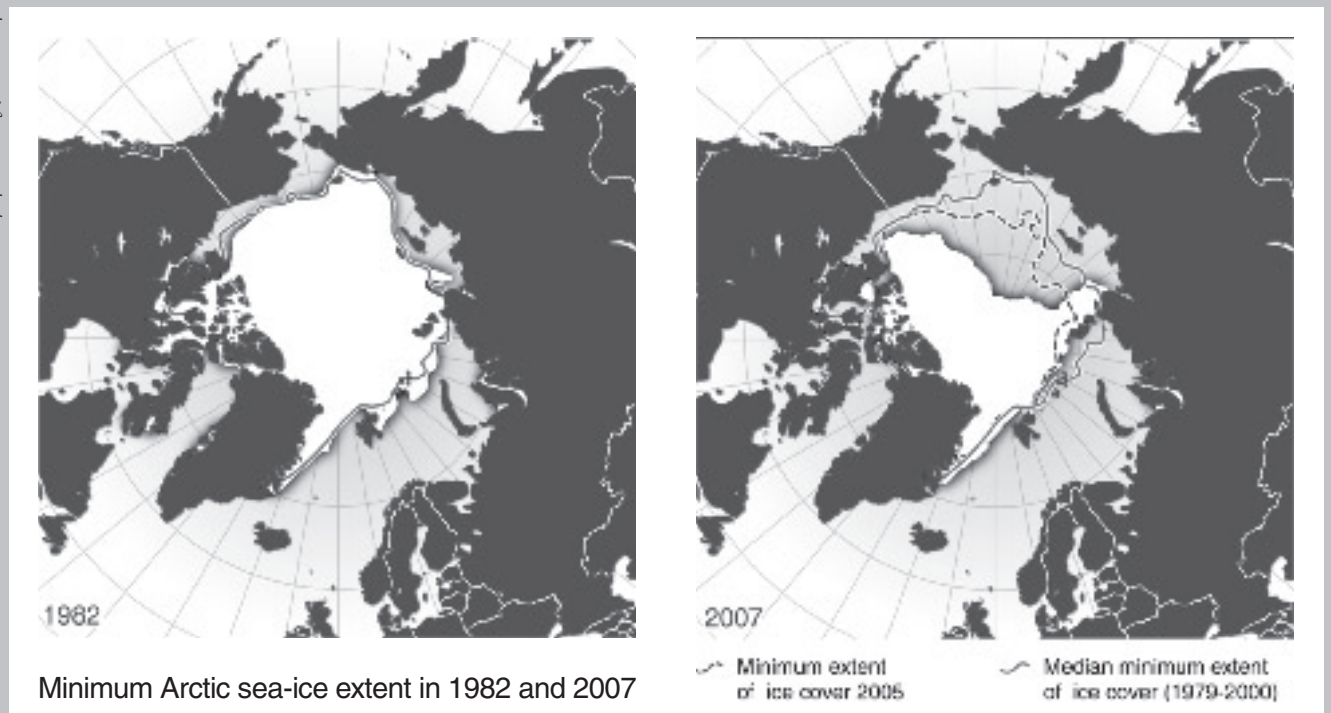
> *"We cannot make predictions anymore. We don't know if the water is going to freeze or not. We used to know what was going to happen at certain seasons but, with all the changes in the climate and different qualities of water, we can't make those predictions anymore."*[8]

SIDS have always been vulnerable to extreme weather events and other environmental disasters and there is increasing recognition of the threat posed by climate change.[9] Like Arctic residents, people in the South Pacific know that climate change is not a future event but a present reality.

> *"The effect of global warming is now being felt in every aspect of the lives of people who live in the Pacific. Reliable statistics now show that the western Pacific is becoming progressively drier while the eastern Pacific is becoming progressively wetter. Where once we could expect steady rainfall throughout the year, we now receive most of our rainfall in a short period often resulting in floods. These floods, followed by droughts, ruin our food supplies and hurricanes leave us without crops for up to three months. They also cause sedimentation in our lagoons."*[10]

Ben Namakin is in his mid-20s and works for the Conservation Society of Pohnpei in Micronesia. He observes:

Maps provided by John Crump



Minimum Arctic sea-ice extent in 1982 and 2007

"During my childhood days in Kiribati, we never experienced severe sea flooding. There were storms, but they weren't that bad. As the sea levels continue to rise in Kiribati, several king tides hit the island. Saltwater intrusion affects the quality of water in wells, floods taro patches, gardens, and puts stress on plants/trees which are very important to the life and culture of an I-Kiribati. . . . Serious storm surges cause coastal erosion, floods grave yards, and in 2006, led to the collapse of the beautiful Dai Nippon causeway. This incident bore huge costs on the people of Kiribati. They had to build new homes with their own finance, and dig up their deceased relatives from their graves and bury them further inland."[11]

This kind of local knowledge and observation is important to developing a complete picture of what is happening in vulnerable regions. The ACIA report, sponsored by the Arctic Council, recognized this and was a landmark study in two significant ways: first, it brought together the latest scientific research and analysis and looked at the implications of climate change on a single region of the Earth. Second, it incorporated the observations and traditional knowledge of the Arctic's indigenous peoples. The ACIA showed clearly that the rate of climate-induced change in the Arctic was twice that of the rest of the world.[12] While the Arctic has the lowest greenhouse gas emissions of just about anywhere on the planet, the report indicated that the highest price will be paid by the Arctic's indigenous peoples, many of whose cultures are directly threatened by these rapid climatic changes.[13]

Indigenous peoples' observations were systematically integrated into the ACIA, making it the first such study to recognize the value of indigenous knowledge. The report's authors ensured that local voices were heard and local information was incorporated in the final results. From northern Russia to Alaska to the Canadian Arctic, Greenland and Sapmi, where the indigenous Saami have traditionally herded reindeer throughout the northern parts of Norway, Sweden, Finland and the Kola Peninsula in Russia, people were reporting changes that were affecting the very structure of their lives and threatening their economic and cultural survival. A reindeer herder talked about the uncertainty.

"Our income diminishes because of climate change, of course, and in a very drastic way. Even my wife has said that it would be time to forget the reindeer. But I tell her always: 'Tamara, we depend on these reindeer. If there are no reindeer, we have nothing to do here either.'"[14]

Uusaqqak Qujaukitsoq is a hunter in northern Greenland. He described the changes in his region:

"Sea-ice conditions have changed over the last five to six years. The ice is generally thinner and is slower to form off the smaller forelands. The appearance of aakkarneq ("ice thinned by sea currents") hap-

pens earlier in the year than normal. Also, sea ice, which previously broke up gradually from the floe-edge towards land, now breaks off all at once. Glaciers are very notably receding and the place names are no longer consistent with the appearance of the land. For example, Sermiarsussuaq ("the smaller large glacier"), which previously stretched out to the sea, no longer exists."[15]

Since Inuit throughout the Arctic use winter ice for travel and hunting, the issue of thickness can be a matter of life and death. Most Canadian Arctic communities have lost hunters whose snow machines have crashed through thin ice on what were once safe travel routes.

Ethical considerations

The question of imbalance between regional contributions to greenhouse gas emissions and regional effects is supposed to be addressed in Article 3 of the UN Framework Convention on Climate Change (UNFCCC), which states that "[t]he Parties should protect the climate systems for the benefit of the present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities."[16]

However, current disparities are stark:

"The imbalance of responsibility for global warming is striking when comparing across nations. Average global carbon emissions approximate one metric ton per year (tC/yr) per person. In 2004, U.S. per capita emissions neared 6 tC/yr (with Canada and Australia not far behind), and Japan and Western European countries range from 2 to 5 tC/yr per capita. Yet developing countries' per capita emissions approximate 0.6 tC/yr, and more than 50 countries are below 0.2 tC/yr."[17]

Another dramatic example of the striking inequities between contributors and impact is highlighted in the 2007 United Nations Environment Programme report "Global Outlook for Ice and Snow" that looked at the relationship between melting ice and snow and its effects on the major rivers of the Himalayas-Hindu Kush-Tien Shan-Tibet region and concluded that "1.3 billion people could be exposed to risk of increased water shortages".[18]

Because developing countries (and the Arctic) have had the lowest emissions, the fewest resources available to tackle the problems created by climate change, and are most vulnerable to impacts, Article 3 of the UNFCCC contains another important principle to guide global decision-making. It states that the "specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change… should be given full consideration".[19]

Professor John C. Dernbach echoes the views of many people in the SIDS and Arctic when he writes that "equity for developing and vulnerable countries would counsel for stabilizing and reducing atmospheric GHG levels as soon as possible. That would, after all, reduce or avoid negative impacts to the most vulnerable (e.g. Inuit peoples *[sic]*, Africa, small island states)".[20]

There are questions of equity involved not only in the discussion of how the effects of climate change are distributed, but how responses and solutions will be developed. Not everyone will be affected equally and not everyone will have the same resources to manage effects and adapt.

"If all humans were contributing equally to climate change, the emergence of winners and losers might be considered an inevitable outcome of human development. However, all humans are not contributing equally. The drivers of global environmental change - such as fossil fuel consumption, urban and coastal development, industrialization, deforestation, and other land use changes - are also inequitable and can be disproportionately attributed to some nations, regions, and social groups. In general, higher consumers of energy are making a more substantial contribution to climate change than are lower energy consumers. Moreover, all humans do not have an equal voice - or in some cases any form of representation - in key decisions about energy usage patterns, land use changes, industrial emissions, and so forth even though these decisions affect the integrity of the ecological systems on which all humans and all other species depend. Equity is thus at the heart of the climate change issue."[21]

This question of equity is being addressed in several ways. Two of these ways, involving the Arctic and SIDS, are discussed below.

Climate change and human rights

In 2005, sixty-two Inuit in the Canadian and Alaskan Arctic regions filed a petition with the Organization of American States' Inter-American Commission on Human Rights. Led by Inuit leader and Nobel Peace

Photo: John Crump

Photo: John Crump

Prize nominee Sheila Watt-Cloutier, the petition requested "relief from human rights violations resulting from the impacts of global warming and climate change caused by acts and omissions of the United States".[22] Erroneously reported in the media as a "law suit", the Inuit were not seeking financial compensation but wished to demonstrate the link between global warming and its impact on their human rights. The petition requested a hearing, which took place on March 1, 2007, and asked for the Commission to make an "onsite visit to investigate and confirm the harms suffered" by the people it named. The petition singled out the United States, the world's largest greenhouse gas emitter, because it has "repeatedly declined to take steps to regulate and reduce its emissions of the gases responsible for climate change."[23]

The petition argued that United States was in breach of both human rights law and its international environmental obligations. The impacts of climate change - "caused by acts and omissions" - by the United States

> *"…violate the Inuit's fundamental human rights protected by the American Declaration of the Rights and Duties of Man and other international instruments. These include their rights to the benefits of culture, to property, to the preservation of health, life, physical integrity, security, and a means of subsistence, and to residence, movement, and inviolability of the home."*[24]

As redress, the Inuit requested that the Commission prepare a report "declaring that the United States of America is internationally responsible for violations of rights affirmed in the American Declaration of the Rights and Duties of Man and in other instruments of international law".[25] They called for the United States to adopt "mandatory measures to limit its emissions of greenhouse gases"[26] and work towards global limits. The petition also called for the United States to "take into account" the impact on the Inuit "before approving all major government actions" and to work with the Inuit on "a plan to protect Inuit culture and resources".[27] Finally, it called for "a plan to provide assistance necessary for Inuit to adapt to the impacts of climate change that cannot be avoided".[28]

To date, other than holding a hearing, the Commission has taken no action. However, the very fact that the Inuit filed a petition garnered enormous attention in the United States and around the world. As a tool to publicize the situation facing one of the world's most vulnerable regions, the petition was a success.

More recently, lawyers for the Alaskan Native coastal village of Kivalina, which is being forced to relocate because of flooding caused by the changing Arctic climate, filed a suit in U.S. federal court "arguing that 5 oil companies, 14 electric utilities and the country's largest coal company were responsible for the village's woes".[29]

The human rights implications of climate change are being explored in a number of different fora outside the Arctic and SIDS context. In January 2007, the African Union issued a declaration on climate change and development that called on the international community to meet its obligations to cut greenhouse gases and strengthen African institutions to help them address impacts and adaptation.[30]

In November 2007, just prior to the UNFCCC meeting in Bali, members of the Association of Small Island States (AOSIS) meeting in the Maldives signed the Male' Declaration on the Human Dimensions of Climate Change. The declaration calls for the UNFCCC to assess the human rights implications of climate change, asks the UN High Commissioner for Human Rights to "con-

Photo: John Crump

duct a detailed study into the effects of climate change on the full enjoyment of human rights, which includes relevant conclusions and recommendations" and for the UN Human Rights Council to hold a special debate on climate change and human rights.[31]

In March 2008, the Advisory Council of Jurists of the Asia Pacific Forum released a study that said climate change will have "'catastrophic' effects on the physical and social landscape of the Asia Pacific" and recommended that "the right to a healthy environment be protected by human rights law."[32] That same month, the United Nations Human Rights Council unanimously passed a motion declaring climate change a threat to the human rights of people living in SIDS.[33]

In April the United Nations Permanent Forum on Indigenous Issues (UNPFII) discussed the links between climate change effects and indigenous human rights.

Many Strong Voices – The Arctic and Small Island Developing States working together

> "*Our rights, our human rights that we share with all of you - to live as we do and to enjoy our unique culture as part of the globe's cultural heritage, are at issue. The Arctic dimension and Inuit perspectives on global climate change need to be heard in the corridors of power.*"[34]

There are voices always heard, and voices seldom heard, in the discussions about climate change. People in vulnerable regions are usually among the latter. However, as this article has shown, there are ways for these voices to be heard - in the scientific research and in political lobbying. "Given the similar levels of impact, peoples of the Arctic are working together with people in the small islands of the South Pacific, Caribbean and elsewhere to cooperate on ensuring that the moral imperative of taking action on climate change is heard."[35]

In 2004, discussions between a number of groups, including representatives of the Inuit Circumpolar Conference, SIDS and UNEP/GRID-Arendal began on the need for a joint effort to raise awareness about the effects of climate change in the world's most vulnerable regions. Although small in number, the people of the Arctic and SIDS had participated vigorously in a number of international negotiating processes, including the UNFCCC.

In August 2005, Premier Hans Enoksen of Greenland urged Environment Ministers from twenty-five countries meeting in Ilulissat to "bring vulnerable regions of the globe together so that we may learn from

Photos: John Crump

each other and work with each other internationally".[36] Premier Enoksen went on to say that "the Arctic, the Small Island Developing States, low lying states, and sub-Sahara states in Africa need to help each other".[37]

These discussions and concerns led to the development of the Many Strong Voices (MSV) programme.[38] With seed money from the Government of Canada and support from the government of Norway, the Walter and Duncan Gordon Foundation in Canada, the UN Foundation, the U.S. National Science Foundation, and The Christensen Fund, the MSV programme focuses on the similar concerns and needs of the Arctic and SIDS.

Many Strong Voices is a consortium of indigenous peoples' organizations, researchers, policymakers and community organizations.[39] Over the next five years it will:

- Carry out comparative climate change vulnerability and adaptation research in the SIDS;
- Exchange knowledge to help develop regionally-appropriate climate change adaptation strategies;
- Produce communications, outreach and education tools that will raise the profile of the regions, highlight concerns and enable communities to outline their own solutions; and
- Combine regional research, the design of adaptation strategies, and communications efforts to increase the visibility of these regions, enhance their influence over global dialogues on reducing greenhouse gas emissions, and facilitate the articulation of their adaptation needs.

An important, though not the only, focus of attention is on negotiations leading to a post-2012 climate change accord to replace the Kyoto Protocol. Participants in the MSV are working together to ensure that their voices are heard in discussions on emissions reduction and adaptation in the process outlined in the Bali Action Plan,[40] which was negotiated at the December 2007 UNFCCC Conference of the Parties.

The Bali Action Plan calls for "long-term cooperative action, now, up to and beyond 2012" in order to reduce greenhouse gas emissions and assist the most vulnerable regions to adapt to climate change effects already being felt. For the participants in the MSV Programme, the way ahead calls for concrete actions which, in turn, are grounded in the latest scientific research. At the global level, MSV participants are calling on the developed nations to:

- Reach a global agreement that keeps temperature increases as far below two degrees Celsius as possible by ensuring large cuts in greenhouse gas emissions.
- Learn from the experiences of indigenous peoples and islanders with regard to adaptation and assist these communities to build upon their traditional knowledge in this area.
- Appreciate that there are limitations to their capacity to adapt in the context of runaway climate change. The world's richest countries must help the vulnerable to adapt to climate change by providing adequate financial and technical assistance. For the SIDS and other particularly vulnerable developing countries, this means living up to existing adaptation funding commitments. Arctic peoples need a commitment from their own countries to fund local adaptation efforts in their regions.

Despite the imminent threat that climate change poses to communities in the Arctic and SIDS, the voices of people living in these two vulnerable regions are often marginalised or overlooked. MSV provides tools to help people in these regions make sure their voices are heard in international negotiating processes, and that they have access to fora for exchanging the latest information on climate change adaptation in their respective regions. These tools extend to developing and applying scientific knowledge and traditional knowledge - and combining them - to ensure that those most in need of help for climate change can be certain of acting on the best information available.

The perspective of MSV participants is being increasingly taken up as part of a global dialogue on the ethical implications of climate change and the imperative for political action. Donald A. Brown, an Associate Professor of Environmental Ethics, Science and Law at Penn State University in the United States has written:

> *"Unless people see that climate change creates ethics and justice concerns, they will not likely be motivated to do what is needed to protect those most vulnerable to climate change who include many of the world's poorest people and future generations."*[41]

A similar perspective was given by Erik Solheim, Norway's Minister of the Environment and International Development, when he spoke to the High Level Segment of the UN Bali Conference on Climate Change:

> *"This challenge can only be met through reinforced political action. The Nobel Peace Prize has firmly put climate change within the context of human welfare and security. Now it is up to us to come up with an overall political response."*[42]

Conclusion

The Minister's statement echoes one of the key conclusions of the 2006 Stern Review: "An effective response to climate change will depend on creating the conditions for international collective action."[43] MSV participants from the Arctic and SIDS agree with this viewpoint.

