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Climate Change Mitigation with Local Communities and Indigenous Peoples: Practices, Lessons Learned and Prospects

Proceedings of the Expert Workshop on
Climate Change Mitigation with Local
Communities and Indigenous Peoples

26-28 March 2012, Cairns, Australia



**Climate Change Mitigation with Local
Communities and Indigenous Peoples:
*Practices, Lessons Learned and Prospects***

26-28 March 2012 ♦ Cairns, Australia

MEETING REPORT

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Preface

When considering climate change mitigation, indigenous peoples and local communities warrant particular attention: deforestation contributes a large percentage of annual global emissions, and indigenous peoples and local communities live in or use a large percentage of the forested areas at the centre of these proposals, and legally own over 11% of the world's forests; agroforestry systems are important carbon sinks and traditional farmers manage between 10-15% of cultivated land; and indigenous peoples and local communities are actively involved in innovative solutions based on their traditional knowledge, such as reducing emissions through traditional fire management techniques, adopting renewable energies in their territories (wind, hydropower, and geothermal), and resource management projects that reduce pressure on natural resources and enhance local adaptive capacity. There is a strong level of interest in climate change mitigation within these communities because climate change impacts on their territories and communities are both early and severe due to their location in vulnerable environments, and because these impacts also pose a direct threat to many indigenous and marginalized societies' continued reliance on resource-based livelihoods.

Noting that issues related to indigenous peoples and local communities will be prominent in several of the chapters of the AR5, IPCC and UNU agreed to co-organize two workshops to redress the shortfall of available information on indigenous peoples and local communities and their climate change adaptation and mitigation. Various other international institutions agreed to help co-convene these events, including the Secretariat of the Convention on Biological Diversity (SCBD), United Nations Development Programme (UNDP), United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Permanent Forum on Indigenous Issues (UNPFII). The first workshop focused on vulnerability and adaptation and was held in Mexico City from 19-21 July 2011. It featured presentations from a variety of indigenous communities and climate scientists, and was held in collaboration with IPCC Working Group II (represented by co-chair Vicente Barros), and lead Fifth Assessment Report (AR5) authors working on impacts, adaptation and vulnerability.

This second workshop of the series focused on mitigation and aimed to address issues relevant to IPCC Working Group III. The workshop brought together lead authors for the WG III contribution to AR5 working on mitigation of climate change, indigenous peoples and local community knowledge holders and experts, and climate scientists. An international panel of experts including climate scientists and Indigenous experts was appointed to oversee the workshop, which allowed for in-depth focus on the topics and regions for which WG III is seeking input.

Specifically, the workshop aimed to identify, compile and analyze relevant information on issues related to climate change mitigation by local communities and indigenous peoples. While forests and other landscapes under local systems of tenure are at the centre of national and international mitigation proposals, it is often unclear how they could be incorporated and how legal and governance frameworks could facilitate fair burden sharing and support sustainable development. In addition, traditional technologies and practices – which are being recognized as cost-effective terrestrial mitigation solutions that have the potential to enhance existing carbon sinks and to

reduce net CO₂ emissions – are being implemented on indigenous and local community lands and territories.

Presentations and discussions in the workshop were grouped around various thematic issues, and addressed agriculture and land use systems; livelihoods and culture; REDD+ mitigation; renewable energies and energy supply; forestry; carbon abatement and fire management; governance; and mitigation for sustainable development. Additional topics included gender and regional balance issues; land property and resource management; equity and ethics as an overarching framework; the role of indigenous peoples and local communities in decision-making; synergies and trade-offs between mitigation, adaptation and sustainable development; barriers for mitigation projects including financing; education strategies for engaging indigenous and local communities; and identifying gaps in the knowledge base.

This report includes summaries of presentations, discussions, and the overarching issues that were identified by participants at the workshop.



Figure 1: Workshop participants, Cairns, Australia

Background Information

Introduction

The Intergovernmental Panel on Climate Change (IPCC) is an international scientific body tasked with evaluating the risk of climate change. The panel was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). The IPCC is composed of government representatives with relevant expertise. Nongovernmental and intergovernmental organizations are allowed to attend as observers at the invitation of the IPCC.

A main activity of the IPCC is publishing Assessment Reports (ARs) on topics relevant to the implementation of the United Nations Framework Convention on Climate Change (UNFCCC). These reports are based mainly on peer reviewed and published scientific literature and are the most widely cited reports in almost any debate related to climate change. Governments and international organizations generally regard the IPCC reports as authoritative.

Since 1990, the IPCC has published four comprehensive Assessment Reports (ARs) reviewing the latest climate science as well as information relevant to its three working groups which address:

- The Physical Science Basis (Working Group I),
- Climate Change Impacts, Adaptation, and Vulnerability (Working Group II), and
- Mitigation of Climate Change (Working Group III).

The ARs are prepared by teams of authors with relevant expertise. Authors for the IPCC ARs are selected from a list of researchers prepared by governments, observer organizations, and academia on the basis of scientific merit and academic credentials.

The IPCC is currently working on its Fifth Assessment Report (AR5), which will be published in 2014. Like previous ARs, the outline for AR5 was developed through a scoping process that involved climate change experts from all relevant disciplines, representatives from governments, and other interested stakeholders. The outline was adopted during the 31st IPCC session in Bali, 26-29 October 2009 and specifically notes, for WG-II, that “Chapters 14-17 will include case studies of, e.g., Least Developed Countries, indigenous peoples and other vulnerable countries and groups” (IPCC-XXXI/Doc 20, Rev.1).

The IPCC AR4 noted that indigenous knowledge is “an invaluable basis for developing adaptation and natural resource management strategies in response to environmental and other forms of change.” This was reaffirmed at the 32nd Session of the IPCC in 2010: “indigenous or traditional knowledge may prove useful for understanding the potential of certain adaptation strategies that are cost-effective, participatory and sustainable” (IPCC-XXXII/Doc 7). And in the last year, there has been an increasing realization that the observations and assessments of indigenous peoples and marginalized populations provide valuable regional in situ information, offer regional verification of global scientific models and satellite data sets, and provide the basis for successful adaptation and mitigation strategies.

But observations and assessments by indigenous peoples, marginalized populations and developing country scientists have remained relatively inaccessible to the IPCC process mostly due to language and socio-cultural barriers¹. Thus, for the most part, indigenous and marginalized people's knowledge that appears in grey literature (i.e. literature that is unpublished or published outside peer-reviewed academic forums) or that is made available through non-written media has remained outside the scope of IPCC assessments.

At its 32nd session, the IPCC recommended broadening the participation of regional experts, the inclusion of grey literature, literature in other languages, and the organization of workshops - particularly in developing regions - to collect and assess relevant in situ observations and scientific data on topics relevant to AR5 (IPCC-XXXII/Doc 7).

Indigenous Peoples and Forests

According to the World Bank, Indigenous peoples legally own more than 11% of the world's forests and they coincide with areas that hold 80% of the planet's terrestrial biodiversity², with traditional ownership and land tenure covering an even greater area. In Asia and the Pacific 25% of forest land is owned by local communities and Indigenous peoples and an additional 3% is designated for use by communities and Indigenous peoples.³ Papua New Guinea has more than 25.51 million hectares under community or Indigenous ownership⁴ and Australia reports approximately 90.78 million hectares (over 11.5%) of land as Indigenous owned.⁵ Similarly, in Latin America the forested area owned by local communities and Indigenous peoples is also 25%, and an additional 8% is forested public land designated for community/Indigenous use.⁶ Mexico is at the forefront of community forestry with more than 38.71 million hectares owned by communities/Indigenous peoples and in Brazil, community and Indigenous group own approximately 109.13 million hectares.⁷ The "Great Bear Rainforest" in Canada contains 4.7m hectares of forest. The Great Bear Rainforest Agreements provide a governance framework between First Nations and the provincial government that include implementation of new logging regulations based on Ecosystem-based Management. Based on a conservative assumption that after harvesting about 23% of the carbon would remain locked in lumber, logging the area that has been protected by this agreement under regular forest legislation that applies elsewhere in the province would result in about 153 million tonnes of CO₂ being released.⁸

¹ See, for example, indigenous-led biocultural assessments under the Indigenous Peoples' Biocultural Climate Change Assessment Initiative, <http://www.ipcca.info>

² Sobrevila, M. (2008). *The Role of Indigenous Peoples in Biodiversity Conservation: The Natural and Often Forgotten Partners*. Washington DC: The World Bank.

³ Larson, A. et al. (Eds.) (2010). *Forests for Peoples: Community Rights and Forest Tenure Reform*. London: Earthscan.

⁴ RRI (2009). *Tropical Forest Tenure Assessment: Trends, Challenges and Opportunities*. Washington DC and Yokohama: Rights and Resources Initiative and International Tropical Timber Organization.

⁵ Australian Natural Resources Atlas (2010). *Land Use Patterns in Australia*. Canberra: Australian Government.

⁶ Larson, A. et al. (Eds.) (2010). *Forests for Peoples: Community Rights and Forest Tenure Reform*. London: Earthscan.

⁷ RRI (2009). *Tropical Forest Tenure Assessment: Trends, Challenges and Opportunities*. Washington DC and Yokohama: Rights and Resources Initiative and International Tropical Timber Organization.

⁸ Holt, R. F. (2009). *Ecosystem-based management in the Great Bear Rainforest: Defense for Climate and Species*. Vancouver: ForestEthics.

The recognition that deforestation, particularly in the tropics, contributes between 19-20% of all annual global emissions led to a collective agreement between UNFCCC member parties that a key climate mitigation priority should be to conserve and enhance forests and other sinks and reservoirs of greenhouse gases.⁹

UNFCCC Parties consider REDD+ (Reducing Emissions from Deforestation and Forest Degradation and related activities such as sustainable management of forests and the enhancement of forest carbon stocks) to be an important mechanism for tackling climate change. The Intergovernmental Panel on Climate Change (IPCC) in its last assessment (2007) noted that reducing deforestation is the mitigation option with the largest and most immediate carbon stock impact in the short term per hectare and per year globally. McKinsey & Co calculated that it would cost around €9 tCO₂e to generate credits from reducing forest loss and degradation, whereas Carbon Capture and Storage (CCS) on power plants would cost around €40-55 tCO₂e or solar which would cost around €37 tCO₂e¹⁰. McKinsey & Co also estimated that reducing forest loss and degradation could contribute as much as 6Gt CO₂e per year or 1/3 of the required total global reduction in green house gas emissions between now and 2020.¹¹

Over US\$5bn has been committed to REDD Projects in the last few years and promises of many more billions have been made. As of September 2011, the main global REDD database had 480 registered projects in 36 countries amounting to \$3.35bn.¹² The vast majority of these projects are on Indigenous lands and/or territories.

The scale of the REDD experiment, combined with the lack of relevant experience with REDD+ projects, has meant that projects have confronted considerable problems and delays. A recent global review of REDD+ projects¹³ noted that they face many challenges, including: criteria for sustainable forest management, monitoring, reporting and verification (MRV) of greenhouse gas (GHG) emissions, local tenure arrangements, permanence and baselines - issues that can be effectively addressed only if local communities are able to properly participate in the REDD+ projects. The review also found that despite widespread recognition that local ownership is key to REDD+ success, the scope and intensity of their participation has not always been adequate and often there is lack of clarity about their role in implementation.

Indigenous Peoples and Carbon Sink Enhancement

The importance of agroforestry systems as carbon sinks has recently been recognized as an important component of climate change mitigation.¹⁴ According to recent estimates, of the 960 million hectares of land under cultivation, 10 to 15% are managed by traditional farmers.¹⁵ This global population of small-holder farmers has been identified

⁹ UNFCCC Article 4.1 (d)

¹⁰ McKinsey & Company (2009). *Pathways to a Low-Carbon Economy*. Version 2 of the Global Greenhouse Gas Abatement Cost Curve.

¹¹ Ibid.

¹² REDD+ Database. <http://reddplusdatabase.org/>. Accessed 22 September 2011.

¹³ Simula, Markku (2011). Analysis of REDD+ Financing Gaps and Overlaps.

¹⁴ Nair, PKR, Kumar B.M, Nair, V. (2009). Agroforestry as a strategy for carbon sequestration. *Journal of Plant Nutrition and Soil Science*. 172:10-23.

