



UNITED NATIONS
UNIVERSITY

UNU-IAS

Institute of Advanced Studies

UNU-IAS Report

Emissions Trading, Carbon Financing and Indigenous Peoples



UNU-IAS Report

Emissions Trading, Carbon Financing and Indigenous Peoples

April 2008

This report was written by
Ingrid Barnsley

With thanks to Benoit Bosquet, Megan Brayne, Peter Cooke, Andre Grant, Peter Kuria, Samantha Muller and Sam Johnston for their assistance and comments. The views expressed in this guide are the author's own.

Contents

About this Guide	3
1. Climate Change and the International Response	4
1.1 What is 'Climate Change'?	4
1.2 Impacts of Climate Change on Indigenous Peoples	5
1.3 International Response to Climate Change	5
2. The Carbon Market and Carbon Financing	6
2.1 Building Blocks of the Carbon (or Emissions Trading) Market	6
What is Emissions Trading?	6
What is the Carbon Market?	6
What is the Size of the Market?	6
2.2 Generating Tradable Credits	6
Types of Activities that Generate Tradable Credits	6
What is Involved in Generating Tradable Credits?	7
2.3 Examples of Key Regulatory Markets	8
2.4 Carbon Financing Opportunities	9
2.5 Impacts of Carbon Mitigation Activities on Indigenous People	9
3. Case Studies of Indigenous Involvement in Climate Change Mitigation Activities	11
3.1 West Arnhem Land Fire Abatement Project, Australia	11
3.2 Bushlight, Australia	11
3.3 Ikuntji Cool Community, Australia	13
3.4 Forestry Management, New Zealand	13
Permanent Forest Sink Initiative	13
Afforestation Grant Scheme	13
3.5 Wind Power Project, Colombia	13
3.6 Native Species Reforestation, Panama	14
3.7 Renewable Energy Project (Biogas and Wind), Kenya	14
3.8 Capacity Building for Natural Resource Management, Mexico	14
3.9 Renewable Energy and Energy Efficiency Projects in First Nations and Inuit Communities, Canada	14
Reference List	15

About this Guide

As efforts to reduce greenhouse gas emissions increase, so do the sources of '*carbon financing*' and the size of the international '*carbon market*'. Greenhouse gas abatement activities can have both beneficial and detrimental impacts on the communities in which they operate. For this reason, it is vital that Indigenous communities have accurate information about carbon financing and carbon market processes at the outset - to help them make informed decisions and choices about activities that work for them.

This is a short guide for Indigenous land managers and those who work with Indigenous communities to the phenomenon of climate change, and to '*market*' and financial mechanisms for reducing greenhouse gas emissions, often referred to as the '*carbon market*', '*emissions trading*' and/or '*carbon financing*'. This guide is intended as a first edition - it is hoped that future editions will include even more case studies of Indigenous involvement with the carbon market and will focus on particular geographical regions. As such, comments, case studies and more information would be most welcome - please contact ingrid@iisd.org.

Section 1 explains what climate change is and outlines the international response to this problem. **Section 2** describes the carbon market and the different activities that may generate '*emissions reduction credits*' or '*offsets*'. It notes some points to think about when undertaking emissions reduction or offsetting activities. It also outlines the current situation regarding the international carbon market and opportunities for accessing carbon financing, before discussing the possible impacts of emissions reduction activities on Indigenous people. **Section 3** provides short case studies of Indigenous engagement with greenhouse gas emissions reduction activities.

This is not a comprehensive legal guide to engaging in carbon market activities. The particular features of any single transaction will vary depending upon technical and local factors not discussed here. The Reference List, included at the end of this guide, lists many additional sources of useful information. This list is divided by subject area and includes only references that are available free of charge on the internet. These references are mostly English language references. Future editions of this guide will hopefully point to sources in other languages.