Action is needed on a number of fronts. For vulnerable regions and peoples, it means lobbying at the UNFCCC negotiations, focussing on the equity and human rights implications of climate change, and grounding their informed arguments in the latest research. It means pushing for a post-Kyoto agreement that recognizes the special circumstances and needs of the people in the Arctic and SIDS. The ACIA referred to the people of the Arctic but the words can be applied to all vulnerable regions. For people "whose future is at stake, having the ability to make choices and changes is a matter of survival, to which all available resources must be applied".[44]

United Nations Secretary General Ban Ki-moon has called climate change "the moral challenge of our generation". At the plenary session of the Bali conference, Ban told assembled delegates that "the situation is so desperately serious that any delay could push us past the tipping point, beyond which the ecological, financial, and human costs would increase dramatically".[45]

Unless the world embraces this moral challenge, the burden of climate change will fall on the most vulnerable regions: areas like the Arctic and SIDS. The call for moral clarity echoes what people in some of the world's most vulnerable regions have been saying for some time, that there needs to be a recognition that the impacts of climate change are being felt by parts of the world that currently lack the resources to cope with the rapid change they are experiencing. The evidence is clear; it is now time to make the right choices. ❑

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THE THREAT POSED BY CLIMATE CHANGE TO PASTORALISTS IN AFRICA

Joseph Ole Simel

Desert ecosystems receive little rainfall, and are characterized by sparse vegetation and simple food webs. Around the desert edge and across many sub-tropical parts of the world are found semi-arid and sub-humid lands, which support unique species of plants and animals and a larger human population than deserts themselves are able to sustain. In parts of Africa, the Middle East and Asia, these peoples include pastoralists who, for centuries, have met the challenge of how best to survive in the harsh environments of these dry land areas. Yet today, the dry lands are in many places the scene of much acute distress, and even of tragic famine.

Climatic fluctuations have always been a defining feature of dry land areas, and pastoralists have developed resilient livelihood systems to cope with difficult climatic conditions. Global climate change is, however, raising new challenges for pastoral systems in Africa and elsewhere. Action at local, national and international levels is needed to prevent destitution and help pastoral groups respond to an environment that is changing with an increasing intensity and frequency.

This article describes how pastoralist communities in Africa are affected by climate change, the coping strategies they employ and the policy framework that is needed to address the adverse effects of climate change on pastoralists.

The pastoralist livelihood systems

Pastoralists are people who depend primarily on livestock for their living. The pastoralist population of sub-Saharan Africa is estimated at more than 50 million, while Ethiopia, Eritrea, Sudan, Djibouti, Somalia, Kenya and Uganda support around 20 million pastoralists.[1] They inhabit areas where the potential for crop cultivation is limited due to lack of rainfall, steep terrain or extreme temperatures. In order to exploit the meager and seasonally variable resources of their environment optimally and to provide food and water for their animals, many pastoralists are nomadic or semi-nomadic. Pastoralists have thus developed a livelihood system that enables them to cope with difficult semi-arid and sub-humid environments.

Although pastoral systems are very diverse, most display some common characteristics: livestock depend on natural pastures for their diet, and rainfall is the most important factor in determining the quantity and quality of pastures and water. Herds are composed mainly of indigenous livestock breeds and represent more than just an economic asset; they are also social, cultural and spiritual assets, and contribute to the definition of social identity. Natural resources are managed through common property regimes whereby access to pastures and water is negotiated and dependent upon flexible and reciprocal arrangements. While pastoral systems are resilient because they enable people to cope with unpredictable environments, they are also dependent on maintaining a delicate and constantly changing balance between pastures, livestock and people.

For a long time, lack of understanding and negative perceptions of pastoral systems resulted in unfavorable policies – particularly policies constraining herd mobility. In many parts of Africa, mobility is also hindered by agricultural encroachment on livestock tracks. As a result, many pastoralists have become more sedentary, and some have lost their traditional grazing areas that provided refuge in dry season and during the worst famines. However, recent research has challenged negative perceptions of pastoralism and herd mobility is now recognized as a rational strategy in unstable environments, and some countries have taken steps to facilitate the movement of herds.

The impact of climate change

The effects of climate change have already transcended geographical and cultural boundaries in the dryland areas of Africa, although the impact on local livelihoods will vary from one area to another. Pastoralists are among those most adversely affected by climate change, especially in Africa. In Kenya, for example, the World Bank estimates that an additional 5 million Kenyans may have been pitched into poverty. Although the report does not distinguish between pastoralists and other local communities, it is the indigenous peoples, including pastoralists, who have been hit hard by droughts, with no government intervention for recovery programmes.

Indigenous peoples in Africa will face more challenges due to the fact that the environment in which they live today is already hostile for human and livestock survival due to many years of neglect and marginalization on the part of both the colonial and post-independence governments. A classic example are the Maasai territories in East Africa i.e. Kenya and Tanzania, where marginalization has been institutionalized in decision making, human rights violations and abuses have taken place and land and natu-

(left) Sukuma agro-pastoralists with their herd of cattle - Photo: Adam Kuleit Ole Mwarabu

ral resource allocations have been used to benefit individuals.

Most climate change models predict rising temperatures and decreasing rainfall in many dryland areas. As a result, these areas will tend to become drier, and existing water shortages will worsen. In addition, climate change is likely to bring about even more erratic and unpredictable rainfall and more extreme weather conditions, such as longer and more frequent droughts. Where this happens, the delicate balance on which pastoral systems depend is undermined. The quality, quantity and spatial distribution of natural pastures are mainly shaped by rainfall. Predicted changes in rainfall patterns are bound to result in increasingly scarce, scattered and unpredictable pastures. The number, distribution and productivity of permanent pastures and water points, which are so critical for livestock survival during the dry season, are bound to decline. Scarce resources, coupled with current levels of demographic growth, are likely to lead to stronger competition between pastoral communities and between these and other groups - possibly resulting in conflict and even violent clashes.

As a result, access to pastures becomes more difficult, leading to loss of livestock and of livelihoods. In north-west Kenya, for instance, several years of low rainfall have recently resulted in the death of many livestock, and in a major food crisis among the Turkana and other pastoralists. In the past, major droughts such as those that occurred in the 1970s and 1980s in Africa inflicted major blows on pastoral livelihoods, with many pastoralists losing most, if not all, of their herd. After each drought, it took many years for the pastoralists to reconstitute their herds. Longer and more frequent droughts are likely to result in a significant rise in destitution among pastoral groups because successive years of extreme drought decimate herds and prevent their reconstitution.

In this changing and increasingly unstable environment, herd mobility will become even more important. Current constraints on mobility resulting from policy and/or agricultural encroachment on livestock corridors will dramatically increase the vulnerability of pastoralists and, in spite of the long tradition of adaptation to a harsh environment, many pastoralists now find themselves unable to make a reasonable living from the vanishing soils and natural resources.

Although climate-induced stress has been common to all continents, including North America, Australia, Europe and Asia, the highest degree of distress and vulnerability has been witnessed in the developing parts of the world, especially in Africa, where many climate-related disasters and much suffering and misery have been reported in recent years. Some areas have now become more prone to famine, with consequent large-scale abandonment of previous fertile land.

Pastoralist coping strategies

Pastoralist communities in Africa have been coping with drought and famine for centuries. Traditional knowledge and many years of positive attitude and practice have made these communities able to cope with droughts, droughts which are occurring more frequently today as a result of climate change. The key strategy used by pastoralist societies in Africa is mobility and migration from one area to another in search of green pasture and water. This strategic option has enabled the pastoralists to move into new territories, including the current international borders between e.g. Kenya and Tanzania, Kenya and Somalia, and Mali and Burkina Faso. Mobility has also assisted pastoralist communities to deliberately avoid areas where livestock disease outbreaks have been reported.

Pastoralist communities have also been able to utilize the existing natural resources such as rainfall, water and pastures optimally. This utilization of resources has been closely adapted to existing rainy seasons and grazing pastures and has been respected by all pastoralist communities since time immemorial. Pastoralist communities had traditional rules and regulations that were used to regulate the use of resources so that there was no over-exploitation of resources. These regulations ensured that only a minimum number of livestock were in a particular area or region during a particular season. There were also regulations on the maximum number of livestock that would be moved to a specific territory. This meant that those families with a large number of animals had to split their herd into groups and move them in different areas of the pastoralist territory.

Social security networks among pastoralists communities are an old and rational coping mechanism to deal with climate change whereby families not affected by drought donate livestock to those that are more affected, to assist them in rebuilding their economy.

Scarce water resources, Tanzania - Photo: Adam Kuleit Ole Mwarabu

Scarce water resources, Kenya - Photo: MPIDO

Relief food during drought in Kenya - Photo: MPIDO

Food and water is distributed to vulnerable households to avoid deaths in Kenya. Photo: MPIDO

The current restocking strategy employed by many organizations originated from this coping mechanism. Furthermore, small protected areas known as '*olkeri*' among the Maasai were set aside by every village for sick, old and young animals. This was a strategy to ensure that all types of livestock were taken care of throughout the year.

Today, these strategies are being undermined by economic forces and voluntary settlement, encroachment on traditional pastures, and by governments that are pursuing unfavorable polices with regard to which pastoralists had no involvement in the formulation and implementation stages.

The quest for pastoralist land

The distressing situation facing many pastoralists today will become worse, as there is currently a scramble for land by national governments and multinationals for bio-fuel production, not only because it is considered a way to reduce greenhouse gas emissions but equally because of rising crude oil prices, which has also become a driving force in the quest for alternative sources of fuel. Such land can easily be obtained from poor developing nations, perhaps because of their desire to generate revenue, which most likely will not benefit the communities displaced but rather end up in the pockets of a small political elite who are the political ruling class.

In order to address climate change and food security, most African governments are likely to push for a Green Revolution once again. The Chinese government is, for example, considering providing much-needed funds for farm machines and equipment,

Children have to be fed to keep them in school - Photo: MPIDO

Pastoralist begin the long and endless journey across towns in search of pasture - Photo: MPIDO

seeds and fertilizers for large-scale agricultural production and African governments are considering providing land. But as there is no ample or idle land except for pastoralist land, which is being held in common or collectively, it is the only land 'available' as far as African governments are concerned. A proposal drafted by the Chinese Ministry of Agriculture will make supporting offshore land acquisition by domestic agricultural companies a central government policy. Beijing already has similar policies to boost offshore investment by state-owned banks, manufacturers and oil companies, although offshore agricultural investment has so far been limited to a few small projects.[2] Not surprisingly, the beneficiaries of such projects will be multinational corporations and the political elite in the respective countries, while indigenous peoples risk being evicted from their lands.

Other countries such as Japan are also planning to invest in bio-fuel production in Africa:

> *"The Japanese government has already made progress in seeking to grow a tree, jatropha, a source of biofuels as reported in the Daily Nation. Mr Mitsuo Hayashi, the chief executive officer of one of Japan's biggest biodiesel producers, Biwako Bio-Laboratory Inc. said the company plans to establish 30,000 ha of Jatropha curcas trees, expanding them to 100,000 ha within 10 years. When fully operational, the project will employ some 10,000 workers. "We have been in the country in the last few days doing a feasibility study and are assured of availability of land and human skills and plans to start operations within the next six months to a year," Mr Hayashi told a press conference in Nairobi yesterday. The 30,000 ha will be able to produce some 200,000 tonnes of biodiesel per year. The CEO was accompanied by the MD of another Japanese firm, Hydronet Energy Company, Yoshihisa Ohno with whom they plan to jointly start the Kenyan operation. The team, which has been in the country for the last four days, held talks with several Kenyan Government officials and the private sector on the possibility of setting up the commercial operation."*[3]

I see the acquisition of land to ensure food security and produce bio-fuels taking the same shape and dimension as land acquired to establish national parks. As is the case with national parks, large investments will be directed to food security and bio-fuel production, which will further displace pastoralists, violate and abuse their human rights and fundamental freedoms. It is the starting point of violating and undermining all the principles of the UN Declaration on the Rights of Indigenous Peoples.

The need for sustainable and equitable solutions

In order for pastoralist communities in Africa to cope with the effects of climate change, there is an urgent need to develop key strategic programs and activities and to ensure that indigenous communities and organizations have the capacity and resources to address the critical issues of climate change. Security of natural resources, especially water and land, as well as water access, quality, availability and sustainable use is a key factor in pastoralist coping mechanisms, and securing land tenure by giving full legal recogni-

Cattle struggle to survive during periods of prolonged drought, Kenya. Photo: MPIDO

A sense of hopelessness looms as the animals get emaciated, Kenya - Photo: MPIDO

tion to communal land held on a collective basis is therefore crucial.

Gender, health, disaster management, conflict resolution and peace building must also be key elements in climate change programs and activities related to pastoralists, in addition to addressing the impact of frequent drought in Africa with recovery programmes that will enable pastoralist communities to cope with drought. Advocating pastoralists' mobility as a key strategy to cope with climate change in the dryland semi-arid areas of Africa is consequently another key element.

Before developing climate change programs it is, however, important that the gains made so far - if any - under the Millennium Development Goals are identified to ensure that these gains are not going to be undermined by the impact of climate change on pastoralist communities. Social and economic programs need to be initiated in an appropriate manner so that pastoralist communities do not sink further into extreme poverty. Restocking pastoralist communities after long droughts and famines will rebuild their economies, reduce poverty and guarantee food security, and thereby restore their human rights and dignity as human beings.

Strong partnership and collaboration is needed between pastoralist organizations or institutions and other key stakeholders for knowledge and best practice sharing and in developing policies and programs at national and regional levels. Participatory research on the relationship between climate change and issues such as culture and conflict, traditional knowledge, gender, environment, economics, human rights and migration of pastoralist communities is one of the areas where partnership and collaboration is needed. Research tools must, of course, be developed with the full participation of and in consultation with indigenous peoples.

There is also an urgent and serious need to develop programs that can assist indigenous peoples to engage in a more constructive way in issues relating to climate change by creating awareness among all stakeholders as to the major threats of the interventions being proposed, such as bio-fuel production, to indigenous peoples' basic human rights, survival and livelihoods. Such awareness-raising programs will assist in educating the international community and institutions to look into climate change and its effects and impacts from a cultural, spiritual and human rights perspective and not only from a narrow focus of global economies and environment. The programs will also assist in building the capacity of indigenous peoples to develop long-term adaptation and mitigation strategies and to lobby for appropriate and sustainable policies, which need to be created by governments in consultation with indigenous peoples.

In all societies, laws and policies are made from within a certain value framework and based on an understanding that those operating outside the framework are guilty of an offence. These rules may be verbal, written or well understood and appreciated by people as constituting acceptable behavior, as society or community defines it. However, when the rules do not take into consideration the needs of certain groups, it becomes more difficult for these groups to respect

Cattle die of hunger and thirst, Kenya – Photo: MPIDO

the law. Laws and policies, rules and regulations must therefore be supported by value systems that work to facilitate their implementation and this should guide the development of appropriate climate change policies and programs.

Indigenous peoples demand that any intervention on climate change must involve promoting values that enable us to show respect and tolerance for each other, and to learn that treating other people with dignity ensures your own dignity. The interventions at all levels in which indigenous peoples exist must be based on an understanding on the part of the promoters that there is a need for equity and on the recognition that their own prosperity will be unsustainable if it locks others out or displaces other people and that, for them to gain, others do not have to lose.

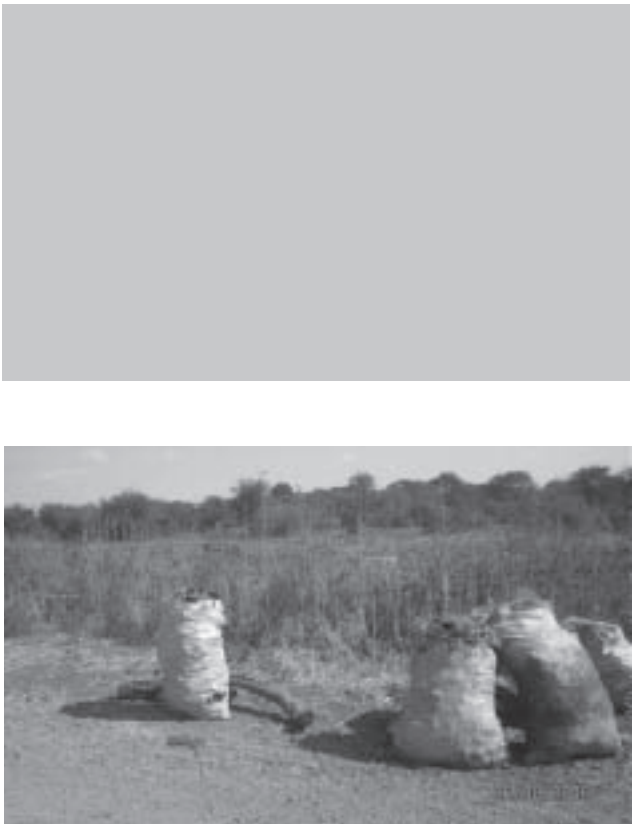
Policy implications

Tackling these issues requires action at local, national, regional and international levels. Long-standing negative perceptions of pastoralism as a backward production system must be replaced by a recognition of

More cattle carcasses - Photo: MPIDO

the rationale of such systems in dryland areas, and by policies and programmes that support local resilience and adaptive capacity to climate change. Key areas of policy intervention include:

- Enabling herd mobility, both seasonal and spontaneously as a response to drought, while securing rights to critical resources, including dry-season pastures and water.



Although it degrades the environment, charcoal burning is seen as an alternative way of earning an income during droughts - Photo: MPIDO

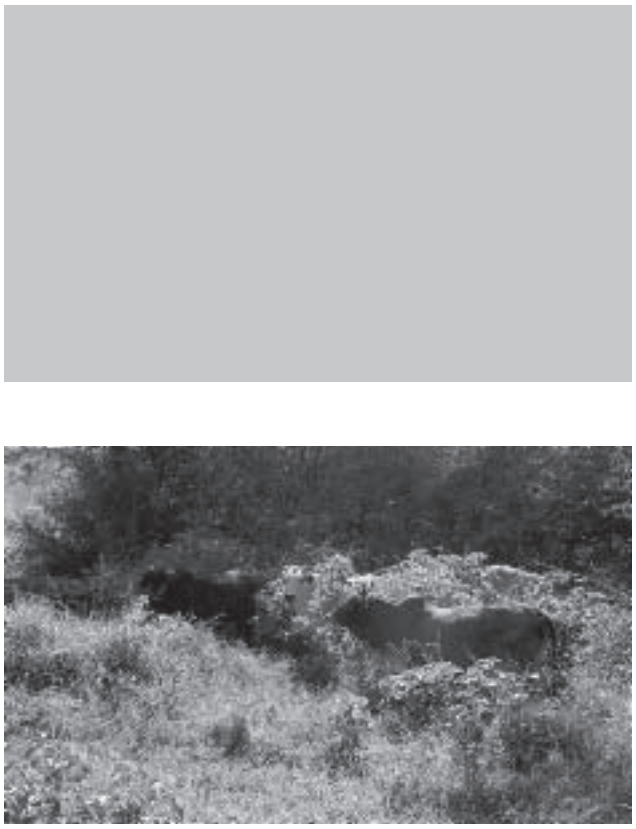
Restocking is one of the ways to cope with climate change – Photo: MPIDO

- Supporting pastoral livelihoods through better water access and tailored service provision.
- Building robust conflict management institutions and effective drought mitigation systems, including early warning, insurance and safety nets.
- Strengthening the capacity of pastoral groups to engage in debates on policy issues directly affecting their lives.
- Support pastoralist communities' own initiatives and programs on climate change mitigation and adaptation.
- Involve pastoralist communities in discussions, dialogue, lobbying and negotiations with government and multinational institutions.

