Guide on CLIMATE CHANGE & INDIGENOUS PEOPLES

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& INDIGENOUS PEOPLES

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Introduction

The severity of the impacts of climate change and mitigation processes on indigenous peoples and the complex negotiating processes around climate change compels us to have a basic understanding of climate change and the policies and actions being taken to address it. We, indigenous peoples, have long observed and adapted to the climatic changes in our communities for tens of thousands of years. Because of our sustainable lifestyles and our struggles against deforestation and against oil and gas extraction, we have significantly contributed in keeping gigatonnes of carbon dioxide and other greenhouse gases under the ground and in the trees. However, the extent and magnitude of present-day climate change seriously challenges our capacities to cope and adapt. Many of the environmental challenges we face, be these climate change, pollution, environmental degradation, etc., are caused not by our own actions but mainly by the dominant societies who are incessantly pursuing a development path of unsustainable production and consumption. Climate change is the biggest proof that this dominant development model is unsustainable and therefore needs to be changed. International cooperation and solidarity to support our adaptation initiatives and to strengthen our contributions to climate change mitigation is crucial.

Unfortunately, we have been excluded from the negotiations under the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol and even in the discussions and implementation of these at the national level. We believe that, given the opportunity, we can contribute substantially to the discussions and decisions made on climate change policies and actions not only at the national level but also at the global level. We also believe that the recently-adopted United Nations Declaration on the Rights of Indigenous Peoples should be the overarching framework upon which climate actions and policies as these relate to indigenous peoples should be based.

It is in this light that Tebtebba prepared this “Guide on Indigenous Peoples and Climate Change.” The aim of this publication is to enhance our knowledge on climate change so that we will be better equipped to participate more effectively in shaping relevant policies and actions taken to address this issue. It also aims to enlighten non-indigenous peoples on our own experiences and perspectives on climate change. We are aware of the existence of recently written materials on indigenous peoples and climate change but most of these are not written by us and therefore lack the perspectives we have to offer. This publication is aimed to fill the dearth of such materials. It is designed as a guide that will provide the basic information which we deem indigenous peoples should have on their hands. Hopefully, it will allow all of us to appreciate more fully how climate change issues are related to our basic struggles for rights to lands, territories and resources, right to culture and to self-determination, including our right to development.

The UN Permanent Forum on Indigenous Issues (UNPFII) announced that the special theme for its 7th Session (April 21-May 2, 2008) is on "Climate change, bio-cultural diversity and livelihoods: the stewardship role of indigenous peoples and new challenges." There have been some climate change workshop-seminars and consultations organized by indigenous peoples and some support groups and UN bodies which have already taken place. So this publication draws on some recommendations which emerged from these processes.[1] It will also use information from the documents prepared for the UNPFII sessions such as the overview paper made by the UNPFII Secretariat and the Report on the Impact of Climate Change Mitigation Measures on Indigenous Peoples and their Territories and Lands" [E/C.19/2008/10], as well as the Report of the 7th Session of the UNPFII [E/C.19/2008/13].

Why should we be concerned about climate change?

We should be concerned about climate change because of the following:

- Indigenous peoples, mainly, are peoples of the land. We live off the land and resources found in our lands and waters. We are the main stewards of biological and cultural diversity. Our rights, cultures, livelihoods, traditional knowledge and identities are based on the profound and intricate relationships we forged with our lands, waters, and resources over thousands of years. Thus, when our lands and resources disappear or get altered, due to climate change, we suffer the worst impacts;
- Our ancestors and we, the present generations, have coped and adapted to climate change for thousands of years. However, the magnitude and nature of present-day climate change seriously challenges our resilience and our capacities to adapt. We contributed the least to climate change because of our sustainable traditional livelihoods and lifestyles and yet we are the ones who are heavily impacted by it;
- Some mitigation measures agreed upon and promoted under the UN Framework Convention on Climate Change and the Kyoto Protocol (the Clean Development Mechanism and emissions trading schemes) and other market-based mechanisms have adverse impacts on indigenous peoples. These range from displacement or relocation from ancestral territories, land grabs, serious human rights violations to the exacerbation of environmental degradation of our lands;
- Because of the above, we believe that we should be concerned about climate change and we should be included in negotiations and decision-making processes and bodies dealing with climate change.

What will be contained in this Guide?

First, we will discuss the basics of climate change, including mitigation and adaptation measures. This chapter will contain brief explanations of the bodies, mechanisms and processes addressing climate change. We will use illustrations and pictures culled from other sources to explain more graphically the main points. Then we will show the impacts of climate change and mitigation measures on

indigenous peoples who live in diverse ecosystems as well as on indigenous women.

A chapter on REDD, currently under negotiation, will discuss what this proposal is about and the risks and opportunities this presents to indigenous peoples. This is very important since funding schemes and pilot projects are being set up and implemented by various bodies even while negotiations are ongoing. A few examples of adaptation and mitigation processes done by indigenous peoples at the local levels will also be discussed. The current state of negotiations from Bali to Copenhagen (COP15) will be explained, including the key results of the recent climate change talks in Bangkok (April 2008), Bonn (June 2008) and Accra (August 2008).

The last part will respond to the following questions: "What is our advocacy agenda on climate change? Does this agenda integrate the human rights-based approach to development and the ecosystems approach? What role does the UN Declaration on the Rights of Indigenous Peoples play in promoting our climate change agenda? What are the ways forward for us to influence the Post-Bali negotiations to Copenhagen (2009) and beyond?"

Victoria Tauli-Corpuz
Executive Director, Tebtebba
Chairperson, UN Permanent Forum on Indigenous Issues

05 September 2008

Endnote:

1 Some of these workshops include the following: 1) "Conference on Indigenous Peoples and Climate Change, Copenhagen, 21-22 February 2008, organized by IWGIA; 2) Asia Indigenous Peoples' Preparatory Workshop for the UNPFII 7th Session and other related-UN processes (organized by Asia Indigenous Peoples' Pact, Feb. 25-26, 2008, Kathmandu, Nepal); 3) Asian Indigenous Peoples' Consultation with the World Bank on the Forest Carbon Partnership Facility (organized by Tebtebba, Feb. 28-29, 2008, Kathmandu, Nepal); 4) Consultation/ Dialogue on Indigenous Peoples' Self-Determined Development or Development with Identity (organized by Tebtebba, held in Tivoli, Italy, March 14-18, 2008); 5) "International Expert Meeting on Response to Climate Change for Indigenous and Local Communities and the Impact on their Traditional Knowledge Related to Biological Diversity – the Arctic Region," Helsinki, 25-28 March 2008 (organized by the Secretariat of the Convention on Biodiversity); 6) International Expert Group Meeting on Indigenous Peoples and Climate Change, Darwin, Australia, 2-4 April 2008 (organized by the UNU-IAS, Secretariat of the Permanent Forum on Indigenous Issues, NAILSMA).

Part I

Climate Change and Processes: An Overview

What is climate and what is climate change? How are these related to greenhouse gases and the "greenhouse effect"? Why should climate change be something we should be concerned about?

Let's define climate, climate change and greenhouse gases first before we get to the greenhouse effect and global warming.

1 What is Climate?

- Climate is usually defined as "the average weather." It is measured by observing patterns in temperature, precipitation (such as rain or snow), wind and the days of sunlight as well as other variables that might be measured at any given site.
- The climate is the manifestation of a highly complex system consisting of five interacting components: the atmosphere (air), the hydrosphere (water), cryosphere (frozen part of the earth), the land surface, and the biosphere (part of the earth where life exists).

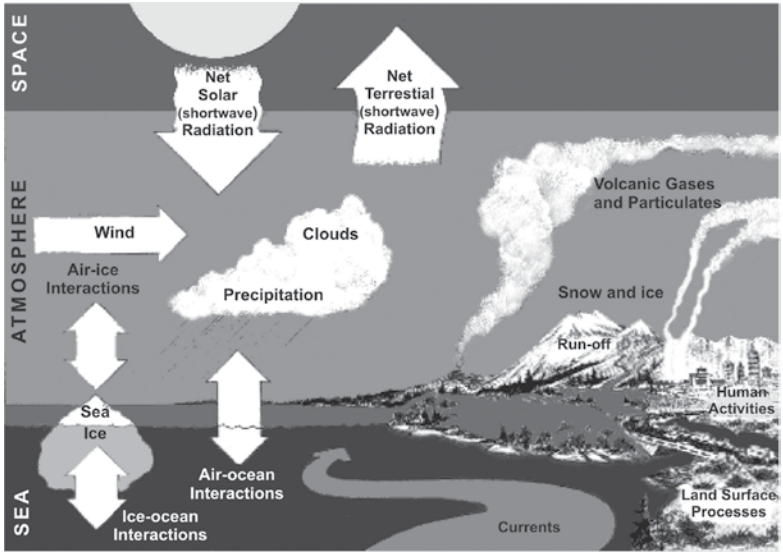


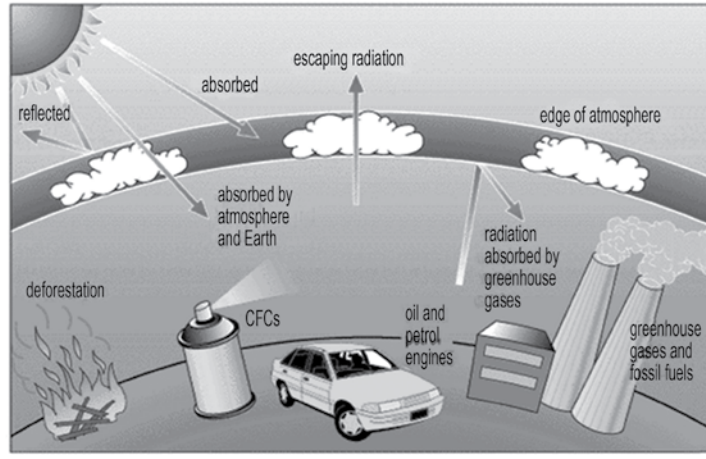
Image Source: Government of Canada Graphic, from: www.solcomhouse.com/cligovcan.gif

- Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity (anthropogenic causes). Climate change can result from the interaction of the atmosphere and oceans. The United Nations Framework Convention on Climate Change (UNFCCC) puts more emphasis on human activities which cause climate change.
- Changes in the world's climate are not new. In fact, this is one factor which has influenced the course of human history and human evolution. Historically, humans have been able to cope and adapt to these changes.
- Previously, it was the climate that changed humans. Now, we're changing the climate, and we're changing it too fast.
- The climate change we are experiencing now is brought by humanity's massive dependence on fuels, particularly carbon-based fuels, such as coal, oil, and natural gas. These fuels bring about greenhouse gas emissions.

What is climate change?

2 What are greenhouse gases and what is the "greenhouse effect"? How are these related to global warming?

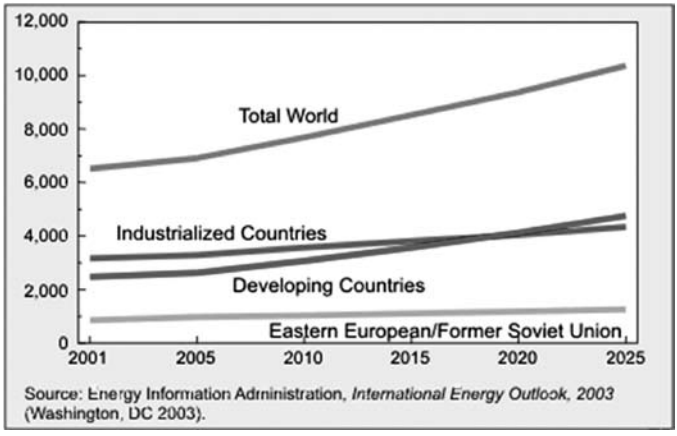
- Greenhouse gases (GHGs)[1] are chemical compounds such as water vapor, carbon dioxide, methane, and nitrous oxide found in the atmosphere. Carbon dioxide is the main GHG and its emissions mainly come from burning fossil fuels.
- These greenhouse gases absorb some of the infrared radiation (heat) which reflects back heat that gets trapped by the greenhouse gases inside our atmosphere. This is necessary to make the earth warm, otherwise, it will be too cold. The atmosphere acts like the glass walls of a greenhouse, which allows the sun's rays to enter but keeps the heat in.
- This natural process is called the greenhouse



From: http://media.allrefer.com/s4/l/p0001164-greenhouse-effect.gif

effect. As humans emit more carbon dioxide and other greenhouse gases into the atmosphere, the greenhouse effect becomes stronger and global warming occurs.

- **Global warming** is the noted average increase of the earth's surface temperature and oceans as compared to previous centuries. This is a result of the continuous trapping of heat within the earth's atmosphere due to increased quantity of greenhouse gases. Global warming is one of the key aspects of climate change.
- Levels of some important greenhouse gases have increased by about 25% since large-scale industrialization began around 150 years ago.
- A brochure made by the US Department of Energy says "The U.S. produces about 25% of global carbon dioxide emissions from burning fossil fuels; primarily because our economy is the largest in the world and we meet 85% of our energy needs through burning fossil fuels." It further states "...in the U.S., our greenhouse gas emissions come mostly from energy use. These are driven largely by economic growth, fuel used for electricity generation, and weather patterns affecting heating and cooling needs. Energy-related carbon dioxide emissions, resulting from petroleum and natural gas, represent 82% of total U.S. human-made greenhouse gas emissions"[2]



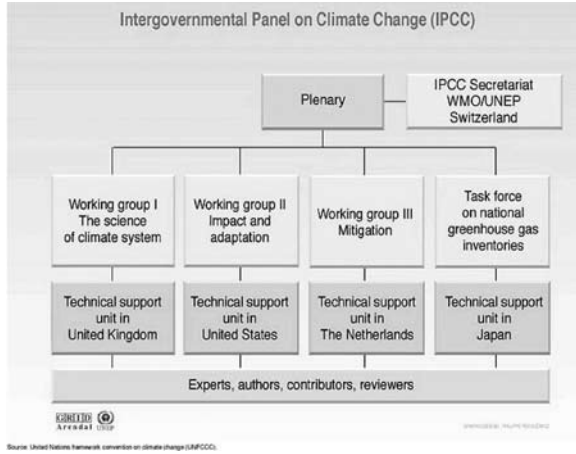
World Carbon Dioxide Emissions by Region, 2001-2025
(Million Metric Tons of Carbon Equivalent)

3 So what is the world doing about climate change? Which multilateral organizations are mainly dealing with it?

- The first multilateral organizations tasked to address climate change are the following:
  - The World Meteorological Organization (WMO), a special agency of the United Nations (UN), and
  - The United Nations Environmental Program (UNEP)

- **Intergovernmental Panel on Climate Change (IPCC)** – In 1988 the WMO and the UNEP co-established the Intergovernmental Panel on Climate Change (IPCC), an ad hoc, open-ended intergovernmental mechanism composed of scientists from all over the world, tasked to provide scientific assessments of climate change. It is recognized as the most authoritative scientific and technical voice on climate change, and its assessments influence the negotiators of the UNFCCC and its Kyoto Protocol. It provides governments with scientific, technical and socio-economic information which evaluate the risks and develops a response to global climate change.

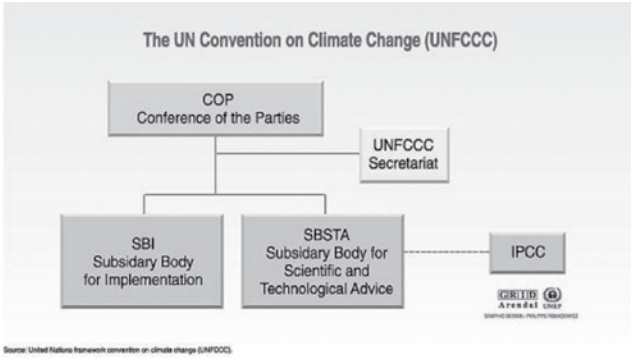
  The IPCC is organized into three working groups plus a task force on national greenhouse gas (GHG) inventories:



  - Working Group I - assesses the scientific aspects of the climate system and climate change;
  - Working Group II - addresses the vulnerability of human and natural systems to climate change, the negative and positive consequences of climate change, and options for adapting to them; and
  - Working Group III - assesses options for limiting greenhouse gas emissions and otherwise mitigating climate change, as well as economic issues.

- **The UN Framework Convention on Climate Change (UNFCCC)**
  - The first assessment report of the IPCC served as the basis for negotiating the UNFCCC, the guiding framework by which countries base their responses to climate change.
  - The UNFCCC is a Multilateral Environmental Agreement (MEA) which was adopted during the United Nations Conference on Environment and Development (UNCED) or the Earth Summit which was held in Rio de Janiero, Brazil in l992. It entered into force in 1994. The UNFCCC "sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It recognizes that the climate system is a shared resource whose stability can be

affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 192 countries having ratified and acceded to it.[3]



- Its main goal is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic human-induced interference with the climate system."
- The main decision-making body is the Conference of the Parties (COP), which is composed of 180 states that have ratified[4] or acceded to the agreement. The Subsidiary Body for Scientific and Technological Advice (SBSTA) provides the COP with timely information and advice on scientific and technological matters relating to the Convention. The Subsidiary Body for Implementation (SBI) helps with the assessment and review of the Convention's implementation.
- However, with the realization that GHG emissions continued to rise around the world, Parties of the UNFCCC began negotiations to come up with a "firm and binding commitment by developed countries to reduce emissions."[4] The result of these negotiations was the Kyoto Protocol.

What is the Kyoto Protocol?

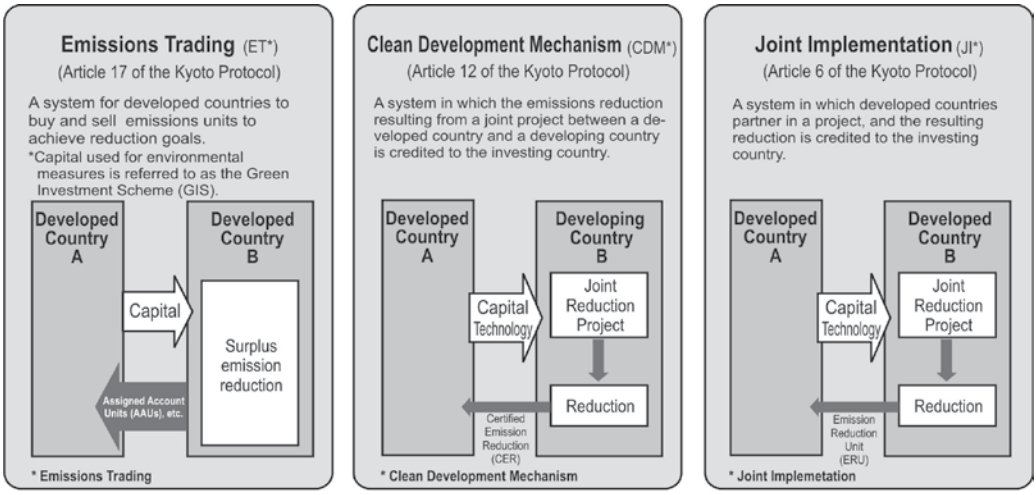
- The Kyoto Protocol (KP) was adopted during the 3rd Conference of the Parties to the UNFCCC (COP3) in Kyoto, Japan on 11 December 1997. It entered into force on 16 February 2005.[5]
- It sets targets for industrialized countries (Annex 1 countries)[6] to reduce their pollution and gives them flexibility as to how they can reach these targets.
- The KP is an international agreement that is linked to the existing UNFCCC, but standing on its own. It has the same objectives and institutions as the UNFCCC except for the distinction where the Convention **encouraged** developed countries to stabilize GHG emissions but the Protocol **commits** them to do so.
- As of December 12, 2007, 176 countries and one regional economic integration organization (the EEC) have deposited instruments of ratifications, accessions, approvals or acceptances.[7] The US remains to be the only country that has not ratified the global treaty.

So what does the Protocol want to accomplish?

- The Protocol basically asks from developed countries (or Annex I countries) to reduce their GHG emissions between 2008 and 2012.
- There are different levels set for each of the countries and the ultimate objective is to add up the reductions to have a total cut in GHG emissions of at least 5% against the baseline of 1990.
- The explicit heavier burden placed on developed countries stems from the principle of "common but differentiated responsibilities."
- This means that it is only fair to require more emission reductions from developed countries because they can afford to pay the cost of cutting emissions, and besides, these countries have historically contributed more in GHG emissions per person than in developing countries.[8]

How will countries reduce emissions?