¹⁵ Altieri, Miguel (2008). Small Farms as a Planetary Ecological Asset: five key reasons why we should support the revitalisation of small farms in the global south. Third World Network: Malaysia.

as the first target for policies to intensify production in mixed systems – effectively increasing carbon density and refilling depleted soil carbon reserves.¹⁶

In agroforestry systems, carbon can be sequestered from the atmosphere and stored in soils or vegetation. For smallholder agroforestry systems in the tropics, potentially carbon sequestration rates range from 1.5-3.5 ton C ha/year.¹⁷

In Mexico, Indigenous Mayan communities are introducing timber species within their agricultural systems as crop-tree combinations to enhance carbon storage as part of a pilot carbon project. This project has successfully increased carbon sinks in several Mayan communities while at the same time promoting Indigenous livelihoods.¹⁸ In Eastern Zambia two-year rotations of agroforestry species in rural Indigenous communities sequestered 26-78 Mg ha carbon in the soil. A similar project in southern Malawi sequestered between 123-149 Mg ha in the 0-200cm.¹⁹ Other projects like this are being implemented in different Indigenous communities around the world with similar results.

Many other traditional agricultural activities on which Indigenous peoples rely lead to high rates of carbon accumulation in the soil – like no-till farming, crop residue retention, growing cover crops in the rotation cycle, and adopting complex farming systems. These technologies are increasingly being recognized as important, cost-effective and equitable terrestrial mitigation solutions that have the potential to enhance existing carbon sinks and to reduce net CO₂ emissions.

The workshop will also explore opportunities for coastal communities to participate in the carbon market through sustainable management and restoration of coastal ecosystems, in particular mangroves, seagrass meadows and saltwater marshes. These ‘blue carbon’ sinks sequester and store carbon from the atmosphere at rates that have been estimated to be up to 50 times greater than tropical forests.

Biomass Burning, Fire Management and Indigenous Peoples

Not only are Indigenous and local communities owners of forest land but are also key players in groundbreaking ways to reduce greenhouse gas emissions. In Australia, the Western Arnhem Land Fire Abatement Project (WALFA) uses traditional fire management practices of aboriginal land owners together with modern scientific knowledge to reduce the extent and severity of wildfire in fire-prone tropical savanna, and as a result the overall annual GHG emissions of Australia by around 36% (nitrous oxide and methane expressed as carbon dioxide equivalent).²⁰ This successful example of Indigenous peoples collaborating with the private sector not only contributes to

¹⁶ Obsertein, M., Bottcher, H., and Yamagata, Y. (2010). Terrestrial ecosystem management for climate change mitigation. *Current Opinion in Environmental Sustainability*. 2: 271-276.

¹⁷ Montagnini, F and PKR Nair (2004). Carbon sequestration: an unexploited environmental benefit of agroforest systems. *Agroforestry Systems*. 61: 281-295.

¹⁸ Nelso, Kristen and H.J de Jon, Ben (2003). Making global initiatives local realities: carbon mitigation projects in Chiapas, Mexico. *Global Environmental Change*. 13: 19-30.

¹⁹ Makumba, W., F.K Akinnifesi, B. Janssen and O. Oenema (2006). Long-term impact of a Gliricidia-maize intercropping system on carbon sequestration in southern Malawi. *Agricultural Ecosystems and the Environment*. 118:237-243

²⁰ Whitehead Peter J et al 2008. The management of climate change through prescribed savanna burning: emerging contributions of indigenous people in northern Australia. *Public Admin. Dev.* 28, 374-385 (2008).

climate mitigation but also provides important economic, biodiversity and socio-cultural opportunities for many Indigenous communities.

Global fire emissions averaged over 1997-2009 were 2.0PgCyr⁻¹ with contributions from Africa (52%), South America (15%), Equatorial Asia (10%), the boreal region (9%), and Australia (7%). The largest contributors (44%) to fire carbon emissions were fires in savannas and grasslands^{21 22}. Almost half of it is considered to be due to savanna burning (both wildfires and management fires), making them the single largest source of pyrogenic emissions. They are also believed to be a significant source of aerosol and trace gas inputs to the global atmosphere. Within the tropics, 42% of emissions are estimated to come from Africa, 29% from Asia, 23% from South America, and 6% from Oceania.²³ Significant portions of these landscapes are under traditional communal land tenure and the responsibility for controlling the use of fire is often in the hands of local communities. Managing fires more effectively, like in the case of WALFA Project, could provide important mitigation opportunities for many other Indigenous communities as well as providing economic, biodiversity and socio-cultural benefits. Preliminary research suggests that Indigenous communities in grassland ecosystems of Latin America (e.g., Brazil²⁴, Bolivia²⁵, Venezuela²⁶), Africa (e.g., South Africa²⁷, Tanzania²⁸, Namibia²⁹, Botswana, Ghana³⁰, Mozambique³¹) and Asia (e.g., Russia³² and Kazakhstan) provide the right conditions for developing community-based fire-abatement approaches to generate carbon credits.³³

Indigenous Peoples, Renewable Energy, and Technology

In addition to being owners of large carbon stocks, Indigenous peoples and local communities are also actively participating in various other important mitigation activities such as producing renewable energies in their territories (wind, hydropower, and geothermal), and resource management projects that reduce pressure on natural resources and enhance local adaptive capacity.

²¹ Van der Werf, G.R. et al (2010). Global fire emissions and the contribution of deforestation, savanna, forest, agricultural and peat fires (1997-2009). *Atmospheric Chemistry and Physics Discussions*. 10: 16153-16230

²² Koppmann, R et al, 2005. A review of biomass burning emissions, part I: gaseous emissions of carbon monoxide, methane, volatile organic compounds, and nitrogen containing compounds. *Atmospheric Chemistry and Physics Discussions*. 5:10455-10516.

²³ FAO, 2009. Grasslands: Enabling their Potential to Contribute to Greenhouse Gas Mitigation.

²⁴ Mistry, J. et al, 2005. Indigenous Fire Management in the Cerrado of Brazil: The case of Kraho of Tocantins. Pp. 365-386. *Human Ecology*. Vol 33. No. 3.

Pivello, V. 2011. The Use of Fire in the Cerrado and Amazonian rainforests of Brazil: Past and Present. Pp: 24-35. *Fire Ecology*. Volume 7, Issue 1.

²⁵ McDaniel, et al, 2005. Smokey Tapir: Traditional Fire Knowledge and Fire Prevention Campaigns in Lowland Bolivia. Pp 921-930. *Society and Natural Resources*. Vol. 18.

²⁶ Bilbao, B. 2010. Indigenous Use of Fire and Forest Loss in Canaima National Park, Venezuela. Pp: 663-673. *Human Ecology*.

²⁷ Dr. Nigel Crowthall, Indigenous Peoples of Africa Coordinating Committee (IPACC). Pers. Com.

²⁸ Butz, R. 2009. Traditional Fire Management: Historical Fire Regimes and Land Use Change in Pastoral East Africa. Pp:442-450. *International Journal of Wildland Fire*. Vol. 18.

²⁹ Dr Margaret Jacobsohn, Integrated Rural Development and Nature Conservation (IRDNC). Pers. Com.

³⁰ Appiah, M. et. Al. 2010. Forest and Agrosystems Fire Management in Ghana. Pp 551-570. *Mitig. Adapt. Strateg. Glob Change*.

³¹ Shaffer, L. 2010. Indigenous Fire Use to Manage Savanna Landscapes in Southern Mozambique. Pp: 43-58 in *Fire Ecology*. Vol/ 6, Issue 2.

³² UNDP-GEF. 2009. Improving the Coverage and Management Efficiency of Protected Areas in the Steppe Biome of Russia. A Project Document.

³³ Sejo, F., et al. 2011. Introduction. Pp: 1-4. *Fire Ecology*. Volume 7, Issue 1.

For example, in the United States, Indian tribal lands cover only 5% of land area but have the potential for about 535 billion kWh/year of wind energy which is equivalent to 14% of current U.S. total annual energy generation.³⁴ In the Arctic, Indigenous peoples potentially have access to immense renewable energy resources – particularly wind and water – which are being explored as potential energy sources for the US and Canada.³⁵ And the World Bank is currently financing major initiatives to scale up concentrated solar power in communities in the Middle East and North Africa.³⁶

Emissions from developing countries are projected to increase substantially in the coming years. Energy decisions made by Indigenous peoples could therefore have a large influence on efforts to limit total global emissions. Indigenous and local peoples are participating in various important Clean Development Mechanism (CDM) projects.

Agroecosystems and Mitigation

Industrial agriculture is responsible for 10-12% of total global anthropogenic GHG emissions and almost a quarter of the continuing increase³⁷. Agro-ecological approaches, predominantly used by indigenous smallholders, consume much less energy and release fewer GHGs than industrial agricultural production³⁸. Although most vulnerable to climate change impacts³⁹, such low-carbon and resource-preserving methods of agriculture offer an important pathway toward mitigating climate change⁴⁰. Besides generating fewer direct emissions, agro-ecological management techniques have the potential to sequester more GHGs than industrial agriculture⁴¹. Such systems are focused on local food production, and they decrease materials used and fluxes involved in the release of GHGs based on crop, livestock and pasture management. Moreover, the agro-ecological approaches improve adaptation capacity of poor rural and indigenous communities by reducing their dependence on expensive fossil fuel-based inputs for agriculture, while increasing levels of production⁴² ⁴³. Shifting cultivation – an example of an agro-ecological system – represents one of the most misunderstood land use systems⁴⁴, as it is viewed largely as destructive to forests and soils. However, decades of research on shifting cultivation have generated sufficient evidence to demonstrate that it is not a major source of deforestation; it enables greater carbon sequestration than other

³⁴ MacCourt, D. et al. (2010). *A Renewable Energy Development in Indian Country: A Handbook for Tribes*. Washington DC: National Renewable Energy Laboratory of the U.S. Department of Energy.

³⁵ Petterson, Maria. (2009). Mitigation Possibilities in the Energy Sector – An Arctic Perspective. *Environment and Policy*. 50(3): 303-326.

³⁶ Shah, Jitendra (2010). *Clean Technology Fund*. Washington DC: World Bank.

³⁷ http://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch8.html

³⁸ Lin, B., et al. 2011. Effects of industrial agriculture on climate change and the mitigation potential of small-scale agro-ecological farms. *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources*. 2011 6, 020: 1-18

³⁹ http://www.grida.no/publications/other/ipcc_sr/?src=/climate/ipcc/regional/006.htm

⁴⁰ Reid, H., and K. Swiderska. 2008. Biodiversity, climate change and poverty: exploring the links. IIED Briefing Paper.

⁴¹ Schaffnit-Chatterjee, C. 2011. Mitigating climate change through agriculture: An untapped potential. Deutsche Bank Research.

⁴² <http://www.srfood.org/index.php/en/component/content/article/1-latest-news/1014-cancun-summit-must-lead-to-a-green-marshall-plan-for-agriculture>

⁴³ Fox J, Castella J-C, Ziegler AD. 2011. Swidden, Rubber and Carbon: Can REDD+ work for people and the environment in Montane Mainland Southeast Asia? CCAFS Working Paper no. 9. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark. Available online at: www.ccafs.cgiar.org

⁴⁴ Fox, Jefferson et.al. 2009. Policies, Political-Economy, and Swidden in Southeast Asia. *Human Ecology* 37:305–322

forms of land use; and it enhances biodiversity and is crucial for in-situ conservation of crop genetic resources⁴⁵. In addition, shifting cultivation results in a mosaic of differently aged, growing forests with higher probability of being a landscape level 'carbon bank,' compared to mature forest landscapes and therefore offers opportunities for climate change mitigation approaches⁴⁶. Hence, recognition for indigenous peoples' land use practices also offers opportunities to seek solutions for climate change mitigation⁴⁷.

Opportunities and Barriers

“ As stewards and custodians of the world’s biodiversity, cultural diversity, and traditional ecological knowledge, indigenous peoples can contribute meaningfully to the design and implementation of more appropriate and sustainable mitigation and adaptation measures.”