As most pastoralists live in some of the poorest countries in the world, efforts by national governments must be supported by richer countries - particularly as they bear the main responsibility for climate change.

Recurring droughts in arid and semi-arid areas have led to loss of livelihoods and assets, resulting in extreme poverty, environmental destruction, illness and deaths from hunger. Although food relief has been common as an emergency measure to keep people alive during these difficult periods, it has not been sustainable. Alternative measures that can enhance the local peoples' coping mechanisms and capacities are a critical component that must be taken into account. Climate change policies and strategies should be designed for short-term and long-term drought mitigation, preparedness, emergencies support and responses that are based on actual experiences and traditional knowledge of the communities affected. This means doing the right thing in the right place at the right time and mobilizing the critical resources that are really needed.

Well planned and early preparedness that is supported by the political will from national governments and other key institutions, including UN agencies and international development partners, will reduce vulnerability and loss of livelihood. Extensive capacity building enables the pastoralist communities and other key institutions at different levels to deal with hazards, thus reducing the vulnerabilities of pastoralist communities.



A healthy herd and sufficient pasture and water is the depiction of paradise for pastoralists – Photo: MPIDO

Maasai women, Tanzania - Photo: Adam Kuleit Ole Mwarabu

In order to build indigenous peoples' capacity so that they can respond to the impact of climate change, the following are important:

- To address the adverse effects of climate change and climate change initiatives, local action at the community level is needed that takes into account the traditional knowledge and skills of pastoralists.
- Introduction of favorable policies that address conflicts among different communities who are likely to clash over scarce natural resources. These policies must also support the mobility and adaptive capacities of pastoralist communities.
- Extensive awareness raising among the pastoralist population as to the possible impacts of climate change and climate change initiatives on their livelihoods.
- Strong monitoring and development of social and environmental indicators of climate change and how different pastoralist communities are copping with the effects.
- Document lessons learned by local pastoralist communities in a participatory and empowering manner and use this documentation to improve their knowledge of issues related to climate change.

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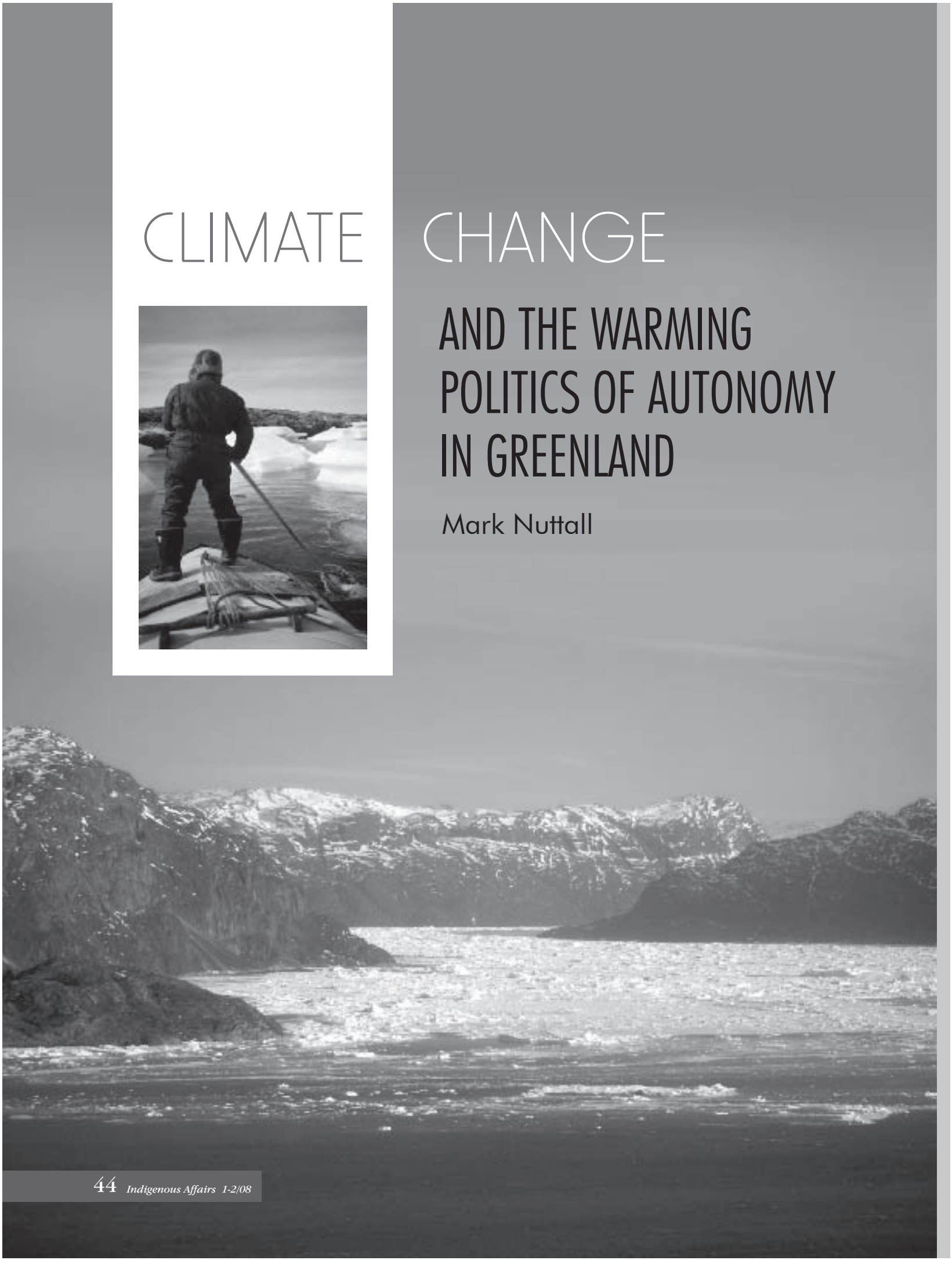
CLIMATE CHANGE

AND THE WARMING POLITICS OF AUTONOMY IN GREENLAND

Mark Nuttall



The melting of Greenland's massive inland ice sheet has become much-reported in the scientific literature as a potentially catastrophic example of the Arctic as a region experiencing unprecedented and rapid climate change.[1] The Intergovernmental Panel on Climate Change's (IPCC) fourth global assessment concludes that airborne, satellite and seismic data indicate thinning around the periphery of the inland ice, where summer melt has increased during the past 20 years, while there is evidence of slower rates of thickening much further inland.[2] A recently updated review of climate change science, since the Arctic Council's Arctic Climate Impact Assessment (ACIA) was published in 2005, suggests that the melting of Arctic sea ice and the Greenland inland ice has severely accelerated.[3] This has prompted scientists to debate whether both may be close to their "tipping point" of sudden, rapid and possibly irreversible change. Both the ACIA and IPCC reports suggest, with a high degree of confidence, that climate change in the Arctic will have significant global consequences during this century. The Greenland inland ice covers 1.7 million sq. km, has an average thickness of 1600m and a total volume of some three million cubic km. It contains enough ice to raise global sea levels by seven meters over the next two to three centuries.

Recent work suggests that Arctic communities are facing greater change, and that they need to be prepared for the unpredictability of the weather, the loss of sea ice, increases in threats from coastal erosion, the migration of animal species important for local livelihoods, and an increase in extreme climatic events. They are told to prepare themselves for a future of living precariously on thin ice, and researchers and indigenous leaders report to the wider world that the peoples of the Arctic are becoming strangers in their own lands.

Canadian and Alaskan Inuit activists have stressed the human rights aspects of climate change, and this is well illustrated by former Inuit Circumpolar Council (ICC) chair Sheila Watt-Cloutier's testimony to the U.S. Senate in 2004. Climate change is interpreted as a matter of cultural survival for Inuit and this point is also occasionally reinforced by ICC Greenland, most recently by Aqqaluk Lynge's submission to the public hearings for a second runway at London's Stansted Airport in May 2007. Lynge, who is President of ICC Greenland, travelled to England for the inquiry and he spoke of the loss of sea ice and habitat critical for Arctic wildlife, of the melting of the inland ice, and of the cultural impact of climate change on Greenland Inuit. In his testimony, he accused British holidaymakers of making unnecessary journeys that contribute to the greenhouse gas emissions responsible for the environmental problems Greenland now faces. Lynge's narrative drew attention to global consumption patterns and to the globalisation of leisure, positioning Greenlanders as victims of modernity and environmental change:

> *"The serious consequences affecting my people today will affect your people tomorrow. Most flights from Stansted are not for an important purpose. They are mostly for holidays and leisure. Is it too much to ask for some moderation for the sake of my people today and your people tomorrow? For the sake also of our wildlife and everything else in the world's precious and fragile environment that is more important than holiday flights."* [4]

This is an Inuit NGO view which, as far as the Greenland Home Rule government is concerned, is inconsistent with an Inuit government view, and missing from Lynge's testimony was any mention of the fact that Greenland has had a specific policy since the early 1990s of attracting increasing numbers of tourists. The disappearance of sea ice may well hasten the end of traditional Inuit hunting lifestyles in northern Greenland, but in the far south of the country sheep farmers are experimenting with growing wider varieties of vegetables and herbs, and some are diversifying and becoming cattle-breeders. And for politicians in the Home Rule government, climate change brings opportunities for opening up this self-governing North Atlantic island to mining and hydrocarbon development.

(left above) Hunting entails the navigation and negotiation of shifting environments. Ammassalik, East Greenland- Photo: Mark Nuttall

(left) South Greenland - Photo: Mark Nuttall

"Nothing is so bad that it is not good for something else": adaptation in Inuit hunting and fishing communities

In 2008, Josef Motzfeldt, an MP in the Home Rule government and a former Minister of Foreign Affairs, told the audience at the 'Trans-Atlantic Climate Conference' in the Faroe Islands:

> *"While reduction of ice cover may have negative impact on some hunting activities, it may open up new opportunities for other activities in our society, like fisheries. A new generation of hunters and fishermen, building on their ancestors' skills, knowledge and cultural socialisation, adds to this by learning how to cope with the changes. In the way we look at climate changes we have a saying that "nothing is so bad that it is not good for something else."* [5]

Motzfeldt concedes that,

> *"For sure the Inuit hunters in the Northern parts of Greenland, Canada, and Alaska and Russia are not happy with the fact that the sea ice is getting unreliable. These hunters can no longer go hunting during the winter months the way they have been doing for generations. They will have to accommodate to the changes in their way of living, and such changes are not always easy to accept. But – and this is my point – through our cultural heritage and our socialization we have been brought up with the mental tools that help us inventing these necessary changes in our way of living."* [6]

With this confident assertion of the resilience of Inuit culture, Motzfeldt points to the essence of adaptive capacity in Greenland. Resilience depends, in many ways, on how people perceive, conceptualise and negotiate change. In my work throughout Greenland, mainly in small hunting and fishing communities, I have often been struck by how people do not necessarily talk of the environment as *changing* but of it being in a constant process of *becoming*.[7] *Pinngortitaq* is often translated from Greenlandic as 'nature', but also 'creation' and it is this which perhaps comes closest to its literal meaning – 'to come into being'. *Pinngortitaq* is thus more than the physical world or even life in general. It is a process of *becoming* – 'to come into existence', and refers to the unfolding of possibility and opportunity. Responding to change, and remaining resilient in the face of change, is informed by the way Inuit continue to learn how to grow up in, move around, and dwell in an environment in which one is always prepared for surprise and uncertainty.

The role of government subsidies

While this hallmark of adaptive capacity goes a considerable way to ensuring sustainable livelihoods in many parts of Greenland, the economies of small hunting and fishing settlements are only viable when this culturally-specific approach to human-environment relations is practised in combination with Home Rule government subsidies. Although few politicians would publicly admit that it would be better to close some hunting communities and relocate their inhabitants to larger villages or towns, the reality is that hunting, while informing Inuit cultural identity, contributes little to the economy of this nation in formation. The Home Rule authorities inherited a Danish colonial policy of subsidies for trade in hunting and fishing products and a system of fixed prices on daily consumer goods, water, electricity and fuel throughout Greenland. A litre of milk, or the cost of providing lighting for homes, has until recently, cost the same wherever people may live, whether in Nuuk or the most northerly settlements. While keeping small communities populated, the system has also been criticised as a reason why little has been done by way of introducing development policies for them since the introduction of Home Rule in 1979.

The recent abolition of this system, beginning in 2005 ostensibly to reflect the true value of providing and importing goods and services, has been disputed and debated. A new system of differentiated prices is being introduced throughout Greenland. This may lead to some villages diversifying their economic base and emerging in a stronger position than many are currently in. Yet some critics of the Home Rule government see it as a way of encouraging the depopulation of some communities, which would be consistent with long-term policies of demographic shift and investment in a few major centres.[8] It would appear that statements such as 'hunters not being able to hunt anymore because of thinning sea ice or changing climatic conditions' are simplistic. The changing nature of hunting practises and hunting households is a consequence of many other factors, including Greenland's nation-building process and its push towards greater self-governance. The viability of Inuit livelihoods in Greenland must be understood within the context of multiple stressors, including institutional, political, social and economic changes that reduce flexibility and adaptive capacity, leaving people with

little room to move in a changing world, meeting its challenges and seizing its opportunities.

The quest for developing the 'greening land'

Elsewhere in the circumpolar North, particularly in Canada and Alaska, indigenous politicians, community leaders and activists portray indigenous peoples as victims of climate change but the Greenlandic official response to climate change diverges from this prevalent view.[9] Climate change is happening and Greenland is getting warmer and greener, but rather than portraying themselves as victims of climate change and its impacts, Greenlanders are being encouraged to think positively about the opportunities that climate change is bringing, and one of these opportunities, as Greenland Home Rule politicians tell the Greenlandic public, is that the world is heading for Greenland – tourists are eager to see the inland ice, icebergs and sea ice before it all disappears, and prospectors and seismic survey crews are busy preparing the ground (and sea bed) for when it does. As Greenland melts, the country is preparing to be gripped by frontier fever and an influx of foreign workers attracted by jobs in the extractive industries. The 'greening of Greenland' is a metaphor for a warming politics of autonomy, self-governance and possible independence.

Greenland's Home Rule politicians and business leaders of the new millennium, eager to attract energy multinationals, mining companies and aluminium producers, are extolling the virtues of their country as a green land, or at least a land that is getting greener. Industry events and conferences profiling Greenland's resource potential, such as the Greenland Sustainable Mineral and Petroleum Development Conference held in Copenhagen on 6-7th May 2008, are becoming more frequent and are designed as platforms for international resource companies seeking to learn more about development opportunities in Greenland. They aim to attract international investors who are looking to gain more knowledge of potential projects in the region. The message conveyed by the Home Rule government is that Greenland is open for business and it is thanks to climate change that many new opportunities are arising.

This desire for industrial development is framed within a Greenlandic political discourse of nation-building and development that puts a positive spin on the prevailing global discourse of climate change as a cataclysmic force about to devastate human existence. It is also distinctive in the way it differs from many other indigenous responses to the scientific rhetoric about Arctic meltdown as social and environmental crisis.

Nation-building and self-governance

Greenland was granted Home Rule within the Danish Realm in 1979 and the newly-formed Inuit-controlled regional government quickly assumed responsibility for most domestic matters within the first decade of its existence. The Greenlandic political system is similar to the Danish style of parliamentary democracy. It comprises a 31-seat parliament (*Inatsisartut*) which elects the Home Rule government (*Naalakkersuisut*), headed by the Premier. Greenlandic Home Rule was not an ethnic settlement granting a degree of self-government to the Greenlandic Inuit population. Although the Home Rule government and its adminis-

Narsaq, South Greenland - Photo: Mark Nuttall

tration are Inuit-run, Greenlandic Home Rule is public government and there is no formally-recognised political distinction between persons born in Greenland and persons born in Denmark. All have the same right to vote provided that they are Danish citizens. This political, rather than cultural or ethnic dimension to government in Greenland is important to understand as it shapes and frames decisions made that aim to strengthen self-determination and the Greenlandic economy.

While subsistence-based hunting (mainly for marine mammals) and small-scale fishing are important as the mainstay for many people, particularly in the villages of the north, east and extreme south of the country, Greenland's technologically-sophisticated fishing industry has provided the major portion of Greenland's internally-generated revenue. A central characteristic of Home Rule is that it has been a nation-building project. The country's leaders have long expressed an ambition to achieve a greater degree of political and economic independence through a process of *Greenlandisation*.[10] Although issues of language, such as the ascendancy of Greenlandic (*Kalaallisut*) over Danish, and occasional tensions between ethnic Inuit and Danes sometimes cloud the Greenlandisation debate, above all, it is a process based on Greenlanders 'claiming their right as political agents to determine their own future rather than on the basis of a well-defined cultural agenda'.[11]

The Danish-Greenlandic Self-Government Commission

Almost thirty years after Home Rule was introduced, there is a widespread popular feeling in Greenland that this political arrangement has served its purpose and that a new constitutional arrangement should be negotiated with Denmark. In 2004, a Danish-Greenlandic Self-Government Commission was appointed to explore the possibilities and options for a new form of self-governance. Along the way, while the Commission continued its work, in 2005 the Danes allowed Greenland greater involvement in foreign policy discussions, in accordance with the broader interests of the Danish Realm. The Commission completed its work in May 2008 and handed its report and recommendations to Greenland's Premier Hans Enoksen and Denmark's Prime Minister Anders Fogh Rasmussen. The Commission's process has revealed a number of divergent viewpoints among Greenlandic politicians as to what the future relationship between Greenland and Denmark should be. A referendum on introducing Self-Rule will be held in Greenland on 25th November 2008 and, if the majority votes in favour, the Commission has recommended that it should be instituted on 21st June 2009.