1. Climate Change and the International Response

1.1 What is 'Climate Change'?

The earth's lower atmosphere is made up of '*greenhouse gases*'. These gases absorb infrared radiation from the sun, reflect some of it back into space and emit some of it towards the earth. This natural process, called the '*greenhouse effect*', provides for relatively stable and mild temperatures on earth and in the atmosphere (see Figure 1).

There are six main greenhouse gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. Many human activities involve the emission of greenhouse gases. These '*human-induced*' emissions have increased significantly since pre-industrial times, particularly emissions of carbon dioxide and in most countries, rates of emissions are continuing to increase. This is mostly because of the combustion of '*fossil fuels*', which includes gas, coal, oil and oil-derived products such as diesel. Fossil fuels are combusted to create electricity, to provide heating, to power all forms of transportation and to power industrial processes, like mining and manufacturing activities.

Other key activities that involve greenhouse gas emissions are waste management, agriculture, and land clearing and deforestation. Plants and trees naturally absorb carbon dioxide from the atmosphere while they grow. This process is known as '*carbon sequestration*' (or carbon biosequestration) and the forests and bush that sequester carbon dioxide are called

carbon '*sinks*'. The clearing of vegetated land or the removal of forests or wilderness ('*deforestation*') therefore affects the earth's natural ability to reduce carbon dioxide emissions. Also, when plants are burnt or cut down, the carbon dioxide they stored while they were living is slowly released back into the atmosphere - also increasing greenhouse gas emissions.

As the human-induced emission of greenhouse gases has increased, so has the concentration of these gases in the atmosphere, which is raising the earth's temperature ('*global warming*'). This is affecting other aspects of the earth's climate system - hence the term '*climate change*'. This includes rainfall patterns and ocean levels, the direction and speed of wind and ocean currents, seasonal cycles, and the likelihood and intensity of climatic disasters such as droughts, storms and floods (IPCC, 2007). These climatic changes can prompt other environmental, social and economic problems, such as:

- soil erosion and land degradation;
- the flooding or loss of low-lying lands into the ocean;
- changes to the fertility of agricultural lands;
- changes to the zones where infectious diseases occur;
- a reduction in the earth's diversity of animal and plant species; and
- a reduction of fresh water supplies (IPCC, 2007).

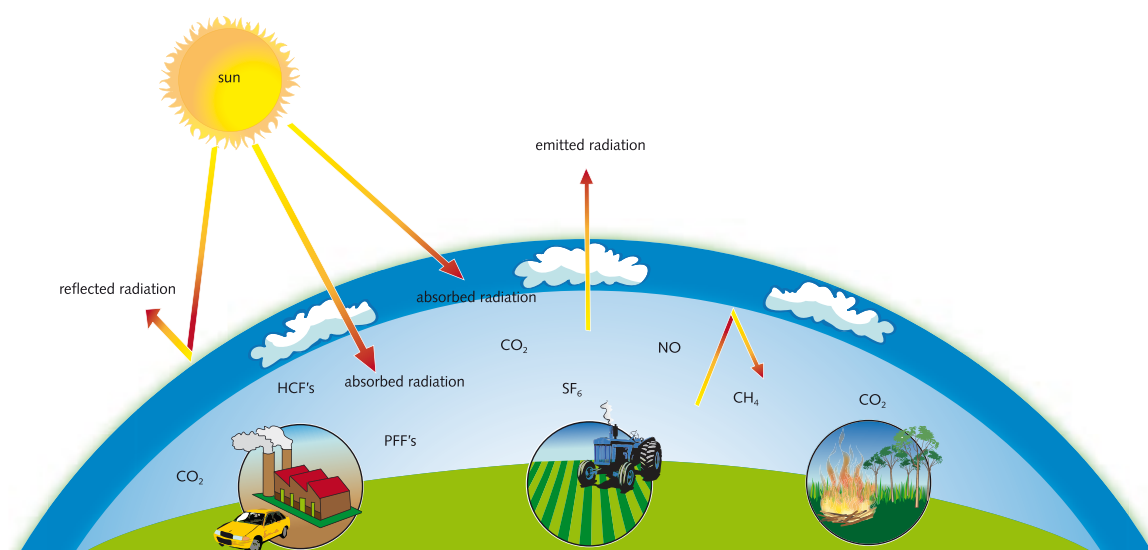


Figure 1. Schematic representation of the '*greenhouse effect*'. While this is a naturally occurring phenomenon, human-induced increases in the atmospheric concentration of greenhouse gases are causing global warming and climate change.