- Victoria Tauli-Corpuz and Aqqaluk Lynge, Special Rapporteurs for the Permanent Forum on Indigenous Issues on the impact of climate change mitigation measures on indigenous peoples⁴⁸

Despite the identification of the significant contribution of indigenous and local peoples and Indigenous territories/natural resources to mitigating climate change, there is little consensus about how to properly include these communities in the development of appropriate, efficient and effective climate mitigation policies. A number of mitigation projects have, in fact, proven detrimental to Indigenous communities, resulting in cultural and environmental destruction, forced migration and resettlement, violence and resource competition, and human rights violation⁴⁹. However, institutional arrangements that incorporate local knowledge and decentralized decision-making (i.e. greater rule-making autonomy at local level) have been shown to be associated with high carbon storage and livelihood benefits⁵⁰ and can be highlighted as examples of successful governance. Further elaboration and protection of rights for indigenous peoples and local communities to profit from carbon sequestration by resources on traditional land will likely be instrumental in facilitating participation of indigenous peoples in climate mitigation projects.

⁴⁵ IWGIA. 2009. Shifting Cultivation and Climate Change. UNFCCC Intersessional Meeting, Bangkok 2009 Briefing Paper.

⁴⁶ Mertz, O. 2009 Trends in shifting cultivation and the REDD mechanism. Current Opinion in Environmental Sustainability. Volume 1, Issue 2, December 2009, Pages 156-160

⁴⁷ <http://agrobiodiversityplatform.org/climatechange/2010/11/10/rotational-farming-shifting-cultivation-and-climate-change/>

⁴⁸ Tauli-Corpuz, V and A Lynge (2008) Impact of climate change mitigation measures on indigenous peoples and on their territories and lands. Report to the 7th session of the Permanent Forum on Indigenous Issues, New York 21 April-2 May 2008. E/C.19/2008/10.

⁴⁹ See, for example, Adrien, Sinafasi Makelo (2006), *The Impacts of the Carbon Sinks of the Ibi-Batéké Project on the Indigenous Pygmies of the Democratic Republic of the Congo*, International Alliance of Indigenous and Tribal Peoples of Tropical Forests; and Mahoney and Schaefer (2002), Hydroelectric development and the disruption of migration in caribou. *Biological Conservation*. 107:147-153

⁵⁰ Chhatre, Ashwini and Arun Agrawal (2009): Trade-offs and synergies between carbon storage and livelihood benefits from forest commons. *PNAS* 20 October 2009, vol. 106, no. 42

Aims of the Meeting

Participants were invited to identify, compile and analyze relevant issues related to climate change mitigation by local communities and Indigenous peoples.

Specific aims included to:

- Reflect the wide and diverse range of perspectives concerning indigenous peoples/local communities and climate change responses (including mitigation);
- Support the build-up of understanding and peer-reviewed literature in the field of Indigenous peoples, local communities and climate change mitigation;
- Compile regional and local data and grey literature that are relevant for understanding climate change mitigation involving local and Indigenous knowledge holders, local populations, and developing country scientists;
- Support Indigenous peoples', local communities' and developing country scientists' engagement and research in international climate dialogues;
- Provide policy-makers with relevant information on the mitigation potential of Indigenous peoples and local communities; and
- Outline a publication in a Special Issue of a peer-reviewed scientific journal.

Workshop Participants

During November - December 2011, the organisers accepted abstracts via an online submissions process following an international call for abstracts in English, Spanish and French. Broad international representation was sought, including indigenous peoples and local community knowledge holders and experts; developing country scientists; and members of IPCC Working Group III.

After an extensive two-round review process including input from a panel of key international experts, a total of 52 applicants were shortlisted from the several hundred received, taking into account regional balance and relevant areas of expertise and experience. Six of the participants were also IPCC authors, and over 20 participants identified themselves as members of indigenous communities.

A total of 83 participants attended the workshop, including 46 presenters along with various organisational representatives and organisers. Participants came from a range of countries including Australia, Bangladesh, Brazil, Cambodia, Cameroon, Canada, Cuba, Dominican Republic, Egypt, Ethiopia, Finland, Greenland, India, Indonesia, Mali, Mexico, Nepal, Panama, Philippines, Russia, Samoa, St Lucia, South Africa, Sudan, Surinam, Thailand, United Kingdom, United States of America and Venezuela.

A list of participant contact details and biographies is provided in Annex A (CCMLCIP/2012/Crn/1/Participants).

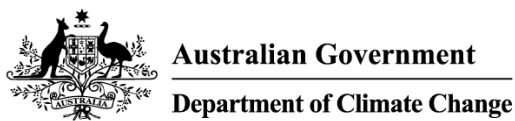
Workshop Convenors



Intergovernmental Panel on Climate Change



United Nations University



Department of Climate Change and Energy Efficiency, Australian Government



North Australian Indigenous Land and Sea Management Alliance



Secretariat of the Convention on Biological Diversity



United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries



United Nations Permanent Forum on Indigenous Issues

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Meeting Co-Chairs

Ramon Pichs-Madruga and Youba Sokona

Panel Chairs

Marcus Colchester, Gian Carlo Delgado, Fiu Elisara, Richard Harper, Aqqaluk Lynge, Ramon Pichs-Madruga, Youba Sokona, Victoria Tauli-Corpuz

Rapporteurs

Patrick Eickemeier, Kirsty Galloway McLean, Sam Johnston, Jan Minx, Catherine Monagle, Ameyali Ramos Castillo, Gleb Raydorogetsy

Opening Ceremony

Participants to the workshop were 'Welcomed to Country' in a short ceremony by Seith Fourmile and the Gimuy Wallabarra Yidinji dancers on behalf of the Gimuy Wallabarra Yidinji Nation of Cairns.



Figure 2: Gimuy Wallabarra Yidinji Dancers

Opening Panel

The opening panel started with a welcome address delivered by Professor Govindan Parayil, Vice-Rector of United Nations University. Prof Parayil welcomed participants to the workshop on behalf of the conference convenors, and highlighted the important role indigenous peoples and local communities play in developing solutions to climate change mitigation based on their traditional knowledge. Mr Parayil outlined the role of the United Nations University with its long-standing focus on issues of sustainable development, and elaborated the role of this workshop as part of a larger process, particularly with respect to its contribution to several of the chapters in the fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) along with a first workshop held in Mexico City in July 2011 that focussed on adaptation and vulnerabilities. He explained the primary aim of the workshop was to identify, compile and analyze relevant information on issues related to climate change mitigation by local communities and indigenous peoples, and encouraged participants to share their expertise with the IPCC in order to enrich the IPCC assessment process and to help guide the climate community towards more equitable governance and strengthened management.

Ms Henrietta Marrie, a Gimuy Walubara Yindiji elder, welcomed participants and noted that climate change is creating circumstances for heightened and unusually destructive weather events. She acknowledged the great work UNU and IPCC are doing to bring together IPCC authors and indigenous experts but emphasized that reliable resources are needed in order to continue to help ensure that experts and indigenous and local communities continue to collaborate to develop effective strategies to address the impacts of climate change. Ms Marrie also noted that adapting to and mitigating climate change will not involve a single blueprint or mechanism but a multitude of perspectives and options and encouraged indigenous peoples and IPCC experts to continue to collaborate.

Dr Youba Sokona, IPCC Working Group III Co-chair, emphasized the need for the IPCC AR5 to have a comprehensive perspective and acknowledge the importance of the workshop to bring insight into the assessment.

Mr Gregory Andrews, from the Australian Government Department of Climate Change and Energy Efficiency, provided an overview of the projects the Australian government is undertaking to mitigate carbon emissions, among them the Clean Energy Future plan. Mr Andrews shared the example of how Kalimantan Forest Carbon Project has helped to reward traditional forests owners for carbon sequestration services. Mr Andrews underlined the importance of designing mitigation strategies that combine traditional knowledge with local science.

The Mayor of Cairns, the Hon Val Schier, highlighted some of the challenges to responding to climate change and shared some of the strategies her government is using to prepare for the increasing intensity of climate change.

Dr Paul Little, from the Gordon and Betty Moore Foundation, emphasized the importance of hybrid ways of knowing in enhancing resilience to climate change. He

recognized that there are many challenges in the process of recognizing diverse knowledge systems and commended UNU-IAS TKI and IPCC in taking on this challenge.

Dr Ramon Pichs-Madruga, IPCC Working Group III Co-chair, provided an overview of the IPCC including its function, rules, and procedures. Dr Pichs-Madruga presented a synthesis of the key findings of the 4th Assessment Report, an overview of the key crosscutting themes – including adaptation, mitigation and sustainable development – and highlighted opportunities for integrating economic, social, equity and environmental aspects. Dr Pichs-Madruga then provided a summary of emerging issues in climate change mitigation especially the increased emphasis on the socio-economic dimensions of mitigation strategies. Dr Pichs-Madruga concluded his presentation suggesting that making development more sustainable can enhance both mitigative and adaptive capacity and reduce emissions and vulnerability to climate change.

Mr Sam Johnston, UNU-IAS Senior Fellow, provided some background on the UNU collaboration with IPCC and summarized outputs from the preceding workshop held in Mexico in 2011 on “Indigenous Peoples, Marginalized Populations and Climate Change: Vulnerability, Adaptation and Traditional Knowledge.” These included workshop papers, establishment of an online database on traditional knowledge and climate change, bringing together a network of collaborators including indigenous researchers and authors of the IPCC’s Working Group 2 on adaptation, and a Technical Report to provide a summary of current literature on adaptation, indigenous peoples and marginalized populations.

Mr Johnston also detailed the logistics and expected outputs of the Cairns workshop, including multiple publications, a database and networking opportunities.



Figure 3: Govindan Parayil opening the workshop

Panel Discussions

Workshop participants attended parallel sessions that focussed on various topics of relevance to the IPCC Assessment Report. Each Panel session featured several speakers who presented the outcomes of their research, and was followed by a discussion period. Abstracts of presentations are available in Annex B (CCMLCIP/2012/Crn/2/Abstracts).

Panel A: Agriculture and Land Use Systems

Chair: Richard HARPER

Sarah MILNE and Lykhim OUK A Not-so Perfect Match? Community experiences with avoided deforestation and agricultural intensification in upland Cambodia

Jean Pierre LAURENT Roots redux: the 'Jaden Kweyol' and climate change mitigation in Saint Lucia

Ramesh SUNAM Revitalizing traditional agriculture for food security and climate change: a case from Nepal

Chaiprasert PHOKHA Climate change, trees and livelihood: a case study on the carbon footprint of a Karen community in Northern Thailand

Yongfu HUANG The decarbonization of the Chinese agricultural sector

Summary of presentations

Sarah MILNE and Lykhim OUK presented community experiences of avoided deforestation and agricultural intensification in the Cardamom Mountains in upland Cambodia. They reported on a REDD-like scheme in Cambodia that sought to compensate local communities for the opportunity costs of desisting from forest clearing for shifting agriculture, by replacing lost agricultural yields through new investments in agricultural productivity on existing farmlands and paddy. Milne and Ouk concluded that the benefits of agricultural intensification were not evenly distributed within communities; not easily substituted with the livelihood benefits that were lost through reductions in forest clearing for shifting agriculture (e.g. foods, firewood, lifestyle); and unable to offset demand for new agricultural land and related forest clearing activities.

Ramesh SUNAM argued that a revitalization of traditional agricultural practices would address both climate change and food security issues. He explored opportunities and constraints of increasing food production and reducing GHGs through a case study of an agrarian village in Nepal's low land region, which is characterized predominantly by smallholder farming and subsistence agriculture. The study suggested that while local and indigenous communities contribute to climate change mitigation through practicing traditional agriculture, they are unlikely to continue their practices in the face of adverse local and global pressures; outmigration of labourers, pro-industrial government policies, and reluctance of new generations to continue 'peasant' (farming) occupations. To enhance the role of rural peasants in carbon offsetting and food production,

strategies such as the provision of incentives, proper recognition of their contribution and supportive agricultural policies may be explored.

Laurent JEAN PIERRE examined the mitigation possibilities of the traditional economic strategy of the Jaden Kwéyòl, or 'creole garden' in St Lucia. He made the case that the Jaden Kwéyòl, or creole garden, can contribute to climate change mitigation and averting the pending food crisis by using low or no inputs, encouraging biodiversity and biocultural diversity, and supporting a healthy and varied diet. More than simply subsistence agriculture, or a kitchen garden, the Jaden Kwéyòl model generates a surplus of food to can be given, traded, or even sold to others within the local community. It is therefore key to low-impact sustainable food security as well as socio-economic empowerment, and could be considered as a replicable model for climate change mitigation in diverse geographic locales.