The main barrier to greater autonomy, at least economically, appears to be the annual 3.5 billion DKK (around 470 million EUR) block grant Denmark gives to Greenland, and on which the Greenlandic economy depends. Oil, gas and mineral development has the potential to ease this dependence. The Commission also included a series of negotiations on mineral rights, ownership of subsoil resources and the administration of revenues from mining and hydrocarbon development. The Commission has concluded that minerals in Greenland's subsoil belong to Greenland and that the country has a right to their extraction. Both parliaments have yet to debate the issue, but Denmark has agreed that Greenland should be granted the rights to administer revenues from the energy and other extractive industries. The Home Rule government would receive the first 75 million DKK – around 10 million EUR – (for example, from oil exploitation) and future revenues from oil and mineral resources will then be divided between Greenland and Denmark while the annual block grant is reduced. Once the block grant is phased out and compensated for the revenues will go to Greenland, but the agreement will also be open to renegotiation.

Warming to opportunity: mining and oil

The international resources community has identified the potential for Greenland to be a significant source of new mineral and petroleum development, with the opening of new mines and heightened interest in exploration opportunities in offshore Greenland in recent years. The Home Rule authorities have begun to award mineral exploitation licences to mining companies and local people in many parts of the country are noticing the seasonal arrival of prospecting crews heading off into remote areas. The Nalunaq gold mine opened near Nanortalik in south Greenland in 2004, and an olivine mine north of the capital Nuuk began operations in 2007. Five more mines extracting gold, rubies, diamonds and other minerals are expected to open over the next five years. Some politicians are confident that mining will eventually overtake the fishing industry as Greenland's main source of income.

Over the last few years, the Home Rule government has been involved in talks with several multinationals coveting exploration licenses for oil and gas.[12] A warmer climate, and hence easier access to exploratory sites, is seen as something positive if Greenland

is to attract international investors. Each year sees increased activity – in summer 2008 the Norwegian StatoilHydro company will conduct drillings in the coastal area off northeast Greenland (controversial because of its proximity to northeast Greenland's national park), while other energy companies will conduct seismic tests in west Greenland's coastal waters, particularly west of Disko Island and further north in Baffin Bay. While divided on the merits of an oil boom, many Greenlanders remain concerned at the country's lack of laws, public information and binding regulations regarding Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA).

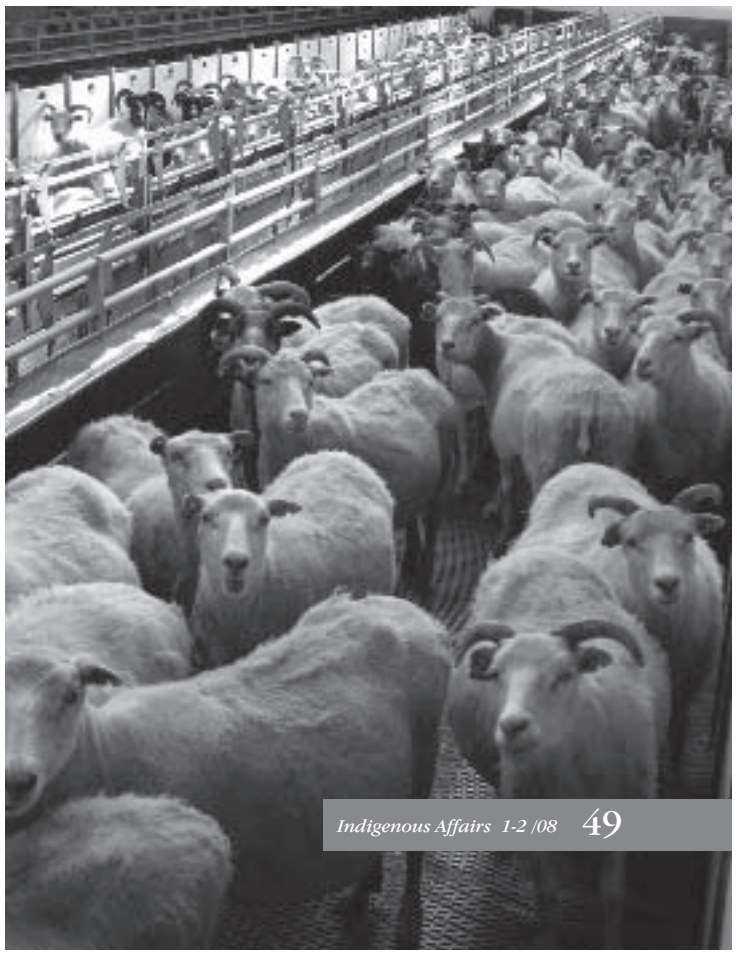
The big smelter: Greenland as an aluminium-producing nation?

In 2007, the Greenland Home Rule government drew up a memorandum of understanding with the American aluminium company Alcoa. This opens the door to Alcoa moving through the initial planning and assessment phases to build an aluminium smelter on the west coast with an annual production capacity of 340,000 tonnes of aluminium ingots. In February 2008, the Home Rule government recommended to parliament that, if the project does go ahead, the smelter should be constructed just northwest of the town of Maniitsoq. The Home Rule government has established a company, Greenland Development, to assist it in the various activities related to the project, and the limited public debate in Greenland has so far focused on the environmental and social impacts. The smelter would require two hydro-power plants to supply it with energy, which would be built between 2010-2014, with construction of the transmission and smelter parts of the project occurring between 2012-2014. Alcoa and Greenland Development estimate employment for between 2,000-5,500 people (the majority of which, the Greenland premier Hans Enoksen has gone on record as saying, will be Poles, Portuguese and Chinese) during the four years needed to construct the dams and the smelter, with employment for around 600 people when the project is operational.

At this stage, an initial Strategic Environmental Assessment (SEA) has been carried out for political discussion. A revised SEA is expected to be carried out and submitted in spring 2009 before a politically-binding decision is taken on whether the project should go ahead. Only then would the project move to the EIA stage. Greenland's government appears confident that it will go ahead. Aleqa Hammond, the Minister of Finance and Foreign Affairs, has said that

Climate change and thinning sea ice pose challenges to hunters. Thule, North Greenland - Photo: Mark Nuttall

Sheep farming and agriculture play an important role in the economy of South Greenland. A warming climate enables farmers to diversify, for example into cattle breeding. Photos: Mark Nuttall



> *"In terms of global warming and climate change policies Greenland has other gifts from nature that may help meet the global environmental challenges. Greenland has today opportunities to develop hydro-power stations to supply process facilities with power, for instance to produce aluminium. The aluminium and mineral resource industries are eager to invest in Greenland. Greenland is a mineral-rich country, so it is only a question of which requirements my Cabinet asks the industry to fulfil, when we issues licenses to exploit our resources or develop new industries."* [13]

This is multilayered and perhaps slightly ironic in its articulation of a proposed contribution to solving global environmental challenges brought about by climate change. Hammond speaks of climate change, yet she seems to be suggesting that global warming is helping to provide Greenland with an abundance of natural resources, in this case enough water for hydro-power development which, while providing renewable energy, will be used for aluminium production. Aluminium production is also one of the most energy-intensive industrial processes, contributing to climate change, social impacts and environmental pollution.[14] The SEA anticipates that, during normal operations, the smelter will have an annual impact of 4,600 tons of sulphur dioxide and 450,000 tons of carbon dioxide emissions (although some estimates suggest the latter figure will be around 612,000 tons, increasing Greenland's current average of 700,000 tons of CO_2 emissions by some 90%).The SEA assumes that there will also be a discharge of other environmentally damaging substances in the form of heavy metals, chlorine compounds, and other toxic waste such as cyanide and arsenic that may accumulate in the ecosystem, and calls for more information concerning such emissions.[15] Although there is a commitment to develop a new Centre for Climate Research, to be housed within the Greenland Institute of Natural Resources and the University of Greenland in Nuuk, and while a new government department will be created to deal exclusively with climate change, the country's economic policies on resource development and extractive industries look set to establish Greenland as a contributor to climate change.

Public concern

The Alcoa aluminium smelter venture has highlighted public concern over the absence of appropriate EIA and SIA processes and a lack of consultation and public information on megaproject development. It has also raised questions about the political participation of local communities in decision-making processes around the extractive industries that will affect the country's future. While Alcoa carried out public hearings in the three communities originally suggested as the location for the smelter (Nuuk, Sisimiut and Maniitsoq) following the SEA, and while environmental and social impacts are considered in the report, there is nothing in place in Greenland like the diverse and often complex mechanisms for public consultation over proposed development projects as found in, for example, Canada, particularly oil, gas and mining projects taking place on indigenous peoples' lands. And some politicians have also questioned what job-training initiatives the Home Rule government will put in place to ensure Greenlanders can benefit from employment in the Alcoa project as well as in other extractive projects. This seems particularly significant considering the EIA for the Alcoa smelter and its associated hydro-power plants will probably proceed once a decision has been taken to actually go ahead with the project.

In Canada, land claims and self-government negotiations between Inuit and First Nations have resulted in a proliferation of mechanisms and the creation of boards that allow (legally and theoretically, at least) for the inclusion of indigenous people in decision-making processes.[16] They are statutory requirements, and the Supreme Court of Canada has ruled that Canada's Aboriginal people should be consulted if their rights are infringed, affirming Aboriginal rights enshrined in the Canadian Constitution Act of 1982.

In Greenland, the SEA for the aluminium smelter has identified areas of considerable concern with respect to the Alcoa proposal. In doing so, it has revealed that Greenland's regulatory review process, environmental impact assessment procedures, mechanisms for considering cumulative impacts and public hearings process lag far behind some of its circumpolar neighbours, and that Greenland is ignorant of processes that have shaped historical patterns of resource use and socioeconomic development elsewhere in the indigenous world.

Topographical reshaping and the challenge of autonomy

As the inland ice melts, a new Greenland is emerging. Geographically, mountains, headlands and islands are appearing and cartographers are beginning to revise maps and charts – for example, the retreat of the

Sermeq Avannarleq glacier near Ilulissat has recently created a new island, which has been named Qarsunga ('always pale island'). But this physical process of topographical reshaping is coinciding with the emergence of a new Greenlandic political entity that is not only redefining its relationship with Denmark but also, internally, redefining people's relationships to place, to the environment, and to its resource base.[17]

Politically, Greenlanders say they are prepared for the challenge of greater autonomy and eventual independence – indeed, as this article has discussed, a warmer climate is seen by some as a positive transformation, helping Greenland to become a modern nation. Yet the additional political and fiscal responsibility accorded to Greenland will also challenge the Home Rule authorities as they face the magnitude of possible environmental change and its local, regional and wider global social and environmental effects. Greenland is moving into a new phase of self-governance but is opening itself up to the influence of powerful multinational corporations who view the country as a resource periphery.

Experience in other regions has shown that the large-unit size and sheer scale of most oil development, mining and aluminium smelting can actually increase the dependence of local communities on transnational corporations. Throughout the world, indigenous peoples are arguing that they have contributed the least to producing the greenhouse gas emissions that are at the root cause of anthropogenic climate change, yet they suffer the gravest consequences. In Greenland, the changing definitions and uses of the environment and resources reveal a complicated, multidimensional side to this discourse. ❑

Notes

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Acknowledgements
This article is based on research carried out under the auspices of the research programme 'Human-Environment Relations in the North: resource development, climate change and resilience', funded by the Academy of Finland. I am grateful to Finn Lynge and the other participants of the Earth Charter and A-21/Narsaq 'Seminar on Climate and Environment in Greenland and the Arctic', held in Narsaq, Greenland, 19th - 23rd April 2008 for stimulating discussion on the Alcoa aluminium smelter project issue.

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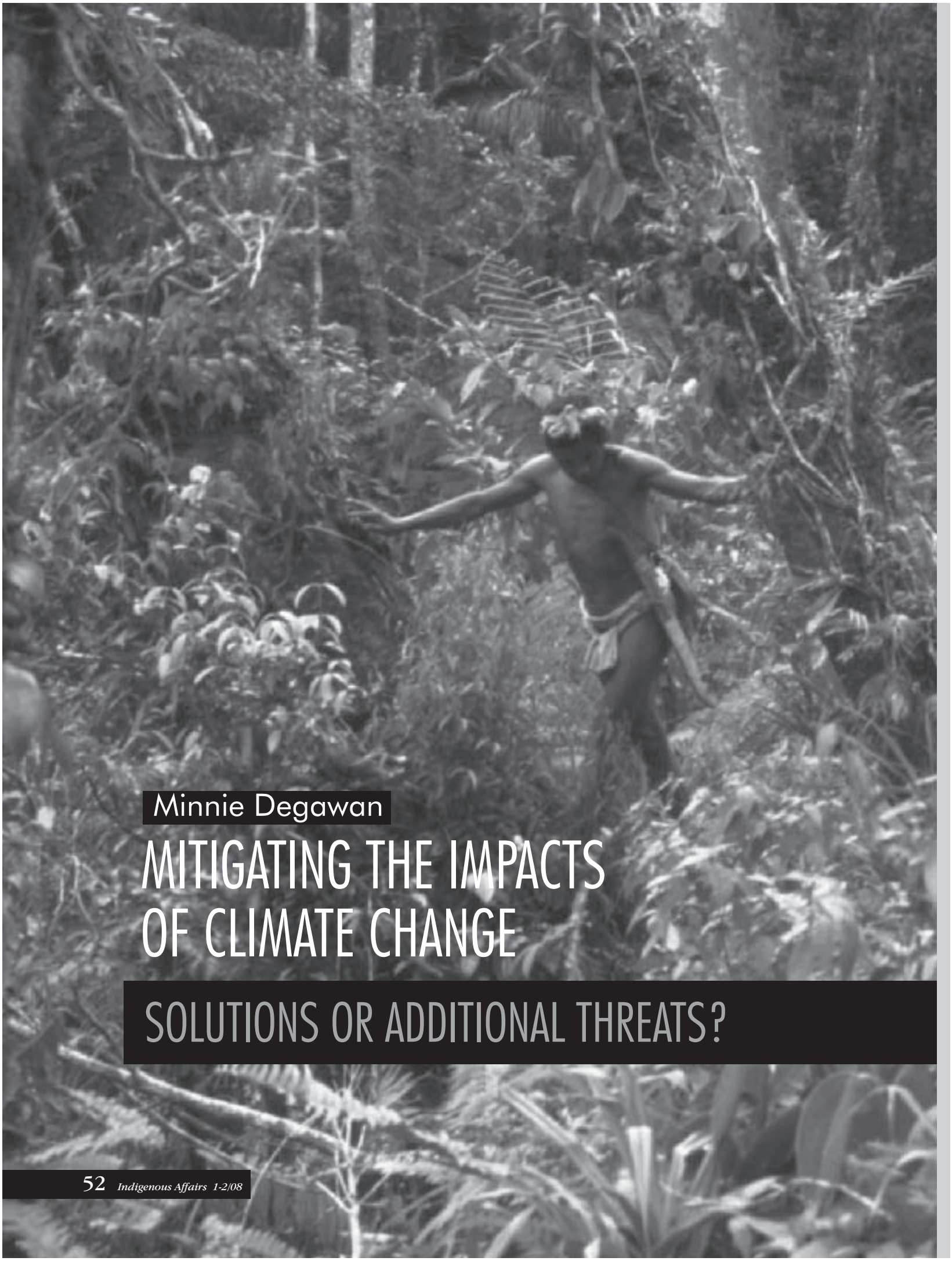


Minnie Degawan

MITIGATING THE IMPACTS OF CLIMATE CHANGE

SOLUTIONS OR ADDITIONAL THREATS?

"Indigenous Peoples have suffered the very worst impacts of climate change without having contributed much to its creation and we must not be placed in the position of suffering more due to the impacts of climate change mitigation strategies in order that northern nations can continue their culture of over-consumption."

The International Forum of Indigenous Peoples on Climate Change (IFIPCC), Bali 2007[1]

Indigenous peoples have always experienced a range of changes, from changes in the natural environment to policy changes that have impacted on their lives and cultures. Indigenous peoples therefore have extensive experience of responding to, coping with, and adapting to these changes. Their cultures have thus evolved in accordance with interactions with a changing natural environment and the broader context of social and political change. It is this interaction that has strengthened their coping mechanisms in response to change. Recent developments may, however, prove to be more daunting for indigenous peoples than any other previous challenge.

For indigenous peoples, climate change is a reality. Despite lacking the technical data on how much the sea levels and global temperatures have risen, they face the direct adverse consequences of climate change on a daily basis. They experience the drying-up of once fertile farmlands, the torrential floodwaters that inundate their soon-to-be harvested gardens, the dwindling water supply during summer and the diminishing of the fruits of the land in general. These climate-induced changes are happening faster than anything previously observed. The speed with which the climate is changing is putting the abilities of indigenous communities to adapt to the test.

Impacts of climate change on indigenous traditional knowledge and cultures

While climate change is indeed impacting on everyone, indigenous peoples are affected more adversely due to factors such as direct dependence on natural resources, poverty, marginalization, access to services, abilities to cope, and their geographical, social, cultural and political position. As in other communities, indigenous peoples are affected by food shortages, extended drought, floods and other physical, easily measured impacts. However, one aspect that has not been thoroughly reviewed is the loss in terms of traditional knowledge and cultural practices.

Indigenous peoples' traditional knowledge and practices are closely linked to their use of and dependency on natural resources and biological diversity. Traditional knowledge is an inseparable part of indigenous culture, social structures, economy, livelihoods, beliefs, traditions, customs, customary law,

Oil palm plantation on Peninsular Malaysia.
Photo: Christian Erni

(right) Old-growth forest in the ancestral domain of the Buhid on Mindoro island, Philippines.
Photo: Christian Erni

health and their relationship to the local environment. With unprecedented climate changes, cultural institutions, authorities and livelihood strategies come under increased stress as knowledge based on known indicators and patterns reveals the limitations of local coping strategies in the face of broader global processes.

Changes in the agricultural cycle

One example of the impact of climate change on indigenous knowledge and culture is the changes in the agricultural cycle as a result of intensified changes in the climate. Many indigenous peoples in Asia rely on the observation of particular indicators, which make the community able to determine when it is appropriate to plant, cultivate and harvest. The agricultural cycle influences and determines not only indigenous economic systems but also cultural, social and political traditions. With unpredictable weather patterns and increasingly extreme weather conditions, many of the agricultural practices and traditions that shape and identify indigenous communities are being drastically and rapidly altered.

In Sagada where I come from in the northern Mountain Province of the Philippines, we have a calendar that is not counted in terms of days or weeks but is rather indicative of the particular agricultural activity of that period. Each month is divided according to specific indicators, either activities in the field or the blooming of certain plants. For example, our year begins with *Kiling*, which coincides with October in the Roman calendar, and this is the time for sowing rice grain on the seedbeds. *Kiling* comes from the name of a small bird whose chirping at this time indicates that the typhoon season has ended.