- "Innovative mechanisms" were developed in the Protocol to allow Parties more flexibility in meeting their legally-binding targets. "These so-called "market-based mechanisms" allow developed Parties to earn and trade emissions credits through projects implemented either in other developed countries or in developing countries, which they can use towards meeting their commitments."[9] These are the following:
  - ❒ Emissions Trading
  - ❒ Joint Implementation (JI), and
  - ❒ Clean Development Mechanism (CDM).

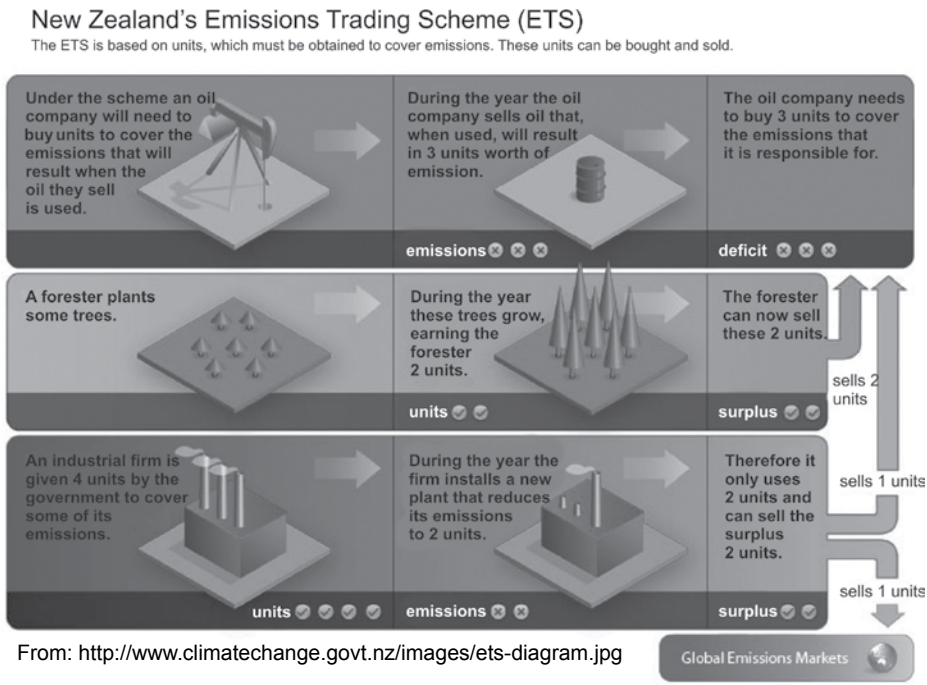


Source: Data of the 8th Market Mechanisms Sub-Committee, Environment Committee, Industrial Stucture, http://www.marubeni.com/dbps_data/_material_/maruco_en/data/csr/environment/images/greenhouse_gas_ph006.gif.

- The emissions credits that the countries earn can be used in meeting their commitments and are supposed to bring about the identification of "lowest-cost opportunities" to reduce emissions.
- Participation of the private sector can also be drawn in and assures a benefit for developing nations by way of technology transfers and "investment brought about through collaboration with industrialized nations under the CDM."
- Flexibility in meeting the "binding targets" are built in within the Kyoto Protocol. An example for a flexibility mechanism is when emissions of a country are partially compensated by increasing "sinks" – forests - which remove carbon dioxide from the atmosphere.[10] That may be accomplished either on their own territories or in other countries. Or they may pay for foreign projects that result in greenhouse-gas cuts.[11]

What is Emissions Trading?

- **Emissions Trading** which includes carbon emissions trading is very similar to the trading of commodities in a market place. Emissions trading allows countries to exchange emission allowances.
- Below is an illustration of New Zealand's Emissions Trading Scheme. The New Zealand government has decided to use an emissions trading scheme that is expected to establish a New Zealand market for greenhouse gas emissions, supporting global efforts to reduce these emissions.[12]



From: http://www.climatechange.govt.nz/images/ets-diagram.jpg

What is Joint Implementation (JI)?

- **JI** is a mechanism where a developed country can receive "emissions reduction units" when it helps to finance projects that reduce net emissions in another developed country (countries with economies in transition, specifically those from the former East European bloc).
- For example, Japan has funded a wind power project in Bulgaria. The Kaliakra Wind Power Project (KWPP) is expected to offset greenhouse gas (GHG) emissions that otherwise would be generated by coal fired thermal power plants in Bulgaria. The revenue of emissions reductions units is then added to Japan.[13] An energy efficiency program in Poland funded by a UK company could also qualify under JI. It seems that JI projects will mainly take place in Eastern Europe and Russia, because lower costs and regulatory standards allow for reductions to be made more cheaply.

EMISSION REDUCTION UNIT (ERU): The carbon credits arising from JI projects. One ERU is awarded for a reduction in greenhouse gas emissions equivalent in impact to one tonne of carbon dioxide.

From: http://www.berr.gov.uk/sectors/ccpo/glossary/abbreviationsej/page20693.html

CERTIFIED EMISSION REDUCTION (CER): A Kyoto Protocol unit equal to 1 metric tonne of CO_2 equivalent. CERs are issued for emission reductions from CDM project activities.

From: http://unfccc.int/essential_background/glossary/items/3666.php

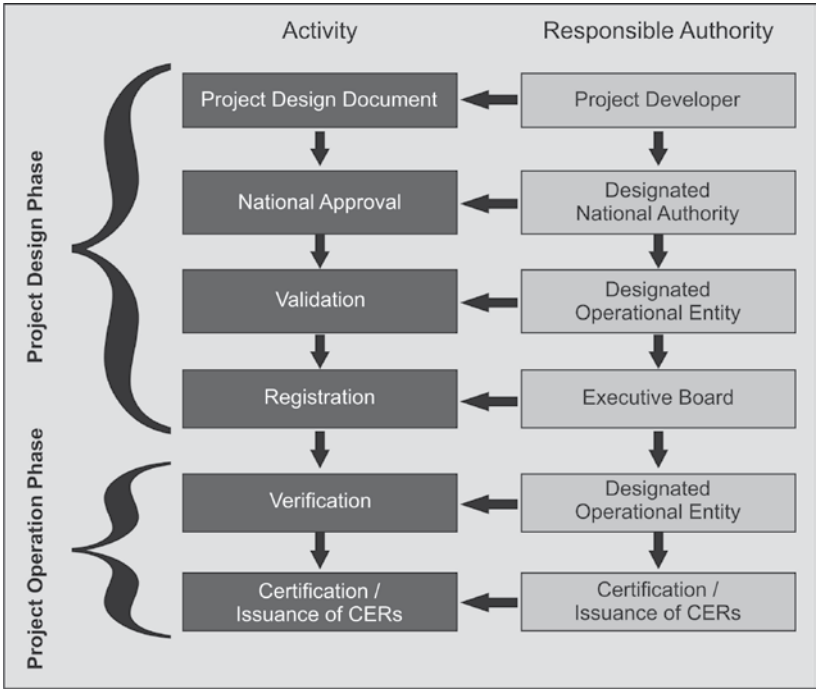
What is the CDM?

- The **Clean Development Mechanism (CDM)** allows a developed country to implement a project that reduces GHG emissions, or subject to constraints, removes greenhouse gases by carbon sequestration in a developing country.
- The resulting Certified Emission Reductions, known as CERs, can then be used by the developed country to meet its emission reduction targets.
- The Centre for Science and Environment's Global Environmental Governance website provides the following example (Figures are hypothetical) to illustrate how the CDM works:
- A company in Brazil (a non Annex I country) switches from coal power to biomass. The CDM board certifies that by doing this the company has reduced CO_2 emissions by 100,000 tonnes

per year. It is issued with 100,000 CERs. Under the Kyoto Protocol, the United Kingdom (an Annex I country) has to reduce its greenhouse gas emissions by 1 million tonnes of carbon dioxide each year. If it purchases the 100,000 CER's from the Brazilian company, this target reduces from 1 million tonnes/year to 900,000 tonnes per year making the goal easier to achieve.[14]

An actual CDM project, to add another example, is the Ciudad Juarez Landfill Gas to Energy Project in Chihuahua, Mexico. The host country here is Mexico,[15] and the investing country is Japan. It is expected to reduce 170,499 metric tonnes CO_2 equivalent per year. The purpose of the project is to reduce greenhouse gas emissions by capturing and utilizing the methane in the landfill gas released by the Ciudad Juarez landfill, and avoiding future GHG emissions from the decomposition of municipal solid waste residues.[16]

CDM Project Cycle



Source: Adapted from "Using the CDM into energy planning – A case study from South Africa", James-Smith, E., From: http://www.setatwork.eu/images/cdm_project_1.gif.

Endnotes:

1 Greenhouse gases which are covered by the Kyoto Protocol include carbon dioxide (CO2), nitrous oxide, methane, sulfur hexachloride, HFCs (hydro fluoro compounds) and PFCs (Perflouro carbons). CFCs (Chlorofluorocarbons), which are also greenhouse gases, are covered by the Montreal Protocol.

2 Please see EIA Brochure which can be downloaded from http://www.eia.doe.gov/oiaf/1605/ggccebro/chapter1.html.

3 Ratification is when state-party signs on to the Convention when it entered into force. The UNFCCC entered into force on 21 March 1994. After this, State-parties who have not signed the Convention yet can accede to it anytime. "Accession" is the act whereby a state accepts the offer or the opportunity to become a party to a treaty already negotiated and signed by other states.

4 The United Nations Framework Convention on Climate Change. Official Website content at http://unfccc.int/essential_background/convention/items/2627.php accessed on February 12, 2008.

5 United Nations Framework Convention on Climate Change. http://unfccc.int/kyoto_protocol/items/2830.php accessed online on February 12, 2008.

6 Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, European Community, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Netherlands, New Zealand, Poland, Portugal, Romania, Russian Federation, Slovakia, Spain, Sweden, Switzerland, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America.

7 UNFCCC Website: Kyoto Protocol Status of Ratification. Available at http://unfccc.int/kyoto_protocol/background/status_of_ratification/items/2613.php accessed on November 15, 2007.

8 UNFCCC Website: Kyoto Protocol. Available at http://unfccc.int/kyoto_protocol/items/2830.php accessed on February 12, 2008.

9 See UNFCCC website: downloaded from http://unfccc.int/kyoto_protocol/items/2830.php. 9 April 2008.

10 The UNFCCC defines sink in its website glossary as: Any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere. Forests and other vegetation are considered sinks because they remove carbon dioxide through photosynthesis.

11 UNFCCC Website: A Summary of the Kyoto Protocol. Available at http://unfccc.int/kyoto_protocol/background/items/2879.php accessed on February 12, 2008.

12 http://www.climatechange.govt.nz/nz-solutions/fast-facts.shtml.

13 http://www.jaco-cdm.com/projects/pdf/008.pdf.

14 http://www.cseindia.org/programme/geg/cdm_faq.htm.

15 CDM Registry. Project 1123. Available at http://cdm.unfccc.int/Projects/DB/TUEV-SUED1179241731.11/view.

16 http://www.zeroghg.com/carbon_projects_detail.html.

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WMO Website: www.wmo.int.

UNEP Website: www.unep.org.

IPCC Website: www.ipcc.ch.

Part II

Impacts of Climate Change on Indigenous Peoples

It has to be reiterated that indigenous peoples have contributed the least to climate change. This is mainly caused by actions taken by those who perpetuate and benefit from the dominant development model characterized by unsustainable production and consumption, extreme individualism, increasing concentration of wealth and power in the fewer hands, etc. Climate change is a major consequence of this unsustainable development paradigm. Indigenous peoples are among those who suffer the most adverse consequences of climate change.

An intricate relationship is shared between the indigenous peoples and the ecosystems where they have thrived for thousands of years. They depend on these diverse ecosystems for their nutritional, economic, cultural, social and spiritual existence.

In living off these ecosystems, indigenous peoples have been observing the effects of climate change first-hand for several decades. They have observed changes in temperature, in the amounts and qualities of rain and snow, and changes in seasons. Their scientific observations and the knowledge and practices they developed to be able to cope and adapt to these changes cannot be underestimated as these allowed them to survive as distinct peoples over millennia. They have identified the differentiated adverse impacts of climate change on them which are as follows.

What are the impacts of climate change on indigenous peoples living in different ecosystems?

Where do indigenous peoples live?

- Polar ecosystems
- Dry and subhumid ecosystems which consists of the deserts and savannahs, arid and semi-arid lands, grasslands, and Mediterranean landscapes
- Forest ecosystems which include tropical and sub-tropical forests as well as boreal and temperate forests
- High altitude and high montane ecosystems
- Agricultural ecosystems
- Coastal and low-lying areas and small-islands, inland water ecosystems
- Wet plains
- Mangrove areas

- Massive floods, strong hurricanes, cyclones and typhoons and storm surges lead to the destruction of houses, infrastructure (bridges, roads, electrical lines, dams, mine-tailing ponds, etc.), forests, agricultural lands, crops, livestock, marine and coastal resources; massive land slides; loss of freshwater supplies, increase of pathogenic micro-organisms and vectors which are carriers, loss of electricity, etc.
- These lead to human impacts such as physical isolation because of floods and massive landslides which reduce possibilities for them to market their crops, livestock, marine and coastal resources, etc.; the loss and destruction of ancestral lands, resources and homes, food insecurity and hunger (destruction of crops, destruction of coral reefs and mangroves, and spawning beds of local fish, decrease and loss of livestock, etc.); fresh water-insecurity; energy insecurity; increased prevalence and virulence of infectious diseases such as cholera, etc.
- More frequent and prolonged droughts and floods cause the disappearance of plant and animal species that have sustained indigenous peoples as subsistence food sources or as essential to their ceremonial life.
- Extreme and unprecedented cold spells and prolonged wet environment results to health problems, such as hypothermia, bronchitis and pneumonia, especially among old people and young children.
- A drop in water levels, drought, desertification and saltwater intrusion leads to more hunger and impoverishment. Water and food insecurity is exacerbated.
- Traditional livelihoods ranging from rotational agriculture, hunting and gathering, pastoralism, high montane livestock and agricultural

production, coastal and marine fishing, trapping, agro-forestry livelihoods, among others, are undermined because of climate change.

- Adverse impacts on traditional livelihoods and their ecosystem will also mean loss of traditional knowledge, innovations and practices associated with these livelihoods and ecosystems.
- Loss of revenue, economic opportunities and the practice of traditional culture are expected to increase the social and cultural pressures on indigenous peoples. The outmigration of indigenous youth to seek economic opportunities elsewhere because climate change has limited further their opportunities in their own communities, could lead to erosions of indigenous economies and culture.
- Increase in a number of indigenous persons who end up as environmental refugees or who outmigrate because their lands have gone underwater or have eroded due to landslides.
- Capacities of indigenous women to perform their roles as seed-keepers, water bearers, transmitters of culture and language, among others, are undermined.
- The loss or migration of culturally important species will make it more difficult for elders to practice and pass their traditional ecological knowledge to the next generation.

Tropical and Sub-tropical Ecosystems

There are more than 1,400 distinct indigenous peoples in these ecosystems, most of whom are hunters and gatherers living in the world's tropical rain forests and rotational agriculturists or shifting cultivators. Most of forest peoples, majority of whom are indigenous peoples, are highly dependent on forest ecosystem. There are also fisherfolks and lowland farmers found in the plains of these ecosystems. Such ecosystems are found in Asia, Latin America, Africa and some parts of Australia. Most of the countries where these ecosystems are found are considered as mega-diverse countries. Climate change brought about the following:

638 - gigatonnes of carbon stored in forest ecosystem, as reported in 2005, which is more than the amount of carbon in the entire atmosphere.[1]

- The practice of rainfed agriculture which characterizes rotational agriculture or swiddening is highly disturbed because of infrequent rains, shorter wet seasons or prolonged monsoons leading to lower crop yields exacerbated by longer lives of pests and occurrence of new pests. Seed germination and seed life are altered. Schedules and performance of cultural rituals which accompany agricultural seasons from planting, weeding to harvests are disturbed.

TROPICAL FORESTS - one of the most biodiversity-rich habitats on Earth. Approximately 60% of all higher plant species are found in rainforests. It is estimated that more than 1,300 species of forest plants used for medicinal and cultural purposes are found in the tropical forests.

- Changes in the behavior and migration patterns of birds which have been traditionally used to guide hunters and mark agricultural seasons causing disorientation of hunters and gatherers and shifting cultivators.
- Worsening drought conditions and desertification, leading to lesser availability of drinking water, increased numbers of forest fires causing rapid loss of forest cover, adverse impacts on indigenous land rights and land tenure systems on the practice of rotational agriculture and hunting and gathering livelihoods; and serious loss of biodiversity, including traditional medicinal and ritual plants.
- Changes in habitation or living areas and movements away from communities beset with diseases, areas prone to landslides, droughts or floods have caused cultural disruptions because sacred areas or groves have to be abandoned, practice of traditional livelihoods cannot continue any longer and cultural rituals related to agricultural and forestry practices are practiced less and less. Land rights and customary land tenure systems are undermined and violated.

- Rainfall has become infrequent and unpredictable causing changes in flood patterns of rivers affecting the regular routines of indigenous peoples, particularly women and children, who catch fish and other water creatures for food.
- Increase in incidences of vector-borne diseases, such as malaria and

dengue fever, because of increasing temperatures and deforestation. Warmer forests are favorable habitats for mosquitoes acting as vectors. New diseases such as meningitis, which were not endemic and widespread, emerged in Ghana and other tropical countries.

1°C - change in temperature which can already lead to significant changes in forest growth, modifying the functioning, fertility of soils and composition of forests.

- Increased floods in low lying areas because of deforestation has led people in those areas to evacuate or adopt their lifestyles to constant flooding.

Semi-arid and Arid Lands

Most of the inhabitants of semi-arid and arid lands are pastoralists, hunters and gatherers, settled agriculturists, and many of them self-identify as indigenous peoples. These peoples have very sophisticated traditional knowledge in maintaining crops and forages, nurturing livestock and making the arid, semi-arid, humid, hyper-humid lands productive.

- Much less rainfall and prolonged droughts, resulting in more occurrences of dust storms that degrades grasslands, damages seedlings and other crops, decreases livestock of pastoralists and nomadic indigenous peoples leading to chronic hunger and food insecurity.
- Deserts are becoming hotter and drier which will cause the disappearance of organisms and plants that have reached their heat-tolerance limits.

- Drying up of water sources (springs, streams), decreased flow in rivers, shrinking of lakes, poor replenishment of water aquifers, are affecting indigenous peoples' access to water, water for crops and livestock, habitats for birds and water creatures and thus lessening sources of food for people.
- The capacity of indigenous peoples to dig deeper into the ground for fresh water is very limited because of poverty. Lack of freshwater leads to more gastro-intestinal diseases and skin diseases as well as diseases caused by inability to wash and clean the bodies and surrounding areas. These are also caused

by forced use of heavily contaminated and polluted waters. This adds to the burdens of women and children who are the main water providers.

- Traditional agricultural cycles are disrupted with late onset of rains and short durations of wet seasons causing a decline in crop yields and poor performance of root crops which are mainly rainfed.
- The availability of forage (grass cover in grazing areas) and crop residues for livestock has significantly decreased because of moisture stress which adversely affected livestock production and yield.
- Untimely rainfall and change in temperature create favorable conditions for breeding of pests and diseases.
- There are already areas where indigenous peoples are forced to live around government-drilled bores for water and depend on government support for their survival. Deteriorating food security is a major issue in these drylands.
- Incidence and serious outbreaks of diseases which are endemic in arid and semi-arid lands such as malaria, Rift Valley fever and cholera have been recorded in East Africa and meningitis in the drier parts of West and Central Africa moving towards the eastern region of the continent.
- The extent and floods are expected to be more frequent. (IPCC 2007 a). This will have severe impacts on food security especially in the subsistence sectors and will be worsened by expected warming of lakes and rivers decreasing fish productivity.

ARID and **SEMI-ARID LANDS** - popularly known as drylands, cover 40% of the earth's surface and it is estimated that around 2 billion people live in this ecosystem.

30% - percent of the world's cultivated plants that are reported to have originated from this ecosystem.

10-30% - percent by which water availability in drylands is expected to decrease in the next 40 years

75 to 250 million – increase in the number of people in Africa which will be affected by drought.

High altitude and High Montane Ecosystems

A significant number of indigenous peoples have inhabited high altitude[2] or high montane areas since time immemorial. Mountain glaciers in Africa (Mt. Kilimanjaro), Asia (Himalayas) and South America (Andean Mountains) are melting in an unprecedented fast pace. In the Andes, the glaciers are melting 10 times more that they did 20 years ago.[3] It is estimated that some of the ice sheets and glaciers will disappear within 15 to 25 years and this will threaten water supplies to the major South American cities.