Chaiprasert PHOKHA presented on the climate mitigation contribution of the Huay Hin Lad community in Thailand. An analysis of the benefits of shifting cultivation and community forest management practices revealed that the community's farming activities cause few carbon emissions, that the community's consumption patterns have a small ecological footprint and that shifting cultivation and agro-forestry systems ensure food security throughout the year. He highlighted the importance of the government's recognition of the community's land tenure and rights.

Yongfu HUANG reported on key factors that led to rising GHG emissions in the Chinese agricultural sector across 30 provinces in China from 1980 to 2009. Key drivers for agricultural production included electricity, diesel, fertilizer and pesticides. His studies revealed spatial dependence and neighbourhood effects, and suggest investment in renewable energies will contribute to climate change mitigation in the area.

Key Points Raised in the Discussions

Land Tenure and Equity

Participants highlighted land tenure and equity issues as an overarching theme. Participants noted that land tenure is weak in many regions and reforms that recognize community land ownership and/or land rights are necessary for communities to be able to effectively participate in climate mitigation solutions. Participants observed that in some instances land insecurity increased speculative behaviour and recommended that strong and equitable local governance systems be in place to ensure the fair distribution of benefits and responsibilities.

Carbon Accounting and Monitoring

Participants noted that many community case studies would benefit from a more rigorous analysis of carbon accounting, as many studies were assumption dependent. Participants emphasized that community involvement in carbon monitoring could contribute to increasing local understanding of climate mitigation projects and increase the likelihood of the project's success. Clear carbon monitoring and accounting procedures that are verifiable could also help a community's capacity to negotiate fair climate mitigation arrangements.

Co-benefits

Many reports of mitigation activities from communities examined climate change mitigation through multiple lenses – including food security, offsite impacts, profitability, renewables, etc. A range of socio-economic benefits are considered in mitigation project design, and participants reported greater success with community projects that integrate measures to meet local needs and support sustainable development (such as increased local employment or food security).

Impacts of Mitigation and Benefit Distribution

Participants discussed the impacts of mitigation activities – particularly on food security – and examined the tradeoffs between carbon storage and food production. Participants noted that many of these impacts are not adequately documented or known and/or are often difficult to measure. Participants also observed that there are discrepancies in the distribution of benefits from mitigation activities and presented cases that indicated that some mitigation projects have caused increased social and economic differentiation and decreased food security, such as the case of communities in the Cardamom Mountains, Cambodia.

Leakage

A number of community and indigenous peoples' project reports looked at small-scale activities, and participants discussed the need for further research on leakage (i.e. unanticipated decrease or increase in GHG benefits that result from project activities, but fall outside of the project's accounting boundaries) that can result in higher or lower emissions and sequestration. Issues raised included market impacts, community migration and lifecycle changes, as well as positive effects such as increasing climate-friendly practices in neighbouring areas.

External Factors

Participants observed that there are multiple external factors that impact the feasibility and success of mitigation activities, specifically mentioning population increases, generational issues, migration, natural disasters, markets, and local governance systems.



Figure 4: Lykhim Ouk, Sarah Milne and Richard Harper, discussing agriculture and land-use systems in Panel A

Panel B: Livelihoods and Culture

Chair: Fiu ELISARA

Leonardo HASENCLEVER *Narratives of origins, eschatologies and techno-economic reasoning: predicaments of the intercultural dialogue on climate change and REDD+ in Brazilian Amazon*

Essam Hassan Mohamed AHMED *Nubians as indigenous peoples and climate change mitigation*

Marilyn WALLACE *Combining knowledge systems and calibrating indigenous ecological calendars for culturally informed climate change mitigation: Northern Wet Tropics World Heritage Area*

Brian WYATT *Traditional owners and climate change*

Gwendolyn SMITH *Enabling participation of the Trio Indigenous community of Suriname in a climate change mitigation project*

Summary of presentations

Leonardo HASENCLEVER described limitations and contradictions of existing economic approaches to mitigation (e.g., REDD+) and climate change adaptation by local Indigenous communities, based on two case studies from Brazil. “Ecosystem services” and “carbon(s)” defined by western science have no equivalent categories within indigenous cosmologies, thus one can never be certain that the parties (“buyers” and/or “suppliers”) are in agreement on the object of their negotiations.

Essam Hassan Mohamed AHMED described the impacts of Aswan Dam construction and the creation of the Lake Nasser reservoir on the Nubian peoples of Egypt. Although Nubian people were resettled in the Egypt Delta and other areas in 1960s, they continue to seek way to return to their motherland near the Nile River to keep their traditional practices and knowledge alive. Their traditional knowledge provides viable solutions for climate change mitigation. For example, Nubians have developed new architecture forms based on traditional Nubian Domes that keep the air cool without the need for air conditioning, which reduces energy consumption.

Marilyn WALLACE described the combined concerns, efforts, successes, and climate change mitigation potential on Nyungkalwarra country drawing on the experiences of an Aboriginal woman and her family, friends and colleagues who have together noticed culturally significant ecological changes occurring on Country. The Aboriginal ranger service is documenting environmental changes, including climate change. The Nyungkalwarra-driven effort to create a consortium of Nyungkalwarra ecological experts, Australian climate change experts, World Heritage management experts, and a citizen’s science ‘Climate Watch’ team of specialists to further integrate Aboriginal lore and ecological knowledge into national and international climate change mitigation initiatives.

Brian WYATT argued that Australia’s Indigenous peoples need Free, Prior and Informed Consent for their participation in policies and programs for climate change mitigation. This includes their full participation in scientific research to ensure Indigenous cultural perspectives are considered and they can fully and effectively participate in decision-making processes around climate change.

Gwendolyn SMITH described the perception climate change of the Trio indigenous community living in the extended Amazonian rainforest in Suriname, which in many ways conflicts with the Western view. As a result, Trios do not take part in climate change projects and seem more interested in development projects supplying basic needs or enabling participation in mainstream society.

Key Points Raised in the Discussions

Efficiency vs. Sufficiency

Participants noted that there are different models of economy – the dominant global model is based on growth, efficiency and economic gain, while local Indigenous communities value sufficiency, seek social gain and cohesion. Carbon markets are arriving, yet there is no certainty about what’s going to happen at the local level; economists do not like uncertainty. There is a significant impact of the carbon market framework itself on how people think about the land and the forests, because it

translates those elements/services into monetary values, where such values had not existed before.

Examples raised during the presentation included the Trio people of Suriname who have to participate in the process with outside agencies following specific guidelines for REDD+ that are quite rigid. They have to think in the western ways, which is incongruent with their way of life and this creates conflict (e.g., they became introduced to the monetary economy only 6 years ago and even such ideas as “saving” money are quite foreign to them). In the case of large-scale projects (e.g., Belo Monte dam), while the market creates high economic efficiency (e.g., cost per unit of energy produced is low), such projects undermine any considerations of equity, justice, human or indigenous rights. The nature of existing or proposed solutions/approaches to climate change mitigation is about bringing local people/worldviews into the western ways of thinking/value system/doing business. Such an approach inherently creates power imbalance and inequities.

Stakeholders vs. Landowners

Participants discussed that even in the best-case scenarios, Indigenous peoples continue to be treated as stakeholders, not as rights-holders and landowners. Everybody wants to consult rather than negotiate, but fundamental rights have to be recognized before any other process can take place (e.g., Trio of Suriname participation in the development of REDD+ projects) – they are the landowners and should not be “consulted” with but given the power to negotiate their position.

Participants reflected on the presentations that indicated that hydropower projects (e.g. CDM) have been (e.g., Aswan dam/Lake Nasser in Egypt) and continue to be (Belo Monte dam in Brazil) created with no prior consultation, let alone consent, of Indigenous and local peoples (e.g., Nubians in Egypt and Kayapo in Brazil). Local populations become displaced with severe social, cultural and health consequences. Their attempts to protect their rights to their ancestral traditional territories from such large-scale interventions are failing. Even in cases when indigenous peoples attempt to move closer to their traditional lands (e.g., Nubians and the Nile), the government denies them that right.

Designing Own Local Solutions

Participants noted that the rights of local and Indigenous peoples to develop locally appropriate low-carbon mitigation solutions based on their traditional knowledge must be upheld. Ultimately, these are the only solutions that will work at the local scale and not the schemes developed by the governments and imposed from the top. Examples include relying on or reviving traditional Nubian architecture as a way to reduce consumption of electricity – no need for air conditioning when the outside temperatures reach plus 50 degrees Celsius; and relying on traditional agriculture as a low carbon system.

Participants discussed that Indigenous peoples (e.g., traditional land owners in Australia) see change through their experience on the land. But they reported that government policies take their land away from them, creating a lot of stress for people, severely undermining their ability to deal with climate change. Even when they get some of their land back, it comes with a multitude of conditions that prevents them from looking after their country in the traditional way. This undermines the resilience of the

people and their country and has implications for their ability to develop locally appropriate mitigation and adaptation measures.



Figure 5: Marilyn Wallace, speaking on indigenous calendars in Panel B

Panel C: REDD+ Mitigation

Chair: Victoria TAULI-CORPUZ

Estebancio CASTRO DIAZ *Mitigation policies and indigenous peoples: potentials, barriers and opportunities*

Patrick ANDERSON *Indigenous Peoples' rights, free, prior and informed consent and REDD+ in Indonesia*

Johannes BAUER *From bystander to actor – developing cooperative frameworks and models for indigenous and landowner participation in REDD+ and climate change adaptation: perspectives from PNG and Australia*

Yayan INDRIATMOKO *Local peoples' perception of REDD+: case study in REDD+ demonstration activity in Central Kalimantan, Indonesia*

Maureen TEHAN *Governance for climate change mitigation at the intersection of international and national frameworks: lessons learned and future prospects*

Summary of presentations

Estebancio CASTRO DIAZ presented a case study from the Kuna Yala Region in the North of Panama, where international NGOs offered funding for investment and

technical knowledge to the Kuna General Congress to establish a REDD+ project in the region. While the Kuna congress has not decided about the REDD project, the lack of appropriate legal frameworks is a major concern for the Kuna and therefore a major barrier to accepting mitigation policies. The Kuna fear displacement and human rights violations, and with no legal recognition of their ownership of the land, they are concerned about the appropriation of benefits from the REDD project. The initiative has raised the importance of information and knowledge building among the Kuna about the new policies and also the need for carbon accounting of standing forest.

Patrick ANDERSON reported on the REDD+ pilot projects and demonstration activities that are implemented across the Indonesian archipelago by the national government, industry and conservation organizations. Project developers are obtaining REDD+ licenses before consulting with indigenous peoples. The consultations with communities over REDD+ plans do not provide sufficient information on the project and often don't respect the right of communities to reject the REDD+ proposal. Anderson suggested that communities don't have access to legal and technical advice on proposals, are not being helped to secure their customary rights in land, and that benefit sharing and complaints mechanisms are missing in many cases. Anderson concluded that the right of the between 60 and 100 million people who are members of Indigenous Peoples of Indonesia to own, manage and control their customary forests and territories is not respected by Indonesian governments.

Johannes BAUER discussed potentials and barriers for participation in climate change adaptation and REDD+ in Australia and in Papua New Guinea. His presentation provided a landowner (Indigenous and non-Indigenous in Australia, Indigenous in PNG) perspective on current constraints in the involvement in REDD+ activities such as technical capacity, remoteness, understanding and uncertainty and similarities of issues for both Indigenous and non-Indigenous people concerning the assertion of rights in an international market. Bauer described a cooperative approach of landowners, scientists, regulators, spiritual leaders and indigenous and farmer groups to ecosystem based carbon trade based in Bathurst, Australia.

Yayan INDRIATMOKO reported on the local peoples' perception of a REDD+ demonstration activity in Central Kalimantan, Indonesia. The Kalimantan Forests and Climate Partnership (KFCP) is a bilateral cooperation between the governments of Indonesia and Australia and one of four official REDD+ demonstration activities in Indonesia. Perceptions of the REDD+ programme vary markedly between different populations. Individual participation is mostly motivated by short-term financial benefits, which may be a result of disappointment with past development and conservation projects that failed to deliver tangible economic benefits. Other motivations are the learning of new knowledge and the engagement of joint activities. While there is uncertainty about the compensation of REDD+, the involved local communities express hope for wellbeing improvements. To build a common vision of REDD+ with local communities that goes beyond short-term benefits, understanding the people's perceptions, their knowledge and interests is crucial in the early stage of REDD+ interventions.

