

# Land Use, Climate Change Adaptation and Indigenous Peoples

DEVELOPMENT & SOCIETY : Agriculture, Indigenous People, Climate Change, Traditional Knowledge, Land Management

Galloway McLean, Kirsty - United Nations University - August 2012

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For indigenous peoples, resilience is rooted in traditional knowledge, as their capacity to adapt to environmental change is based first and foremost on in-depth understanding of the land. As climate change increasingly impacts indigenous landscapes, communities are responding and adapting in unique ways.

In a recent statement to the Conference of Parties to the UN Framework Convention on Climate Change, the International Indigenous Peoples Forum on Climate Change (IIPFCC) stated:

"...[W]e reiterate the need for recognition of our traditional knowledge, which we have sustainably used and practiced for generations; and the need to integrate such knowledge in global, national and sub-national efforts. This knowledge is our vital contribution to climate change adaptation and mitigation."

## Local resilience depends on local knowledge

The connection to their land is an important source of resilience for indigenous communities, but this resilience depends on an ability to nurture and manage this relationship. Victoria Tauli-Corpuz, Executive Director of Tebtebba (Indigenous Peoples' International Centre for Policy Research and Education), points out that indigenous knowledge is "...locally fine-tuned, which is essential for climate change adaptation and long-term community resilience".

Speaking at a recent conference in Mexico, her colleague Willy Alangui presented their joint paper outlining the results of three case studies on traditional forest management, as practised by the indigenous peoples of Loita Maasai (Kenya), Miskitu (Nicaragua) and Dayak Jalai (Indonesia). For the indigenous peoples in each of these case study areas, the forest is not only a source of sustenance and livelihoods, but also the very basis of their identities, cultures, knowledge systems and social organizations.

These community-based forest management strategies involve setting aside conservation areas, woodcutting and watershed management zones, which have an important role to play in reversing the process of deforestation, thereby sequestering carbon and promoting rural development.

[quote quote="The multiple land-use systems that underpin these forest management strategies are both a livelihood scheme and a source of resilience." type="text" ]

The Miskito of Nicaragua maintain three land-use types: cultivated fields, pastures and forest areas; in Indonesian Borneo, a typical Dayak Jalai village territory creates a shifting mosaic land-use pattern including patches of natural forest, managed forests, rotating swidden/fallow, and permanent fields.

The multiple land-use systems that underpin these forest management strategies are both a livelihood scheme and a source of resilience. But a common problem in each of these communities is a lack of political control over their land and forests. For the Loita Maasai, forest resources are held in trust by the Marok County Council on behalf of the Kenyan government. For the Miskito, access to, and use and control of, natural resources are impacted by government norms and regulations and external settlers are causing deforestation. The Dayak Jalai are faced with government-promoted expansion of palm plantations and the continued operations of mining companies.

“Undermining local control over these land resources increases the vulnerability of these communities,” say Tauli-Corpuz and Alangui. “Security of land tenure and the resulting ability to access, manage and extract natural resources is a pre-condition for maintaining the resilience of local communities.”

### **Nyangatom agro-pastoralists: Fragile livelihoods under threat**

Sabine Troeger heads the Climate Change Partnership Program at the Horn of Africa Regional Environment Centre and Network. Her experience with the Nyangatom, a small agro-pastoral group in South-west Ethiopia, suggests that their livelihood systems — although previously well adapted to their fragile environment — are suffering from a potentially fatal interplay between various adverse forces including climate change, which is challenging their entire social system.

Troeger notes that the “finely-honed symbiotic relationship between local ecology, domesticated livestock and the Nyangatom people” has been disrupted. The Nyangatom report that their livelihoods are highly impacted by climate change and changing environmental patterns, namely failing belg rains (Ethiopia’s short and moderate rains from February to May) and increasing temperatures. People perceive this change as irreversible, naming such environmental indicators as disappearing plants and animals, and discuss having to modify their seasonal calendar.

The social capital necessary for community resilience (captured in rules and regulations, ‘ceremonies’ of sharing and reciprocal support) is threatened as elements of social cohesion and identity fade away.

Examples of this degradation include formerly cattle-rich pastoralists becoming poor, women becoming more dependent on their husbands, leather skirts — attributes of clan affiliation and family status — being replaced by cotton, and seasonal ceremonies falling out of sync as a result of changes in the timing of natural indicators.

In adapting to the changes that face them, “...the Nyangatom will not be what they were before,” says Troeger. “They will have to accept the challenge of societal transformation...”

This, she explains, will require new institutional settings and the accordant shifts in societal hierarchies and power.

“Rangeland management as well as schooling of the children will make the pastoralists sedentary... Is there any hope for adaptation and a way forward towards enhanced livelihood security?” Troeger asks. Only through a reshaping of society and the adoption of a still-to-be-defined institutional framework, she concludes.

### **‘People of the Whales’: A story of hope in the face of loss**

Chie Sakakibara is a cultural geographer at the University of Oklahoma (Native American Studies Program). Her current research looks at how vulnerable populations confront the environmental uncertainty of global warming through cultural practices. Her work focuses on traditional relationships with the bowhead whale (*Balaena mysticetus*) in the Alaskan Arctic, particularly among the indigenous Iñupiat people who call themselves the ‘People of the Whales’.

The Arctic is experiencing some of the Earth’s most rapid and severe climate change, threatening ties between the Iñupiat and the bowhead on many levels. Temperatures are increasing at a rate twice the global average; Arctic sea ice cover at the end of the melt season has hit record lows, and this downward trend is accelerating. Increased variability in snow and ice conditions is having a profound effect on the distribution and migration patterns of many animals including the bowhead whale.