However, the age-old custom of relying on particular indicators to determine what is appropriate and what is not is in disarray due to changes in the climatic conditions. Over the last five years, October proved to be the height of the rainy season and the usual activity of sowing rice grain could not be done. Elders tried to postpone the sowing but were not able to accurately predict when the rains would actually stop or whether there would be any rains at all. The adaptation schemes resorted to by communities such as planting whenever the rains arrived, instead of waiting for more time to ensure that there would be enough water to sustain the fields, is a sign that indigenous communities are in a state of panic. There are many stories of wasted seeds and efforts due to inopportune timing.

With the agricultural cycle thoroughly disrupted, indigenous peoples are now turning to other activities for their livelihood, thereby abandoning agriculture and the culture that has shaped our indigenous communities for generations. It is therefore important to remember that climate change has not only impacted on our people economically but, more importantly and immeasurably, also culturally.

Climate change mitigation and adaptation schemes

Spurred on by the need to address the negative effects of climate change, the United Nations (UN) agencies, governments, financial institutions and others are continuously developing mitigation and adaptation schemes.[2] These schemes are aimed at reducing greenhouse gas emissions and adjusting to the adverse impacts of climate change. At first glance these schemes appear logical. But are these really the most appropriate and effective solution? Do they truly address the causes of climate change or are they simply serving as smoke screens or guilt-reducing tactics?

For adaptation and mitigation schemes to be successful they must address the basic causes of climate change. The main cause of the crisis that is affecting the world today is not the continued use by indigenous communities of the forests or the rivers. It is rather the over-consumption of the world's resources by a few. Unfortunately, there is little political will amongst those who govern to tackle the roots of the issue of climate change. Instead, market-based approaches are being developed, thereby putting commercial value on the environment and developing climate change schemes directed at earning income. Climate change is now big business. It is for this reason that indigenous peoples are opposed to many of the mitigation schemes being proposed.

Reducing Emissions from Deforestation and Forest Degradation

During the UN Climate Change Conference in Bali in 2007, governments decided that Reducing Emissions from Deforestation and Degradation (REDD)[3] should be part of the post-2012 action plan (Bali Action Plan) to reduce greenhouse gas emissions. The ideology behind REDD is for Northern countries to pay Southern countries to protect their forests.

REDD is a classic example of a market-based approach to reducing greenhouse gas emissions and biodiversity conservation. Since deforestation and

Oil palm plantation on Peninsular Malaysia - Photo: Christian Erni

Fruits of the oil palm being loaded at a collection center for transport to the processing plant. Tongod district, Sabah, Malaysia - Photo: Christian Erni

forest degradation accounts for 20-25% of global greenhouse gas emissions, it does make sense to reduce the unbridled exploitation of forests by corporate interests. However, there are several problems with the proposed set-up.

Indigenous peoples have not been involved in the conceptualization process and, so far, the REDD proposals are not addressing the issue of indigenous peoples' tenure rights. Indigenous peoples are therefore concerned that they will be evicted from their forests once governments receive money to protect them. Indigenous peoples who do not have tenure rights to their lands and resources, particularly forests, are therefore at risk of being further marginalized and impoverished.

Furthermore, once governments are compensated to protect the forests, there is a risk that the indigenous peoples' sustainable forest utilization systems will be superseded by government structures that have little or no appreciation of the intricate relations existing between people and forest. In the Cordillera region of the Philippines, reforestation schemes were piloted by different financial institutions such as the World Bank, Asian Development Bank and the European Commission in the early 1980s. Aside from not meeting the original objective of reforesting denuded forests, the projects also opened the path to more opportunities for corruption.[4]

Concerns have also been raised over the ideology behind the initiative. With this initiative, countries or communities are paid for their so-called environmental services, i.e. to protect their forests. There is, however, the danger that the initiative will be promoting environmental blackmail, because governments can now say, "We will deforest our forests unless we are paid not to do so". The Democratic Republic of Congo has already demanded full compensation for their forests, which they threaten to deforest if they are not paid. It is not surprising that many developing countries are in favor of this scheme.

With intensified focus on the importance of forest conservation in tackling global warming, the World Bank is seeking to become the international lead agency on global REDD initiatives. The World Bank has launched a Forest Carbon Partnership Facility to build the capacity of developing countries and to facilitate REDD pilot activities in developing countries. Norway has also announced substantial financial support to developing countries to combat deforestation.

But the basic question here is: who owns the forests? Who has the right to negotiate their use? Governments claim sovereignty over natural resources but it is clear that these are the same governments that have exploited the forest resources to the point of extinction. It is ironic that governments that have de-

Swidden land and forest of the Dusun indigenous people cleared for oil palm plantation in Tongod district, Sabah, Malaysia - Photo: Christian Erni

stroyed vast tracts of forest are now being rewarded to protect them.

The Clean Development Mechanism

The Clean Development Mechanism (CDM) is a so-called flexible mechanism under the Kyoto Protocol[5] which allows governments in industrialized countries to achieve parts of their emission reduction commitments under the Protocol through projects abroad rather than through action or policy changes at home.[6] This is also referred to as carbon emissions trading.

In the CDM, **carbon sinks** have been included as a project category eligible for credits. Carbon sinks are areas rich in biological diversity that absorb carbon emitted to the atmosphere. Carbon sinks are a flawed concept, there is no reference to indigenous peoples and it promotes the concept of land monopoly under the guise of climate change mitigation. The carbon sink projects involving large-scale mono-crop plantations have an enormously adverse effect on indigenous peoples as many sinks located on indigenous peoples' land. Forest protection schemes involving carbon trading have also failed to properly address governance and livelihood concerns. Lands in South America have been acquired by rich businessmen or, in some cases, by big environmental NGOs to protect them from degradation in order to maintain their value as carbon sinks. Again, indigenous peoples who have no security of land tenure are victimized by this scheme. It is worthwhile to note, however, that governments are now taking notice of this phenomenon and, hopefully, will soon take action.

The promotion of **renewable energy** is also a component of the CDM. As an alternative to fossil fuels, programs are supported to develop alternative energy sources such as hydropower, geothermal energy, nuclear power and solar energy. Needless to say, indigenous peoples are further threatened by many of these projects. There have been countless struggles launched against such mega-projects implemented on indigenous territories and, with the ever increasing demand for alternative sources of energy, this situation is not likely to change. Classical examples of such struggles are the World Bank-funded Chico Dam project in the Cordillera region of the Philippines in the 1970s, which was successfully opposed by the Igorot people, leading to the formation of the indigenous peoples' organization the Cordillera Peoples Alliance. The Bakun Dam project in Sarawak, Malaysia is also awash with stories of how people will go to extreme means to defend their territories, and the same is true of the Megalaya Dam project in North East India.

Although many CDM projects adversely affect indigenous peoples, there are also examples where private companies and indigenous peoples have made agreements aimed at off-setting greenhouse gas emissions. One example is in North Australia where Aboriginal land owners are being paid to use their traditional fire management practices, thereby reducing fire-generated greenhouse gases.[7]

Adaptation funds

During the UN Climate Change Conference in Bali in 2007, the UN announced the approval of an adaptation fund to bolster the defenses of poor countries that lack the money, technology and human resources to cope with climate change. The Adaptation Fund was established to finance concrete adaptation projects and programs in developing countries that are Parties to the Kyoto Protocol. The Fund is to be financed with a share of the proceeds from CDM project activities but will also receive funds from other sources.[8] Although indigenous peoples are seriously concerned that the Adaptation Fund is to be funded through CDM projects (because many of these projects have a serious impact on indigenous peoples' lands and livelihoods), they have nevertheless requested that the Fund be easily accessible to, and allow direct access on the part of, indigenous peoples.

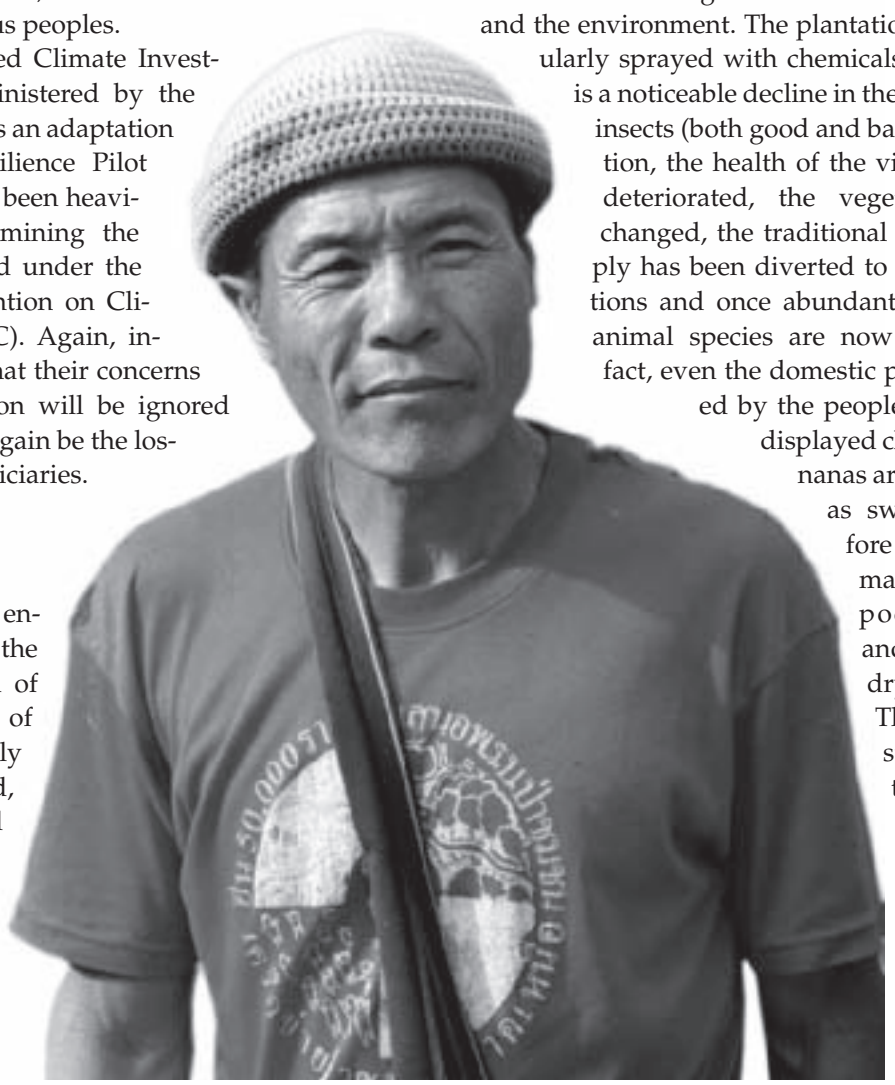
The recently proposed Climate Investment Fund to be administered by the World Bank also contains an adaptation fund (the Climate Resilience Pilot Fund) and has therefore been heavily criticized for undermining the Adaptation Fund agreed under the UN Framework Convention on Climate Change (UNFCCC). Again, indigenous peoples fear that their concerns and request for inclusion will be ignored and that they will once again be the losers rather than the beneficiaries.

Agro-Fuels

Linked to the renewable energy programs within the CDM is the production of agro-fuels. Large tracts of farmland, traditionally used for producing food, are now being converted into plantations to produce agro-fuels. Corn, cassava, sugar cane and other food crops are being produced not for the table but for cars. Reports from various UN agencies show that agro-fuels are threatening the world's food supply and, for indigenous peoples, it is inconceivable that food crops should be grown not to be eaten by people but instead to be turned into fuel.

In Asia, oil palm plantations pose a great threat to indigenous peoples. Increasingly, large tracts of forest and arable land have been, and continue to be, cleared to make way for oil palm plantations, especially in Indonesia and Malaysia. Other countries such as Papua New Guinea and Thailand have also started producing oil palm and there are ambitious plans to promote the cultivation of this crop in Vietnam, Cambodia, India and the Philippines, although here the Senate has started debating the economic viability of such production. Promoters of oil palm plantations, and other industrial plantations, insist on presenting the plantations as a good way of solving multiple problems – they apparently reduce greenhouse gas emissions, create jobs for indigenous peoples and are a better way of managing resources. Nothing could be farther from the truth.

In Sarawak, Malaysia, for example, indigenous peoples are being threatened with displacement due to the expansion of oil palm plantations, and the plantations have a devastating effect on both the people and the environment. The plantations are regularly sprayed with chemicals and there is a noticeable decline in the number of insects (both good and bad). In addition, the health of the villagers has deteriorated, the vegetation has changed, the traditional water supply has been diverted to the plantations and once abundant plant and animal species are now scarce. In fact, even the domestic plants tended by the people have also displayed changes: bananas are no longer as sweet as before and the tomatoes are pockmarked and prone to drying up. These plants supplement the diet of the indigenous peoples and



their loss means further pressure on the women, who have to walk farther to look for edible plants.

In Indonesia, indigenous peoples claim that forest fires are sometimes deliberately started to clear larger areas for oil palm plantations and there is now an increased number of land-related conflicts occurring between communities due to the drive to acquire more lands.[9] In a roundtable meeting on sustainable agro-fuels, one indigenous participant asked, "Why are we being made to give up our farmlands so that you can produce corn for your cars? We did not ask for more cars. If the land is needed to feed more of our kin, then we would gladly help you produce more, but if it is for cars, what is it for us?"

Roundtable initiatives relating to agro-fuels

Despite the obvious destructive impacts of oil palm plantations on the environment and studies showing that turning food crops into fuel actually causes more greenhouse gas emissions than it supposedly saves, the United Nations Environment Programme (UNEP) is developing (in partnership with the agro-fuel industry) a so-called guideline for sustainable agro-fuel. This is a spin-off from the Roundtable on Sustainable Palm Oil (RSPO). Indigenous peoples are wary of this and other initiatives such as the Roundtable on Sustainable Biofuels (RSB) as they tend to whitewash the negative impacts of plantations through the introduction of "checklists of compliance" with the guidelines. In both the RSPO and the RSB process very little, if any, indigenous participation was encouraged. There are, however, indications that the UNEP is looking at this issue, and more involvement of indigenous peoples in upcoming meetings will hopefully be the result.

The climate change discourse, what is in store for indigenous peoples?

It must be noted that indigenous peoples strongly support initiatives to address climate change. It has to be ensured, however, that the initiatives address the root issues of problems arising from climate change and that indigenous peoples have been involved in the design and implementation process. Despite the fact that indigenous peoples have contributed very little to the global climate crisis, they are bearing the brunt of mitigation and adaptation schemes. Yet they are excluded from the processes in which all these so-called solutions are being negotiated. In the UN Framework Convention on Climate Change (UNFCCC) there is no recognition of indigenous peoples as a specific group. Despite years of trying to influence the discussions, indigenous peoples remain at the sidelines of the official meetings.

Discussions on the issue seem to be deliberately designed to exclude indigenous peoples. The meetings are awash with scientific studies that contradict one another. The discussions are overly technical, perhaps with the aim of excluding those who could contribute with ideas to reverse the negative effects of climate change. At the climate change conference in Bali in December 2007, however, indigenous peoples were adamant that they would no longer be mere spectators or footnotes to the discussions and there was a strong resolve to participate. So we need to keep pushing for the UNFCCC, UN agencies, governments, financial institutions and other actors involved in climate change initiatives to respect indigenous peoples' rights to participate in decision-making with regard to matters affecting their rights, as stipulated in Article 18 of the UN Declaration on the Rights of Indigenous Peoples. ❑

Notes

1 This statement was presented at the 13th session of the Conference of Parties to the UN Framework Convention on Climate Change, 3-14 December 2007, Bali, Indonesia.
2 The list of climate change mitigation and adaptation schemes covered in this article is not exhaustive. Other initiatives such as the Forest Carbon Partnership Facility, currently being discussed, are also likely to have a big impact on indigenous peoples.
3 Deforestation refers to the process by which the forest is completely altered by clearing it of its vegetative covering. Land/forest degradation refers to the process by which the forest may not be completely altered but some of its characteristics are changed, thereby lowering its value in terms of acting as a carbon sink.
4 Reforesting Denuded Lands: A Solution to Poverty and Climate Change? Loretta Ann Tamayo and Minnie Degawan. Paper presented during the Climate, Conservation and Poverty, PCLG Annual Symposium 2007.
5 The Kyoto Protocol is a protocol to the UN Framework Convention on Climate Change that has the objective of reducing greenhouse gases. It was agreed on December 1997 and entered into force on February 2005.
6 http://www.fern.org/pages/climate/flexmech.html
7 See "Impact of Climate Change Mitigation Measures on Indigenous Peoples and on their Territories and Lands" 2008, Victoria Tauli-Corpuz and Aqqaluk Lynge.
8 http://unfccc.int/cooperation_and_support/financial_mechanism/items/3659.php
9 Setra, Mina. AMAN presentation on biofuels, Training/Workshop on Indigenous Peoples and Climate Change, Bali November 2007.

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(left) Karen man, Chiang Mai district, Thailand. Photo: Christian Erni

Kirat Kamal Sampang Rai

CLIMATE CHANGE
AND ITS IMPACT ON INDIGENOUS PEOPLES IN NEPAL HIMALAYA

Glacial lake on the brink of bursting - Photo: Kamal Rai

Indigenous peoples worshiping their ancestors, Nepal - Photo: Kamal Rai

Nepal is a landlocked country in South Asia. It is bordered by the Tibet Autonomous Region of the People's Republic of China to the north and India to the south, east and west. Nepal is also known as the country of Mount Everest '*Sagarmatha jhomolongma*', the highest peak in the world. The Himalaya mountain range runs across Nepal's northern and western parts, and eight of the world's ten highest mountains are situated within its territory.

Characterised by its diverse geography and climate, the Himalayan region is a storehouse of biodiversity and constitutes an important component of the global ecosystem. In Nepal, the Himalayan region has more than 2,300 glacial lakes and more than 3,200 glacial rivers originate in the Himalayas. Himalayan glaciers feed seven of Asia's great rivers: the Ganga, Indus, Brahmaputra, Salween, Mekong, Yangtze and Huang Ho, and it is estimated that 20% of the world's population depend directly on the use of Himalayan resources for their livelihood and well-being. Agriculture and power generation in the downstream regions are fully dependent on the freshwater supply fed by the discharges of Himalayan glaciers.[1] For this reason, the mountain range is called the 'water tower of Asia', often with regionally and locally-specific variations. For example, in neighbouring India to the south, the Himalaya range is called 'the water tower of the Ganges', and provides some 45% of the annual flow of the Ganges and its tributaries.

The indigenous peoples of Nepal Himalaya

Nepal is a pluralistic country with many castes and ethnicities, cultures, languages, religions and practices. Of a total population of 22.7 million, indigenous peoples comprise 8.4 million or 37%, speaking more than 90 dialects. Fifty-nine indigenous groups are legally recognised but numerous groups are yet to be recognised.