Maureen TEHAN focused on governance for REDD+ schemes and its implications for Indigenous Peoples and local communities. There are numerous frameworks and bodies governing REDD+ implementation, ranging from multilateral state centred efforts to bilateral agreements between countries, and voluntary certification schemes. These

institutions intersect with other international legal regimes and with national, regional and local community and Indigenous governance arrangements. The complexity of these multilayered intersections raises concerns as to how indigenous and local communities' rights and interests will be protected. The fragmented nature of REDD+ governance leads to varying standards for the protection of Indigenous and local community rights.

Key Points Raised in the Discussions

Indigenous Peoples' and local communities' involvement

Participants noted that it is important that national governments, the international community, the private sector and international agencies recognize the free prior and informed consent of Indigenous Peoples and local communities to any uses of their land including REDD projects. Participants suggested that this is a prerequisite to ensure self-determination and their continual responsibility to protect land, forest, and resources and that it would also enable the Indigenous Peoples and local communities to negotiate the use of their forests and to appropriate the benefits of REDD initiatives.

Knowledge and capacity building

Participants highlighted the lack of knowledge about the broader goals of REDD+ as a common barrier to the implementation of REDD initiatives. To ensure REDD+ objectives are understood, participants suggested that communication about these topics must be a continuous process that engages the local communities as well as the national governments.

Lack of data

Participants suggested that to validate top-down assessments of mitigation options related to indigenous peoples' and local communities' forest protection and reforestation initiatives adopting methodologies for accounting of carbon is crucial. In many cases it is not possible to provide a comprehensive bottom-up perspective because of a lack of data about stored carbon and avoided emissions of greenhouse gases. Studies of REDD+ implementation are largely based on extrapolations of previous experiences. Scientific studies based on primary data from actual REDD+ projects are rare.

Land-ownership versus carbon-ownership

Participants noted that the interaction between domestic legal frameworks implementing REDD+ mechanisms and customary land tenure or community land rights to land is not always clear-cut with regard to ownership of carbon credits. Insecure land tenure results in poor protection of customary land rights under REDD+ mechanisms.

Governance

The frameworks and bodies governing REDD+ implementation range from multilateral state centred efforts to bilateral agreements between countries, and voluntary certification schemes. They intersect with international legal regimes concerning indigenous peoples, biodiversity and cultural heritage and with national, regional and local community and Indigenous governance arrangements. Participants noted that

these multilayered intersections impact the governance arrangements at a local level and the forms and process for managing land, resources and benefits in the REDD+ context. While many frameworks governing REDD+ contain safeguards and policies to address Indigenous and local communities' rights, there is little oversight and accountability of these mechanisms.



Figure 6: Victoria Tauli-Corpuz, Chairing Panel C on REDD+ mitigation

Panel D: Renewable Energies and Energy Supply

Chair: Ramon PICHS-MADRUGA

Chagat ALMASHEV *Energizing the Altai Mountains people through innovative climate mitigation*

Bob GOUGH *Building resilient tribal communities through distributed renewable energy projects, dispatchable storage systems and natural straw bale construction*

Bibek Raj KANDEL *Challenges and Opportunities for preserving traditional water mills in Nepal*

Alberto SANCHEZ *Micro hydro power: an effective alternative for climate mitigation and local development of marginalized communities in the Dominican Republic*

Bob VAN DIJKEN *Yukon First Nations action on climate change mitigation*

Summary of presentations

Chagat ALAMASHEV reported on the success of involving the Altai Mountain people in a variety of renewable energy projects reporting on economic, social and environmental benefits. Traditional Altaian communities are more willing to innovate and embrace mitigation measures if an activity also supports local self-determination and food sovereignty objectives. The indigenous-led renewable energy tailors modern renewable energy technology solutions to isolated and high altitude mountain communities, thus helping these communities maintain sustainable traditional land use practices.

Bob GOUGH discussed the elements and implementation of the inaugural World Clean Energy Award winning plan to address the simultaneous crises of climate change, energy, unemployment and inadequate housing on American Indian reservations. These activities include tribally owned, distributed renewable energy projects of various scales; the development of local energy storage systems; and the construction of sustainable, affordable, future-proofed and energy efficient homes and other buildings from healthy natural materials. Training programs embracing the “train-the-trainer” ideas in the renewable are tied to the various energy efficiency and renewable energy projects to improve the quality of life in the existing reservation and to provide employment opportunities in the process of rebuilding these indigenous communities.

Bibek KANDEL reported on the gradual replacement of traditional water mills by modern diesel mills in Nepal due to their locational independence and their higher levels of efficiency required to deal with the increasing agricultural yields. However, recent technological enhancements of traditional water mills have made them more competitive again with combined economic (cost savings) and environmental benefits (reduced CO2 emissions).

Alberto SANCHEZ reported on experiences with the installation of off-grid community micro hydropower systems in the Dominican Republic. The systems are built and managed by local communities in complete autonomy. They provide access to electricity for population in remote areas of the Dominican Republic. This also helps in reducing

and sequestering CO₂ emissions. Further co-benefits are related to the improvement of the well-being of families associated with the reduction of time spent on housework, the opening-up of new income possibilities and improving the access to information and education. The projects has allowed to generate awareness and empowerment inside local communities to address climate change mitigation as well as promoting human development alternatives in a community-driven effort.

Bob VAN DIJKEN reported on the challenge that small Yukon communities spread over a large area and with limited financing as well as community capacity require innovative ideas and approaches to climate change mitigation. Mitigation options need to provide economic benefits to these indigenous communities apart from emission reductions. A series of projects have been initiated along these lines involving small-scale run-off river turbines, a wind-diesel hybrid power supply system or the use of hydrokinetic wind turbines. However, also simple energy efficient mitigation options such as community cold storage facilities. This ties into the increased need of these indigenous communities to harvest traditional foods and medicines in a changing climate. Challenges are related to remoteness, lack of financial resources as well as lack of sustained capacity.

Key Points Raised in the Discussions

Dependency

Renewable energy technologies can lift fossil fuel dependencies of local and indigenous communities. However, concerns were raised that the discourse might largely overlook that new dependencies might arise through the introduction of new renewable energy technologies into these communities. For example, technologies might require maintenance and repair and the required skills might not be available in indigenous communities. However, many felt that most project schemes introducing renewable energy technologies have been designed in a way that not only technologies, but also skills are introduced. These skills can offer social and economic benefits such as employment opportunities. At the same time, it was recognised that dependency might be a problem when large scale energy technology systems are concerned. For smaller scale systems the issue might be of lesser concern. One of the challenges in relation to the introduction of renewable energy technologies to indigenous and local communities might be the striking of a good balance between opening local and indigenous communities to the modern world and choosing appropriate technologies in consideration of the dependency problems.

Financing and CDM

Participants noted that introducing renewable energy in many indigenous and local communities usually requires some form of subsidies. Many projects are not able to fully recover the project costs over their life time. CDM projects were discussed repeatedly as a funding source in this context. Three general observations arose from these discussions: First, most of the renewable energy projects are driven by the basic need for energy access by local and indigenous communities rather than financial incentives; second, the favouring of renewable energy sources by indigenous and local communities is mainly driven by their local availability rather than their mitigation co-benefits; third, CDM projects are too complicated for local actions. While many local mitigation projects might be eligible for CDM, other financing sources are often chosen.

Remoteness, Up-scaling and Integration

Most of the local and indigenous communities discussed in the sessions are situated in remote areas with small populations on vast areas of land. Often these areas might have a large renewable energy potential. One theme of the discussion was therefore related to the scope of local renewable energy projects. Will they remain to simply serve the needs of these small communities or are there any ambitions to upscale these projects to make a larger contribution to global mitigation efforts in the future? The latter might provide new income and employment opportunities to indigenous and local communities. However, the remoteness of the areas might limit the community's ability to reap the bioenergy potential on their lands due to a lack of access to the national grid infrastructure. This might even be true for indigenous communities in North America, which might face problems similar to many of the least developed countries in Africa: there is no problem of energy access, but there is no access to an energy infrastructure prohibiting system integration.



Figure 7: Ramon Pichs-Madruga, Charing Panel D on renewable energies and energy supply

Panel E: Forestry

Chair: Marcus COLCHESTER

Helen MAGATA *Securing land tenure leads to successful climate change mitigation: the case of the Ikalahan Peoples of Nueva Vizcaya in Northern Luzon, Philippines*

Wirsiy FONDZENYUY *Analog forestry: pathway for climate change mitigation and livelihood improvement in North Western Cameroon*

Gabriel CARRERO *Traditional community-readiness for carbon projects: lessons learned from the Surui Forest Carbon Project*

Mohammed JASHIMUDDIN *Village common forest management in the Chittagong Hill Tracts of Bangladesh: role in climate change mitigation and future prospects*

Arun DHAKAL *Household and farm characteristics of agroforestry based farming systems in Dhanusha District Nepal: analysis from climate change mitigation perspectives*

Summary of presentations

Helen BIANGALEN-MAGATA provided an introduction to the history of the Kalahan Forest in the Philippines and the Ikalahan people's struggles and successes in obtaining legal tenure over their ancestral lands and resources. Securing land ownership was instrumental for indigenous peoples to recover and protect their forest reserves and to practice sustainable forest management systems that contribute to climate change mitigation efforts. She examined particular traditional forest management techniques that support mitigation, including innovative forest management techniques (such as modified timber stand improvement, and forest improvement technology), and also outlined strategies the community is examining in order to benefit from payment for ecosystem services and engage with the carbon market. She noted that despite readiness to enter into the voluntary carbon market, transaction costs were very high (e.g. resource-intensive paperwork required) and buyers were looking primarily for bundled products (e.g. carbon and hydroelectricity).

Wirsiy FONDZENYUY reported on the adoption of analog forestry in northwestern Cameroon to restore degraded forests, protect watersheds, and adapt to changes in climate. Analog forestry assisted local communities to establish permanent forests to buffer extreme weather events and also to act as carbon sinks. It involved a reversal of the previous approach for protecting the forest, and instead of evicting farmers from the forest, farmers were invited to grow crops for food and income and take care of planted trees while growing their crops. Adoption of analog forestry provided improvements in forest cover and various economic and social benefits, but also challenges, including new conflicts over land use and ownership, and gaining authority to validate management regimes in the absence of clear legal rights.

Gabriel CARRERO presented a case study of community readiness for a REDD+ project of the Suruí People of the Brazilian Amazon. He reviewed a number of participatory

methodologies implemented for the Surui Forest Carbon Project, including collaborative ethnomapping, participatory ethno-environmental diagnostic surveys, ethnozoning and participatory biomass inventories, and indigenous community territorial land management and protection planning. Each of these methodologies was developed by different NGO partners within the contexts of other community projects. The Surui Forest Carbon Project applied each of these methodologies in an integrated manner to achieve the goal of climate mitigation through avoided deforestation and is one of the first pilots to secure VCS (verified carbon standard) and CCBA (Climate, Community and Biodiversity Alliance) certification.

Mohammed JASHIMUDDIN presented on traditional resource management patterns in Village Common Forests (VCF) in the Chittagong Hill Tracts (CHT) of Bangladesh. He explained that historically, VCF is a direct consequence of resource constraints caused by deforestation and forest degradation that negatively affected local agriculture and also prevention of entry into the newly acquired reserved forests by the government. VCF are rich in biodiversity, and are still the source of fuel wood, herbs, roots, bamboo shoots, wild fruits, vines or leaves for cooking or medicinal use necessary to sustain the lives of the indigenous communities in the CHT. VCF are managed through collective action under the leadership of mauza headmen or village karbaris under certain traditional rules and regulations so that community members are not allowed to cut trees or bamboos without prior permission and punished if rules are violated. He noted that VCF have the potential to act as important carbon sinks and enhance community-based adaptation to climate change and other resource constraints, and that formal recognition to secure use, access and tenure regimes are believed to be a crucial factor towards long-term sustenance of the VCF.