[quote quote=”...contemporary storytelling among the Iñupiat both reveals and helps them cope with an unpredictable future and serves as a way to maintain a connection to a disappearing land.” author=”Chie Sakakibara” type=”text” ]

Sakakibara talks about how deep the impact of climate change is on Iñupiat society. The difficulties range from lowered whale populations and the consequent increasing reliance on technology, to the need to travel further to maintain a connection to the whales. They also include the loss of Qalgi, sacred ceremonial places that spiritually and physically connect the people to the sea.

However, she also notes the resilience of indigenous peoples to adapt to their changing homeland.

“During my fieldwork, I realized that contemporary storytelling among the Iñupiat both reveals and helps them cope with an unpredictable future and serves as a way to maintain a connection to a disappearing land,” says Sakakibara. “In order to survive, the Iñupiat have newly endowed their culture with the power to sustain their bond with the whales. This is a story of hope.”

### **Reindeer herder ‘indigenuity’**

On the other side of the Arctic, reindeer herding — a millennia-old tradition of more than 20 different indigenous peoples across the circumpolar North — is also being challenged by climate change. Changing weather and shorter winters are altering reindeer and caribou migration and feeding patterns, while shrubs are moving northward into the barren tundra areas, making access to food a challenge for the animals.

Petr Kaurgin, a Chukchi reindeer herder from the remote Turvaugin nomadic tribal community in North-eastern Siberia who works with the Snowchange Cooperative, speaks of the impacts of climate change on his community.

“River ice is breaking up earlier and the birds are flying up north about one and half weeks earlier. Earlier, we used to migrate and reach the coast by mid-July. Now, we are missing the coast by 150km,” says Kaurgin.

Some communities are working to address the changing climate by combining their indigenous knowledge with other information sources to try and predict weather events in order to direct their herds to alternate pastures — for example, by collaborating with NASA and using satellite research systems to complement their own observations.

Mikhail Pogodaev, Chair of the Association of World Reindeer Herders, and Nancy Maynard, senior research scientist from NASA, have called this combination of indigenous knowledge and ingenuity, ‘indigenuity’, and notes that the success of such collaborations relies on co-producing knowledge, equal partnerships and including indigenous peoples in the process from the beginning.

### **Traditional fire management creates opportunities**

In the top north-eastern tip of Australia, the Western Arnhem Land Fire Abatement (WALFA) Project uses the traditional fire management practices of the aboriginal traditional land owners in conjunction with modern scientific knowledge to reduce the extent and severity of wildfires in fire-prone tropical savannah. This achieves substantial reduction in annual greenhouse gas (GHG) emissions through increasing strategic early dry season fire management, which decreases destructive late dry season wildfires that produce more potent GHGs such as methane and nitrous oxide.

Other benefits realised by these skilled indigenous fire managers working on the project include protecting culture and biodiversity ‘on country’ (on their tribal land), and bringing in social and economic benefits to their communities.

Jeremy Russell-Smith, a consultant ecologist to Bushfires NT and the North Australian Indigenous Land & Sea Management Alliance, is one of the project’s leaders. He also emphasizes that the success of the project has resulted from the full engagement and collaboration of all partners.

“If you look at the Western Arnhem Land project, you’d have to say it has been successful in so many ways... Largely because right from the outset it had the full authority of the cultural

governance sort of arrangement,” he says. “The senior traditional owners were very supportive of the need to get together and develop a program that would be inclusive and representative of their cultural needs, but knowing that it had to become sustainable in the longer term.”

### **Local experiences spark new ideas**

Across the Pacific Ocean is a research team led by Dr. Bibiana Bilbao of the University Simón Bolívar in Venezuela, which has been investigating the traditional uses of fire by the Pemón people within Canaima National Park, a savannah-forest mosaic landscape.

The research team has found that the Pemón use fire to manage their environment in a diverse and complex way, including the use of fire for shifting agriculture, hunting in forested areas and the cooperative burning of savannahs to prevent biomass accumulation, and reduce the potential for large catastrophic wildfires. The team has identified the valuable lessons emerging from both the North Australian and Southern African experiences to identify future pathways for Latin America.

“It’s impressive how the traditional mechanisms of fire management are identical between Australian aborigines and the Amerindios even though we are so far apart and in two different continents,” says Bilbao.

In light of the large contribution that savannah-burning makes to global emissions (approximately 60% of all carbon emissions from global biomass burning), and the potential for other countries and communities to benefit from the successes of projects like WALFA, the UNU’s Traditional Knowledge Initiative <http://www.unutki.org/> is currently working to bring together a number of parties across the globe to develop carbon offset programmes that will assist them to mitigate climate change and transition to low-carbon growth pathways. Interested parties may contact the TKI directly for further information.

### **The way forward**

As these stories and the accompanying videos illustrate, for indigenous communities around the world, dealing with impacts from climate change is not a prospect for future deliberation. Already, seasonal rains arrive late or fail completely, leading mobile pastoralists to sedentary lives; sea ice platforms break up earlier each year and sacred sites are lost; and familiar homelands and natural phenomena are disrupted. Traditional knowledge and livelihoods must adapt to these changes.

But as they have always done, indigenous and local communities make careful observations about their lands, exchange information and experiences, and plan for the future. New ideas spring up, based on centuries-old knowledge, and partnerships between indigenous peoples and scientists are producing new knowledge to address the challenges of climate change.

In the face of increasing climate instability, recognition of indigenous rights and respectful two-way collaboration is the path forward to build better early warning systems and support local efforts towards building resilience.

Please join in and share your thoughts in the comments area.

### **Discussion questions**

- What have been your experiences with local communities adapting to climate change?
- Do you know any examples of respectful two-way collaboration between indigenous communities and scientific research teams?