HIGH ALTITUDE and **HIGH MONTANE** - one of the most inhospitable but important ecosystems of the world as these are where mountain glaciers are found which are the sources of freshwater for low-lying areas. Studies have shown that climate change has caused faster and higher temperature rises in high altitude ecosystems.

- The source of subsistence for many indigenous communities in this ecosystem are gravely threatened because of extreme and unprecedented cold spells alternating with warm weather which they are not used to at all.
- Diseases caused by extreme cold spells such as hypothermia, bronchitis and pneumonia have been recorded in the Andes in 2003. Increase in temperature, on the other hand, also allows the migration of insects which become pests for the crops and also cause diseases for the animals and people.
- Loss of livestock which provide them food, clothing, beddings and insulation as well as incomes for the handicrafts developed from the wool of these animals have further made them more vulnerable to diseases and caused their impoverishment.

- Incessant rains in high altitude ecosystems cause mudslides and destruction of agricultural crops, especially root crops which erode with the soil.
- In the Himalayas, glacial melts affect millions of rural dwellers who depend on the seasonal flow of water. There might be more water on a short term basis which raises the sea levels and cause floods, such as those which are happening, on a more frequent basis, in Bangladesh, Nepal, India and Bhutan.
- In the long term, there will be less water as glaciers and snow cover shrink and water-holding capacities of the high mountains are destroyed. Impending water crisis to the communities downstream is foreseen as a consequence of this.
- Tourism which has been a source of income for indigenous peoples in high altitudes has suffered because of the melting glaciers, loss of snow and ice. Continuous rains in high montane areas also dampened tourism.
- High mountain areas in South East Asia, like the Cordillera region in the Philippines, also suffer from cold spells which destroy temperate vegetables which are the main source of income for many indigenous farmers.
- Disappearance of high alpine flora which are sources of food, medicine, grazing, hunting and handicrafts will have severe impacts on their cultures and traditional livelihoods. Species which are found only in mountaintops have disappeared because of warmer temperatures.
- Indigenous peoples' cultural heritage sites found in high altitudes (e.g., Ifugao rice terraces, Machu Pichu, etc.) are also threatened because of changing temperatures.
- In the Andes, the warming of the earth is forcing indigenous peoples to farm at higher altitudes. This has a cultural impact since the uprooting of Andean indigenous peoples to higher lands puts their cultural survival at risk.

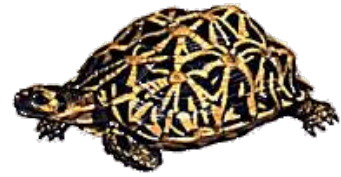
50-70% - estimated % of alpacas lost due to cold spells when the temperature went as low as -30°C.[4] Indigenous communities in the Andes lost thousands of sheep and alpaca herds which provide food and transportation for them. Potatoes which are part of their traditional food were, likewise, destroyed.

Coastal and Marine Ecosystem (Small Island States and Low-lying areas)

Sea level rise due to melting of glaciers and sea-ice and the expansion of water because of a rise in temperature results in the following:

- Cause some low-lying coastal areas to become completely submerged, while others will increasingly face short-lived high-water levels. These anticipated changes could have a major impact on the lives of indigenous peoples. They may have to be relocated outside of their traditional territories.
- The small island developing states (SIDS) will be especially vulnerable to the effects of sea level rise, and to changes in marine ecosystems, because of their major dependence on marine resources (UNEP, 2002).
- The sea has an enormous capacity to store heat. Warmer water, combined with anticipated changes in ocean currents, could have a devastating impact on marine ecosystems and biodiversity.
- One potential result could be a reduction in the upwelling of nutrients and phytoplanktons, which would in turn reduce productivity in key fishing areas where many indigenous peoples live.
- Decreased growth may also be seen in coral reefs, with high concentrations of carbon dioxide in the water impairing the deposition of limestone required for coral skeletons (UNEP, 2002). Island communities, who rely on coral reefs, will be especially vulnerable.
- Coral bleaching due to warmer sea temperature causes uncertainty and loss of livelihoods of fisherfolk because of difficulties in maintaining the viability of fish and other marine flora and fauna.
- Loss of coral reefs decreases marine life, undermines shoreline protection and loss of medicinal plants which depend on coral reefs.
- Coastal erosion is exacerbated by sea-level rise; stronger hurricanes and typhoons lead to loss of land and property and dislocation of indigenous peoples. The phenomenon of indigenous peoples becoming environmental refugees have emerged. The issue of what rights are they entitled to come into the picture as they get displaced from their

MARINE ECOSYSTEMS - are a part of the largest aquatic system on the planet, covering over 70% of the earth's surface. The habitats that make up this vast system range from the productive nearshore regions to the barren ocean floor. Some examples of important marine ecosystems are: oceans, salt marshes, coral reefs, and coastal areas.



traditional territories and are forced to move to other countries or territories.

- Loss of mangrove forests destroys the shield against strong typhoons, tsunamis, strong tidal waves. This has also meant the loss of vital marine life which are essential for the subsistence of indigenous peoples. Food insecurity due to difficulty of maintaining viable fish populations has worsened.
- Vector-borne and water-borne disease outbreaks have occurred due to flooding and rising temperatures, and destroyed sewage and drainage systems. These diseases include dengue fever, malaria, cholera, among others.
- Salt water intrusion on ground water have caused the salinization of freshwater resources. Water insecurity becomes worse which easily leads into conflicts between indigenous peoples and between them and others. Their water rights are undermined and the practice of water-related cultural rituals and ceremonies is also affected.
- The effect of climate change on coral reefs and on plant life on the island affects the gathering of such plants for traditional medicines, therefore, the continuation of traditional practices is threatened.
- Changes in rainfall patterns make the peoples' traditional knowledge on when to plant crops and what crops to plant already unreliable.

Arctic Ecosystem

The Arctic ecosystem has been referred to as "the world's climate change barometer" and indigenous peoples are "the mercury in that barometer."[4] *The Arctic Council*[5] *commissioned the Arctic Climate Impact Assessment (ACIA) which was done over a period of five years until its release in 2004. Among the findings of this study are the following:*

ARCTIC ECOSYSTEM - spans over 30 million square miles covering 1/6th of the Earth's surface. It's climate are cold winters and cool summers and the livelihoods, traditional knowledge, cultures and spiritualities of indigenous peoples are adapted to this. Any increase of 2°C in other parts of the world means around 5-7°C in the Arctic.

- Inuit, who are indigenous people inhabiting mostly coastal regions in the Arctic, are especially vulnerable.
- Hunters speak of thinning sea ice and rough ice conditions that makes hunting much more dangerous, changes to permafrost that alter spring run-off patterns, a northward shift in seal and

fish species, and rising sea levels with more extreme tidal fluctuations.
- Species that they rely on are disappearing and that hunting routes near shorelines have disappeared due to erosion brought on by the thawing of permafrost.
- Villages have experienced increased flooding in winter due to lessened or disappearing pack ice that normally protects shorelines from surging water. Together with strong winds, these cause damages to villages and destruction of infrastructure found along coastlines and riverbanks.

- Coastal and riverbank erosion and rising of rivers have occurred due to higher temperatures, thawing of permafrost, and melting mountain snow, glaciers and sea ice. Erosion of riverbanks cause riverbeds to rise thereby creating shallow waters which threaten fish populations. This adversely impacts on subsistence fishing, another pillar of the traditional economy.
- There are now reduced populations of animal species due to warmer temperatures and increase of new marine species entering the Arctic because of warmer sea water. Major changes in animal travel and migration routes have occurred.
- Melting of sea ice will drastically shrink marine habitat for polar bears, ice-inhabiting seals and some seabirds. Plant, animal, fish, bird and insect species previously foreign to the Arctic are moving further north causing the introduction of new diseases.
- The late freeze-up due to warmer temperatures has also led to some positive impacts such as better whitefish harvests, clamming, spotted seal hunting, access to caribou, Arctic fox harvests and access to driftwood.
- Unpredictable weather and entry of new species of plants, insects and animals challenge the traditional knowledge of indigenous peoples to cope with these developments.
- Unusual rains during winter season cause ice formations which makes it harder for animals such as reindeer and caribou to access food which has serious impacts on the subsistence and economies of indigenous peoples.
- The sovereignty of indigenous peoples in the Arctic and the States is under threat due to the opening of the Northwest Passage, allowing for easy entry of foreign hunters, traders and corporations which are constantly seeking for lands and waters to extract resources from.
- Increased sea traffic through the Canadian Arctic will make the west coast of Greenland, the north slope of Alaska and northern Russia more

vulnerable to environmental degradation. Increased commercial activity made possible by easier access to natural resources will bring more traffic and pollution to one of the most fragile ecosystems in the world.

- The health of Arctic plants and wildlife - and therefore the health of the indigenous peoples who rely on them for subsistence - is at stake.
- In a herding community where people only remember snow, frequent rains are now experienced. The livelihoods of Saami herders are undermined due to the effects on breeding cycles, flooding of migration paths and devastation of grazing areas.
- The herders are important to Saami culture since they are strong users of the Saami language and Saami traditions such as the "yoik," a singing style that predates the coming of Christianity to Saami lands. If Saami reindeer herders can no longer make a living, then the whole basis of Saami culture is at risk.

17% - percent of the earth's land surface covered by boreal forests and which are found also in the Arctic that are fast disappearing due to the loss in the moisture needed for forest growth. Lack of moisture interferes with the production of white spruce, a source of livelihood for indigenous peoples.

- Older people in the Arctic also are losing community respect and confidence on their traditional knowledge to interpret their environment and make decisions because of the unpredictability of weather conditions. In Nunavut, elders can no longer predict the weather using their traditional knowledge.
- There is an emergence of new types of insects and the life spans of endemic insects (e.g., spruce beetles) extend beyond four months because the temperature is not cold enough to kill them. Thus, trees and other vegetation in the boreal forests are destroyed by these beetles.

Endnotes:

1 See report of Joint Liaison Group of Rio Conventions, Forests: Climate Change, Biodiversity and Land Degradation, 2007.

2 High altitude = 1500–3500 meters above sea level; very high altitude = 3500-5500 meters; extreme altitude = 5500 meters and above.

3 Quoted from UNEP/CBD/WG8J/AG/2/3: John Henriksen, Draft Report on Indigenous and Local Communities Highly Vulnerable to Climate Change, 16 April 2007, CBD, p.22.

4 Speech by Sheila Watt-Cloutier, upon receiving the Canadian Environment Awards Citation of Lifetime Achievement, Vancouver, BC, June 5, 2006.

5 The Arctic Council is an intergovernmental body which addresses the common issues faced by the Artic peoples and States. It is composed of the eight Arctic States - Canada, Denmark (Greenland and Faroe Islands), Finland, Iceland, Norway, Russia, Sweden and the USA and six indigenous peoples' organizations - Aleut International Association, Arctic Athabascan Council, Gwich'in Council, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North and the Saami Council. There are official observers which are France, Germany, Netherlands, Poland, UK, NGOs and scientific and international bodies.

Part III

Climate Change Mitigation Measures: Impacts on Indigenous Peoples

1 What is the ultimate objective of the UNFCCC?

"The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

- Article 2 of the UNFCCC

2 How can this objective be achieved?

- This objective can be reached through climate change mitigation. Mitigation and adaptation are the main concerns of the UNFCCC and the Kyoto Protocol.

CLIMATE CHANGE MITIGATION - process of reducing greenhouse gas (GHG) emissions.

CLIMATE CHANGE ADAPTATION - the process whereby ecological, social or economic systems adjust to actual or expected climatic stimuli and their effects or impacts.

- The IPCC Fourth Report which concluded that climate change is "accelerating" and is "unequivocal" stated that action on climate change must begin immediately to avoid irreversible damage. The Stern Report reinforced this view and added that based on economic analysis, the costs of preventing climate change are significantly lower than the costs of the damage if no action is taken.
- The principles of equity and common but differentiated responsibilities as key guiding principles for climate change policies have been reiterated by developing countries in Bali and the recent climate talks held in Bangkok (April 1-4, 2008). Article 3.1 of UNFCCC states: *"That the Parties should protect the climate system for the benefit of present and future*

"Building Blocks" identified by UNFCCC

1. Mitigation
2. Adaptation
3. Provision of financial resources to support mitigation and adaptation and the shift towards a low-carbon development pathway
4. Development and transfer of climate friendly technologies.

Note: Since Bali, another item, "shared vision," is referred to by some parties as a new building block.

STERN REPORT
- 700-page report released on October 30, 2006 by economist Lord Nicholas Stern for the British government, which discusses the effects of climate change and global warming on the world economy.

Source: http://en.wikipedia.org/wiki/Stern_Review.

Special Funds established by the UNFCCC

- **Special Climate Change Fund** - will finance projects relating to capacity-building, adaptation, technology transfer, climate change mitigation and economic diversification for countries highly dependent on income from fossil fuels.
- **Least Developed Countries Fund** - intended to support a special work programme to assist the LDCs.
- **Adaptation Fund** - will finance practical adaptation projects and programmes in developing countries and support capacity-building activities. It will be funded from the adaptation levy on CDM projects. Parties may contribute as well.

generations of humankind on the basis of equity and in accordance with their common but differentiated responsibilities and respective capacities. Accordingly, the Parties of developed countries should take the lead in combating climate change and the adverse effects thereof."

- The contribution of countries to climate change and their capacity to prevent and cope with its consequences vary significantly. The UNFCCC therefore calls for financial assistance from countries with more resources to those less endowed and more vulnerable.
- The UNFCCC assigned operation of the financial mechanism to the Global Environment Facility. The financial mechanism is accountable to the COP, which decides on its climate change policies, programme priorities, and eligibility criteria for funding.

3 What are the Market-based Mechanisms for Mitigating Climate Change according to the Kyoto Protocol?*

- These market-based mitigation mechanisms agreed upon in the Kyoto Protocal which will be implemented by Annex 1 Parties (industrialized countries) include the Clean Development Mechanism (CDM), Emissions Trading (ET) and Joint Implementation (JI).
- These market mechanisms seek to lower the costs of achieving emissions targets. The CDM allows Annex I Parties to invest in projects in non-Annex I Parties that reduce emissions or that enhance sinks through afforestation or reforestation. The Annex I Party can then use credits generated by these projects toward meeting its emission target. Similarly, through JI, Annex I Parties can receive credit for investing in projects in other Annex I Parties. Finally, emission trading allows Annex I Parties to trade credits or emission allowances among themselves.

* See page 6 for more discussions on these mechanisms.

What are the indigenous peoples' perspectives on climate change mitigation?

- The best way to mitigate climate change is to change the unsustainable production and consumption patterns which is still the prevalent system dominating this world. The best mitigation measures involve changing lifestyles, individually and collectively, and structurally changing the development path towards a

sustainable and low-carbon one.

- The market-based mechanisms are very limited. These just reinforce further the inequities which have been created by the unregulated market or the so-called free market instead of addressing the root causes of climate change. Thus, there is a need to ensure that the other building blocks such as finance and technology transfer be implemented as agreed upon.

The 7th Session of the UNPFII, with climate change as its special theme, saw the need to further look into these mitigation measures. Two special rapporteurs were assigned to prepare a report on the impact of mitigation measures on indigenous peoples.[1]

- It is crucial for indigenous peoples to understand more fully these market-based mechanisms. Equipped with adequate information, they can evaluate the risks and opportunities which will allow them to make their own decisions on whether to engage with the emissions market or not.

Key Mitigation Technologies and Practices Currently Commercially Available[2]

Sector	
Energy Supply	Improved supply and distribution efficiency; fuel switching from coal to gas; nuclear power; renewable heat and power (hydropower, solar, wind, geothermal and bioenergy); combined heat and power; early applications of CCS (e.g., storage of removed CO_2 from natural gas).
Transport	More fuel efficient vehicles; biofuels; modal shifts from road transport to rail and public transport systems; non-motorized transport (cycling, walking); land-use and transport planning.
Buildings	Efficient lighting and daylighting; more efficient electrical appliances and heating and cooling devices; improved cook stoves, improved insulation; passive and active solar design for heating and cooling; alternative refrigeration fluids, recovery and recycle of fluorinated gases.
Industry	More efficient end-use electrical equipment; heat and power recovery; material recycling and substitution; control of non-CO_2 gas emissions; and a wide array of process-specific technologies.
Agriculture	Improved crop and grazing land management; restoration of cultivated peaty soils and degraded lands; improved rice cultivation techniques and livestock and manure management to reduce methane emissions; improved nitrogen fertilizer application techniques to reduce N_2O emissions; dedicated energy crops to replace fossil fuel use; improved energy efficiency.

Forestry/ Forests	Afforestation; reforestation; forest management; reduced deforestation; harvested wood product management; use of forestry products for bioenergy to replace fossil fuel use.
Waste	Landfill methane recovery; waste incineration with energy recovery; composting of organic waste; controlled waste water treatment; recycling and waste minimization.

4 What are the Impacts of Climate change Mitigation Measures on Indigenous Peoples' Territories and Resources?

- Climate change mitigation is not only an issue of cutting down GHG emissions but also an issue of equity, social justice, human rights and sustainability. How will the world share the burden of decreasing GHG emissions? Who should be compensated for what? How will such measures affect the rights to water, food, shelter and health?
- Indigenous peoples are not Parties to the Convention but have contributed significantly to and are still contributing a lot to the mitigation of GHG emissions. This is done through their low-carbon to carbon-neutral ways of life characterized by their continuing practice of sustainable traditional livelihoods and low levels of consumption. The struggles they have waged to prevent extraction of oil, gas, and minerals from their territories as well as their fights against deforestation have kept the carbon under the ground and in the trees. Unfortunately, these contributions are not accounted for nor compensated in the emissions market. Thus, the principles of equity and sustainability are not really respected in this context.
- It is bad enough that there are no mechanisms to recognize, account for and integrate indigenous peoples' contributions to mitigation. But what is worst is the fact that some mitigation measures have led to the violation of indigenous peoples' basic human rights. Some of the impacts of the regulated and voluntary emissions trading and CDM projects are the following:

1 Violation of the rights of indigenous peoples to their lands, territories and resources, criminalization of practice of traditional livelihoods, propagation of false mitigation solutions, and increase in food prices resulting to more food insecurity

- The implementation of some activities under the CDM and Emissions Trading have undermined and are potential threats to the rights of indigenous peoples to their lands, territories and resources. Even before the

CDM was set up, carbon sequestration or carbon offset projects were undertaken by the voluntary market which have led to the criminalization of indigenous peoples' traditional livelihoods (See Box 1), displacement from their traditional territories (See Box 2), or appropriation of their lands by the State or private interests.

- The upsurge in the building of large-scale hydro-electric dam projects in many developing countries is another factor causing the displacement of indigenous peoples from their traditional territories. Their free, prior and informed consent has not been obtained by the State when such projects were established in their communities.
- The pursuit of biofuels as alternative energy sources has resulted to indigenous peoples' lands being used or eyed as the production areas for biofuels (oil palm, corn, sugar cane, soya, jatropha, etc.). Massive land grabs are happening or will take place because of the expansion of land areas planted to biofuels. Reports also have shown that the production of biofuels, such as ethanol from corn, end up consuming more energy than what it can save. Thus, these are false mitigation solutions.

http://www.fotplay.com/freephotos/

Box 1

Carbon Offset Project in the Western Highlands of Guatemala[3]

The first carbon offset project was organized in the US in 1989 when Applied Energy Services (AES) decided to build a 183 megawatt coal-fired power station, approved partly due to its pioneering offset, which involved planting 50 million trees in the impoverished Western Highlands of Guatemala. This initial project was beset by many of the problems that have plagued offset projects ever since. The non-native trees that were planted initially were inappropriate for the local ecosystem and caused land degradation. The indigenous peoples from those areas, the Maya, had their habitual subsistence activities, such as gathering fuel wood, criminalized. Ten years on from the start of the project, evaluators concluded that the offset target was far from being reached.

BIOFUEL - a renewable fuel that is derived from biological matter, e.g., biodiesel, biogas, and methane.

40% - increase in food prices, according to latest FAO (Food and Agricultural Organization) reports, partly due to the competition between the use of agricultural crops for food or for biofuels.