Arun DHAKAL examined different agroforestry based farming practices adopted by the indigenous community, Madhesi in Dhanusha district of Nepal. Three types of agroforestry practices (ranging from less integrated to highly integrated) possessed distinct farm characteristics relatable to carbon sequestration and GHG emissions: He compared two communities in the study area: Madhesi, the indigenous group and non-madhesi, the migrant community, finding a higher tree density in the areas managed by the Madhesi. Other farm activities associated with GHG emissions included fertilizer application, rice cultivation, livestock keeping, farm machinery use and irrigation, all used in higher amounts by the non-madhesi community. He noted that both the sequestration and emissions potential increased with the increase in level of integration from less to high.

Key Points Raised in the Discussions

Complex socio-political context and mixed livelihoods

Participants noted that in addition to physical and climatic variability, forestry mitigation takes place in a complex socio-political context. Case studies indicate that the historical impacts from processes of settlement and imposed management schemes impact greatly on the ability and power of a given community to maintain its traditional sustainable forest management practices, and to engage in mitigation strategies such as carbon markets. Considerations of carbon management cannot be isolated, but should rather be examined within these contexts – integrating methods from multiple disciplines, including social and natural sciences.

Forest governance and tenure

Many forests fall under multiple levels of governance, and the recognition of authority of local communities as decision-makers is often unclear in the context of other regional or national entities. A number of forested areas have been subject to conflicts between groups with different values and priorities for forest management, and participants noted that legal tenure, or some form of security of forest rights, has been key to supporting sustainable traditional management practices of indigenous peoples and local communities. Having established rights to make decisions or use resources on community land was also recognized as an important element to enable communities to access potential benefits from mitigation arrangements.

Community-driven action

Autonomous, community-driven climate change mitigation activities are of more relevance to indigenous peoples and local communities than national or regional initiatives, and local mobilization and initiatives are instrumental in achieving successful outcomes. In several cases, participatory processes and external funding and assistance were influential in strengthening or building community institutions and expertise that enabled communities to be in a space to engage more formally in the mitigation debate and effectively manage themselves, natural resources and finances.

Food and forestry

Forest communities are often faced with differing paths to ensure food security – particularly options of either strengthening local agriculture, or pursuing strategies that use income derived from other sources (such as REDD or similar schemes). Sustainable management practices within local communities are highly nuanced and shaped to fit local contexts.

Limited practical experience with carbon markets

Despite a number of communities successfully fulfilling certification requirements, it seems that there are still only limited examples of success for indigenous and local communities fully engaging with or benefiting from carbon markets. Communities report that transaction costs of mitigation projects are discouragingly high, and certification processes themselves are very costly. The replicability of pilots at scale is in doubt or yet to be demonstrated.



Figure 8: Gabriel Carrero and Marcus Colchester speaking on forestry issues in Panel E

Panel F: Carbon Abatement

Chair: Youba SOKONA

Jeremy RUSSELL-SMITH *Savanna burning opportunities in Northern Australia*

Bibiana BILBAO *Fire Abatement in Venezuela*

Bronwyn MYERS *Indigenous Fire Management and Government Fire Policy in Savannas of Eastern Indonesia*

Cathy ROBINSON *Carbon and indigenous co-benefits in Australia*

Sue SALVIN *Feasibility studies for four indigenous carbon sink enhancement projects in Australia*

Summary of presentations

Jeremy RUSSELL-SMITH described the Western Arnhem Land Fire Abatement (WALFA) project which focuses on delivering industrial-scale GHG emissions abatement through culturally appropriate savanna fire management practice over a remote, culturally- and biodiversity-rich, 28,000 km² landscape. Operating since 2005 as an emissions offset project under a voluntary arrangement with a multi-national energy corporate, WALFA has delivered (a) reduced emissions of accountable GHGs by 37.7% relative to the pre-project 10-year emissions baseline, (b) substantial part-time

employment, and (c) demonstrable biodiversity outcomes. The WALFA model is currently being extended to four other large regional project areas across fire-prone northern Australia, under the coordination of the North Australian Indigenous Land & Sea Management Alliance (NAILSMA). It is anticipated that these projects will collectively deliver GHG abatement >1M t. CO₂-e p.a. Projects will benefit from recent passing of national legislation regulating savanna burning as a formal GHG offset activity, and formal endorsement of a savanna burning emissions abatement accounting methodology for higher rainfall regions. NAILSMA is currently working on developing further accounting methodologies for abatement under lower rainfall conditions, and associated longer-term bio sequestration. A considerable challenge remaining is the development of appropriate governance and business structures, which directly benefit local communities.

Bibiana BILBAO described research leading to development of a proposal for integrated fire management for climate change mitigation in Canaima National Park in Venezuela, in which western scientific knowledge validated traditional knowledge and practice. The Park is an area of great value and is inhabited by the Pemón Amerindian people. In parts of the area a savanna-forest mosaic is present. A fire exclusion approach has been the basis of official fire policy and fire fighting management strategies adopted by regional government agencies. However, this has not been effectively achieved, due to resistance by the Pemón people who use fire to manage their environment in a diverse and complex way. These techniques have however been strongly disrupted by recent changes in their settlement pattern and lifestyle. The research, through simulation of traditional practice, demonstrated that such practice contributes to a decrease in the occurrence of large fires, thus preventing the reduction of forested areas, and potentially contributing to mitigation of climate change. The aim of the project from this point is to establish the basis for an inter- and trans-disciplinary proposal for the management of risk and sustainable development in the Park, based on knowledge dialogues and capacity exchange among the different actors involved.

Bronwyn MYERS presented a project on indigenous fire management and government fire policy in savannas of eastern Indonesia. Burning is an integral part of traditional land management in eastern Indonesia, with fire management integral to traditional subsistence livelihoods. Regulations prohibiting burning and altering the governance and management of forest and land resources are in place. Despite this, aspects of traditional land and forest management persist in many rural villages. In recent decades, large uncontrolled fires have become common, with damaging consequences. During the project, causes and impacts of savanna fires were investigated, land use maps and fire histories were created, and communities established agroforestry demonstration plots and implemented prescribed burning to protect agroforestry enterprises from wildfire. The impact of the implementation of community controlled burning has been a reduction in the area of savanna burnt each year. The potential for reducing greenhouse gas emissions by reducing extensive wildfires in the savannas of eastern Indonesia was explored.

Cathy ROBINSON and Rowan FOLEY described the work of Australia's National Indigenous Climate Change (NICC) research and project team in critically exploring the opportunities available to Indigenous peoples' participation in, and right to benefit from, emerging greenhouse gas mitigation and abatement opportunities. This work has included drafting principles, criteria and requirements for evaluating the Indigenous co-benefits of carbon projects established under Australia's Carbon Farming Initiative (CFI)

scheme. Recommended co-benefit criteria and requirements are intended to create a consistent reference against which projects can be assessed to decide whether they create social, cultural or environmental benefits, in addition to generating a carbon credit.

Sue SALVIN and Michael FRIDAY discussed the Australian Government's Carbon Farming Initiative (CFI), which creates opportunities for saleable carbon credits to be generated in the land sector and will give landholders access to domestic voluntary and international carbon markets. They presented the results of four case studies that have recently been undertaken to investigate the feasibility of establishing CFI reforestation projects on Indigenous land in Australia. Such projects have the potential to play a significant role in climate change mitigation, whilst providing a range of additional social, cultural and environmental benefits. By providing a detailed analysis of each potential project, the case studies are intended to help Indigenous people understand some of the factors that will influence the likely returns from CFI reforestation projects, and therefore be better able to make an informed decision about whether to participate in the carbon market. The results of the case studies showed that CFI reforestation projects on Indigenous land will not necessarily provide a significant financial return unless the carbon price increases significantly in the future. However the decision about whether to establish such a project will not be solely financial but will also depend on a number of other factors, including: what other possible land use options exist; the relative importance placed by the community on the achievement of their social, cultural, environmental and economic objectives; and the community's attitude to risk.

Key Points Raised in the Discussions

Opportunities

Case studies identified a range of current and emerging opportunities for Indigenous Peoples and local communities to contribute to climate change mitigation through carbon abatement and sequestration activities, including opportunities based on the provision of ecological services through application of traditional knowledge and practice. In Western Arnhem Land in the north of Australia, Traditional Owners are engaging in the carbon offset market through traditional savannah fire burning practices, resulting in significant economic and other benefits for the communities involved. Research focused on other parts of Australia has examined the feasibility of Traditional Owners engaging in the future carbon market through re-forestation.

Challenges

Case studies illustrated that in some regions government policy does not yet reflect the value of traditional fire practice for climate change mitigation, with government policy and/or legislation continuing to disallow certain traditional fire management practices and instead supporting fire suppression, notwithstanding research demonstrating that traditional fire practice would contribute more to mitigation of climate change than existing management regimes.

Developing and putting in place appropriate governance mechanisms for abatement and sequestration projects is a remaining challenge. Many policy and implementation issues will need to be worked through in the context of individual projects, particularly around

use and development of social, biodiversity and other indicators including as may form part of an Indigenous co-benefits approach.

Where policy issues and implementation challenges are common across various projects, countries or regions, opportunities for broader dialogue and exchange of experience and information may be valuable.

There are likely to be significant barriers to entry associated with many of the emerging carbon abatement and sequestration opportunities. These barriers include high entry costs, and capacity constraints. The mobilization of the international community towards supporting Indigenous peoples and local communities to overcome such barriers to entry is encouraged.

Complementarity of Western Science and Traditional Knowledge - Value of Co-operative Approaches

The case studies included powerful examples of the potential that can be realized when scientists and traditional knowledge holders work together to evaluate and validate the value of traditional knowledge and practice towards climate change mitigation.



Figure 9: Bronwyn Myers, Youba Sokona, Bibiana Bilbao and Jeremy Russell-Smith discussing carbon abatement and fire management in Panel F.

Panel G: Governance

Chair: Aqqualuk LYNGE

Margaret JACOBSON *From the ground: getting communities involved*

Shweta BHAGWAT *Barriers and opportunities for rewarding local communities and regional governance regime for mitigation efforts: learning from West Sikkim*

Robbie HENDERSON *Learning from doing: testing models for governance and implementation of REDD+ in Melanesia to provide equitable benefits for forest-dependent indigenous peoples*

Sonia LEONARD and Annette KOGOLO *Understanding patterns of climate change in the Great Sandy Desert: developing tools to understand mitigation options*

Michael WINER *Opportunities and barriers to indigenous participation in climate change mitigation on Cape York*

Summary of presentations

Margaret JACOBSON described Namibian experiences of community based natural resource management as a key to unlocking indigenous traditional knowledge and explored how they could be used as a climate mitigation strategy. She provided examples and opportunities from Namibia, and addressed challenges faced by many climate change projects in getting community ownership and direct involvement in externally-originated initiatives. A key guiding point raised was unbundling of rights.

Shweta BHAGWAT introduced us to barriers and opportunities for rewarding local communities and regional governance regimes for mitigation efforts in West Sikkim, India. Her presentation examined the current enabling policy regulations, forest governance structure, tenure and ownership rights, community participation, institutional set-up, and stakeholder roles and responsibilities in Sikkim. She evaluated the positive impact on forest carbon stocks and biodiversity after the introduction of grazing exclusion policy in the state and highlighted the need for developing a mechanism to sustain the efforts of the local communities and governance regime.

Robbie HENDERSON discussed his organisation's activities towards testing models for governance and the implementation of REDD + projects in Melanesia to provide equitable benefits for forest-dependent indigenous peoples. Engagement strategies being developed and tested include participatory research, multimedia climate change and REDD+ education, development of village owned 'cooperatives' for REDD+, and implementing a model of indigenous owned enterprise designed to bring the worlds of 'business' & 'community life' into a space where they can operate effectively and sustainably. Potential barriers identified include inherent uncertainties in the carbon price, large transaction costs for project development (associated with meeting rigorous market standards), low capacity and literacy of indigenous communities, attainment of communities' free prior and informed consent, lag time in generating flows of ex-post carbon finance to poor communities, and ensuring equitable benefit sharing.

