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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 probabilistic 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 diffi-

cult 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 IWGLA'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 of comprises 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. □