Box 2

Mt. Elgon National Park in Uganda[4]

The Benet people inhabit the area around the Mt. Elgon National Park. In l994, a Dutch organization - FACE Foundation (Forests Absorbing Carbon Dioxide Emissions) - signed an agreement with the Uganda Wildlife Association (UWA) to plant eucalyptus trees on 25,000 hectares inside the park. Another Dutch Company, GreenSeat, has been selling the supposedly sequestered carbon to people who wanted to offset their emissions caused by their air transportation. Their website claims that US$28 will be the cost for planting 66 trees to offset 1.32 tonnes of CO_2 emitted during a flight from Frankfurt to Kampala. The UWA-FACE project claims that they employed local people but the local government officials dispute this, saying that the jobs which were available were only during the planting period. The officials also claim that the project has taken away what little land and income local communities had. In order to keep villagers out of Mt. Elgon, UWA park rangers violently evicted villages between 1993 to 2002. They were forcedly evicted without compensation. There are also rampant loss of livelihood and access to forests and resources such as potable water from springs and destruction of houses, crops and livestock. David Wakikona, Member of Parliament of Manjiya County, reported that in 2004, at least 50 community people were killed by park rangers. Aside from loss of homes, there is also a lack of employment opportunities due to destruction of traditional sources of livelihoods and denial of basic services on education and health. The Benet people took the government to court in 2003 and in October 2005, Justice J.B. Katutsi ruled that the Benet people are "historical and indigenous inhabitants of the said areas which were declared as a Wildlife Protected Area or National Park." He ruled that the Benet should be allowed to live on their land and continue farming it.

- Several claims of reduced emissions are questionable. The promotion of monocrop tree plantations to serve as carbon sinks or carbon offsets is problematic as some researches show that if this entails deforesting a primary forest, then the contribution to CO_2 emissions is even greater than carbon which can be sequestered. Industrial logging, monocrop plantations, transport of wood pulps and disposal of paper products are all producing carbon, methane and other GHGs.
- The way that these biofuels can significantly contribute in lowering GHG emissions depends on what crops are used and the production and processing methods used for these crops to become biofuels. Indigenous peoples are not against biofuels, *per se*. However, the production of these cannot justify, in any way, the displacement of indigenous peoples from their lands without their free, prior and informed consent.

http://www.fontplay.com/freephotos/

2 Few, Difficult and Dangerous Jobs, Health Problems and Inequitable benefit-sharing

- Even the justification that indigenous peoples will be provided with jobs and employment and that they will share in the benefits of producing alternative fuels and establishment of renewable energy projects does not hold water. They have not been prioritized in the employment of the hydroelectric companies which have taken over their own lands. The few who were employed reported low wages, no job security, poor and dangerous working conditions with no sufficient protection.
- In the Philippines, the Ambuklao and Binga Hydro-electric Dams, which have long been non-functional because of heavy siltation, has recently been bought jointly by Aboitiz (a Philippine energy corporation) and the Norwegian State energy corporation. This may be a CDM project which will allow Norway to meet its commitments. Negotiations are underway on how the indigenous peoples will benefit from this. There are several dam projects under the CDM scheme which can be found in the other Asian countries, Latin America and even in Africa and many of these are found in indigenous lands.
- The example of the Benet in the UWA-FACE project shows that those who wanted to practice their traditional livelihoods were even criminalized (See Box 2).
- Indigenous peoples who converted their lands to small-scale oil palm plantations do not benefit in any substantial manner as they do not have the necessary infrastructure and equipment to enable them to maximize the benefits they can gain. For example, when the oil palm fruits are

Box 3

Carbon Forestry Projects in India

In 1994, the World Bank funded a project - the Joint Forest Management (JFM) - to provide a system for forest protection and sustainable use through the establishment of Village Forest Protection Committees (VFPCs) in Madhya Pradesh (MP). This project, however, left a legacy of Adivasi disempowerment and community-level divisions (As documented in reports such as Sarin et. al., 2003, The Summary Report of Jan Sunwai [Public Hearing] on Forest Rights at Village Indpura, Harda District, 26 May 2001; etc.).

The Community Forests International (CFI) did two feasibility studies in 2001 to "examine systems that could compensate communities for carbon sequestration and storage resulting from forest regeneration" using the mechanism of JFM. The Harda Forest Division feasibility study, entitled "Communities & Climate Change: The Clean Development Mechanism and Village Based Forest Restoration in Central India. A Case Study from Harda Forest Division, Madhya Pradesh, India" has concluded that the JFM projects have improved the standard of living of the Adivasi (indigenous peoples) and the relationship with the Forest Department aside

harvested, these should be transported to the mills within 24 hours. If they do not have their own trucks to do this, whatever profits they gain will go the payments of these.

- Health problems like skin diseases, respiratory problems because of the use of toxic fertilizers and pesticides and the shortage of water and toxic effluence from mills that process the crops have increased.
- In several cases of carbon offset projects, children and women are paid a pittance to plant the seeds in the forests but are hired on a very seasonal basis (See Box 3).

Box 3 (continued)

from regenerating forests.
However, subsequent interviews done by activists in Madhya Pradesh found out that the Adivasi communities in the Harda Forest Division were not even aware of the CFI feasibility project, nor did they know of the concept of carbon forestry. Those who worked in planting trees were just hired on a seasonal basis. The wealth of local and written information exposing the problems with JFM in Madya Pradesh was not cited in studies undertaken for the CFI feasibility project. The CFI conclusions did not consider the views and perspectives of the range of social groups and rights holders who have expressed large scale opposition to the existence of VFPCs and rejected this as a basis for forestry-related schemes in MP. Activists and Adivasi leaders in India fear that the impacts of implementing carbon forestry would pose a great threat to indigenous communities.

3 Environmental degradation including the erosion of biodiversity

- The deforestation that happens when new monocrop plantations are developed as carbon offsets contribute to the erosion of biodiversity. Large-scale plantation economies form part of the story of the erosion and appropriation of indigenous peoples' subsistence base and territories and the alteration of their indigenous land tenure systems.[6]
- Plantations require large amounts of water and mills which process pulp and paper, as well as biofuels, use up tons of freshwater and release toxic effluents to water bodies which are used by indigenous peoples for drinking and washing.

The UNPFII prepared a report on the impact of monocrop plantations on indigenous peoples, including those which are used as carbon offsets.[5]

4 Reduction of forests as carbon forests under REDD undermines the sustainable forest management systems of indigenous peoples and threatens further the rights of indigenous peoples to have access and control of their forests.*

- While Reducing Emissions from Deforestation and Forest Degradation (REDD), which is now being proposed to be part of the post 2012 climate agreement, may have some opportunities for indigenous peoples who live and depend on forests, the concept and manner in which it is being shaped and implemented pose some problems which have to be addressed seriously. Indigenous peoples fear that they will be excluded once more from their forests as what has happened in the establishment of Forest Protected Areas in the past. If their forests are designated as carbon forests and are used for emissions trading, there is a great possibility that they will be prevented from practicing their own traditional forest management practices and to use their forests for ceremonial purposes, shifting cultivation, as sources of timber and non-timber forest products and medicines, and other agro-forestry activities. *(See Chapter V: REDD and Indigenous Peoples for a detailed discussion, p. 43).

REDD – Reducing Emissions from Deforestation and Forest Degradation

5 Cultural and Social Impacts

- Disappearance of their traditional territories which are the basis of their economic, social, cultural and spiritual systems, knowledge and practices, due to sea-level rise, floods and erosion are the worst consequences of climate change.
- Many of the areas which will be covered by mitigation measures coincide with cultural and sacred sites of indigenous peoples. Some of the spiritual and religious rites are not being practiced anymore because of their displacement from their lands and territories.

5 Are There Positive Examples of Mitigation Measures done in indigenous peoples' territories?

NAILSMA - the Northern Australia Indigenous Peoples Land and Sea Management Alliance - presents their experience on the Western Arnhem Fire Management Agreement with the Darwin Liquefied Natural Gas:

Box 4

Western Arnhem Fire Management Agreement (WAFMA)[7]

- Aboriginal land owners, indigenous representative organizations in North Australia (NAILSMA – Northern Australia Indigenous Peoples Land and Sea Management Alliance) and Darwin Liquefied Natural Gas (DLNG) are partners in the Western Arnhem Fire Management Agreement. This partnership aims to implement strategic fire management practices across 28,000 square kilometers of Western Arnhem, thereby reducing fire-generated GHGs from this area and offsetting some of the GHG emissions from the Liquefied Natural Gas plant at Wickham Point in Darwin Harbour.

- The project uses strategic, early, dry-season burning that involves a mix of patch-burning lit by people on the ground and larger-scale fire breaks lit along tracks, rivers and creeks from helicopters. This dry-season burning breaks up the landscape with firebreaks and makes it more difficult for wildfires to spread across the land later in the year.

- This project is not gaining income from carbon trading. Instead, indigenous fire managers are being paid for fire management that produces GHG offsets. The involved parties believe, however, that this project would qualify for carbon trading in the future, should the market arise.

Endnotes:

1 See Doc. E/C.19/2008/10, 19 March 2008. Victoria Tauli-Corpuz and Aqqaluk Lynge, Impact of Climate Change Mitigation Measures on Indigenous Peoples and on their Territories and Lands. Download from www.un.org/esa/socdev/unpfii.

2 Source: IPCC Climate Change 2007: Working Group III Report "Mitigation of Climate Change, Summary for Policymakers," p. 10.

3 Kevin Smith, Carbon Trade Watch (2007). The Carbon Neutral Myth: Offset Indulgences for your Climate Sins, Transnational Institute, Amsterdam, p. 14.

4 Ibid., p. 32-38.

5 See E/C.19/2007/CRP.6, 7 May 2007, Tauli-Corpuz and Tamang, Oil Palm and Other Commercial Tree Plantations, Monocropping: Impacts on Indigenous Peoples' Land Tenure and Resource Management Systems and Livelihoods.

6 Tides Center- Biodiversity Action Network (1999), Addressing the Underlying Causes of Deforestation and Forest Degradation, Case Studies, Analysis and Policy Recommendations, Biodiversity Action Network, Washington, D.C. p. 33.

7 Available online at: http://savanna.ntu.edu.au/information/arnhem_fire_project.html. Accessed March 7, 2008.

Part IV

Adapting to Climate Change: Indigenous Peoples Show the Way

1 What is Adaptation to Climate change?

- Adaptation to climate change refers to any adjustment that occurs naturally within ecosystems or in human systems in response to climactic change that either moderates harm or exploits beneficial opportunities in response to actual or expected climate related environmental changes.[1]
- It is also defined by the UNFCCC as something that is about finding and implementing ways of adjusting to climate change. It looks into ways of responding to changes that pose greater risks to life and livelihood and increasing damage-related costs such as climate change effects on rainfall, the strength and distribution of tropical storms, sea levels and glacier melt.

2 What adaptation measures are being done by indigenous peoples?

Indigenous peoples are the least contributors to climate change, yet they are the first to suffer from its impacts. Severe drought, more devastating hurricanes and typhoons, melting ice, floods, sea level rise, increased prevalence and virulence of infectious diseases, among others, have gravely affected their way of life, health, livelihoods, lands, resources and territories. In the face of these, indigenous peoples have been forced to adapt, using their traditional knowledge, innovations and practices in adjusting to these rapidly changing conditions. Below are a number of documented case studies and examples of innovative adaptation measures in the different regions,[2] using their traditional knowledge, in response to climate change:

Africa

- Local farmers are practicing zero-tilling practices in cultivation, mulching, and other soil-management techniques. These activities are known to moderate soil temperatures, suppress diseases and harmful pests, and conserve soil moisture. Small scale farmers also use indigenous plant materials such as agrochemicals to combat pests that normally attack food crops.
- Pastoralists adapt to climate extremes by making use of emergency fodder, culling of weak livestock for food, and multi-species composition of herds to survive climate extremes. They also try to move from the dry northern areas to the wetter southern areas during drought season in order to survive and sustain their domestic animals.

- Women plant crops that are more resistant to droughts and pests, providing a reserve for extended periods of economic hardships. They also select and save seeds for planting each year. They preserve a variety of seeds that will ensure resistance to the range of conditions that may arise in any given growing season.[3]
- Other indigenous strategies include controlled bush clearing; using tall grasses for fixing soil surface nutrients which have been washed away by runoff; erosion-control to reduce the effects of runoff; restoring lands by using green manure; constructing stone dikes; managing low-lying lands and protecting river banks.[4]
- The Bara province, situated in Western Sudan, is adapting to land degradation and other impacts of recurring drought through Community-Based Rangeland Rehabilitation (CBRR) being implemented in 17 villages. The project was able to put up a local office coordinating community development affairs, regeneration and stabilization of 5km. of sand dunes to halt expansion of the desert, construct windbreaks to protect farms from soil erosion, and replaced goats with more resilient and less damaging sheep and better managed wells and preparation of drought contingency plans.

Asia

- Asian indigenous peoples are growing many different varieties of crops in order to minimize the risk of harvest failure and this is supplemented by hunting and fishing.

- Some supplement their subsistence base with handicrafts, wage labor and forest products or by selling surplus crops to the markets. In other instances, indigenous peoples switch to extracting starch from wild Sago palms during droughts when crops suffer from lack of water.[5]
- In Bangladesh, villagers are creating floating vegetable gardens to protect their livelihoods from flooding. In Vietnam, communities are helping to plant dense mangroves along the coast to diffuse tropical-storm waves.[6]
- Rainwater harvesting in South Asia has been done for centuries now. This is a very simple procedure of scooping earth and putting up embankments along farm boundaries to trap rainwater. This adaptation method has been very vital in the merging and diversification of food crops.

Central and South America and the Caribbean

- People shift their agricultural activities and settlements to a new location which is less susceptible to adverse climate conditions.
- In times of drought, indigenous peoples switch from their dependence on agriculture to reliance on fish.
- The remote village of Guarita in Honduras is making use of the traditional *Quezungal* farming methods. They plant crops under trees whose roots anchor the soil. They also prune vegetations to provide nutrient to the soil and to conserve soil water. Lastly, they are terracing to avoid soil erosion.
- The Aymaras of Bolivia have been coping with water insecurity and scarcity over centuries. For them to collect rainwater in the mountains, they have developed a sophisticated way of collecting water through small dams they call *quthañas*. The dam has been very useful not only for human consumptions but also for their domestic animals especially in times of drought. It also serves as a thermo regulator of humidity and it absorbs the UV rays of the sun, reducing risk of skin cancer.

Arctic

- The adaptation practices of indigenous peoples have included the shift to hunt alternative species when species such as geese and caribou have shifted their migration times and routes.
- Change to hunting marine species in open water later in the year under different sea and ice conditions.
- People freeze foods where traditional technique of sun-drying have been impossible due to unseasonable wet weather. The foods are frozen until there is sunny weather or dried indoors.[7]

Central and Eastern Europe, Russian Federation, Central Asia and Transcaucasia

- Indigenous peoples are actively trying to partner with the academic community so that local groups can participate in field research projects, and their results be communicated to and among local communities.
- They undertake education programs to improve public awareness of the issues that will go towards assisting the development of their own attitudes and ethical norms around adaptation measures.

North America

- Indigenous peoples of North America are very positive that new materials and new ways of doing things form a common theme in the histories of many Native peoples. Some are now taking advantage of climactic changes to do things they have not done in the past. They change food storage techniques and hunting and fishing grounds.
- Some groups change species of animals and fishes they hunt.
- In order to sustain their families and their domestic animals, the Inuits feed their reindeer grasses other than lichens during winter time.
- In extreme cases, people look for relocation sites either for long term or as temporary measures.
- For the future, they believe that adopting new technologies is likely to be the only means for dealing with the disruptions to their traditional subsistence economies.[8]

Pacific

- Traditional marine social institutions in the Ra'ui in Rarotonga, Cook Islands serve as an effective conservation management tool and is improving coral reef health.
- Indigenous peoples' ecological knowledge and customary sea tenure is also integrated with marine and social science to conserve the bumphead parrotfish in Roviana Lagoon, Solomon Islands.
- Changes in sea tenure, back to more traditional roles, have also occurred in Kiribati.[9]
- In a coastal village on Vanua Levu, Fiji, the *vanua* (which refers to the connection of people with the land through their ancestors and guardian spirits) serves as a guiding principle for the management and sustainable use of the rainforest, mangrove forest, coral reefs, and village gardens.
- In other parts of the Pacific, indigenous peoples have built seawalls, provided a water drainage system and water tanks and banned tree clearing.

Aside from the cases presented above, indigenous peoples are adapting to extreme weather patterns and changing climate impacts in many more different ways. The table below gives specific examples of indigenous strategies in responding to various climate change risks.

CATEGORY	SPECIFIC STRATEGIES	RESPONSE TO	CASES
Diversified Resource Base	• Growing many different crops and varieties • Diversity in field location • Selling of surplus crops, handicrafts, wage labor, forest products	Risk due to harvest failure	The Dayaks of Borneo are adapting to climate change by diversifying crops to minimize the risk of harvest failure.
Change in Varieties and Species	• Planting new crop varieties or species • Harvesting of unusual resources	Changes in climate pattern that lead harvest failure	Recent changes in precipitation encouraged people in the Kalahari to shift from rain-fed agriculture to manually-watered homestead gardening and a shift from cattle to goats. The Kenyah in Borneo plant new crops such as maize in the drying river beds during droughts caused by El Niño.
Change in Hunting Strategies	• Change hunting strategies to take advantage of new species while trying to manage the population of new species • change of hunting, fruit gathering and fishing techniques	Reduced population of some animal species, due to warmer climate	The Inuits change their fishing and hunting areas and they adjust their travel routes in order to continue their daily activities.
Change in the Timing of Activities	• Adjustments to crop harvesting, wild plant gathering, hunting and fishing	Changes in growing seasons and times of animal migrations and repro-duction	The indigenous peoples of Belize are trying to make use of meteorological agriculture system in order to predict the weather. In this manner, they are able to change timing in their planting to cope with the changing weather patterns.

Change of Techniques	• Freezing vs. drying, irrigation vs. rain-fed agriculture • Food is brought back to communities more often in the summer to store in freezers	Change of climate patterns	The Gitga'at in British Columbia traditionally sun-dry their food but now freeze their food or dry them indoors because of unreasonable wet spells.
Change of Location	• Shifting agricultural activities and/ or settlements to new locations less susceptible to climatic conditions • Relocation of individual homes and villages, infrastructure and water supply	Acute climatic crises and long term climate changes	The Makushi of Guyana move from their savannah homes to forest areas during drought to plant cassava. The indigenous peoples of the Lateau settlement in Vanuatu and Falealupo and Papa in Savai'i, Samoa abandoned their settlements for higher ground after their communities have become uninhabitable due to flooding and tropical cyclones. Several indigenous villages of Alaska are currently actively trying to find out where they could move their entire communities that are now becoming inhabitable due to thawing of permafrost, erosion and large waves slamming against the western and northern shores of Alaska.
Changes in Resources and/or Lifestyle	• Resorting to wild foods • Adjustment of livelihood and lifestyle to changing climate patterns • Reduced application of traditional knowledge in day to day life and survival	Emergency situations such as droughts, floods, frosting or excessive rainfall	Normally reliant on agriculture, the Kenyah of Borneo switch to extracting starch from wild Sago palms during El Nino droughts. The Saami people are feeding their reindeer with hay and fodder when lichens are being encapsulated with ice due to winter rain. Reindeer herding is vital to their subsistence and economy. Further, the elders do not trust their weather reading skills anymore. Thus, their traditional practices are not being practiced anymore. In the El Niño droughts of 2005, indigenous peoples in the Amazon basin switched to a reliance on fish.

Exchange	• Using locally available wild resources • Obtaining food and other necessities from external sources through exchange, reciprocity, barter, or markets • Depending on emergency aid from the state or NGOs	Food shortage	The Yukon First Nations are now more dependent on market food and eat less traditional food as they are gradually buying more of what they eat.[10]
Resource manage-ment	• Traditional management techniques	Scarce and climate sensitive resources	People in Marshall Islands traditionally secure their freshwater supplies by placing coral blocks around them to build up land around the freshwater lenses and protect them from salt water intrusion. Indigenous mangrove conservation that acts as seawalls in the Matafa community in Samoa were proven to be more appropriate and effective for the people in the area than the government seawalls.
Food Security	• Reinvigorating traditional indigenous food systems that have proved to be effective, provide better diets and cause less environmental damage	Food shortage due to narrowing natural resource bases	The indigenous peoples of the Cordillera in the Philippines are planting hunger crops such as sweet potatoes and cassava in between their stone walls (rip-raps). Farmers also built greenhouses in order to protect their crops from future cold spells.
Continuing of customary obligations	• Initiation of community programs for the elderly	Changing animal behavior that renders more difficulty in hunting	In the Inuvialuit indigenous communities, there is an initiation of a community program for the elderly, through which younger hunters provide for meat for the elderly who are not able to hunt for themselves as a way of responding to changing animal routes. It has been a common practice to provide game meat for the elderly and the disabled people.