Annette KOGOLO and Sonia LEONARD discussed a research program in which the Ngurrara people of the Great Sandy Desert are monitoring and evaluating changes in weather and bio-temporal indicators on native title lands in the Great Sandy Desert, Australia. The project combines western science with traditional knowledge through the installation of a remote research station operated by the Ngurrara Working on Country ranger program in conjunction with the Warlu Jillija Jumu Indigenous Protected Area. The station is monitoring changes in weather patterns through an automated weather station, recording the movements of camels with an infrared motion censored camera and assessing the impacts this has on water availability to culturally significant freshwater lake systems. Indigenous rangers are also working with senior traditional owners to document traditional knowledge of bio-temporal indicators of change and how historically Ngurrara people adapted to these changes.

Michael WINER described opportunities and barriers to indigenous climate change mitigation on Cape York. He explained that weak land and property rights as well as increasingly restrictive environmental legislation are acting to constrain Indigenous opportunities for economic development (for example through involvement in ecosystem service markets). He argued that a new approach to environmental management in Cape York, incorporating payment for ecosystem services market participation by Indigenous landowners, is needed to empower Indigenous landowners to fund climate mitigation initiatives (based on traditional ecological knowledge) on their land, at the same time as providing a social dividend for their communities.

Key Points Raised in the Discussions

Marrying mitigation activities with the priorities and aspirations of communities

Participants noted that mitigation activities in some places are at odds with the priorities of Indigenous Peoples' and local communities priorities and aspirations. They are not dominant economic activities, and in many cases mostly supplementary, which emphasizes the importance of context and impact of mainstream economic activities, such as forestry.

Participants highlighted that Indigenous Peoples need to be involved in designing policy. For example, REDD+ discussions need to be bedded into the context of overall community aspirations - benefits need to be identified first and only then consider how REDD or other activities can be fitted into those aspirations. Holistic views also need careful attention and integration into any successful projects.

Many communities and their challenges don't fit into existing international project and programmes neatly. Therefore, donors need to be creative, and allow for flexibility and creativity to try out models for implementation.

Managing expectations

Managing expectations need careful attention, especially given the uncertainty of funding.

Issues: Land tenure and inequity

Secure land tenure was raised by participants as an essential element across all communities and countries.

International, national, state, provincial level projects can cause injustices and inequities – there is a need to understand that payments for ecosystem services (PES), or REDD or CERs are not simply aid but are a genuine payment for development costs.

Ongoing needs

A common element raised during the discussions was a need everywhere for more tools to support community dialogues and education. Connections between indigenous communities and governments need to be coordinated and strengthened, and projects need the support of indigenous and government stakeholders.

Significant baseline work needs to be done in order that Indigenous Peoples can properly engage in mitigation activities.

Risks of marrying modern science and traditional knowledge

Participants noted that researchers need to be careful when marrying science with traditional knowledge to ensure that the traditional knowledge is not lost, and that both knowledge systems respect each other and do not erode or increase the loss of traditional knowledge.

Challenges

Challenges raised during the discussions included the complexity of developing local institutions, and the time required to establish effective and equitable governance structures.



Figure 10: Michael Winer speaking on governance issues in Cape York, Panel G

Panel H: Mitigation for Sustainable Development

Chair: Gian Carlo DELGADO

Julio MOURE CORTES *A carbon offset project in the Mayan region: Quintana Roo, Mexico*

Elnour Abdalla ELSIDDIG *Community-based natural resources management with a climate change perspective*

Oladimeji OLADELE *Traditional land and water management for carbon sequestration and climate change mitigation in Africa*

Annabelle NILSSON *Sea grass and sea tenure in the Torres Strait: challenges and possibilities of engagement with a Blue Carbon Market*

Tero MUSTONEN, Elena ANTIPINA and Petr KAURGIN *Mitigation for survival – rebirth of small Arctic Nations in Siberia and Finland in the midst of climate change*

Summary of presentations

Julio MOURE CORTES presented a carbon offset project that aims to generate an alternative way to finance forest conservation activities in the Felipe Carrillo Puerto Ejido in Quintana Roo, Mexico. The community has been engaged in the design, the biomass and carbon sequestration potential measurement, as well as on developing and implementing the project. The experience has developed capacity-development programs and a forest carbon school for surrounding communities, graduate students, and technicians. It also included the communities' discussion and definition of the use of future financial benefits by assigning a third to healthcare, a third to for the communities and a third for reinvesting on expanding the initiative. UNDP has helped finance the certification project as well as some of the reforestation initiatives. The project is now in the final stage of the certification process of carbon credits with the Plan Vivo Foundation and several hotels in the region have expressed an interest in purchasing carbon credits from the community.

Elnour Abdalla ELSIDDIG shared a community-based natural resource management project in the Nile Basin management that supports sustainable development and climate change mitigation activities. There are many challenges facing the community including climate variability, degradation and deforestation, and challenges on water supply. Communities are participating in several mitigation activities including reforestation, developing and using non-timber products, and using wood energy alternatives and improved cook stoves. The forms of carrying out those proposals are centred on aggregated practices for management resources. Donor funding projects, policies and legislations, and national government strategies are supporting such mitigation activities, but implementation challenges are considerable and more international support and trans-boundary cooperation is still needed to ensure the continuation of these activities.

Oladimeji OLADELE presented a review of traditional land and water management practices for carbon sequestration and climate mitigation in Africa. Climate mitigation

strategies aim to increase carbon stocks – this can be achieved through the enhancement of soil moisture. The results show that indigenous peoples have efficient climate mitigation practices that sequester soil carbon such as bio char, use of residues, slopes and barriers, and natural fallow. It was suggested that the performance of these traditional land and water management practices depends on soil properties (including soil degradation) and climatic conditions and, thus, the potential of these practices should not be selectively considered.

Annabelle NILSSON examined the potential of sea-grass as a source of “blue carbon” storage and the potential of a blue carbon market in the Torres Strait. In 2010, the Federal Court recognized that native title holders have non-exclusive rights to access, remain in and use native title areas and to use natural resources in these areas. Importantly, the Court found that native title may recognise commercial rights in resources. Ms Nilsson provided an overview of sea tenure in the Torres Strait and proceeded to identify how domestic law may be reformed to accommodate the complexities of sea tenure and facilitate indigenous peoples’ participation in blue carbon projects. For example, pursuant to carry out a carbon sequestration project pursuant to the Carbon Farming Initiative in Australia, communities must prove that they have an exclusive right to the benefit of carbon in the relevant area (known as the Carbon Sequestration Right). The means to prove this in marine areas remain unclear. Identifying rights to carbon and carbon sequestration beyond the scope of state legislation which deals with terrestrial land is necessary. Ms Nilsson identified that clarification as to how native title rights may give rise to a carbon sequestration right is necessary to remove barriers to participation. Where non-exclusive rights exist and native title holders participate by providing consent for other parties to carry out projects in native title marine areas, Ms Nilsson proposed that consent is to be provided and recorded in agreements that mirror the Indigenous Land Use Agreement requirements under the Native Title Act 1993 (Cth) for the purpose of requiring free, prior and informed consent.

Tero MUSTONEN, Elena ANTIPINA, and Petr KAURGIN described the solar electrification of the Kolyma nomadic camps in the Republic of Sakha-Yakutia in Siberia, Russia. Indigenous communities in the Arctic face severe challenges due to climate change – particularly the melting of the permafrost – but are working to secure their ongoing nomadic life on the land. Through a process of technology transfer from India, women from the Kolyma were trained as solar engineers to help the community change their reliance on small diesel generators for lighting. The solar electrification project has enabled nomadic communities to maintain their traditional way of life and increase their resilience in the context of climate change in the Arctic. Mustonen also mentioned the importance of having people on the land for climate change mitigation. He explained that some early scientific results have debated the role of trampled snow in lessening the impact of sun’s rays, which reflect back to the atmosphere as opposed to unbroken, continuous snow cover. If for example a reindeer herd has used certain area as a pasture and the snow cover is broken the splintering effect may work to assist in having less heat being reflected back to the atmosphere, emphasizing the importance of maintaining traditional nomadic systems on land as a local scale mitigation processes. However, if those same rays hit trampled snow the deflection is splintered and releases less heat. They noted that elders are the best source of information, and that if traditional knowledge is preserved, it contains valuable information to help survive climate change. Finally a recommendation was made for policy makers and entities such as IPCC to find a way to consider in their assessment oral history and local/traditional knowledge as well.

Key Points Raised in the Discussions

Situating Mitigation for Sustainable Development

One of the themes raised during the sessions was related to lens through which mitigation activities at the local level should be evaluated. Participants observed that contribution of local mitigation initiatives based on traditional systems – although small compared to large scale national and international mitigation efforts – should be measured at the scale at which they are implemented and should not be compared with larger mitigation projects nor should they be evaluated based on the potential or feasibility to upscale them. This applies to cases ranging from REDD+ projects to traditional resource management and agriculture. Also, participants noted that there are no single solutions to climate change mitigation but rather it is a conjunction of factors that determine both the applicability and success of mitigation endeavours. It is the sum of the different initiatives that can make a difference.

Financial Support for Mitigation for Sustainable Development

Mitigation activities have the potential to support sustainable development, however, concerns were raised that certification processes are often very expensive which is a limiting factor for many regions. For example, carbon offset activities might require annual certifications that may be too costly for local communities. One of the challenges is thus securing adequate funding to support the start up and ongoing costs of mitigation activities for sustainable development. Participants also noted that there is a need to safeguard voluntary markets to ensure that certified carbon offsets are bought.

Challenges and Conjunction of Factors

Achieving development objectives – such as agricultural productivity, housing, etc – without compromising mitigation objectives was identified by participants as one of the primary challenges. This, coupled with a conjunction of factors such as population grown, urbanization trends, changes in consumption patterns pose potential additional challenges to mitigation initiatives. The case of traditional agriculture as a means of mitigation tends to be constrained by a series of factors such as those mentioned. For instance, although traditional agriculture is highly efficient in terms of material and energy inputs, these systems may be unable to meet growing demands as they have limited productivity. Another challenge identified by participants was that, many times, government initiatives are contradictory and at odds with community strategies.

Rights

One of the factors that was identified as key in mitigation projects were property rights and rights to carbon sequestration both on land and water areas. Participants also noted that the recognition of carbon sequestration rights by governments must not limit their customary rights.



Figure 11: Gian Carlo Delgado and Elnour Elsidig discussing mitigation for sustainable development, Panel H

Breakout Groups

Participants and experts were invited to suggest breakout group topics for further discussion, based on issues that were raised or not fully explored during the panel discussions.

Group 1: Gender and Regional Balance

Participants highlighted that indigenous women are most vulnerable to climate change because of long historical marginalization in development decision-making processes. However, participants noted that indigenous women are not mere victims but are holders of traditional knowledge, which is imperative for climate change mitigation. Participants discussed how women's role as caregivers has become a barrier in influencing policy and shared ways in which different indigenous women's groups are working to overcome this barrier. Participants also noted that formal and legal governance systems are mostly headed by men and that women are not recognized for the important role they place in governance and development. Participants discussed how it is important for women to be engaged in climate change mitigation processes and noted that the best way to achieve this would be through a framework that opens up opportunities to women without compromising their role as primary care takers. Participants concluded their discussion by encouraging climate change negotiations and policies to look into intergenerational dimensions as both elders and youth have traditional knowledge that should be included.

Group 2: Land Property and Resource Management

Participants discussed the distinction between landholders and stakeholders. Participants also discussed national legal frameworks – specifically, the recognition of customary rights and informal tenures, the recognition of rights to resources such as water and carbon, the right to economically benefit from lands and resources, and the need for context-specific regimes and policies. In regards to international treaties, participants noted that there was a clear lack of implementation and compliance of international agreements at the national level. Participants also noted that communal tenure issues must be addressed including who holds tenure and how are decisions made regarding tenure. Participants also discussed traditional knowledge, conservation and development issues and touched on the tendency for private companies and concessionaries to buy up land parcels and concessionary rights without negotiations as a type of alienation. Participants also discussed the importance of other biomes in mitigation discussions.