The Himalayan region is home to millions of indigenous peoples. Of the total population livening in the Himalayan region, approximately 30% are indigenous peoples. The Sherpa, Tamang, Kiranti and Dolpali are among the indigenous groups residing in the Nepal Himalaya. These indigenous groups have their own customary laws, folklore, culture and traditions, which have symbiotic relationships with the Himalayan ecological biosphere and conservation.

The indigenous peoples' settlements are distributed throughout the fragile topography of the Himalayas. The indigenous peoples of the region depend on small-scale land farming systems, producing crops such as wheat, barley and potatoes. Farming is combined with livestock rearing and indigenous communities depend on high alpine natural resources such as timber, fodder, fuels, fruits, nuts, roots, vegetables and medicinal herbs. Often, the agricultural produce is meagre and only sufficient to sustain families for six months. Consequently, the indigenous peoples of the Nepal Himalaya are among the most disadvantaged and marginalized groups in the country.

Climate change in the Himalayas

Human activities are having a profound impact on the world's climate. Mountains are a sensitive indicator of that effect because mountain ecosystems are easily disrupted by variations in climate. As global temperatures rise, mountain glaciers are melting at unprecedented rates, which has a serious impact on flora and fauna as well as on the lives and livelihoods of the indigenous peoples in the area. Over the past few years, local observations have reported less snow-

Himalaya mountain range - Photo: Kamal Rai

fall in the winter, increased rain and snowfall after the winter, unusually intense summer rainfall and increased frequency of avalanches, flash floods and hailstorms. Mountain areas such as the Nepal Himalaya are therefore expected to be most affected by the adverse impacts of climate change.

Melting glaciers

Over the last thirty years, there has been an average temperature increase of 0.6° Celsius in the Nepal Himalaya, which is contributing to increased rainfall and glacial melt. Himalayan glaciers have been in a state of general retreat since the 1850s, but this situation has accelerated and they are now considered to be receding faster than glaciers elsewhere on the planet. The rate of this glacial retreat is visible in some extreme cases – for example, the Dokriani Barnak Glacier in India retreated 20m in 1998.[2] As a result of fast glacial melt, river flows are increasing and new glacial lakes have formed while those already existing have grown rapidly.

A number of glacial lakes are in danger of bursting as excessive melting of glaciers increases the size of the lakes, which can eventually burst from their confines generating tremendous floods downstream and sweeping away all means of livelihood. This happened in 1985 when a glacial lake burst its banks, sending a 15 meter wall of water rushing downhill, drowning people and destroying homes.[3] The occasional bursting of glacial lakes in the past has seriously damaged the lives and livelihoods of mountain communities. Melting glaciers make the Himalayan region, and thereby also the land which indigenous peoples occupy, more vulnerable to flash floods, soil erosion, landslides and debris flow.[4] Such threats operate in conjunction with other changes to the patterns of river flow, spring water recharge, precipitation and vegetation types expected as a result of global warming in the Himalayas.[5] As well as the implications for regional biodiversity, glacial melt will affect people and livelihoods and have severe consequences for food security.

Biodiversity

Due to their shape and size, mountains support a wide range of climatic conditions. It is said that 'climbing just 100 meters up a mountain slope can offer as much climatic variety as traveling 100 km across flat terrain'.[6] Each rise in altitude generates different conditions, with unique ecosystems that contain some of the world's greatest variety of plant and animal life.

With the rise in global temperatures, conditions in the different altitudes change. Detailed studies have shown evidence of an upward movement on mountains of tree lines and alpine plants. Plants at the highest elevations are competing with – and losing out to -- plants normally found at lower elevations. Such floral retreats and advances on mountains have also taken place in the past but current changes are taking place at an unprecedented speed.[7] Consequently, the diverse Himalayan plant and animal species are being seriously affected. Many rare species are already disappearing or are at risk of extinction. If the current speed with which changes are occurring due to rising temperatures continues, trees are likely to cover the high mountains and indigenous peoples will be deprived of their traditional resources and biodiversity, the means with which they have traditionally been able to cope with variation and change.

Other effects

Ngamindra Dahal, who is the Energy and Climate Change Coordinator at the King Mahendra Trust for Nature Conservation, has described the consequences of climate change in the Himalayas:

> *"Weather-related extreme events like excessive rainfall, longer drought periods, landslides and floods are increasing both in terms of magnitude and frequency. Mean annual precipitation is increasing, as is the occurrence of intense rainfall. This causes more erosion of soils and riverbeds and banks, as well as sedimentation on fertile land. More floods and glacial lake outbursts will destroy irrigation and water supply systems, roads, bridges, settlements and productive land. Flood-related deaths will increase. Land degradation will reduce crop productivity and put more pressure on remaining fertile land. In the dry season, increased evaporation will lead to water scarcity. Soil moisture deficits, droughts, fire and possible pest outbreaks will decrease crop yields. Climate change will have major impacts on ecosystems, land and water resources, and major economic sectors such as agriculture."* [8]

In the mountain regions, there is an increasing risk of infectious diseases as an indirect consequence of warmer temperatures. Scientists have reported that the mosquitoes that carry malaria, dengue and yellow fever are spreading to higher altitudes as temperatures warm up. Ticks are proliferating northwards and at higher altitudes, causing disease, and insect pests are predicted to spread and cause damage to crops.[9] Indigenous peoples in the Himalaya region are among the poorest in the world and, with climate

Nepal Himalaya – Photos: Marianne Olesen

change affecting their subsistence base, it will be increasingly difficult to ward off infectious diseases.

Indigenous peoples' perception of climate change and its effects

In 2007, the author conducted a study into indigenous peoples' views on climate change in Taksindu, Solu and Sagarmatha in Eastern Nepal and Dolpa in Western Nepal. According to the indigenous respondents, they have observed the melting of ice and glaciers, and environmental changes in their traditional territories for many years. Although they are not familiar with scientific data on climate change, they are experiencing the disappearance of foods, medicinal plants and herbs and they feel certain that the changing climate is the reason for the changes they are experiencing in their daily interactions with the local environment.

Effects of climate change on subsistence activities

Environmental and ecological changes noted in the Nepal Himalaya indicate that global warming will have a serious impact on the lives and livelihoods of indigenous communities. Many mountain-living indigenous peoples depend on agriculture for their livelihood and there is increasing concern that climate change will have a significant adverse impact on farming. The study into indigenous peoples' views on climate change revealed that landslides, soil erosion and debris flow as a consequence of melting glaciers, as well as changing rainfall patterns, are leading to low productivity and crop failures are affecting many Himalayan indigenous farming communities, who are increasingly facing food insecurity.

The informants also reported observing adverse affects on the Himalayan ecosystem, and hence on the natural resources on which their livelihood depends, due to changing rainfall patterns and other climate changes. One informant explained:

> *"My father established an apple garden a long time ago. The garden was near a beautiful, sacred glacial lake, Lake Dudhkunda, with a view of the Himalaya, which attracted tourists. And the garden became famous with tourists because at that time, all the apple trees bore very delicious fruits with a shiny, beautiful color. But for the last five years, different kinds of changes are appearing in this apple garden, for example early flowering, failure of fruit setting, early and tasteless apples and the trees and the apples often become rotten. The shiny and beautiful colors of the apples have almost disappeared and that may be the impact of climate change."* [10]

Another informant noted that:

> *"We used to go to wetland sites to collect our traditional wild foods, vegetables, medicines etc. It is one of our ancient traditions to harvest the foods for our livelihood. At present, such foods, vegetables and medicinal herbs are disappearing along with the wetlands. This could be an example of the impact of climate change."* [11]

Himalayan indigenous peoples are cattle and sheep herders, and declining production of grass in the Himalayan grasslands due to moisture deficiencies resulting from reduced snow deposits is therefore a serious concern, forcing people to seek grazing at higher altitudes. Stream flow and spring characteristics have also changed dramatically in recent years, making the management of water supplies a challenge.

Positive impacts of climate change

Although the impacts of climate change are considered mainly negative, some positive changes have also been noted. A study conducted in the Mustang and Manang districts of Western Nepal revealed that, surprisingly, many people in the region feel positive about climatic changes and are hopeful about the future of the environment:

> *"For most of [the respondents] the impact is positive. Farmers are growing new vegetables such as cauliflower, cabbage, chilli, tomato and cucumber, which used to need greenhouses to survive. Local fruits have better sizes and tastes. New plants that only used to grow at lower altitudes can now be found. Many note the fact that their Himalayan district is greener than it was a few decades ago. Local residents say this is because of the changing climate rather than technological inputs or improved seed varieties."* [12]

The study, however, stresses that most people are unaware of the real consequences of global warming and that communities who are most vulnerable to the effects of climate change are generally unaware of the nature of possible impacts.

Cultural impacts of climate change

The pressure on glacial lakes, causing landslides, soil erosion and so on, not only has practical implications for indigenous communities in Himalaya, it also has cultural impacts. The Himalayan range and its snow, water, air and biological resources have secular, cultural, religious and spiritual value for indigenous peoples in the region. Many believe that their ancestors' souls live in the

Himalayan lakes and they visit the lakes to show respect to these souls and pray for good health, a good harvest, healthy livestock and wealth. With many glacial lakes on the brink of bursting, it has in some cases become dangerous for people to visit these important places of worship. There is thus a danger that the cultural, as well as religious and spiritual, dimensions of the Himalayan landscape, along with the ancestral memories inscribed on it, are in danger of disappearing along with the glaciers.

Conclusion and recommendations

It is evident that indigenous peoples living in the Nepal Himalaya region are affected by changes in the natural resource base on which they fully depend as a consequence of climate change. And the effects are likely to be intensified in the future as continued climate change is predicted to lead to major changes in freshwater flows, with dramatic impacts on biodiversity, people and their livelihoods.

However, the relationship between climate change and glacial retreat and the impact on indigenous communities is not yet sufficiently understood and studied to develop an appropriate response in the form of policies, adaptation and mitigation initiatives, let alone disaster management programmes. Understanding how climate change affects indigenous communities in mountain areas is vital as governments and international organizations develop strategies to reverse current global warming trends, producing treaties such as the Kyoto Protocol and the United Nations Framework Convention on Climate Change.[13]

Indigenous peoples have valuable ideas, knowledge, oral history and experiences about climate change and its impact and it is therefore crucial that indigenous peoples participate in future research and the development of a strong legal framework. Such a framework should address their rights and customary systems as well as the unique challenges facing indigenous communities in coping with climate change in the Himalayan region. Equally important in addressing vulnerability is to provide ways forward in order to enable empowerment of indigenous communities through access to information on the application of appropriate technologies suitable for the local context, and education on climate change and adaptation strategies.

During a conference on climate change and its impact on Himalayan indigenous peoples in Nepal in March 2008, the participants made the following observations and recommendations:

- Information is lacking on the issue of climate change and adaptation in the indigenous communities in the Himalayan region. Participatory research to explore indigenous peoples' knowledge and experiences related to climate change, its impacts and adaptation strategies is therefore important.
- There are no organizations working on climate change and how to adapt to its impacts, neither are there organisations working on public education on the issue. Awareness raising, education, capacity building and advocacy programmes on climate change and its impact on indigenous livelihoods are therefore needed in Himalayan indigenous communities.
- Networking, coordination, lobbying and communication to ensure the appropriate implementation of international and national climate change conventions and policies that take into account indigenous peoples' rights, knowledge and customary systems are important.

Notes

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THE MAPUCHE AND CLIMATE CHANGE IN THE CHILEAN NEOLIBERAL ECONOMIC SYSTEM

Rosamel Millaman Reinao

The Mapuche of Chile are one of South America's most prominent indigenous peoples, not only in terms of their numbers, which fluctuate around the one million mark, but also because of their long anti-colonial and post-colonial struggle and, more recently, because of their resistance to the neoliberal policies imposed by the Pinochet dictatorship and implemented by democratic governments since Patricio Aylwin took office in 1990. Mapuche communities are facing significant challenges from climate change impacts but, as this article illustrates, these impacts, what they mean and how they are interpreted must be understood within a context of traditional Mapuche ideas of personhood, community and worldviews, and the historical legacy of settlement, contemporary resource development, and the Chilean neoliberal economic system. The Mapuche concept of the human being.

The Mapuche, like other indigenous peoples around the world, have developed a deep and profound knowledge of their natural and spatial environment. One first point to note is that, according to the Mapuche kinship system, everyone's personality draws on two hereditary sources that are decisive factors in the human psyche. Firstly, nature or *Tuwun*, the natural environment in which you are born and where your family ancestors remain, associated with a specific landscape and features. For example, the Mapuche of the Andean region behave in their own specific way, with a specific outlook on life and the world. From this perspective, the natural landscape provides energy or strength (*Newen*), which is expressed in a person's manner or way of understanding, interpreting, and informing their particular way of behaving in relation to the world. Secondly, personality is also determined by one's family ancestors or *Kupalme*, an ancestral legacy that reproduces a particular role within society and the community, or *Lof*. This means that the family legacy influences the manner of being and legitimises or delegitimizes a person's status in their social, cultural and political surroundings. In other words, a religious or political leader must have a family past that supports this role and, in this regard, the family legacy reproduces the legacy and memory of, and dialogue with, one's ancestors.

This concept of life (*Mogen*) determines a dialectical relationship between the social world and nature, and its implications may be many, particularly when an imbalance occurs in the environment or the family group. For this reason, the Mapuche ritual seeks to establish this relationship, in constant and permanent interaction and dialogue with these forces, by means of ritual, discourse, or *Ngulam* (advice), which structures the Mapuche way of thinking (*Rakisuam*).

Environmental changes

The Mapuche ancestral territory has suffered more than two centuries of interference due to the expansion of Chile's capitalist system of production. First indigenous reservations were established and then, soon after, in order to gain control over the Mapuche territory, the Chilean army penetrated the area from 1880-1883 in a military operation euphemistically known as the "Pacification of Araucanía". This led to unification with the Chilean state and the start of the Mapuche people's oppression and internal colonialism.

This state expansion was accompanied by a process of territorial colonization, with the establishment of foreign and *criollo* settlers to whom the occupation's leaders awarded the best lands at derisory prices. They were given wide powers to implement a regional agricultural and livestock production system and incorporate it into the capitalist system of production. This process was characterised by an aggressive economic policy that sought to strip the natural environment bare through indiscriminate "slashing and burning" of the native forest in order to establish cereal crops and, alongside this, to create pasture land for non-native animals. All this was considered essential to the progress and subsequent development of the centre-south region of Chile.

Given the quality and richness of Mapuche land, cereal production (particularly that of wheat) burgeoned, transforming it by the end of the 19th century into "the bread basket of Chile". Agricultural production became so significant that regional producers began to sell on the international market, to places such as California and Australia, where Chilean wheat became internationally known. The state and land-owning power groups quickly sought strategies to increase production yet more, working the lands in Malleco, Bio-Bio and Cautin provinces until they were exhausted, turning them into eroded, desertified areas. Today, the only production potential of many of these lands is as areas of non-native plantations such as eucalyptus and pine. These now represent the country's main national and international produce, with direct implications in terms of the current water crisis being experienced in the region, which is felt particularly by the indigenous communities.

(left) Destructive resource extraction is causing climate change in Chile - Photo: Alejandro Parellada

The new economic policy and environmental collapse

In the mid-1980s, following various crises in its economic policy, the military regime opted for a full-blown neoliberalization of the economy. An immediate impact was felt with the privatisation of public companies, followed by state reforms and decentralisation. In no time at all, the system had been implemented throughout the different spheres of the Chilean state and economy. At the same time, other measures were also adopted such as a requirement to divide up the indigenous communities. Decree Law 2,568 required the communities to divide their lands, creating the necessary conditions for placing these lands on the capitalist production market.

In terms of economic programmes in the centre-south region of Chile, the military regime established subsidies for pine and eucalyptus plantations (exotic plants) on lands that were eroded, exhausted and of little productive capacity for agriculture or livestock rearing. This policy was largely to the benefit of landowners and related companies who, making the most of the government backing, quickly took advantage of the economic benefits on offer. In just a couple of years, such plantations had spread over a large part of the Mapuche ancestral territory. In many cases, this expansion caused the communities to become isolated, surrounding and cutting them off, creating a monolithic landscape in Arauco and Malleco provinces, once the regional centre of cereal production. Alongside this, laws were implemented establishing rules for mining and privatising the water system, which would henceforward be controlled primarily by non-indigenous owners.

It was the Water Law that was to cause the most hardship in Mapuche territory because, by privatising water, only a certain number of owners had direct access to use of this resource, given that the water owners had to pay a regular tax to the state. The transfer of this resource to clients created a trade in water, leaving the indigenous communities unable to use or enjoy this vital resource. The Water Law was enacted in 1981 by means of Decree Law N°1,122. Although it has undergone revisions, its negative repercussions continue to reverberate on the region's indigenous communities, in terms of both the rivers, estuaries and underground waters, which today more than ever are determined and regulated by market forces.

Indigenous knowledge and climate change

The Mapuche people distinguish at least four circular spaces in the universe. Each one has particular features of life and each of them has its own attributes and qualities. First there is Minche Mapu, corresponding to the area inside the earth. This is the place where fire and minerals exist, such as silver and gold. Dwarf human beings known as *Kofkeche* or *Infunche* also live in part of this area.

According to Mapuche belief, there is a layer of water inside the earth that is connected to lakes and seas. Each lake is connected to the sea or ocean by means of a Ñe or marine eye. This partly explains the recent disappearance of two lakes in the south of Chile. As the "eternal ice" has melted, the waters have disappeared, creating much interest and uncertainty among scientific centres of the region and the world.

After Minche Mapu, working upwards, we come to Nag Mapu, where animal and plant life is to be found. This is also the space that human beings live in, shared with the rest of the living and not "directly" living organisms. It is generally in this Mapu (space) that the Mapuche people are to be found, with their "national" identity but also their "ethnic" differentiations: Pikunches (people of the north), Williches (people of the south), Lafkenche or Mapuche connected to the sea (in the Pacific region). On the opposite side to the east are the Puelche Mapuche (people of the east) on land that is now Argentina. These territorial differentiations are the most important but we do also find other names used by the people within the Mapuche ancestral territory, depending on the area and the natural landscape.

The third area is Ragin Wenu Mapu. This is the area from the earth's surface up to the clouds. It is the place of birds such as the condor and the eagle. It is the space in which storms, rain, snow and tornadoes are unleashed. It is an area of edges and borders, the area that connects the earthly space with the cosmic. These cosmological spaces are interwoven between equal or unequal forces (*Newen*) but all seek to maintain balance in this global interrelationship.