Trans-portation	• Taking different and longer travel routes	Poor travel conditions due to rough ice, dangerously thin ice, increased erosion and flood problems	The Nunavut people, who are highly dependent on caribou hunting, are being blocked by shallow waters preventing people from traveling through water. Thus, the hunters take on different and longer routes to be able to reach the hunting grounds. The indigenous peoples in the Arctic use sleds in traveling during winter when there is thick ice. When the ice thaws and it is impossible to travel on land, they make use of their boats. 

Endnotes:

1 Adapted from IPCC Third Assessment Report.
2 Secretariat of the United Nations Permanent Forum on Indigenous Issues, Climate Change: An Overview, November 2007.
3 Ibid.
4 Report of Intergovernmental Panel on Climate Change, Working Group 2: Climate Change Impacts, Adaptation and Vulnerability, 2007, p. 866.
5 Ibid.
6 Jan Salick and Anja Byg, Indigenous Peoples and Climate Change, A Tyndall Centre Publication, Tyndall Centre for Climate Change Research, Oxford, May 2007, p. 17.
7 Jan Salick and Anja Byg, Indigenous Peoples and Climate Change, A Tyndall Centre Publication, Tyndall Centre for Climate Change Research, Oxford, May 2007, p. 16.
8 Ibid. p. 62.
9 Report of Intergovernmental Panel on Climate Change, Working Group 2: Climate Change Impacts, Adaptation and Vulnerability, 2007, p. 708.
10 John B. Henriksen, Highly Vulnerable Indigenous and Local Communities, Inter alia, of the Arctic, Small Island States and High Altitudes, Concerning the Impacts of Climate Change and Accelerated Threats, such as Pollution Drought and Desertification, to Traditional Knowledge and practices with Focus of Causes and Solutions, available from: www.unorg/esa/socdev/unpfii/documents/EGM_cso8_overview.doc.

Part V

REDD and Indigenous Peoples

In the current agreements, deforestation and forest degradation have not been included as a means to reduce GHG emissions due to many technical questions on how this can be done. Proponents of REDD are working towards including this in the next climate agreements to be concluded in 2009. In the meantime, pilot projects and funding mechanisms are being set up and implemented, potentially affecting indigenous peoples.

REDD - "Reducing Emissions from Deforestation and Forest Degradation in developing countries." This refers to forest conservation and reduction of forest loss to be able to reduce emissions of green house gases.

1 What is REDD?

- REDD, **R**educing **E**missions from **D**eforestation and Forest **D**egradation, is a climate change mitigation concept that seeks to reduce greenhouse gas emissions (GHGs) by preventing or reducing forests loss which account for 20% of GHG emissions.
- REDD is currently under negotiations in the ongoing climate change talks but is just one small part of the overall negotiations leading up to Copenhagen Conference of Parties (2009).
- The big issues include finance, technology, adaptation and mitigation, capacity building, the Kyoto Protocol and the CDM.

2 How did REDD get into the picture?

- In December 2005, the Coalition of Rainforest Nations led by Costa Rica and Papua New Guinea presented a formal proposal for reducing GHG emission from deforestation to the 11th Conference of the Parties (COP) of the UNFCCC and first Meeting of the Parties to the Kyoto Protocol (COP11/MOP1).[1]
- In the meeting, several NGOs and scientists led by Environmental Defense reiterated earlier calls for inclusion of forests under Kyoto's trading instruments. As a result, COP11 requested that its Subsidiary Body for Scientific and Technological Advice (SBSTA) evaluate the issue of avoided deforestation and climate change mitigation and report back to UNFCCC COP13/MOP3 in December 2007. The UNFCCC organized two international meetings on avoided deforestation in July 2006 and March 2007.[2]
- In October 2006, economist Sir Nicholas Stern came out with the Stern Review on Climate Change. He suggested that "avoided deforestation measures should be included in the post-2012 commitment period under Kyoto, but urges that action to prevent deforestation on a large-scale must be taken as soon as possible through pilot avoided deforestation schemes to test methodologies and iron out any remaining technical and social difficulties."[3]
- In December 2007, the UNFCCC (COP13/MOP3) came out with the Bali Action Plan [FCCC/CP/2007/6/Add.1*]that gave the go-ahead to continue negotiations by considering "Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries."
- Negotiations will be undertaken by the Adhoc Working Group on Long Term Cooperative Action (AWG-LCA) with a decision to be made in COP15 in 2009.
- In the meantime, pilot schemes on REDD are being undertaken and funding mechanisms being set up by multilateral bodies - including international financial institutions, private companies, governments and conservation groups in anticipation of the inclusion of REDD in the post-2012 commitment period.

3 What is the present context in relation to forests, REDD and indigenous peoples?

- Forests are massive reservoir of carbon, estimated to be 4,500 gigatonnes (Gt):
  - ❒ more CO2 than in the remaining oil stocks (2,400 Gt);
  - ❒ more CO2 than in the atmosphere (3,000 Gt).
- Forests are being lost at an average 9-13 million has. per year.
- For indigenous peoples who developed and sustained intricate relationship with forests, forests have multifunctional roles:
  - ❒ as habitat
  - ❒ source of livelihood
  - ❒ provides ecosystems services
  - ❒ source of health services
  - ❒ cultural and spiritual functions.

1 Gigatonne (Gt) - 1 billion metric tonnes.

- A significant part of the remaining tropical and sub-tropical forests are found in indigenous peoples' territories.
- There is persistence of conflicting claims over ownership, governance, control, use and access to forests. Some of these conflicts end up in courts or in violent armed conflicts.
- Most indigenous peoples have not experienced nor seen satisfactory experiences, mechanisms and arrangements at the national level nor at the regional and global levels on governance of forests (e.g., Tropical Forestry Action Plan, Forest Policies of the World Bank, recommendations of the UN Forum on Forests, etc.)

4 How and Where will REDD be Funded?

- While REDD is still being negotiated, funds are already made available to pilot REDD projects. Currently, these are the major sources:

a. Proposed global and regional funds such as the World Banks' Forest Carbon Partnership Facility (FCPF)
b. Annex 1 countries who will provide funds directly to countries and through multilateral channels
c. Private sector
d. Voluntary carbon market

The World Bank's FCPF

- The WB wants to be the lead international player in this initiative. Since 2000, it has already set-up "10 carbon funds and facilities with a total capitalization of over US$2 billion."[4]
- Initiatives to set up the FCPF started in 2006 with consultations with governments and organizations, including big environmental NGOs. In June 2007, the G8 summit supported the establishment of the fund.
- The FCPF was launched in Bali, Indonesia in 2007 during the UNFCCC COP13.
- Indigenous peoples and the Chair of the UNPFII raised serious objections over the FCPF and its lack of consultation with indigenous peoples. In response, the WB conducted regional consultations with indigenous peoples in Asia, Latin America and Africa in 2008.
- FCPF Donors: Australia, Finland, France, Japan, Norway, Spain, Switzerland, UK, US.

Two components of the FCPF

a. **Readiness Mechanism** - to support government capacities to participate in REDD initiatives.
b. **Carbon Finance Mechanism** – to fund specific pilot projects in developing countries.

14 - number of subtropical and tropical countries included in the FCPF as of Sept. 2008:

- **Africa**: Gabon, Kenya, DRC, Ghana, Liberia, Madagascar
- **Asia:** Nepal, Laos, Vietnam
- **Latin America:** Guyana, Mexico, Bolivia, Costa Rica, Panama

b. Direct funding from Annex 1 Countries:

- Norway - launched its Climate Change Forest Initiative in Bali with a funding of $600M annually for the next 6 years to support UN-REDD, among others. Norway believes both market and fund-based approach to a REDD regime are needed.
- Australia - A$200M (US$185M) funding for the next 5 years mainly for Indonesia, Papua New Guinea and the FCPF.

c. Private sector

- The Rainforest Project, launched by Prince Charles in October 2007, aims to bring together scientists and leaders from industrialized countries to stop deforestation. It is funded by 12 private sector companies such as Rio Tinto, KPMG, Deutsche, Morgan Stanley, Goldman Sachs.
- Several foundations who have programs in deforestation are now supporting some REDD-related activities. These include the Gordon and Betty Moore Foundation in the Amazon and the David and Lucile Packard Foundation in Brazil; the Rockefeller Foundation in support of the Clinton Climate Initiative to develop forests projects in tropical countries, among others.

d. Voluntary Carbon Market

- Afforestation and deforestation projects account for 36% of the voluntary market offsets. Only 3% of the voluntary transactions involve avoided deforestation.

5 What is UN-REDD?[5]

- A collaborative programme of UN agencies (UNDP, FAO and UNEP) on REDD.
- Established in response to the Bali Action Plan and the COP13 Decision 2/CP.13, requests from countries and with the encouragement of the Norwegian government which pledged more than US$3.0B over 6 years in support of REDD.
- Aim - to assist forested developing countries and the international community to gain experience with various risk management formulae and payment structures. The aim is to generate the requisite transfer flow of resources to significantly reduce global emissions from deforestation and forest degradation.
- Immediate goal - to assess whether carefully structured payment structures and capacity support can create the incentives to ensure actual, lasting, achievable, reliable and measurable emission reductions while maintaining and improving the other ecosystem services forests provide.
- UN-REDD is expected to be launched in September 2008.

6 What are the Risks of REDD for Indigenous Peoples?

On Governance:

- Exclusion of indigenous peoples from decision-making due to highly centralized, top-down management of forests.
- Renewed and even increased state and "expert" control over forests.[6]
- Overzealous government support for anti-people and exclusionary models of forest conservation (evictions, expropriation) to protect lucrative forest carbon "reservoirs."
- Violations of land and resource rights, particularly forests rights.
- State and NGO zoning of forest lands without the informed participation of forest dwellers.
- Potential increase on judicial and physical conflicts due to contested claims over forests and between recipient and non-recipient of REDD funds.
- Unequal and abusive community contracts.
- Land speculation, land grabbing and land conflicts (competing claims on REDD compensation).

- Corruption and embezzlement of international funds by national elites.
- Potential conflict among indigenous communities (over acceptance or rejection of REDD schemes).
- Violation of the right to free, prior and informed consent.
- Historical and present lack of legitimacy, equity, justice in land-use planning and benefit sharing schemes.

Perverse Incentives:

- Funds for REDD may fall into the hands of deforesters (loggers, plantation owners, etc.) and will be provided only to national governments while indigenous peoples, who continue to play their stewardship roles over forests and who practice traditional sustainable forest management practices, are not rewarded.

514 - number of local forest conflicts in Indonesia in 2007, up from 140 in 2003.

- Unjust targeting of indigenous and marginal peoples as the "drivers" of deforestation.
- Unequal imposition of the costs of forest protection on indigenous peoples and local communities.
- REDD could be disadvantageous for countries with large forest areas and low deforestation rates. Instead of providing incentives for developing countries which have forest covers from 50%-70% (e.g., Democratic Republic of Congo, Cameroon, Congo, Malaysia, Brazil, etc.), those who will receive incentives are the deforested countries who will undertake REDD, reforestation and afforestation.

- Industrialized countries (Annex 1 countries, the main polluters) continue their unsustainable and high-carbon production and consumption patterns so long as they pay poor countries to do REDD.
- Developing countries and indigenous peoples and other forest dwellers may end up as tenants being paid to take care of the forests which will provide emissions credits to Annex 1 countries.

Carbon Market as Main Means to Fund REDD:

- Reliance on private sector and carbon market to provide funding for REDD; this will be driven more by speculation and an increase in the

unregulated voluntary carbon markets.

- There is still lack of scientific proof that offsets can readily reduce GHG emissions. These offsets come from CDM projects and voluntary markets, REDD, etc.
- Linking REDD mainly to the carbon market or offset markets is one source of the resistance to REDD. Forests play multifunctional roles and should not be reduced only as carbon forests for carbon storage and, furthermore, to be reduced as a commodity for carbon trading. Forests are "places of great biodiversity, homes, and the source of livelihoods for the very people who have been protecting them for millennia."[7]
- Diverts us from seriously considering and developing:
  a. non-monetary mechanisms - e.g., recognition of indigenous peoples' rights, reform of laws and policies, etc.
  b. other market mechanisms outside of the carbon market (e.g., rewards for ecosystem services)
  c. other funding mechanisms – e.g., hybrid approach as proposed by Greenpeace which means use of both public and private funds, levy on bunker fuels, aviation fuels, forest industry, etc. which can be used to fund REDD.

7 On the other hand, what are the opportunities of REDD for Indigenous Peoples?

- Because of REDD, indigenous peoples and local communities are mentioned in the negotiating texts (Decision 2/CP 13, 1 (b) (ii) of the Bali Action Plan, etc.). Except for some of the IPCC (Intergovernmental Panel on Climate Change) Reports, the phrase "indigenous peoples and local communities" cannot be found in any final documents of the UNFCCC.
- Use renewed focus on forests to push for legal reforms of forest laws and other laws dealing with the ownership, access and control of forests. The goal is to ensure that indigenous peoples' rights to their forests are recognized and respected.
- Use the negotiations on REDD to get the UNFCCC to include the UNDRIP as a legal framework to guide the design and implementation of mitigation and adaptation processes.
- REDD, if designed properly, can help strengthen the implementation of UNDRIP and national laws and policies on indigenous peoples' rights.
- Possibilities of preventing deforestation can be increased.
- Benefits for indigenous peoples if the REDD architecture is designed with indigenous peoples.

- Call for the delinking of REDD from the carbon market/offset market.
- Strengthens possibilities to establish spaces and mechanisms in the UNFCCC negotiations, such as:
  - ❒ The establishment of a Working Group on local adaptation and mitigation measures of indigenous peoples and local communities, and
  - ❒ Setting up of an Indigenous Peoples' Fund for Climate Change which will have a component for funding readiness activities or capacity building activities of indigenous peoples for REDD.

8 What is the Current State of Negotiations on REDD?

- Negotiations on REDD have proceeded according to the Bali Action Plan. These include the Climate Change Talks in Bangkok (April 2008), Bonn (June 2008) and Accra (August 2008).
- Target of REDD proponents: To include REDD in the scope of the 2012 Commitments and to set up a multilateral mechanism which will:
  a. Establish national level baselines and accounting with option of project level implementation
  b. Create financial incentives which include a development fund or a market mechanism on tradeable carbon credits or a combination of both.
- Before the Accra Climate Talks, some countries already made submissions on REDD to the Secretariat. These included references to indigenous peoples. Japan and the European Union are calling for the inclusion of indigenous peoples in the REDD negotiations, including identifying and addressing the social implications of REDD.

Government Submissions on REDD for the AWG-LCA Accra Meeting

Japan:
"An appropriate and transparent distribution of benefits from REDD among stakeholders, including local communities, is necessary in order to achieve sustainable reduction of emissions under the perspective of sustainable forest management. The issue of social implications to the indigenous people and local communities should be appropriately addressed."

Paper No. B: France on Behalf of the European Community and its Member States, 30 July 2008:
"Stakeholders involvement, including involvement of local communities and indigenous peoples, and assessment of the effects on biodiversity are essential for any approach to be effective."

- On August 22, 2008, during the Climate Change Talks in Accra, the AWG-LCA held a "Workshop on Policy Approaches and Positive Incentives on issues relating to REDD and the role of conservation, sustainable management of forests and enhancement of carbon stocks in developing countries." Many countries spoke on substantive and methodological issues.
- Some of the questions and issues raised in this workshop and in other discussions on REDD outside of this workshop include the following:
  - **Funding mechanisms** – How to ensure that funding is done a sustainable basis for REDD. Is this through private (market-based approach or a Kyoto Protocol-type market mechanism designed to create "tradeable emissions units") or public funding (fund-based approach which is a fund paid to developing countries that meet performance objectives) or a combination of both (hybrid approach)? Should REDD be included in the offset or carbon market? Public funds for REDD should be in addition to existing ODA (Official Development Assistance) Funds. The compensation for REDD should be bigger than the opportunity cost of deforestation and degradation. If opportunity costs for deforestation are bigger, then there will be more incentives to deforest, leading to the failure of REDD.
  There was a proposal in Accra for the establishment of an International REDD Fund (IRF) which will be under the management of the UNFCCC. Funds for this can come

LEAKAGE - unwanted loss, or leak, of something which escapes from its proper location, e.g., deforestation moving from one area to another.

PERMANENCE - the property of being able to exist for an indefinite duration, e.g., need to ensure that forests that have contributed to emissions reduction remain intact over time.

Issues discussed on the AWG-LCA Workshop, August 22

- **Substantive issues** - proposals on the provision of incentives for activities to reduce emissions from deforestation and forest degradation, including forest conservation, sustainable forest management (SFM) and enhancement of carbon stocks.
- **Methodological issues** - how are baselines determined to estimate forest cover and deforestation rates? How to address problems of "leakage" and permanence (i.e., forests being converted to other uses in the future).

Some Issues on REDD

- Funding mechanisms
- Beneficiaries, compensation and participation
- Baseline data
- Drivers and causes of deforestation
- Methodologies used in verifying, monitoring, accounting emissions reductions and crediting approaches
- Scale
- Definition of forests and of forest degradation
- Role of the UN Declaration on the Rights of Indigenous Peoples

from voluntary contributions and non-offset market arrangements. Non-offset market funds could be from a levy on international aviation and maritime; levy from drivers of deforestation such as the logging and timber industries; from auctioning of allowances under a self-contained cap and trade regime for international transport; and/or from a pledge of a certain percentage of national auctioned emissions trading allowances and a percentage of AAUs auctioned in the international market. It stressed that a non-offset IRF should not draw on existing ODA and will not divest land ownership to the international market and buyers.

AAU - Assigned Allowable Units.

The incentive package should include funding for capacity building (readiness not only of governments but also of the indigenous peoples and other forest dwellers) and technology development and transfer for establishing baselines, forest management and monitoring, assisting governance (including recognition and continuing practice of indigenous peoples' forest governance and management systems), support for related economic development activities (e.g., agro-forestry) and for pilot projects.

- **Beneficiaries of funds/compensation and participation**: How to ensure that funds for REDD will reach the real target groups and how to ensure that they will continue to conserve the forests and not be pushed to engage in deforestation and degradation. How can stakeholders - like indigenous peoples and forest dwellers - be involved in all phases of designing, implementing, monitoring and benefiting

from REDD? Will the free, prior and informed consent of indigenous peoples be obtained when REDD is going to be implemented in their forests?

- **Baseline data** – What are the methodologies which will be used to establish baseline data on forest cover and stored carbon? What are the cut-off dates for the baseline data? The establishment of baseline data should use both satellite technologies as well as on-the-ground data gathering and monitoring. What verification methods should be developed? Since deforestation is part of REDD, what methodologies should be used to measure degradation?
- **Drivers and causes of deforestation** – Who will determine the drivers of deforestation and degradation? Since some literature have identified slash-and-burn farming as a driver of deforestation, what will be the implications of this on traditional forest management practices of indigenous peoples such as swiddening? Indigenous peoples can show that the forests which remain standing up to the present are forests which they lived with and sustainably managed since time immemorial. Logging corporations, biofuel

plantations and other monocrop plantations, as well as extractive industries (mineral, gas and oil extraction), are drivers of deforestation - how will these be addressed in the context of REDD?

- **Methodologies used in verifying, monitoring, accounting emissions reductions and crediting approaches** – How do you monitor, verify and account for the carbon content and contributions of emissions reductions of forests? Who will do these verification and monitoring processes? What capacities should be built at the global, national and local levels? What will be the costs involved and who will bear the costs? On the national-level crediting approach, issues include difficulty in characterizing emissions from deforestation and degradation, "leakage," difficulty in accurately monitoring improved performance, permanence or the need to ensure that forests that have contributed to emissions reduction remain intact over time.
- **Scale –** National, sub-national or on a per project basis? How about a regional approach? If REDD is done on a sub-national basis or on a per-project basis, leakage in other areas might cancel out emissions reductions that have been gained. The same case with forests which cut across national

boundaries, e.g., Congo Basin, Mekong Region, etc. For example, REDD gains achieved in the Democratic Republic of Congo will be canceled out if deforestation continues in Cameroon; gains in Vietnam can be canceled out if the forests of Cambodia get deforested.