Group 3: Equity and Ethics as an Overarching Framework

Participants applauded IPCC for making Human Rights, Ethics and Equity (HREE) the basis of its framework for the 5th AR. Participants suggested that HREE need to be explicitly framed around the charter of the United Nations and the Universal Declaration of the Human Rights as well as the UN Declaration on the Rights of Indigenous Peoples. Participants noted the lack of recognition of real land rights and resources as the most

universal constraint for Indigenous Peoples to participate and benefit from climate change mitigation. Participants highlighted four main approaches to HREE at the international, national, regional, local and project based scales: 1. Who pays and carries the costs of impacts? 2. Who gets the benefits and who distributes these benefits? 3. What are the governance arrangements around 1 and 2? 4. What is the role of the international community and their leaders with regards to markets as they affect the rights and benefits of/for indigenous peoples and local communities?

Group 4: The Role of Indigenous Peoples/Local Communities in Regional, National and International Decision-Making

Participants discussed the role of indigenous peoples/local communities in decision-making highlighting and listed some of these roles. Among those listed where: to have a voice and equity in influence, to ensure local interests are protected, to ensure informed decision-making through participation, to ensure indigenous understanding and knowledge of national and international issues, priorities and opportunities, and to have indigenous voices represented at the local, national and international scales. Participants also discussed what would be required to ensure indigenous peoples have an equitable role in decision-making. Some of the requirements discussed include the need for processes to be flexible and recognize the diversity of indigenous cultures and peoples, the need for sufficient tools expertise and resources for indigenous peoples to participate, and the need for their to be reconciliation of indigenous and western processes.

Group 5: Synergies and Trade-offs Between Mitigation, Adaptation and Sustainable Development

Participants began the discussion by defining mitigation, adaptation and sustainable development. Participants recommended that mitigation and adaptation should not be pursued independently of each other and that sustainable development could serve as the synergy through which mitigation and adaptation could be enhanced and conflict could be reduced. For example, the forest conservation simultaneously reduces GHG emissions and contributes to adaptation by protecting ecosystem services.

Group 6: Barriers for Mitigation Projects Including Financing

The group discussed various types of difficulties faced by a range of actors in developing mitigation projects. Participants identified four main barriers: 1. Financial 2. Policy 3. Governance 4. Information and Behaviour. The financial barrier was identified as the most prominent barrier primarily because many mitigation projects have large upfront costs which communities do not have access to. This coupled with uncertainties associated with carbon markets serve as a deterrent for many investors to invest in mitigation projects on indigenous communities. Three key issues were identified in the policy barrier including the lack of respect for land tenure, lack of recognition for indigenous community structures, and free prior informed consent. In the governance barrier included poor governance, corruption, lack of transparency and accountability, and elite capture which results in only a select group benefiting from mitigation initiatives. Lack of information flow and behavioural barriers were also recognized as a

significant challenges in some cases. Some innovative mechanisms to overcome some of these barriers including having 0.5% or 1% of carbon credits to pay for community based research, exploring the role of government agencies and local cooperative banks for initial upfront funding, and earmarking grand funds for community based research and development.

Group 7: Identifying Gaps in the Knowledge Base

Participants identified four questions on which they based their discussion: 1. What other knowledge bases are available? 2. How can we define/translate these different knowledges for the IPCC? 3. How can we recommend the use of these knowledge sources? 4. What are the methods we see/recommend to deal with these knowledge sources? Participants strongly agreed on the need for the IPCC to consider other forms of knowledge (particularly oral history) into their assessment reports and recommended that a section within the IPCC reports be dedicated to indigenous/aboriginal peoples' knowledge and oral history. Participants also noted that there is a dearth of available and reliable data on forest cover, customary ownership of land and forests, impact of REDD+ on indigenous/local livelihoods, drivers of deforestation, and on indigenous observations of climate change at the global level.

Group 8: Education Strategies for Engaging Indigenous and Local Communities

Participants noted that education needs to happen in 'two ways' meaning between indigenous and non-indigenous peoples and through scientific and traditional knowledge systems. Participants agreed that there is a need for more recognition and support for traditional knowledge systems as critical ways of passing on information. This was seen as important because of the valuable role indigenous knowledge plays in maintaining cultural and land management practices. Participants also acknowledged that communication and education in local languages is an important way to remove barriers for learning and participation because the use of local language allows and alternative narrative to take place. Participants also highlighted that there is a need for indigenous and local communities to learn the concepts and new language of climate change mitigation in order to foster effective participation. The challenge to achieving 'both ways' learning about climate change calls for effective and high quality educational strategies, personnel and resources. Participants also noted that international discourse on climate change is dominated by scientists and economists and, as a consequence, the task of communicating the science and economic ideas and consulting with indigenous peoples and local communities is often undervalued and its complexity underestimated.



Figure 12: Breakout group discussions

Outcomes

Publications

A meeting report will be produced following the workshop that will summarise the presentations, as well as the issues raised during panel discussions and breakout groups (CCMLCIP/2012/Crn/3/Report).

A special journal issue will be produced in the months following the workshop that aims to increase peer-reviewed literature on the topic of indigenous peoples, local communities and climate change mitigation, and make available research of indigenous peoples, local communities and developing country scientists to international climate dialogues. Some suitable papers were identified during the workshop, and these and other relevant papers will be sourced through an open call for submissions, distributed through the journal's usual channels as well as UNU, IPCC, academic and community organization networks.

A book will also be published, that will feature selected peer reviewed papers from the 2012 Cairns workshop as well as the previous adaptation workshop held in Mexico in 2011, as well as other key commissioned papers in an effort to highlight emerging issues in the dialogue between traditional knowledge and modern science regarding climate change adaptation and mitigation.

Specific topics for the publications will be drawn from the discussions at the workshop, including: synthesis of available literature on the topic; synergies and tradeoffs between adaptation, mitigation strategies and development; issues of equity and ethics; property rights and climate change mitigation; local communities, fire management and carbon abatement; renewable energies; governance, institutions and effective participation in national decision making; REDD+ and forest management; climate change mitigation and capacity development; agriculture, land use and resource management; emerging issues or potentials such as blue carbon; global mitigation potential for indigenous peoples and local communities; and differences and commonalities between traditional knowledge and modern science.

Database

UNU will be incorporating workshop presentations and papers into an online database of best practices, methodologies and case studies of traditional knowledge for enhancing efforts in climate change vulnerability, adaptation, mitigation and governance. The contents of the database will build on the data bank prepared by UNU in 2010 as part of its September 2010 publication *Advance Guard – Climate Change Impacts, Adaptation, Mitigation and Indigenous Peoples - A Compendium of Case Studies* and the material collected during the 2011 workshop on *Indigenous Peoples, Marginalized Populations and Climate Change: Vulnerability, Adaptation and Traditional Knowledge*. UNU has also secured the support of other UN organizations such as UNFCCC and UNDP to build on these case studies and bring together several existing fragmented databases that address TK and scientific climate knowledge (but with a narrow thematic focus) into a

global knowledge exchange platform that will cover a diverse set of topics and will be accessible in multiple languages (Spanish, French, English).

In addition, participants at the workshop were encouraged to share peer-reviewed literature relevant to climate change, local communities and indigenous peoples for inclusion in this online resource.

Networking

Participants were encouraged to use the power of social media to engage with each other, as well as other interested individuals across the world in the discussions and outcomes of the workshop on climate change mitigation with local communities and indigenous peoples.

Various social media avenues established for participants to network and discuss relevant issues included:

- Workshop Website with background documents:
 - <http://www.unutki.org/climate>
- LinkedIn Group “Climate change with local communities and indigenous peoples” for business-related discussions:
 - <http://www.linkedin.com/groups?gid=4351851>
- Facebook Page for social networking:
 - <https://www.facebook.com/unu.tk>
- YouTube account to share video outputs:
 - <http://www.youtube.com/unutk>
- Flickr account to share photographs:
 - <http://www.flickr.com/photos/76624036@N02>

Closing Plenary

Summary of Panel Discussions

Panel chairs presented summaries of panel discussions (see above).

Summary of Breakout Group Discussions

Breakout group chairs reported on the discussions during the breakout groups (see above).

Open Mic

Participants were invited to make short presentations through an open mic session, regarding any additional information for the report, or gaps they had identified during the workshop. Points raised during the session are summarised below:

- Shweta BHAGWAT noted that discussions had focused on REDD but reminded participants about the importance of REDD+. She also highlighted the importance of mechanisms for reporting and incentivising people who are working on conservation.
- Tero MUSTONEN emphasized the importance of oral history as a valid source of information for the IPCC. He suggested that oral histories and testimonies should be a clear third mechanism of knowledge for the IPCC 6th and 7th AR but noted that this should be done with community validation and recognition. He requested that UNU should convene a workshop on oral histories and climate change to produce a technical report for the IPCC.
- Marcus COLCHESTER noted that the workshop had not addressed the relationship between rights and the drivers of land use change. This was especially surprising given that the causes that are destroying forests are the same causes that are undermining community livelihoods by destroying their lands. He noted that by focusing on small measurements we are missing bigger opportunities.
- Bob GOUGH highlighted the role and importance of indigenous ceremonies and attachment and access to place in regards to healing and asked for it to be addressed in climate change discussions.
- Laurent JEAN PIERRE spoke about the importance of language in defining us as human. When language dies not only does the language itself disappear but with it disappears a unique way of seeing and describing reality. The disappearance of language leads to the disappearance of many forms of valuable cultural heritage especially heritage of communities that spoke in poems, legends, proverbs and jokes. He noted that the loss of language is also detrimental to humanity's grasp of biodiversity.

- Elnour ELSIDDIG suggested that partnerships between governments and NGOs were the best to cooperatively manage resources for the benefit of all those involved.
- Mike WINER shared the example of work he has done in Cape York where expertise is taken directly to community centres. They work directly with Aboriginal organizations and have formed platforms of engagement and trust with Aboriginal communities. In these projects Aboriginal communities are in charge, they set the parameters for designing projects and hiring staff. The staff work for the communities and provide expertise to the communities as it is requested.
- Johannes BAUER reiterated Marcus Colchester's comment, but noted additionally that many governments hesitate or defy giving indigenous peoples rights. He suggested whether in light of REDD the UN could call on governments to reduce some of these barriers.
- Jan MINX noted the challenge is to look for commonalities among the numerous case studies presented and to try to synthesize and generalize them for the IPCC global assessment. He suggested that some of those present work on synthesizing these articles.
- Marilyn WALLACE, Henrietta MARRIE, and Michael FRIDAY thanked participants for travelling to Australia for the workshop. Marie suggested that a Funder's forum be convened so that indigenous peoples engaged in discussions could meet with funders to develop actions to mitigate climate change. Wallace thanked participants for sharing their knowledge and urged everyone to stand united to talk about issues of how we see the effects of climate change affecting everyday life. Wallace shared her experience of attending three climate forums – Alaska, Copenhagen, and Cairns – and hopes that people continue to share their knowledge. Friday spoke about language and his experience as part of the stolen generation. He thanked participants for travelling to Australia and hoped everyone would continue to work together on the issues.
- Bibiana BILBAO highlighted the importance of working with indigenous peoples directly and of exchanging knowledge directly with indigenous communities in future meetings to be held in the context of climate change mitigation and traditional indigenous knowledge.
- Julio MOURE CORTES made the distinction between information, knowledge and wisdom. He shared his experience of working with indigenous communities and how they define quality of life.



Figure 13: Workshop participants in session

Closing Address

Dr Ramon Pichs-Madruga thanked participants for their participation and valuable contributions to the workshop.

Prof Govindan Parayil also thanked participants for their participation and offered to take their input to other meetings where UNU participates. He discussed problematising two issues: what is 'the nation' vis-à-vis 'indigenous peoples/local communities' and what is 'science' vis-à-vis 'indigenous knowledge'? He then discussed the green economy and green growth and focused primarily on defining whose green economy we were referencing. He offered the concept of sustainability of science as a way to address these different questions.

Prof Parayil closed the workshop and thanked the traditional owners, the donors, the expert panel, the participants, the IPCC co-chairs and Technical Support Unit, and the staff of the UNU's Traditional Knowledge Initiative for organising the workshop.



Figure 14: Govindan Parayil, Ramon Pichs-Madruga, Youba Sokona and Sam Johnston speaking during the closing plenary

Annexes

ANNEX A: List of Participants

For a list of participant contact details and brief biographies, please see document CCMLCIP/2012/Crn/1/Participants.

ANNEX B: Compilation of Abstracts

For a compilation of abstracts for papers that were selected for presentation at the workshop, please see document CCMLCIP/2012/Crn/2/Abstracts.