The fourth spatial dimension comprises the *Wenu Mapu*, corresponding to the stratosphere, the planets (such as Mars – *Wenulfe*), stars such as the four stars of the south (*Meli Witran Waguben*), and galaxies (*Yepun*). This area is of great importance to the Mapuche people as it is here that the ancestral spirits are to be found, where they live on after their earthly death. This is expressed in Pulli, which is a spiritual force that lives in this space and which can, from here, commence an orbital journey around the earth (*Nag Mapu*).

Mapuches have used various forms of protest against the forestry companies in recent years, such as marches, occupations and hunger strikes. Photos: IWGIA archive

In Mapuche belief, this space is permanently linked to the earth and its phenomena. For this reason, Mapuche ceremonies are in some way or another linked with this power space as it is here that the ancestors watch over the earthly life of their families and Lof.

A few key principles can be inferred from all this in order to conceptualize the changes and transformations taking place in the world. Firstly, in the Mapuche religious and epistemological concept, all visible or invisible matter has *energy* (*Newen*) and thus movement and life. Nothing is static or isolated. This means that environmental problems therefore have to be interpreted in the context of the flux and reflux of energies around the world and universe. In terms of this latter, the Mapuche epistemological concept also assumes that all phenomena have an *interconnection of forces* that link to give sense and expression to their own condition. From this point of view, nothing in the world can be explained by its own qualities because such qualities are closely related to the different forces present in the world, whether they be light, dark, hot or cold. With these principles in mind, global warming is essentially irreversible given that human behaviour change in relation to pollution will not resolve the conjugation of interdependent energies that exist in the world and could only influence a future that it is not possible to clearly predict. Acting on a phenomenon or condition will not change the already historic imbalance being created by the expansion of the capitalist system of production which, in essence, creates pollution and imbalance in the area in which the forces enabling the existence of these phenomena are present.

A third principle present in these relations between the spheres is the fact that human beings do not have hegemonic power over the cosmos or over the forces present in the world in order to be able to give life or grant movement to phenomena or events that take place in the universal or local system. In line with this principle, it is difficult to extinguish or reduce the force of nature as seen in an earthquake, volcanic eruptions or storms that flood and destroy human settlements around the world.

Critical changes facing Mapuche communities

Given the above, it is not possible simply to reduce global warming to a human phenomenon that has occurred in recent years or decades. From the Mapuche point of view, these phenomena constitute a distant behaviour unrelated to the interconnected reality of social life, and which only takes on meaning within the group and in terms of a sharing of the resources granted by nature and the forces that make it possible. Taking this into consideration, the Mapuche communities are generally faced with the following changes in nature and climate:

Changes in the seasons

The close and interdependent relationship between Mapuche society and its environment has given the traditional leaders a focal point around which to explain the climate change that humanity is experiencing on different levels. One initial area of analysis is the variations the elders are observing in the seasons. For some decades now, the kinds of crops that can be grown have been changing. Not so long ago, the four seasons were clearly and regularly established. Over the course of the last few decades, however, they have become blurred and variable, preventing the seasonal cycle from clearly distinguishing between winter and spring. The rains are unpredictable and their consequences harmful because the rains now come in intense storms causing erosion and the leaching of nutrients from the soil. This causes the disappearance of the surface vegetation, making the lands unproductive. In addition, this situation forces the Mapuche communities to seek technological strategies by which to maintain and achieve the necessary production. The most direct way of doing this is by applying for credit in order to obtain fertilisers and recover the productive capacity of the soil. This does not solve the situation in itself, however, and so the communities end up becoming more and more indebted to the state or financial institutions that provide them with the loans. Thirdly, these climate changes also have serious repercussions on the Mapuche production system, which is characterised by its diversity and cyclical and integral nature in which seasonal production is interrelated in order to respond to the needs for food, trade and market links. Faced with this reality, a fourth consequence arises, which is a gradual proletarianization of the Mapuche labour force, and this is transforming the traditional Mapuche economic system. This means that historic production practices have had to be abandoned and, consequently, the indigenous economy is becoming critically and unequally integrated into the capitalist production system.

Excessive industrial use of water

The processes that are taking place in the region, through the imposition of the neoliberal economic system, have created a diversified system of agro-in-

Mapuche community performing a traditional ritual - Photo: Alejandro Parellada

dustrial production on a global and regional scale. The search for industrial-type production innovations has led to the deregulated incorporation of water, used indiscriminately by these new production systems. The different production initiatives and innovations, such as the pasturing system, large farms and non-native fruit production, demand a high and technified use of water. Despite the previously high water concentrations of the ancestral Mapuche region, desertification is now occurring, altering the natural and historic landscape.

Forest expansion and its roots "sucking the water"

The greatest source of Mapuche conflict with the economic model comes from their confrontation with, and the contradictions of, an external production system that requires a high concentration and use of water for plant growth.

The plantation expansion in the region has similarities and differences with the old colonial plantation systems of the tropical regions of Latin America and the Caribbean. In this case, the system requires neither a huge supply of labourers nor a large-scale workforce because mechanisation and the sophisticated use of high technology sidelines workers who lack the technological skills and training required by this new expansionist system. Global warming and the rise in temperature means that plants grow quickly and need to draw substantially on underground waters. This has a number of implications. First, plantation expansion has led to water shortages for the region's Mapuche and peasant farmer population, who now have to rely on the local authorities to distribute water in their areas. Second, plantation development and expansion requires the constant use of chemicals to protect the growing plants. This leads to high levels of soil and water contamination, including the underground waters, estuaries and rivers of the region. This is perhaps the most crucial problem today facing the Mapuche territory in the south of Chile. ❑

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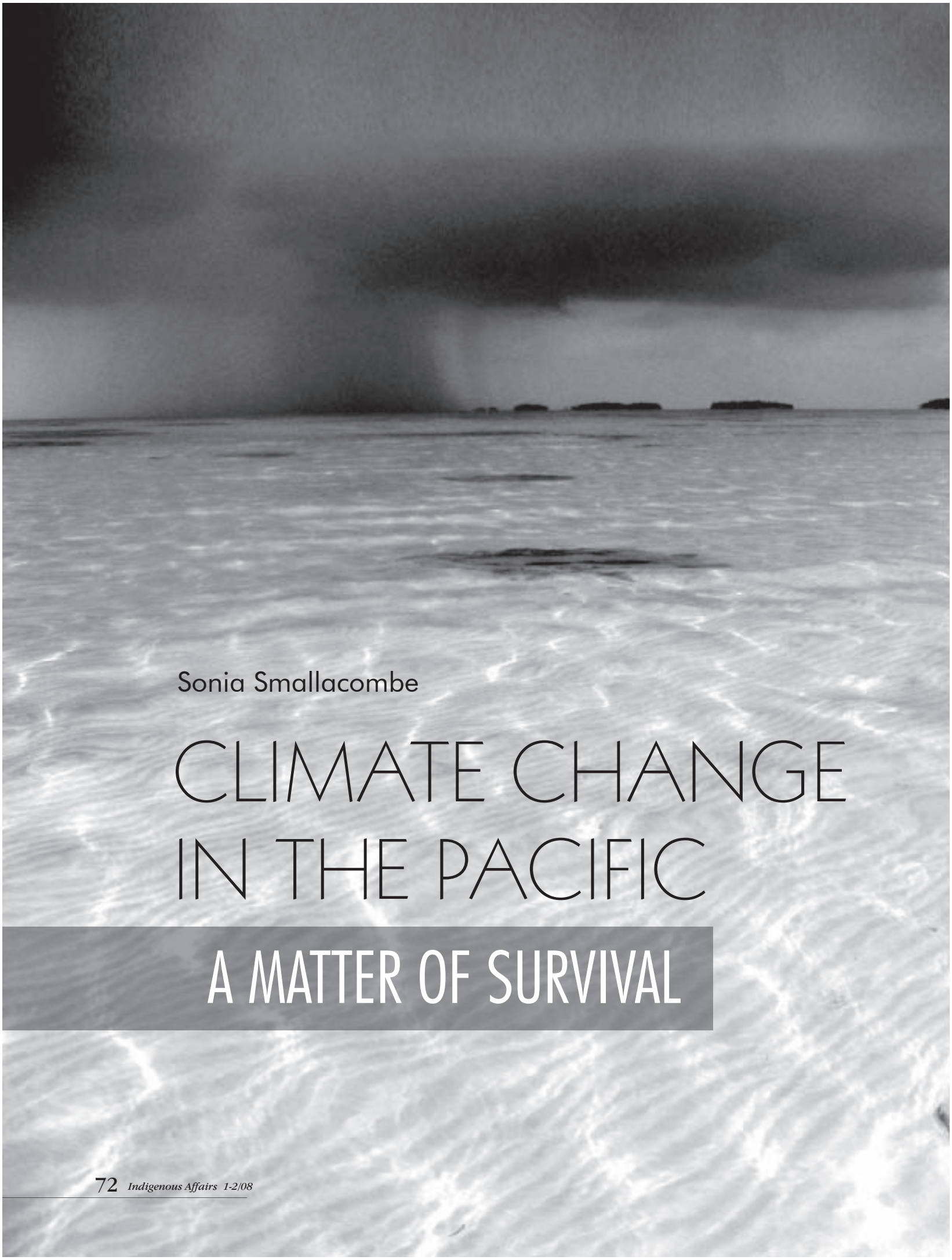
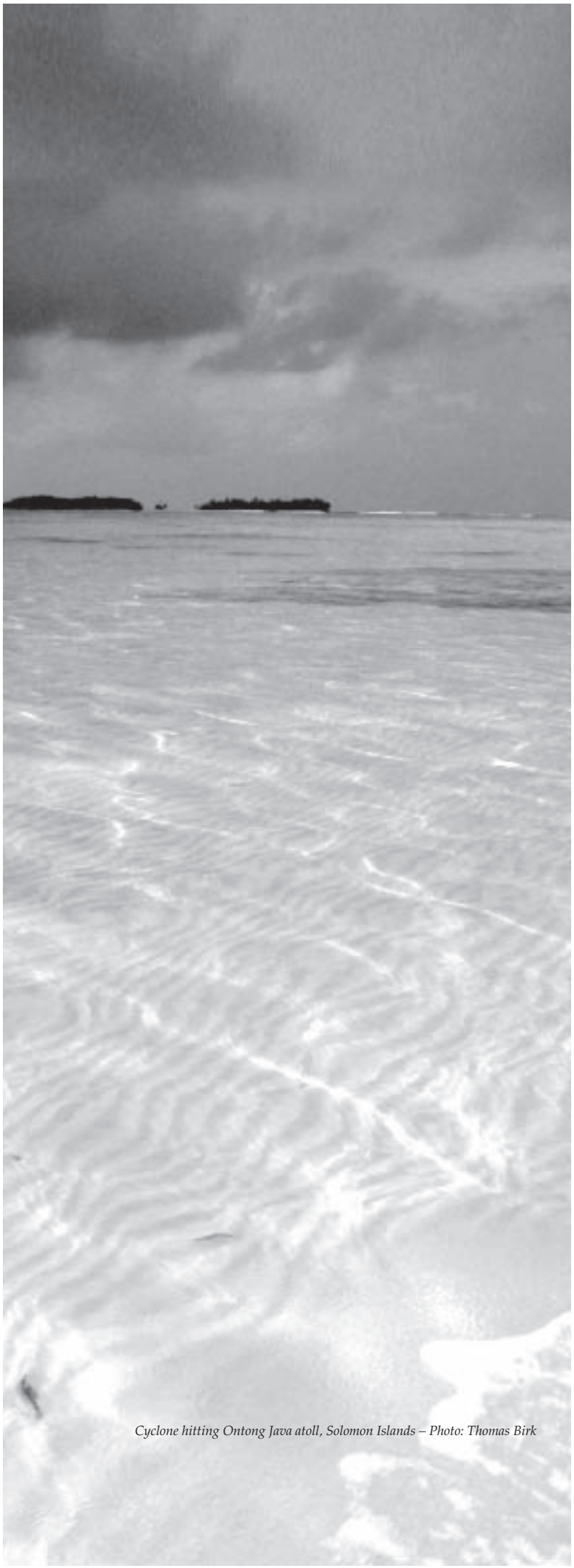


Sonia Smallacombe

CLIMATE CHANGE IN THE PACIFIC

A MATTER OF SURVIVAL



Cyclone hitting Ontong Java atoll, Solomon Islands – Photo: Thomas Birk

Indigenous peoples in the Pacific region are among the first to face the direct adverse consequences of climate change, due to their dependence upon and close relationship with the environment and its resources. While they are amongst the lowest emitters of greenhouse gases, they are also amongst the most vulnerable to the impacts of climate change due to their small size, coastal populations, high dependence on natural resources and the low-lying nature of their lands. As a result, indigenous peoples in many Pacific Island countries feel particularly helpless. Further, they realize that there are climate change threats that cannot be reduced, mitigated or eliminated and they are therefore forced to accept that adaptation is the only responsive option available to them

Impacts of climate change

On average, more than 90% of the population of the Pacific region are indigenous. This includes Vanuatu, the Solomon Islands, Fiji, Samoa, Tuvalu, Rapa Nuie (Easter Island), Papua New Guinea etc. Most of the Pacific region comprises small island states and indigenous peoples are heavily impacted by climate-induced warming: their islands are inundated by rising sea levels, increasing erosion occurs from intense storms, and saltwater intrudes into freshwater supplies. These changes are affecting livelihood activities such as hunting and fishing, and impacting on island infrastructure, access to water resources, food and housing availability, and even the very health of indigenous peoples. There is also concern that climate change will result in revenue loss across important economic sectors such as agriculture, forestry, tourism, energy and other industry-related sectors.

Rising sea levels

Many Pacific Islands have low land masses and, as a result of the rise in sea levels, are experiencing damage to buildings and infrastructure. Crops and causeways linking villages are being flooded, forcing cars, buses and trucks to drive through seawater. This has been particularly noticeable in Kiribati and a number of other small Pacific Island nations, which could completely disappear beneath the waves at some point this century. The small island of Tebua in Tarawa used to be a landmark for fishermen but today it is knee-deep under water. Kiribati suffers the effects of king tides that wash through the islands from one side to the other with great ease. It is now a common

factor in Kiribati to have king tides with waves 2.8 metres in height.[1]

High tides and stormy seas have also recently caused problems in the Marshall Islands, Cook Island, Tuvalu and low-lying islands of Papua New Guinea. In Tuvalu, fresh groundwater mixes with salty seawater, forcing some farmers to grow their root crops in tin containers. These damaging effects of climate change are likely to intensify if sea levels rise as predicted.

Damage to Pacific ecosystems

In the Pacific region, environmental changes are prominent on islands where volcanoes build and erode; coral atolls submerge and reappear and the islands' biodiversity is in flux. The region has suffered extensively from human-made disasters and hazards resulting from nuclear testing, pollution including shipping-related pollution, hazardous chemicals and hazardous wastes (Persistent Organic Pollutants or POPs), and solid waste management and disposals. These issues, as well as the threats of climate change, have severely affected the ability of island ecosystems to maintain a healthy and pristine environment for the economic, social and cultural viability of indigenous communities.[2]

Warmer temperatures have led to the bleaching of the Pacific Islands' main source of survival – the coral reefs. Bleaching occurs when reef-building corals, reacting to stress such as warmer waters, loosen the algae that help feed them. Because the algae give them colour, the starved corals look pale, hence the term "bleaching". Continued bleaching ultimately kills corals. Reef-building corals provide most of the primary productivity of coral reefs and are also an important shelter for a diversity of marine organisms. Reduced abundance and diversity of reef-building corals is thus very likely to have a major influence on the surrounding biodiversity. Coral reefs are home to much of the seafood that is enjoyed by indigenous peoples in the region.[3]

Food and water security

Agriculture in the Pacific region, especially in small island states, is becoming increasingly vulnerable due to heat stress on plants and salt water incursions. Crops with low tolerance to climate hazards such as bananas, one of the main staple crops, are severely threatened. Soil erosion from destructive wave activity, frequent storm surges and landslides causes land loss to many indigenous communities. Plantations and livestock are the major sources of subsistence farming, and are now faced with serious threats from new diseases and pests linked to flooding, drought and other climatic variations. Threats to food security are thus of great concern to the region.

A significant impact of climate change and climate variability on indigenous peoples in the Pacific region is unreliable water availability. In many places, there is often a lack of water storage systems such as water tanks. If improvements were made to water supplies and accessibility systems, indigenous peoples would not have to rely on unpredictable and untreated river sources. Hence, sustainable water sources, maintaining and improving water quality and minimizing the spread of water-borne diseases is an important issue for indigenous peoples in the Pacific.

Drought

Some 2,000 miles to the west of the Pacific is Australia, which is experiencing the worst drought in 100 years, even with the flooding that occurred in late 2007 and early 2008. Scientists are not certain that climate change is to blame but it is the most popular theory. One concern is that when there is rain in the north-east coastal regions, soil washes into the Great Barrier Reef, the world's largest coral reef. This process is damaging the coral, and warmer waters are also killing parts of the reef.