- **Definition of forests and of forest degradation** - What are forests? Are plantations considered forests? Are peat or mangrove forests included in REDD? What is forest degradation?
- **Role of the UN Declaration on the Rights of Indigenous Peoples in the design, implementation and monitoring of REDD** – The UNDRIP has to be one of the main policy frameworks which will underpin the design, implementation and monitoring of REDD. This means that REDD projects should respect the UNDRIP. How will this be ensured?

- After the Workshop, the Chairperson of the AWG-LCA said that he will prepare a summary of the main points of the workshop and will produce a conference room paper (CRP) which will provide inputs for the future negotiations.

Three Contact Groups (small negotiating group) established in Accra

1. Contact group on enhanced action on adaptation and the associated enabling and supporting action on technology development and transfer and on the provision of financial resources and investment.
2. Contact group on enhanced action on mitigation and the associated enabling and supporting action on technology development and transfer and on the provision of financial resources and investment.
3. Contact group on delivering on technology and finance including consideration of institutional arrangements.

No contact group on REDD was established. The issue of REDD can be discussed under the second contact group on mitigation.

Accra Climate Change Talks 2008

9 What are indigenous peoples' responses to the FCPF and REDD?

- The World Bank undertook several regional consultations with indigenous peoples on the FCPF in Asia, Latin America and Africa in 2008. Views common in these consultations are:
  - The UN Declaration on the Rights of Indigenous Peoples and the ILO Convention No. 169 should guide the formulation and implementation of projects supported by this Facility.
  - The right to self-determination, including free, prior and informed consent, should be respected. If indigenous peoples in the States who are willing to be part of this do not give their consent for such a scheme to be done in their communities, then this should not be pursued.
  - The World Bank Operational Policy 4.10 on Indigenous Peoples should be used from the inception to the implementation of FPCF-supported projects.
  - The final decisions on how to treat the FCPF/REDD should be done by the indigenous peoples at the community and national levels.
- In the side event on "REDD, avoided deforestation policies and indigenous peoples: potential impacts and possible strategies" organized by Forest Peoples Programme, Tebtebba, IPACC and FPCI, during the 7th Session of the UNPFII last April 25, 2008, indigenous participants stated, among others, that:
  - REDD, as currently formulated, is unacceptable for many indigenous peoples.
  - Indigenous peoples must put forward their own proposals, following their own logic and perspectives for forests protection. They must not just be reactive to REDD/AD proposals, but take a broader view integrating indigenous peoples rights, biodiversity health and climate solutions.
  - Indigenous peoples must stand united and adopt a strong position about the unacceptability of REDD in its current form, given the fact that Parties to the UNFCCC are still in the process of negotiating the policy approaches and positive incentives on REDD.
  - At the national level, indigenous peoples can make demands for law and policy reforms and use the political space opened up by readiness activities and pilot projects to advocate for reforms and recognition of indigenous peoples' rights and to ensure that indigenous peoples are centrally involved in all the processes related to REDD.

Endnotes:

1 Tom Griffiths, "Seeing Red: Avoided Deforestation and the Rights of Indigenous Peoples and Local Communities," June 2007.
2 Ibid., p. 3.
3 Ibid.
4 World Bank, Forest Carbon Partnership Facility: A Framework for Piloting Activities to Reduce Emission from Deforestation and Forest Degradation.
5 http://jobs.undp.org/cj_view_job.cfm?job_id=6354 , accessed 05 September 2008.
6 Tom Griffiths, "Seeing 'Red': Avoided Deforestation and the Rights of Indigenous Peoples and Local Communities," June 2007.
7 Ibid.

Part VI

Climate Change, Biodiversity and Indigenous Peoples

Indigenous peoples live and interact with ecosystems and they are aware of changes affecting plants and animals. They observe changes in the appearance of migratory birds and the presence of new species. Indigenous peoples are intricately linked with biodiversity, and climate change poses a threat to this link.

ECOSYSTEM - group of living and nonliving things interacting with each other. Within each ecosystem, there are habitats which may also vary in size.

HABITAT - place where a population lives.

POPULATION - a group of living organisms of the same kind living in the same place at the same time. All of the populations interact and form a community.

BIOMES - ecosystems where several habitats intersect. The earth itself is one large biome. Smaller biomes include desert, tundra, grasslands, and rainforest.

Source: www.fi.edu/tfi/units/life/habitat/habitat.html

1 What is Biodiversity?

All plants, animals, microorganisms, the ecosystems of which they are part, and the diversity within species, between species and of ecosystems.[1]

2 Why is Biodiversity important?

The variety of plants, animals and micro-organisms supports a range of services provided by healthy ecosystems to humans:

Ecosystem Services/Functions	
Supporting services	Maintain conditions for life on earth: Soil formation and retention, nutrient cycling, primary production
Regulating services	Regulation of air quality, climate, floods, soil erosion, water purification, waste treatment, pollination, biological control of human, livestock, and agriculture pests and diseases
Provisioning services	Providing food, fuelwood, fiber, biochemicals, natural medicines, pharmaceuticals, genetic resources, fresh water
Cultural services	Non material benefits including cultural diversity and identity, spiritual and religious values, knowledge systems, educational values, inspiration, aesthetic values, social relations, sense of place, cultural heritage, recreation, communal and symbolic values

http://www.fontplay.com/freephotos/

Importance of Biodiversity for the First Peoples of British Columbia (Turner, 2007)

- **Food:** Traditional diets - plants and animals found in the wild and some fungi such as mushrooms have sustained and nourished people for many generations.
- **Material resources/Technology:** plant and animal materials used as or constructed as tools and equipment for livelihood, shelter, and clothing.
- **Medicine:** Plants, and some animals and fungi, provide people with medicines for maintaining health and treating injuries and ailments.
- **Components of Culture:** Plants, animals and fungi are prominent in First Nations' belief systems, art, songs and ceremonies. Their world renowned art forms representing stylized animals reflect intense connections with and reliance on biodiversity.
- **Ecological Indicators:** The flowering of certain plants, the songs of certain birds, or the appearance of certain types of butterflies or other insects, are signs of seasonal change or of the time for some important harvest event.

3 What body takes care of biodiversity concerns in the world? What connection has been established regarding climate change, biodiversity, and indigenous peoples?

- The Convention on Biological Diversity (CBD) is a binding agreement on the conservation and sustainable use of biological diversity. It was born from the Earth Summit in Rio de Janeiro in 1992. The CBD recognizes the following principles in relation to climate change and biodiversity:
  - ❒ Climate change is the second cause of biodiversity loss.
  - ❒ Biodiversity management can contribute to climate change mitigation and adaptation and to combating desertification.
- It acknowledges the knowledge, innovations, and practices of indigenous and local communities, and promotes its wider application in the context of conservation and sustainable use of biological diversity.
- It has established specific obligations for state parties to respect, preserve and maintain such knowledge, innovations and practices, as far as this is possible, and as appropriate within the framework of their respective national legislation and subject to the approval of the knowledge holders (Henriksen 2007 from CBD Article 8(j)).

4 Why should indigenous peoples be concerned with biodiversity & climate change?

- Biodiversity is central to indigenous environmental management and livelihoods.
- Apart from the loss of ecosystem services, climate change and its effects to biodiversity have profound impacts on the cultural and religious practices of indigenous peoples around the world.
- Scientific evidence has supported that

the territories in which indigenous peoples have special claims harbor exceptionally high levels of biodiversity and that human cultural diversity is associated with the remaining concentrations of biodiversity.

- With the current issues on climate change and biodiversity, both cultural diversity and biological diversity are endangered (Toledo 2000).
- Adverse external impacts of climate change on indigenous and local communities' way of life, social structures, culture and habitat including effects to biological diversity will also affect their knowledge, innovations, and practices (McCarthy 2001, Henriksen 2007).
- Indigenous peoples use biodiversity as a primary tool for adaptation. As climate change threatens biodiversity, it simultaneously removes the major defense that they have against variation and change.[2]

5 Biodiversity has adapted to previous climate changes during the earth's history, what makes the situation different now?

- Ecosystems will have a harder time to adapt to the present climate change for two main reasons:
  - ❒ The climate is changing too fast.
  - ❒ The large-scale conversion of habitats have greatly reduced the options available for natural adaptation: if a forest is surrounded by bare pasture or urban sprawl, for example, many animals and plants are unable to shift their range to more suitable locations should their current territories become unsuitable due to climate change.[3]

6 What are the effects of the current climate change to biodiversity? What could happen in the future?

20-30% - no. of plant and animal species assessed so far that are likely to be at increased risk of extinction, according to IPCC, if increases in global average temperature exceed 1.5-2.5°C (SPM of WG2).

1 million – no. of species that may face an increased threat of extinction as a result of climate change, according to the Millennium Ecosystem Assessment (CBD, 2008).

- Though all ecosystems (coral reefs, mangroves, high mountain ecosystems, remnant native grasslands and ecosystems overlying permafrost) are vulnerable to climate change, they respond differently. Some will often be slow to show evidence (e.g., long-lived trees), while others, e.g., coral reefs will show rapid response.[4]
- Climate change has already begun to affect the functioning, appearance, composition and structure of ecosystems (e.g., decreasing thickness of sea ice in the Arctic, widespread bleaching of corals, wetland salinization and salt-water intrusion) (CBD Secretariat, 2008).
- Changes in timing of natural events affects interactions between organisms, disrupting equilibriums and ecosystems services.
- Climate shifts force organisms to respond by adapting, or by migrating. This results in the arrival of new, or disappearance of species, because of an inability to adapt sufficiently, or because of fragmentation of habitats. This also affects the functioning of ecosystems in different communities.

7 How are indigenous peoples responding to the effects of climate change to biodiversity?

- Traditional knowledge and practices are important to sustaining and managing the environment. However, indigenous people recognize that enhancing adaptive capacity involves more than local options which will only be successful if it is

integrated with other strategies such as disaster preparation, land-use planning, environmental conservation and national plans for sustainable development. Further, long-term adaptation to climate change requires anticipatory actions, which would require considerable investment of capital, labor, and time and in many indigenous regions of the world, there are already constraints on resources and a lack of access to technology (UNPFII, 2008).

- Migration, irrigation, water conservation techniques, land reclamation, changing where and at what elevation plants are cultivated, livelihood adaptation are only among the many techniques that indigenous peoples employ locally to fight the double battle of biodiversity loss and adapting to climate change.

NOTE: Please refer to Chapter IV: Adapting to Climate Change: Indigenous Peoples Show the Way for short-term adaptation measures undertaken by indigenous peoples

8 How can biodiversity be used as a solution for climate change?

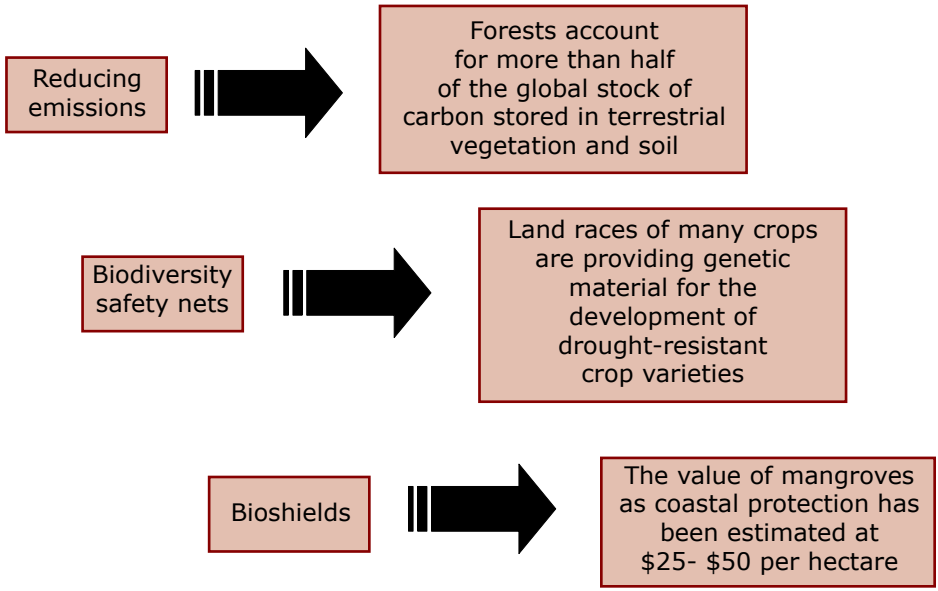
- Protecting biodiversity should be seen as an essential component of adaptation to climate change.[6]
- Reducing deforestation and other forms of land use change can lead to the reduction of GHG emissions.
- It provides a "safety net" of genetic resources for adaptation.
- It provides protection (bioshields) against the negative impacts of climate change.

9 *How can solutions to climate change affect biodiversity? What should be done to conserve biodiversity while mitigating climate change?*

- Better land management and the use of marine protected areas may be possible to prevent and even reverse the bleaching caused by rising sea temperatures. It could bolster the livelihoods of millions in the Caribbean, Pacific and Indian Oceans, who depend on the reefs for tourism income, seafood, and physical protection from storms and waves.
- Better protection of native vegetation in dry lands

such as the African Sahel and the semi-arid Caatinga of Brazil can check the advance of desertification and help farmers cope with the impacts of drought.

- Avoiding deforestation in Central America can reduce the likelihood of devastating landslides provoked by the more intense rainfall, projected as a consequence of climate change.
- Conserving wetland habitats, from the cypress marshes of the Mississippi Delta to the mangrove forests of Sri Lanka, can shield coastal communities from increasingly violent storms.[7]



- Careful assessment of adaptation policies at the time of their design can help avoid the following negative consequences that are counter-productive when governments do not recognize the importance of biodiversity:
  - Large-scale engineering projects that move fresh water to drier areas might weaken the resilience of river ecosystems from which the water is abstracted, making communities more vulnerable to climate impacts.
  - Introduction of drought-tolerant crops might inadvertently introduce invasive alien species to forests or savannahs, jeopardizing the essential services provided by those ecosystems.

10 Why should traditional knowledge of indigenous peoples be centrally considered in issues related to biodiversity and climate change?

- Indigenous peoples have proven sustainable environmental practices (See Box below).
- Indigenous peoples also consider care and maintenance of biodiversity as their responsibility (Turner, 2007). In their traditional world views, animals and plants, as well as other components of nature are regarded as relatives or sacred entities "willing to give themselves to people within a reciprocal system that demanded proper care and respect in return."
- Toledo (2000) has asserted that scientists from the fields of conservation biology, linguistic and anthropology of contemporary cultures, ethnobiology and ethnoecology, have evolved towards convergence on a shared principle: the world's biodiversity will only be effectively preserved by preserving diversity of cultures and vice versa. This common statement has been nourished by four main sets of evidence:
  - ❒ The most biologically diverse regions in the world also have the most linguistic diversity
  - ❒ The most biologically high-value regions in the world are indigenous territories
  - ❒ The recognized importance of indigenous peoples as main managers and dwellers of well-preserved habitats, and
  - ❒ Certification of conservation values and behavior among

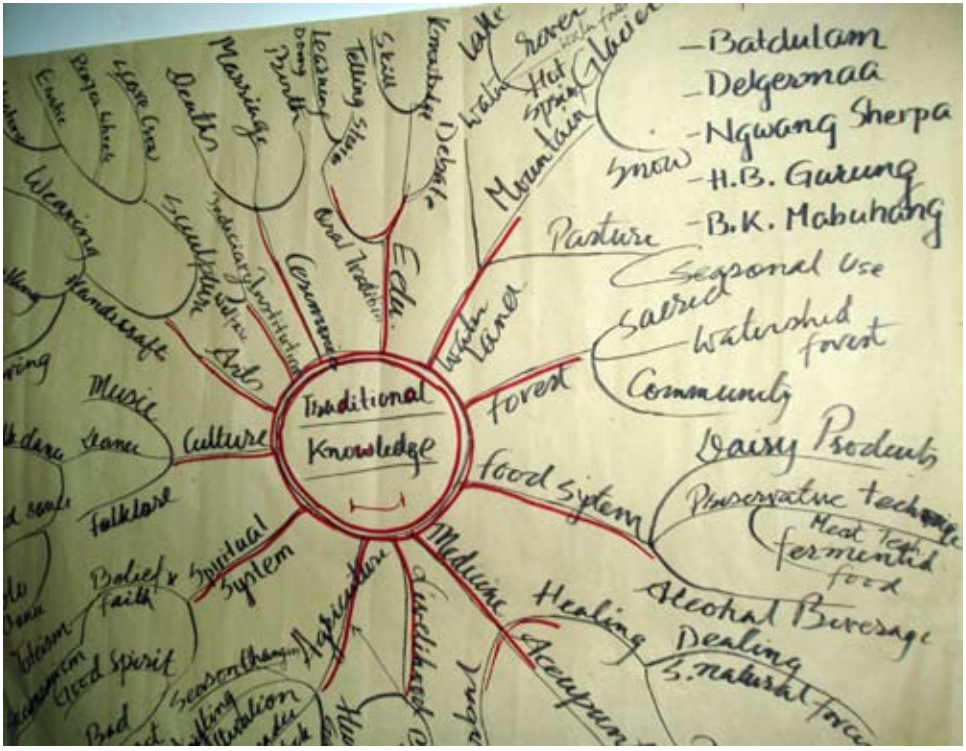
Indigenous Peoples' Sustainable Environmental Practices

- The indigenous peoples of British Columbia consider biodiversity at the broader scale of community or ecosystem variation critically important. People routinely accessed different habitats, with different groups of resources, from the ocean and valley bottoms to the high mountaintops.
- First Peoples have maintained and enhanced plant and animal populations and productivity and increased habitat diversity through resource management strategies that, as a result, yield a greater variety and abundance of foods and materials (Turner, 2007).

indigenous peoples rooted in pre-modern complex of belief-knowledge-practices.

- Indigenous and local communities have a unique contribution to make in mitigation initiatives as stewards of biodiversity. Since some mitigation measures such as biofuels have undesirable direct and indirect consequences, such as monoculture expansion and associated decline in biodiversity and their food security, their full and effective participation is crucial in the elaboration of State-developed mitigation measures to ensure that such schemes do not negatively affect vulnerable communities (UNPFII, 2008, p. 7).

Traditional knowledge is an inseparable part of indigenous and local communities' culture, social structures, economy, livelihoods, beliefs, traditions, customs, customary law, health and their relationship to the local environment. It is the totality of all such elements that makes their knowledge, innovations and practices vital in relation to biological diversity and sustainable development (UNPFII, 2008, p. 5).



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2 Jan Salick and Anja Byg, eds., Indigenous Peoples and Climate Change. Report of Symposium 12-13 April 2007, Environmental Change Institute, Oxford. (Oxford, UK: Tyndall Centre for Climate Change Research, 2007) p. 11-13. Available online at http://www.tyndall.ac.uk/publications/Indigenouspeoples.pdf. Acessed November 8, 2007.

3 Ahmed Djoghlaf, in Gincana 3: Biological Diversity and Climate Change, Secretariat of the Convention on Biological Diversity 2007, p. 1.

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5 In its official website (http://www.millenniumassessment.org), the Millennium Ecosystem Assessment (MA) is explained as a research program called for by the United Nations Secretary-General Kofi Annan in 2000. Initiated in 2001, the objective of the MA was to assess the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being.

6 Gincana 3, Biological Diversity and Climate Change, p. 1.

7 Ahmed Djoghlaf, in Gincana 3: Biological Diversity and Climate Change, Secretariat of the Convention on Biological Diversity 2007, p. 2.

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Part VII

Indigenous Women and Climate Change

1 WHY DO INDIGENOUS WOMEN MATTER IN CLIMATE CHANGE?

- Half of the world's estimated population of 300 million indigenous peoples are women.
- They are the key in the preservation, sustenance and survival of the human race and diversity.
- They are major actors in human security: food, health and overall wellbeing of their families and communities, and
- They hold and practice traditional knowledge on sustainable use of biodiversity that are essential in keeping ecological balance that negates climate change.

90% - percent of work in gathering water and wood for household use and food preparation done by women in Africa.

5 hours - no. of hours in a day spent by women in collecting fuel wood and water in other regions.

4 hours - no. of hours in a day spent by women in preparing food also in other regions.

Source: Facts and Figures: Women and Water. Accessed from http://www.wateryear2003.org/en/ev.php-URL_ID=2543&URL_DO=DO_TOPIC&URL_SECTION=201.html on 4 April 2008.

2 What are the impacts of climate change on indigenous women?

If climate change has huge impacts on indigenous peoples as a whole, indigenous women are more disproportionately affected. Inaction to arrest the cause and effects of this phenomenon poses a grave threat to the lives, welfare and roles of one of the most vulnerable sectors on whose hands partly depend the sustenance and wellbeing of indigenous communities.

Some of the impacts are as follows:

- **Loss of Life.** Gender impositions combined with their already marginalized situations result to more indigenous women casualties and victims during weather disasters and emergency situations. In some areas in Southeast Asia, women are not forewarned because early warnings are placed in public places where women rarely go. Girls and women, in some indigenous communities, are not taught to swim and are prohibited from going out of their homes unaccompanied by male relatives. These lessen their chances for survival during the occurrence of disasters. Women also risk their lives because of their tendency to stay behind to rescue their children and the elderly.[1]

"In Aceh (Indonesia), collecting shellfish in the mangrove forests is part of the indigenous women's daily routine. In Maluku, women work to productive tidal area where they also collect shellfish..."

Source: Anggraini, Devi. "Indigenous Women's Workshop at AMAN Congress " in Down to Earth No. 74, August 2007. http://dte.gn.apc.org/74din.htm accessed 4 April 2004.

- **Loss of livelihood and food insecurity.**
  - ❒ The non recognition of right to ownership, access and use by indigenous peoples of their lands, territories and resources implies the loss of women's traditional livelihoods.
  - ❒ Disrupted rainfall or drought find indigenous women without water to irrigate their rice fields and other traditional farms resulting to a

Josefina Lagus, from the remote village of Benguet in Northern Philippines, 42 yrs old and mother of five, notes that when the rainy and dry seasons behave erratically, these affect their crop production.

"Our situation has gone from bad to worse. I can't understand why. Sometimes our fields are flooded and sometimes we experience drought," Josefina told me during an interview.

Josefina adds that in their community, a typical day begins at the break of dawn with women and sometimes children walking a considerable distance to fetch water using small buckets. They must walk even longer distances to collect firewood.

"Most women here are silently bearing the brunt of changing climate conditions. But we pray that these problems will be addressed by our government and other agencies concerned for the sake of our children," Josefina said.

Source: Imelda V. Abaño, "Women Bear the Brunt of Climate Crisis: Their Stories From the UN Conference in Bali," The Women's International Perspective, Friday 04 January 2008, http://www.truthout.org/issues_06/printer_010408WB.shtml Accessed on April 4, 2008.

very low or zero crop yield.

- ❒ Increase of pest and diseases from changing temperature are affecting farm harvests.
- ❒ Livestock production would also be affected.[2]
- ❒ Changing water temperature in seas and oceans impacts on the livelihood of indigenous women living along coastal areas and subsisting on fishing.
- ❒ Rising sea levels causing saline water intrusion into freshwater systems would result to fishing difficulty.[3]

- **High Health Risks.** Food insecurity may force women to eat last and eat least even if they are pregnant or nursing mothers,[4] making them susceptible to illness and diseases, with the unborn and newborns facing malnutrition. The women are also at risk of contracting water-borne diseases during floods. Even frequent forest fires cause health problems and destroy health services provided by the forest to them.

A Tuareg woman from Mali revealed that plants they used as traditional medicine are in danger of being extinct or have already vanished due to desertification. They also find difficulty in tanning animal hides because the trees they used in the tanning process have disappeared.[5]

- **Loss of Traditional Knowledge.** Indigenous women may lose their traditional ecological knowledge, practices and sustainable livelihoods with the destruction of their resources to climate change. The loss of traditional plants or medicinal plants due to droughts or floods means the reduced opportunities for the coming generations to learn and practice traditional health, biodiversity conservation and protection and food security knowledge, among others.
- **Water Conflicts.** Water is an essential resource that is needed to pursue women's productive and reproductive tasks. With the changing weather patterns affecting water availability and access, indigenous women would come into conflict with other indigenous women over water resources.
- **Increasing Chores.** As water become scarce, women's chores would

More than 50% - percent of 1.2 billion people who do not have access to water are women and girls.

6 km - the average distance women in Asia and Africa walk to collect water.

20 kgs - the average weight of water that women in Asia and Africa carry on their heads.

Source: Obando, A. Op cit.

increase[6] and limit their chances of participation in social life and/or in pursuing other alternative sources of income.[7] Women also have to exert great efforts collecting, storing, protecting and distributing drinking water.[8]

- **Violation of Rights.** In pastoralist communities, cases of fathers trading their daughters as young as eight or nine as dowries to replace their income from lost livestock due to prolonged drought have been documented.[9] Death of livestocks for lack of water also makes them more dependent on international food aid. Women and girls trekking for a long distance to look for water, food and firewood are at risk to various forms of violence. Girls also have to drop out from school to find water and wood resources in distant places or to care for ill relatives. The loss of opportunity for, aside from issues of access to, education has a lifelong and multiple impact for indigenous girls. This lessens indigenous girls' chances of exercising, accessing and claiming their rights especially the right to full development as human beings.
- **Migration and Displacement.** Food insecurity due to drought or flooding would likely drive migration that interrupts and limits opportunities for education. Families headed by women due to migration of men seasonally or for a number of years experience poverty while the workloads of women, their children and elderly increase. Whole families migrating to overpopulated cities are at high risk of getting HIV/AIDS.[10] Migration and displacement - as direct or indirect impact of climate change and adaptation/mitigation measures - reinforces the discrimination and violence already experienced by indigenous women, exposing them to higher risks of trafficking, exploitation and gender-based violence.
- **Less Mobility and Further Marginalization.** As primary carers or caregivers of the family, the women have to spend more time caring for sick family members, making them less mobile with no time to engage in social and political activities and their own personal development.
- **Loss of Identity.** The total impact of climate change on indigenous women is the erosion of their world views, culture and identity which are intricately woven in their relationship to their land and resources.

"Many aspects of Saami culture - language, songs, marriage, child-rearing and the treatment of older persons - are intimately linked with reindeer herding. If reindeer herding disappears, it will have a devastating effect on the whole culture of the Saami people.."

- Olav Mathis-Eira, Sami Council.

Source: MRG. State of Minorities Report 2008.

3 How are indigenous women adapting to climate change?

Just as indigenous women are one of the most vulnerable to climate change, they are also the most ready and are acting to cope with its impacts.

- **Use of specialized knowledge.** During floods, women take the initiative of looking for relocation sites for their affected families and community members. Women also increasingly share practices of using alternative energy-related technologies such as solar, biogas, and improved cooking stoves. They also use less labor-intensive technologies, multiple cropping and intercropping practices, changing cultivation to easily marketable crop varieties or flood and drought resistant crops, and investing in alternative irrigation facilities.[11]

In the Terai area of Nepal, before floods come, women take their assets and livelihoods in higher places, sometimes, even their livestock. Those who have enough resources increase the plinth level of their houses or homestead to protect their belongings from damage. They also build community shelters. Women farmers also switch to cultivating crops that can be harvested before flood season. Others grow rice varieties that survive above water when the floods come. Even the seedbed preparations and seed selection are altered[12] to ensure crop survival.

- **Organizing and training.** Indigenous women are putting up self-help organizations and establishing networks and partnerships with other indigenous women's groups. In addition, they actively participate in trainings to enrich their skills in food and livestock production, thus enhancing their livelihood. At their own initiatives, they seek professional support in order to increase their knowledge and skills in combating climate change.

After the devastating effect of Hurricane Mitch in Nicaragua, indigenous women's organizations were able to mobilize their networks and partners for emergency relief and rehabilitation directly to the women and their families who need them most.
Source: MADRE. "Women Respond to Climate Change."

- **Reforestation.** Women are also in the forefront of reforestation initiatives. Every May 15, each person in a Batwa community in Africa plant 100 trees and it is the women who nurture these.[13] In the Bangladeshi village of Kaijuri, although the women have the rights to the trees since they are the planters, they do not cut trees that are not intended for firewood.[14]

4 How are mitigating measures on climate change affecting indigenous women?

- **Denial of fundamental rights.**
  - For indigenous women, the denial of this fundamental right to ownership, access to, use of and enjoyment of the benefits from their traditional land, territories and resources further results to:
    - disenfranchisement from their productive and reproductive roles and from their traditional spaces.
    - restriction to or loss of environmental services due to incompatible climate change mitigation measures. These include impacts on water, fuelwood, alternative/ additional food and medicinal resources supply.

Photo Credit: Montañosa Research Development Center

  - Many indigenous women and their families are denied their rights over their lands and resources by multinational biofuel companies.
  - Some women in Dayak communities whose lands were appropriated for large-scale mining or big-scale oil palm plantations have to work as prostitutes to secure their livelihood.[15]

- **Human rights violations and armed conflict.** Violence, intimidation and murder are employed by some biofuel companies to drive indigenous communities from their lands and resources. Conflicts between communities who till the land for food and corporations who want the land for GE (genetically engineered) trees would worsen,[16] putting indigenous women at risk.
- **Erosion of traditional values.** In Kalimantan, Indonesia, women

"...In Colombia, oil palm companies employ armed guards and paramilitaries to drive people (Jiguamiando and Curvarado) off their land using intimidation, violence and murder. In Brazil, soya bean farmers are hiring gunmen and erected barbed wire fences to exclude Afro-indigenous and Afro-descendant people from the areas where they have traditionally collected nuts from the babacu tree."[17]

In Sarawak, Malaysia, due to logging and oil palm plantations, Dayak women face issues related to food security, water shortages and loss of traditional knowledge due to the deterioration of biodiversity. They have noticed decline of wild meat in logging areas and decline of fish supplies due to river pollution.[20]

expressed concern on the increasing karaoke bars set up in oil palm plantations.[18] In Asia, karaoke bars are usually a prelude to prostitution and trafficking.

- **Increase of women's workload.** Deforestation for biofuels increases women's work loads.[19] As nurturers or providers, they would trek over long distances to collect food, water, and firewood which open them to sexual harassment or any violence along the way.
- **Competition for resources.** The devastating environmental impact of climate change heightens competition for resources in these fragile areas not only between and among peoples but more seriously between peoples and the private sector or the state in the light of some mitigation measures.
- **Extinction of traditional medicine and food and loss of traditional knowledge.** Biofuel production would cause disappearance of diverse forest species that they depend on for their nutrition, healthcare, cultural practice and economies.[21] Loss of biodiversity due to deforestation would also lead to loss of traditional knowledge in preserving the forest and on traditional health practices, among others.

- **Dislocation or displacement.** To expand biofuel lands, "people and indigenous agricultural systems are displaced from productive lands."[22] For example, the agricultural land of the indigenous Mapuche communities in the Lumaco District of Chile were taken over by pine and eucalyptus plantations.[23] Forests in

Uganda were also transformed into sugarcane plantation for fuel.[24]

- **Contamination of indigenous lands and species.** Introduction of GE trees for fuel production is very risky to native forests. Contamination of native trees and other traditional plants could be catastrophic[25] especially to indigenous women. Among indigenous women, this implies increasing dependence on other product and service providers, i.e., pharmaceutical companies and contemporary experts for healthcare.

"We cannot give birth to land. If men sell the land for plantations, where must our children live?"

- by a West Papuan woman participating in the 3rd Congress of AMAN, Jakarta, Indonesia, June 2007.

(Quoted by Anggraini, Devi op. Cit.)

Endnotes:

1 MADRE. "A Women's Rights-based Approach to Climate Change." p. 2.
2 WEDO and IUCN. "Gender Equality and Adaptation," Penned by Ariana Araujo and Andrea Quesada-Aguilar, in collaboration with Lorena Aguilar and Rebecca Pearl.
3 Tiempo Climate Cyberlibrary, Tiempo-Issue 47, "Gender and Climate Change,"http://www.cru.uea.ac.uk/tiempo/floor0/recent/issue47/t47a7.htm (Accessed on April 1, 2008).
4 WEDO and IUCN. "Gender Equality and Adaptation."
5 Indigenous Information Network. Africa Indigenous Women's Regional workshop on biodiversity, Traditional Knowledge and Women's Rights in Africa. IIN. 2007. p. 121.
6 MADRE. "A Women's Rights-based Approach to Climate Change." p. 2.
7 Genanet. Female, male, sustainable: Towards a gender equitable future. p. 9.
8 IUCN. "Gender and Climate Change," Penned by Lorena Aguilar, Ariana Araujo and Andrea Quesada-Aguilar.
9 MADRE. "A Women's Rights-based Approach to Climate Change." p. 2.
10 IUCN. "Gender and Climate Change."
11 Ibid.
12 Ibid., p. 13.
13 Indigenous Information Network. p. 78.
14 AIWN, AMAN and Rights and Democracy. Portrait of the Indigenous Women in Asia. 2007. Sheet 3, p. 3.
15 APFWLD. Workshop on Indigenous Women. 2002. p. 86.
16 Indigenous Information Network. p. 55.
17 MRG. State of the World's Minorities 2008. pp. 12-13.
18 Op. Cit.
19 Ibid.
20 AIWN, AMAN and Rights and Democracy, Sheet 3, p. 4.
21 MADRE. "Deforestation, Climate Change, and Women's Human Rights," p. 2.
22 Dr. Rachel Smolker Brian Tokar, Anne Petermann and Eva Hernadez. The True Cost of Agrofuels: Food, Forest and the Climate. 2007. p. 35.
23 Ibid. p. 55.
24 Indigenous Information Network. p. 77.
25 Ibid. p. 5.

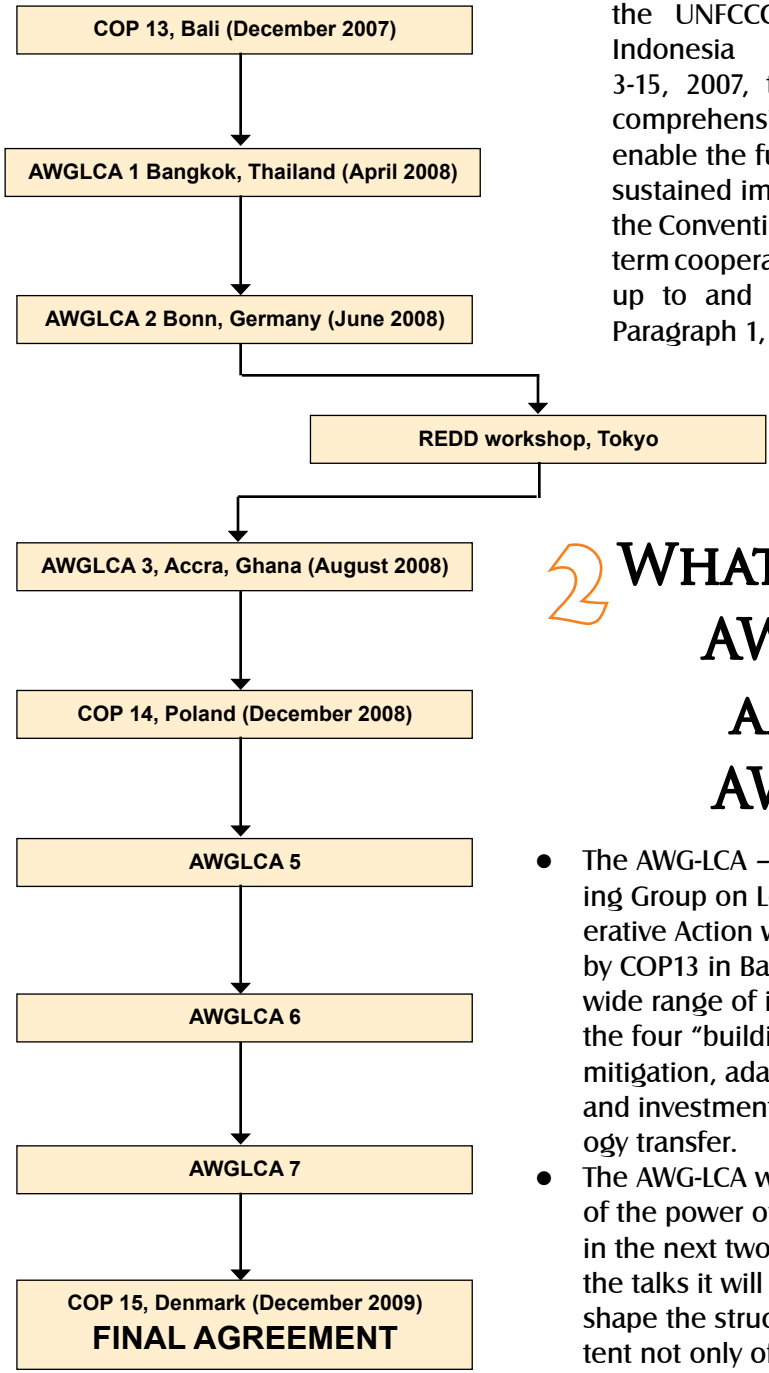
Part VIII

The Current State of Climate Change Negotiations

By 2012, the 1st commitment period of the Kyoto Protocol would have ended. By this time, Annex 1 countries should have lowered their greenhouse gas emissions according to the targets they have committed in the Protocol. Sadly, these may not be met as most of these countries are nowhere near the reduction targets they identified. Nonetheless, member-states of the Convention have set into motion a "comprehensive process" to identify what comes after 2012. The proposals will then be submitted in the 2009 climate change conference where a final agreement will be approved. The following is an overview on the current negotiations and why it is important for indigenous peoples to call for effective and meaningful participation in these climate change talks.

Accra Climate Change Talks 2008

1 What is the Bali Roadmap?[1]



- Decision by COP13 of the UNFCCC held in Bali, Indonesia on December 3-15, 2007, to "... launch a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012..." Paragraph 1, Bali Roadmap.

2 What is the AWG-LCA and the AWG-KP?

- The AWG-LCA – Ad Hoc Working Group on Long-Term Cooperative Action was established by COP13 in Bali to discuss a wide range of issues under the four "building blocks" of mitigation, adaptation, finance and investment, and technology transfer.
- The AWG-LCA will carry much of the power of the UNFCCC in the next two years, and the talks it will hold may well shape the structures and content not only of climate politics

but also have ramifications for global economic and development issues, besides a range of environmental issues.

- The Ad Hoc Working Group on Further Commitments for Annex 1 Parties or AWG-KP, on the other hand, was established in 2005 to consider future commitments for Annex I Parties to mitigate GHG emissions.

AWGLCA - Ad Hoc Working Group on Long-Term Cooperative Action established in the Bali climate talks in December 2007 to discuss a wide range of issues under the four "building blocks" of mitigation, adaptation, finance and investment, and technology transfer. Its 1st session was held in Bangkok in March 2008.

AWG-KP - Ad Hoc Working Group on Further Commitments for Annex 1 Parties mandated in 2005 to consider future commitments for Annex I Parties.

The Bangkok Climate Change Talks, 31 March – 4 April 2008

In the Climate Change Talks in Bangkok on 31 March – 4 April 2008, the AWG-LCA and the AWG-KP met to flesh out the Bali Roadmap. The meeting agreed "... on a work programme that structures negotiations on a long-term international climate change agreement, set to be concluded in Copenhagen by the end of 2009." Aside from this, it also "... sent a clear signal that the use of market-based mechanisms, such as the Kyoto Protocol's Clean Development Mechanism, should be continued and improved as a way for developed countries to meet emission reduction targets and contribute towards sustainable development."

3 The Bangkok, Bonn and Accra Climate Change Talks

- At the 5th Session of the AWGKP (AWG-KP5) in Bangkok, the developing countries stated that "the lack of fulfillment by developed countries of their commitments is a primary cause of the deteriorating climate situation and this impedes the overall goal of the UNFCCC. In the face of this "implementation deficit," the UNFCCC's post-Bali activities should firstly focus on enhancing the implementation of the developed countries' existing obligations, including providing finance and technology transfer to developing countries."[2]
- The Bonn Climate Talks (June 2-13, 2008) included a session of a working group negotiating the green-

house gas emissions reduction for developed countries after 2012. At a closing plenary session, the group adopted conclusions on three main issues - emissions trading and project-based mechanisms, land use and forestry, and "other issues," some of which turned out to be controversial.[3]

25%-40% - percentage below 1990 levels that the AWG-KP recommended that Annex 1 countries should cut their GHG emission for the period beyond 2012.