Carbon emissions trading

In the Pacific, like in most other regions, indigenous peoples are not only affected by climate change but also by the initiatives developed to address it. Carbon emissions trading is an area of concern for many indigenous peoples. At the same time, however, some indigenous peoples see the potential economic benefits of taking part in carbon trading projects, especially when indigenous communities have already developed, over thousands of years, sustainable, neutral and carbon negative livelihoods. A unique agreement, which claims to be the first of its kind in the world, was recently negotiated in Australia. In June 2007, when a giant new natural gas refinery was constructed in Darwin, ConocoPhillips agreed to pay the Aboriginal people of the Western Arnhem Land region of Australia AUD 1 million (USD 850,000) per year, for 17 years, to offset 100,000 tons of the refinery's own greenhouse emissions (The Western Arnhem Fire Management Agreement). The Aboriginal people concerned will use traditional fire management prac-

(right) Rising sea level, Ontong Java atoll, Solomon Islands – Photo: Thomas Birk

tices, which have been scientifically shown to reduce greenhouse gas emissions as compared to naturally occurring wildfires.[4]

Carbon trading continues to be a hugely contentious issue, however, mainly due to its inherent problems. The main concern is that, while companies do not have to actually reduce their emissions, they can pay other companies and groups, mostly from non-industrialized countries, to reduce emissions or to absorb CO_2 from the atmosphere, and thus account for these as their own reductions. The big benefit to companies is that, when paying others, they pay only a fraction of what they would need to invest at home to achieve the same goal.[5]

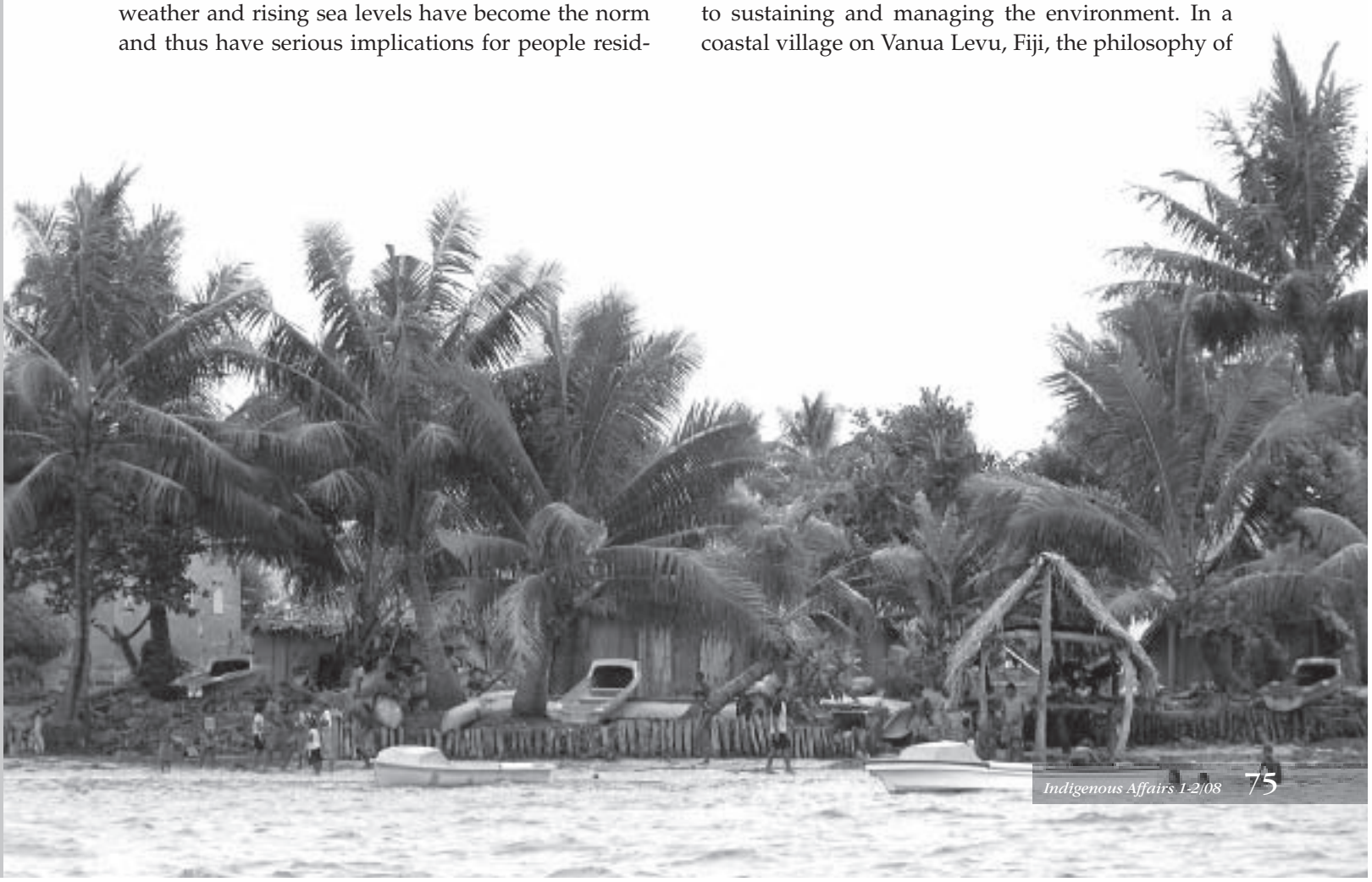
Adapting to climate change through migration

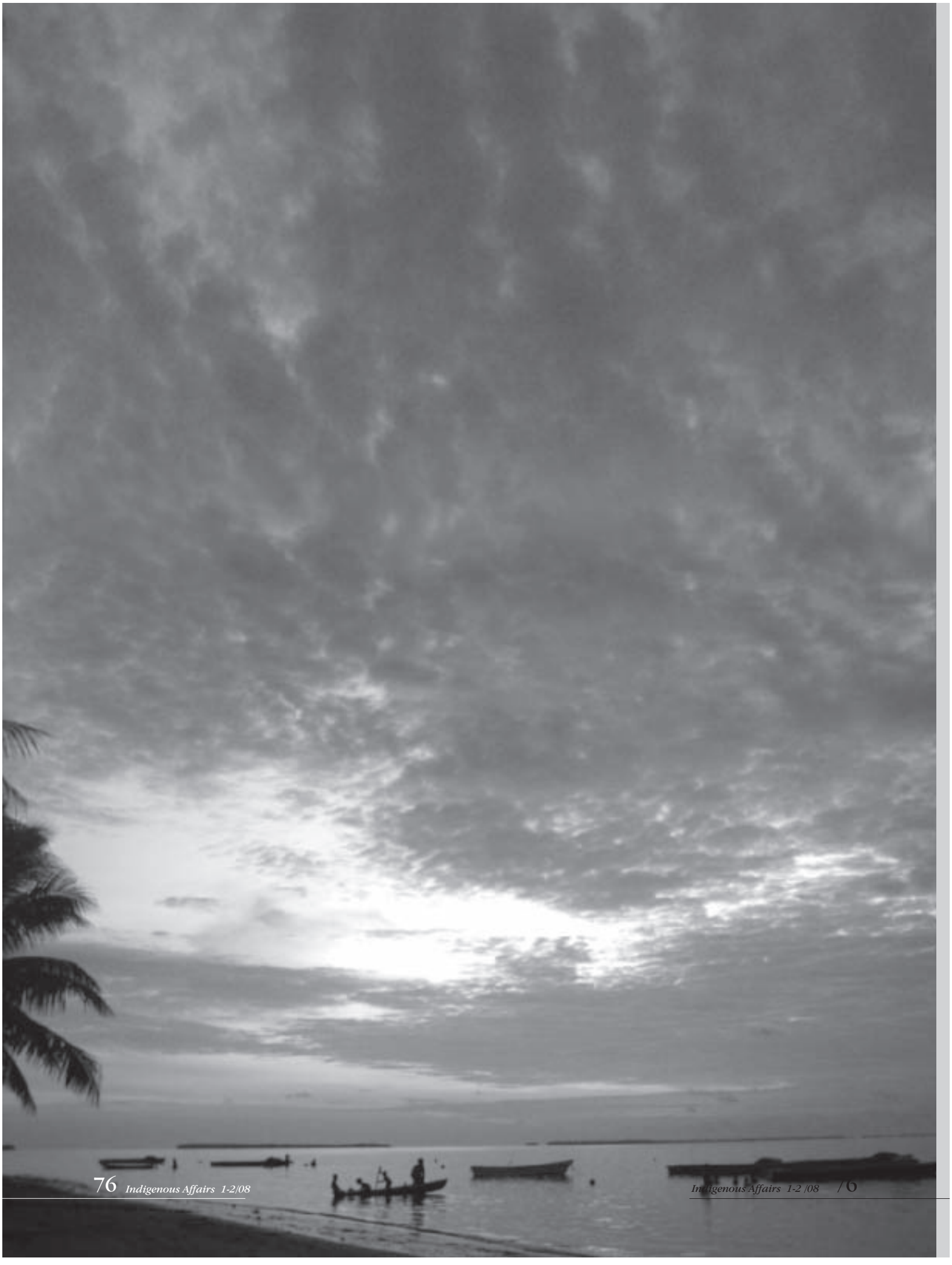
As people begin to feel the heavy impact of climate change on the quality of life in the Pacific, migration will become a major issue, particularly as a result of flooding from the rising sea level. Forced adaptation is already underway, with some communities being displaced from their traditional lands and territories due to coastal and land erosion caused by large storm-driven waves. Dislocation is already a reality in Samoa and Vanuatu, where flooding from extreme weather and rising sea levels have become the norm and thus have serious implications for people residing in the region. People living in Papua New Guinea's Bougainville atoll island of Cartaret have asked to be moved to higher ground on the mainland. The people of Sikaiana Atoll in the Solomon Islands have also been migrating away from their atoll, primarily to Honiara, the capital. Similarly, there has been internal migration from the outer islands of Tuvalu to the capital, Funafuti. In the case of Tuvalu, this migration has brought almost half of the national population to Funafuti atoll, with the inherent negative environmental consequences, including an intensified demand for local resources.[6] New Zealand has agreed to take 75 Tuvaluans per year, in a slow evacuation process of the island.

Migration as a solution is, however, highly problematic. It is a violation of the right of countries to exist as peoples, a threat to cultures and tradition, causes loss of lives, loss of biodiversity, loss of spiritual connectivity and loss of settlement.[7] It is therefore crucial that the issue of "environmental refugees" is seriously discussed and that indigenous peoples become genuinely involved in designing and implementing responses to climate change.

Adapting by applying traditional knowledge

Traditional knowledge and practices are important to sustaining and managing the environment. In a coastal village on Vanua Levu, Fiji, the philosophy of





Extreme weather events, Ontong Java atoll, Solomon Islands – Photo: Thomas Birk

vanua (which refers to the connection of people with the land through their ancestors and guardian spirits) has served as a guiding principle for the management and sustainable use of the rainforest, mangrove forest, coral reefs and village gardens.

In other parts of the Pacific, indigenous peoples have supported mangrove conservation along the coastline to protect against natural disasters such as cyclones and tsunamis. It is seen as a cheaper undertaking than seawalls, which are funded from external sources. Mangrove conservation involves the community in the management process as well as the inclusion of women in the replanting activities. Other activities include the provision of a water drainage system as well as banning tree clearing. However, it is recognized in the Pacific that enhancing adaptive capacity involves more than local options, which will only be successful if they are integrated with other strategies such as disaster preparation, land-use planning, environmental conservation and national plans for sustainable development.[8]

Grants from United Nations agencies, such as the International Fund for Agricultural Development (IFAD), promote the development and dissemination of appropriate crops and technologies in the Pacific region. The merging of indigenous and atoll technologies through action research and documentation is designed to support agriculture and fisheries. A similar activity, managed by the Solomon Island Development Trust, is due to take place through a small grant from IFAD's Indigenous Peoples' Assistance Facility (IPAF). Indigenous populations will be assisted to improve post-crisis resilience by merging traditional with scientific knowledge.

Institutional barriers that prevent adaptation exist in the Pacific region. For example, adaptive capacity and resilience in the Pacific is hampered by limited resources and lack of access to technology. On the other hand, the application of traditional knowledge and past experiences has been strengthened in various ways, such as the implementation of traditional marine social institutions, as exemplified in the Ra'ui in Rarotonga, Cook Islands. This is an effective conservation management tool aimed at improving coral reef health. Indigenous peoples' ecological knowledge and customary sea tenure is also integrated with marine and social science to conserve some of the wildlife, such as the bumphead parrotfish in Roviana Lagoon, Solomon Islands. Changes in sea tenure, back to more traditional roles, have also taken place in Kiribati.[9]

What needs to be done

While there is scientific consensus, notably through the Intergovernmental Panel on Climate Change (IPCC), with regard to the threats that climate change poses, governments have been slow to respond. The vulnerability of the whole Pacific region to disasters poses a real threat to achieving economic stability, social development, environment conservation and cultural diversity. In September 2007, Mr. Elisara-La'ulu, Director of Ole Siosimaga Society (OLSSI) in Samoa, said that bystanders who knew that the world was in crisis but did nothing were just as bad as the architects of the crisis. He urged government leaders to ask indigenous peoples about the effects of climate change before taking any decisions, and that indigenous peo-

(left) Ontong Java atoll, Solomon Islands – Photo: Thomas Birk

ples should not act when under pressure from global processes driven by big governments.[10] During a meeting in April 2008, Mr. Elisara noted that:

> *"For us Pacific peoples, the discussion on climate change is not just a theoretical issue that we talk about when we come to these global meetings! It is there and we see the effects in our daily lives. For us it is a matter of life and death! In many cases we have to decide whether to stay on our islands or leave our homes. As sovereign countries, our rights as countries are protected under the Charter of the United Nations. We plead accountability against those causing these violations of our rights to exist as peoples, as countries, and as sovereign nations. Someone must bear responsibility for our demise when we lose our cultures, when our traditional ways of lives are trashed, and we are denied our freedom to exist as peoples. This is an issue of climate justice that we are calling for here and will continue to do so in every opportunity that comes our way!"* [11]

There are two important issues that some of the small island states, such as Samoa, are highlighting. The first issue is the importance of allowing communities themselves to prioritize and pursue their adaptation needs. Community representatives need to work with policy-makers to identify solutions that take account of cultural values in order to protect the livelihood and well-being of indigenous peoples. The second issue is the urgent need to put early warning systems in place to ensure that indigenous communities have the information they need to respond to each hazard and potential threat. This in turn will go some considerable way towards implementing sustainable community activities to adapt to, and minimize, the adverse impacts of climate change.

At the *Pacific Regional Civil Society Organization Forum* held in Tonga in October 2007, the following recommendations were made:

- That regional contingency plans be developed to accommodate environmental refugees in a manner that maintains their national identity and indigenous cultural integrity;
- Engage indigenous peoples' organizations in the development of programmes that involve measures to deal with the effects of climate change;
- Promote forest conservation, energy efficiency and renewable energy; and
- Involve indigenous peoples in programs that support community-level mitigation and adaptation measures and, at the same time, recognize the value of the traditional knowledge of indigenous peoples, which has enabled them to maintain and interact with their environment in a sustainable way.[12]

Notes

1 Fiu Mataese Elisara. *Effects of Climate Change on Indigenous Peoples*. A Pacific presentation during the International Expert Group Meeting on Indigenous Peoples and Climate Change, Darwin, Australia April 2-4, 2008.
2 Ema G. Tagicakibau. *Pollution in Paradise: The Impact of Nuclear Testing and Radio-Active Pollution on Indigenous Peoples in the Pacific and Strategies for Resolution*. Pacific Concerns Resource Centre, August 2007.
3 Robert W. Buddemeier, Joan A. Kleypas, Richa rd B. Aronson. *Coral Reefs and Global Climate Change: Potential Contributions of Climate Change to Stresses on Coral Reef Ecosystems*. Pew Centre, January 2004, page 25.
4 Victo Mugarura. *Aborigines burn the way to climate control.* BBC, September 18, 2007 http://news.bbc.co.uk/2/hi/asia-pacific/6726059.stm
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6 Intergovernmental Panel on Climate Change (IPCC). *Report of Intergovernmental Panel on Climate Change, Working Group 2: Climate Change Impacts, Adaptation and Vulnerability*, 2007, page 708.
7 Fiu Mataese Elisara. *Effects of Climate Change on Indigenous Peoples*. A Pacific presentation during the International Expert Group Meeting on Indigenous Peoples and Climate Change, Darwin, Australia April 2-4, 2008.
8 Intergovernmental Panel on Climate Change (IPCC). *Report of Intergovernmental Panel on Climate Change, Working Group 2: Climate Change Impacts, Adaptation and Vulnerability*, 2007, page 709.
9 Ibid, page 708.
10 Meetings Coverage, DPI/NGO Annual Conference, NGO/626, PI/1794, Department of Public Information, UN, New York, 6 September 2007.
11 Fiu Mataese Elisara. *Effects of Climate Change on Indigenous Peoples*. A Pacific presentation during the International Expert Group Meeting on Indigenous Peoples and Climate Change, Darwin, Australia April 2-4, 2008.
12 Communiqué of the *Pacific Regional Civil Society Organization Forum* held in Tonga in October 2007, pages 4-5.

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The views expressed in this paper do not necessarily represent those of the United Nations or the Secretariat of the Permanent Forum on Indigenous Issues.

IWGIA - INTERNATIONAL WORK GROUP FOR INDIGENOUS AFFAIRS

IWGIA's aims and activities

The International Work Group for Indigenous Affairs - IWGIA - is a non-profit making, politically independent, international membership organization.

IWGIA co-operates with indigenous peoples all over the world and supports their struggle for human rights and self-determination, their right to control land and resources, their cultural integrity, and their right to development. The aim of IWGIA is to defend and endorse the rights of indigenous peoples in concurrence with their own efforts and desires. An important goal is to give indigenous peoples the possibility of organising themselves and to open up channels for indigenous peoples' own organizations to claim their rights.

IWGIA works at local, regional and international levels to further the understanding and knowledge of, and the involvement in, the cause of indigenous peoples.

The activities of IWGIA include: publications, international human rights work, networking, conferences, campaigns and projects.

For more information about IWGIA's activities, please check our website at: www.iwgia.org

Publications

IWGIA publishes a yearbook, ***The Indigenous World/ El Mundo Indígena***, and a journal ***Indigenous Affairs/ Asuntos Indígenas***. Furthermore, a number of books thematically focussing on indigenous issues are published each year.

Suggestions for and contributions to IWGIA's publications are welcome and should be submitted to the editors in charge.

IWGIA's publications can be ordered by

- **e-mail: iwgia@iwgia.org**
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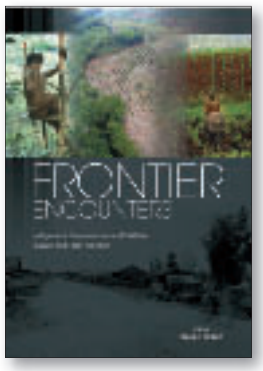

Danilo Geiger (ed.)

INDIGENOUS COMMUNITIES AND SETTLERS IN ASIA AND LATIN AMERICA

Poverty and the maldistribution of land in core areas of developing countries, together with state schemes for the colonization of unruly frontiers, have forced indigenous peoples and settlers into an uneasy co-existence. Presenting material from various Asian and Latin American countries, Frontier Encounters examines factors that make for conflict and accommodation, studies the role of policy frames, and looks at promising mitigation strategies. The range of topics covered by the articles includes the texture of everyday-relations at the settlement frontier; settler land and resource use strategies; anti-settler riots and their politics; and communal land titles as a promising avenue for conflict prevention.

IWGIA & NCCR – 2007
ISSN 9788791563157 – 557 pages – photos and maps

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Erica-Irene A. Daes

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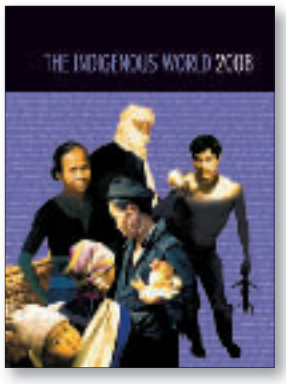

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