- At the REDD workshop held in Tokyo (June 25-27, 2008), "governments presented their experiences on activities to reduce emissions from deforestation and forest degradation, as well as the lessons learned, and elaborated on the methodological challenges and possible solutions that would help move this issue forward. The outcome of this workshop will provide input for the AWG-LCA meeting in Accra, Ghana in August this year, and will also be reported to the 29th session of the SBSTA, which will take place in Poznan, Poland, in December."[4]
- In the Accra Climate Change Talks (August 21-27, 2008), the AWG-LCA "considered the work programme for 2009 and adopted the conclusions of the Chair of the AWG-LCA. A major conclusion reached is that the AWG-LCA would, in 2009, shift into full negotiating mode, advancing negotiations on all the elements of the Bali Action Plan in a comprehensive and balanced way. This was in view of the deadline for completion of its work in Copenhagen in 2009."[5]
- REDD, which is being discussed in the current Climate Change Talks, forms only a small part of the negotiations. Bigger issues being discussed involve finance, technology, adaptation and mitigation, and capacity building. It is expected that the REDD issue will be narrowed down to a few key questions to be answered in 2009 and will be included in the agreement to be finalized in Copenhagen.

4 What may happen after 2012?

- The new process may lead to a new "comprehensive" agreement

COP15 - 15th Session of the UNFCCC's Conference of Parties to be held in Copenhagen, Denmark where decisions for the next commitment period after 2012 will be made.

- Or the UNFCCC and its Kyoto Protocol will be retained and the focus will be on strengthening the implementation of decisions already adopted but not implemented

❒ **Developed countries** - want to radically change or replace the Kyoto Protocol and even parts of the Convention.

❒ **Developing countries (G77 and China)** – supports the UNFCCC and Kyoto Protocol.

5 What about renewable energy? How will indigenous peoples be affected?[6]

Scientists are experimenting with numerous technologies for mitigating climate change and are taking two main approaches to reducing the global level of GHGs in the atmosphere.

- ***What is the first approach?***
  The first approach is to reduce consumption of fossil fuels by switching to alternative forms of energy and improving energy efficiency. These include hydropower, solar energy, wind, geothermal energy, tides, waves and biomass as renewable energy sources.

- ***What is the second approach?***
  The second approach to reducing the level of GHGs is to attempt to increase the earth's ability to absorb carbon dioxide through reforestation or other more experimental methods such as carbon capture and storage (CCS).

Alternative Forms of Energy and Implications on Indigenous Peoples

- **No to nukes! -** Nuclear power poses special problems for many indigenous peoples, because nuclear waste is often stored in places far from large urban centers and areas inhabited by them. Rather than having to tolerate unauthorized intrusions upon their lands, indigenous peoples should have the right to give or withhold prior and informed consent, and they should possess a veto power concerning nuclear waste storage projects on their territories and lands.
- **Wind and solar energy -** Wind energy projects could bring clean energy to the world and a tremendous windfall of economic development to some indigenous communities. It is estimated that the wind energy potential worldwide is 15 times the world's energy demands, with much of this energy potential located on their lands. Using solar power to generate electricity would seem to be a perfect cultural-economic match for indigenous people seeking to participate in climate mitigation.

(Continued next page)

- **Biofuels -** The growing use of biofuels is more controversial. Of particular concern is the dramatic shift in agricultural production patterns to meet the demand for biomass and the fact that the nitrogen fertilizers used to increase biomass release such potent nitrous oxides that the net effect on GHG emissions is actually worse than if plain diesel were used instead of biofuel.
- **Large hydroelectric dams -** Indigenous peoples are also concerned about the massive increase in the building of large hydroelectric dams, because of the potential displacement of indigenous peoples from their ancestral territories.

6 Why are these negotiations relevant to indigenous peoples?

- It is vital that indigenous peoples are able to participate effectively in the current negotiations. This is to ensure that their perspectives and proposals are not only surfaced, but more importantly, included in the outcomes of the ongoing talks beyond 2012.
- In the Bangkok meeting, the convention has stated that it would continue with CDM projects and other mitigation measures that have impacted gravely on indigenous peoples' rights to their lands and territories. There is a need to ensure that mechanisms are in place to ensure that their rights are protected, and that these projects are undertaken with their free, prior and informed consent, and benefits that are derived from such projects, are directly given to indigenous communities.
- Negotiations on REDD are being fast-tracked towards a decision in 2009. Indigenous peoples need to engage in the discussions and negotiations considering the potential impacts that REDD may have on their rights to their forests. At the same time, this also presents opportunities to establish spaces and mechanisms on indigenous peoples within the UNFCCC.

Endnotes:

1 TWN, TWN Bali News Update No. 18, 16 December 2007.
2 _____, TWN Bangkok News Update No. 1, 02 April 2008, download from www.twnside.org.sg.
3 TWN, TWN Bonn News Update No. 15, 16 June 2008.
4 http://unfccc.int/press/news_room/news_archive/items/3769.php accessed 05 Sept. 2008.
5 TWN, TWN Accra News Update No. 10, 29 August 2008.
6 Based on the paper written by the Special Rapporteurs of the UNPFII on Impact of Climate Change Mitigation Measures on Indigenous Peoples and on Their Territories and Lands, [E/C.19/2008/10], 19 March 2008.

Part IX

Ways Forward: The UN Declaration on the Rights of Indigenous Peoples, the Human Rights Based Approach and the Ecosystem Approach

1 The UN Declaration on the Rights of Indigenous Peoples as the Overarching Framework for Climate Change Policies relating to Indigenous Peoples

- The overarching framework which should guide the design and implementation of climate change policies as these relate to indigenous peoples should be the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) and the ILO Convention No. 169.
- Indigenous peoples believe that the Human Rights Based Approach (HRBA) to development and the Ecosystems Approach should also be used to further inform such climate change policies.
- The Declaration will be the foundation of such approaches.
- Any policy, programme or project, including those on climate change, which will be implemented on indigenous territories should be carried out with indigenous peoples' free,

Article 3 of the United Nations Declaration on the Rights of Indigenous Peoples

"Indigenous peoples have the right to self determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development."

The right to self-determination is manifested in the following:[1]

- Autonomy or self-government in matters relating to their internal and local affairs, as well as ways and means for financing their autonomous functions. In other cases, indigenous peoples seek the conditions for self-management.
- Respect for the principle of free, prior and informed consent. This principle implies that there is an absence of coercion, intimidation or manipulation, that consent has been sought sufficiently in advance of any authorization or commencement of activities, that respect is shown for time requirements of indigenous consultation/consensus processes and that full and understandable information on the likely impact is provided.
- Full and effective participation of indigenous peoples at every stage of any action that may affect them direct or indirectly. The participation of indigenous peoples may be through their traditional authorities or a representative organization. This participation may also take the form of co-management.
- Consultation with the indigenous peoples concerned prior to any action that may affect them, direct or indirectly. Consultation ensures that their concerns and interests match the objectives of the activity or action that is planned.
- Formal recognition of indigenous peoples' traditional institutions, internal justice and conflict resolution systems, and ways of socio-political organization
- Recognition of the right of indigenous peoples to freely define and pursue their economic, social and cultural development.

prior and informed consent (FPIC). Many of the problems faced by indigenous peoples on climate change arise from neglect of these rights and the FPIC principle.

- A common and important problem that indigenous peoples encounter is the violations of their rights to lands, territories and natural resources. This problem persists with worsening effects to them in terms of scale and depth especially

What is FPIC?

... the consensus/consent of indigenous peoples determined in accordance with their customary laws and practices. This does not necessarily mean that every single member must agree, but rather that consensus will be determined pursuant to customary law and practice. In some cases, indigenous peoples may choose to express their consent through procedures and institutions that are not formally or entirely based on customary law and practice, such as statutory councils or tribal governments. Regardless of the nature of the process, the affected indigenous people(s) retain the right

in countries where national laws recognizing indigenous peoples' land rights are absent. The aggravating factor in most countries is that the existence of indigenous peoples is not recognized in any law or in any policy. Such denial of land and resource rights, as well as its use and management, is an underlying cause of biodiversity loss among indigenous peoples.

What is FPIC? (continued)

to refuse consent or to withhold consent until certain conditions are met. Consent must be obtained without coercion, prior to commencement of activities, and after the project proponent's full disclosure of the intent and scope of the activity, in language and process understandable to the affected indigenous peoples and communities.

Source: Indigenous Peoples' Right to Free, Prior and Informed Consent and the World Bank's Extractive Industries Review by Fergus MacKay, Forest Peoples' Programme, 2004.

UNDRIP's Articles on Traditional Lands, Resources and Territories

Article 25

Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard.

Article 26

1. Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired.
2. Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired.
3. States shall give legal recognition and protection to these lands, territories and resources. Such recognition shall be conducted with due respect to the customs, traditions and land tenure systems of the indigenous peoples concerned.

2 Human Rights-Based Approach (HRBA) to Development

- The HRBA has been discussed extensively within the UN system and based on these, there are principles and points on a common understanding on this which was agreed upon by the various UN agencies, bodies and programmes.
- Indigenous peoples cannot talk about Multilateral Environmental

Agreements separate from International Human Rights Law. The UNDRIP will form part of International Human Rights Law.

The Statement of Common Understanding

1. All programmes of development cooperation, policies and technical assistance should further the realisation of human rights as laid down in the Universal Declaration of Human Rights and other international human rights instruments.
2. Human rights standards contained in, and principles derived from, the Universal Declaration of Human Rights and other international human rights instruments guide all development cooperation and programming in all sectors and in all phases of the programming process.
3. Development cooperation contributes to the development of the capacities of "duty-bearers" to meet their obligations and/or of "rights-holders" to claim their rights.

The principles of International Human Rights Law which should be kept in mind when discussions on Climate Change policies will be shaped as these relate to indigenous peoples are as follows:
Interdependence and inter-relatedness; non-discrimination and equality; participation and inclusion; accountability and the rule of law. These principles are explained below.

- *Universality and inalienability*: Human rights are universal and inalienable. All people everywhere in the world are entitled to them. The human person in whom they inhere cannot voluntarily give them up. Nor can others take them away from him or her. As stated in Article 1 of the UDHR, "All human beings are born free and equal in dignity and rights."
- *Indivisibility:* Human rights are indivisible. Whether of a civil, cultural, economic, political or social nature, they are all inherent to the dignity of every human person. Consequently, they all have equal status as rights, and cannot be ranked, a priori, in a hierarchical order.
- *Inter-dependence and Inter-relatedness:* The realization of one right often depends, wholly or in part, upon the realization of others. For instance, realization of the right to health may depend, in certain circumstances, on realization of the right to education or of the right to information.
- *Equality and Non-discrimination:* All individuals are equal as human beings and by virtue of the inherent dignity of each human person. All human beings are entitled to their human rights without discrimination of any kind, such as race, colour, sex, ethnicity, age, language, religion, political or other opinion, national or social origin, disability, property, birth or other status as explained by the human rights treaty bodies.
- *Participation and Inclusion:* Every person and all peoples are entitled to active, free and meaningful participation in, contribution to, and enjoyment of civil, economic, social, cultural and political development in which human rights and fundamental freedoms can be realized.
- *Accountability and Rule of Law:* States and other duty-bearers are answerable for the observance of human rights. In this regard, they have to comply with the legal norms and standards enshrined in human rights instruments. Where they fail to do so, aggrieved rights-holders are entitled to institute proceedings for appropriate redress before a competent court or other adjudicator in accordance with the rules and procedures provided by law.

3 Ecosystem Approach

- Indigenous peoples' view of climate change and measures to address problems is fully consistent with the Ecosystem Approach which acknowledges that decision-making and management of biodiversity are best carried out using the institutions and governance mechanisms most suited at the ecosystem-level, including a recognition of the central role of indigenous peoples.
  - It recognizes that humans, with their cultural diversity, are an integral component of various ecosystems. Such an approach is "a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way."[2] It maintains the productive potential of ecosystems allowing indigenous peoples as stewards of the environment, using practices in synergy with ecosystem processes and functions.
  - The Ecosystem Approach thus provides a sustainable approach in addressing cultural and biological diversity that directly contributes to solutions on the problems on climate change. It is therefore imperative that mitigation and adaptation measures on climate change should be informed by this.

First Principle of the Ecosystem Approach Adopted by the CBD

The objectives of management of land, water and living resources are a matter of societal choice. It recognizes that different sectors of society view ecosystems in terms of their own economic, cultural and societal needs. Indigenous peoples and other local communities living on the land are important stakeholders and their rights and interests should be recognized. Both cultural and biological diversity are central components of the ecosystem approach, and management should take this into account. Societal choices should be expressed as clearly as possible. Ecosystems should be managed for their intrinsic values and for the tangible or intangible benefits for humans, in a fair and equitable way.

Photo Credit: Montañosa Research Development Center

ECOSYSTEM APPROACH

- provides for an understanding of ecosystemic processes with a long term view of the sustainable relationship between peoples and environment.

4 Ways Forward[13]

Using the UN Declaration on the Rights of Indigenous Peoples as framework for indigenous peoples' engagement in the climate change processes, indigenous peoples have therefore identified the following as ways forward:

☑ **For indigenous peoples and communities:**

1. Preserve our rights to maintain our traditional use of plants and animals for hunting and gathering. We as indigenous peoples have preserved the biodiversity of our lands for hundreds of years by caring for nature and using it only in sustainable ways.
2. Nurture and develop our traditional knowledge, environment-friendly technologies, cultural diversity and the biodiversity in our territories.
3. Enhance and deepen our understanding of climate change to implement more effective and appropriate mitigation and adaptation measures in our lands and territories.
4. Create better documentation of good practices in mitigation and adaptation and share these with other indigenous communities and organizations.
5. Participate in climate change workshops/meetings/conferences in different levels (local, national, regional and global) and speak out, if possible.
6. Work out strategy papers on REDD and the issues of technology, finance, adaptation and mitigation, and capacity building.
7. Undertake sustained lobby and advocacy work within the UNFCCC processes, among the UN agencies and bodies, and multilateral bodies to ensure our effective and meaningful participation and to ensure that our rights, perspectives and proposals on climate change are respected, popularized and implemented. Actively participate in the formulation of national policies on climate change.

☑ **For the UN and its agencies, governments and multilateral and bilateral bodies**

1. The United Nations Declaration on the Rights of Indigenous Peoples should serve as a key framework in the formulation of plans for development and should be considered in all processes related to climate change at national, regional and global levels.

The Ecosystem Approach guided by the UNDRIP as a framework can be used by UN agencies and governments to conduct researches on "Indigenous peoples and climate change" that can inform the formulation of projects and programs for indigenous peoples.

2. The safeguard policies of the multilateral banks and the existing and future policies on indigenous peoples of United Nations bodies and other multilateral bodies, should be implemented in all climate change-related projects and programs.
3. The Annex 1 countries should implement their commitments to the Kyoto Protocol. The fast-industrializing developing countries should also undertake serious efforts to cut their emissions and develop low-carbon energy systems. The international community should take serious measures to mitigate climate change.
4. The social dimension of climate change needs to be considered, so that the social and cultural impacts on indigenous peoples, including indigenous women, are more visible.
5. UN member states should assist indigenous peoples of the world with their adaptations to the increasingly negative impacts of climate change, while at the same time continuing, in parallel, to work on mitigation measures.
6. The Arctic region, because it is an early indicator of climate change for the rest of the world and because its coastal indigenous peoples are at this time particularly vulnerable, should be designated as a special climate change focal point.
7. The perpetuation of highly centralized, fossil-fuel-based energy supplies should be challenged.
8. The support of the World Bank and other multilateral and bilateral financial institutions for fossil-based energy projects and large-scale hydropower dams is greater than their support for renewable and decentralized systems. The recommendations and proposals by indigenous peoples on the FCPF and other carbon funds like the BioCarbon Fund should be implemented by the Bank and other relevant agencies.
9. The promotion of large-scale technologies, whether these are nuclear energy, large-scale bioenergy, or large-scale hydropower technologies, should be discouraged.
10. Adaptation funds should be provided immediately to indigenous peoples who are affected by climate change-related disasters, including an Indigenous Peoples Fund for Climate Change.
11. The full and effective participation of indigenous peoples in the forthcoming negotiations for the next Kyoto Protocol commitment period should be ensured. A "Working Group on Local Mitigation

and Adaptation Measures" should be established within the UNFCCC.

12. The Intergovernmental Panel on Climate Change (IPCC) should work with indigenous peoples to include their observations, analysis and practice on climate change.
13. Effective participation of indigenous peoples should be ensured in the formulation and implementation of national policies on climate change.
14. Training workshops and other capacity-building activities undertaken by indigenous peoples should be supported, including their efforts to document good practices in mitigation and adaptation and to replicate and upscale these practices.
15. The Permanent Forum and the Human Rights Council Expert Mechanism on Indigenous Peoples Rights should evaluate whether existing and proposed climate change policies and projects adhere to the standards set by the United Nations Declaration on the Rights of Indigenous Peoples.

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2 The Ecosystem Approach. UNEP/CBD/COP/5/23. Decisions adopted by the Conference of the Parties to the Convention on Biological Diversity at its Fifth Meeting. Nairobi, 15-26 May 2000.

3 Recommendations are based on the paper written by the Special Rapporteurs of the UNPFII on Impact of Climate Change Mitigation Measures on Indigenous Peoples and on Their Territories and Lands, [E/C.19/2008/10], 19 March 2008.

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Tebtebba - http://www.tebtebba.org

Third World Network – http://www.twnside.org.sg

UN Development Program - http://www.undp.org

UN Convention on Biological Diversity - http://www.cbd.int/

UN Environmental Program - http://www.unep.org

UN Framework Convention on Climate Change - http://unfccc.int/2860.php

UN Permanent Forum on Indigenous Issues - http://www.un.org/esa/socdev/unpfii/

World Meteorological Organization - http://www.wmo.int

Acronyms:

A

AAUs	- Assigned Allowable Units
ACIA	- Arctic Climate Impact Assessment
AD	- Avoided Deforestation
AES	- Applied Energy Services
AWG-KP	- Adhoc Working Group on Further Commitments for Annex 1 Countries
AWG-LCA	- Adhoc Working Group on Long Term Cooperative Action

C

CBD	- Convention on Biological Diversity
CBRR	- Community Based Rangeland Rehabilitation
CCS	- Carbon Capture and Storage
CDM	- Clean Development Mechanism
CERs	- Certified Emission Reductions
CFI	- Community Forests International
COP	- Conference of Parties
CO2	- Carbon Dioxide

D

DLNG	- Darwin Liquefied Natural Gas
DRC	- Democratic Republic of Congo

E

ERU	- Emission Reduction Unit
ET	- Emissions Trading
EU	- European Union

F

FACE Foundation	- Forests Absorbing Carbon Dioxide Emissions Foundation
FAO	- Food and Agricultural Organization
FCPF	- Forest Carbon Partnership Facility
FPCI	- Fundación para la promoción de conocimiento indígena
FPIC	- Free, prior and informed consent

G

GE	- Genetically Engineered
GHGs	- Greenhouse Gases
Gt	- Gigatonne
G77	- Group of 77

H

HIV/AIDS	- Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
HRBA	- Human Rights Based Approach

I

ILO	- International Labour Organisation
IPACC	- Indigenous Peoples of Africa Coordinating Committee
IPCC	- Intergovernmental Panel on Climate Change
IRF	- International REDD Fund

J

JFM	- Joint Forest Management
JI	- Joint Implementation

K

KP	- Kyoto Protocol
KWPP	- Kaliakra Wind Power Project

L

LDCs	- Least Developed Countries

M

MOP	- Meeting of the Parties to the Kyoto Protocol

N

NAILSMA	- Northern Australia Indigenous Peoples Land and Sea Management Alliance
NGO	- Non Governmental Organization
N_2O	- Nitrous Oxide

O

ODA	- Official Development Assistance

R

REDD	- Reducing Emissions from Deforestation and Forest Degradation

S

SBI	- Subsidiary Body for Implementation
SBSTA	- Subsidiary Body for Scientific and Technological Advice
SFM	- Sustainable Forest Management
SIDs	- Small Island Developing States

U

UK	- United Kingdom
UN	- United Nations
UNCED	- UN Conference on Environment and Development
UNDRIP	- UN Declaration on the Rights of Indigenous Peoples
UNEP	- UN Environmental Programme
UNFCCC	- UN Framework Convention on Climate Change
UNPFII	- UN Permanent Forum on Indigenous Issues
UN-REDD	- Collaborative program of UN agencies on REDD
UV	- Ultraviolet
UWA	- Uganda Wildlife Association

V

VFPCs	- Village Forest Protection Committees

W

WB	- World Bank
WMO	- World Meteorological Organization

This publication aims to enhance indigenous peoples' knowledge on climate change so that we will be better equipped to participate more effectively in shaping relevant policies and actions taken to address this issue. It also aims to enlighten non-indigenous peoples on our own experiences and perspectives on climate change.

TEBTEBBA
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