1.2 Impacts of Climate Change on Indigenous Peoples

It is now internationally recognised (though sometimes ignored) that climate change is having a disproportionate effect on vulnerable communities, including Indigenous peoples (IPCC, 2007). Impacts include:

- negative effects on the natural resource base of traditional Indigenous livelihoods; this includes natural resources and ecosystems important for tourism, hunting, gathering, fishing and herding;
- the melting of glaciers and polar ice - much of this in areas of significance to some Indigenous peoples;
- increased vulnerability to external influences, such as drought, flood, wildfire and invasive plants and animals;
- shortages of food, fuel or water, which may in turn prompt migration away from traditional lands; *and*
- threats to traditional knowledge and cultural activities that involve Indigenous peoples' relationships with land, plants and animals.

Along with affecting health and livelihoods, such impacts may affect the spiritual and cultural connection of Indigenous people with country (Oxfam, 2007). For more information on the impacts of climate change on Indigenous peoples, see the Reference List at the end of this guide.

1.3 International Response to Climate Change

Over the past 18 or so years, the international community has sought to respond to climate change by reducing the amount of greenhouse

gases released into the atmosphere by human-related activities. This effort to reduce our emissions is called '*mitigating*' climate change. Much of this effort has been focused on reducing our use of fossil fuels and changing the way we use land - such as by reducing our rate of land clearing and deforestation, and increasing our rate of reforestation. More recently, countries have also started to try to address the effects that climate change is already having on land, ecosystems and livelihoods. This is called '*adapting*' to climate change.

An international agreement, called the United Nations Framework Convention on Climate Change ('UNFCCC') was agreed in 1992 and entered into force in 1993. This agreement provides a framework for international cooperation on climate change. In particular, it provides that countries should collect information and produce reports on their national greenhouse gas emissions and also report on their efforts to reduce emissions. It further provides for international cooperation in climate change research and for wealthy, developed countries to provide

technological know-how and financial resources to poorer, developing countries to help them respond to climate change. Industrialised countries are often referred to as '*Annex I*' countries, while developing countries are known as '*non-Annex I*' countries.

The '*Kyoto Protocol*' - an addition to the UNFCCC - was concluded in December 1997 but did not enter into force until February 2002. All Annex I countries are now members of or '*parties*' to the agreement, except the United States, and the vast majority of the world's developing countries are also members. As a party to the Protocol and/or the UNFCCC, that instrument is binding on the country under international law.

The Kyoto Protocol is very important because it establishes legally binding '*emissions targets*' for Annex I countries. Each country's target is different¹. A target is based on a country's recorded level of emissions during a chosen '*baseline*' year (usually 1990). Australia, for example, has a target of 108% of its emissions from the year 1990. Under the Protocol, Australia must achieve this target, which applies collectively to the six main greenhouse gases, between the years 2008 and 2012². These targets are difficult for countries such as Australia to meet as greenhouse gas emissions have mostly continued to increase since 1990, as economic development has continued.

These Kyoto Protocol obligations on developed countries, together with various domestic laws and policies to reduce greenhouse gas emissions, have prompted many governments and other actors to develop activities and financial resources to reduce greenhouse gas emissions. As a result, a new '*carbon market*' involving emissions trading has emerged, together with various opportunities to access financing for emissions reduction or offset projects. The next section of the guide describes the carbon market and opportunities for carbon financing.

¹ The countries of the European Union will meet their target collectively.

² As of 2008, countries are beginning to negotiate about what commitments should accept for the period after 2012.

2. The Carbon Market and Carbon Financing

2.1 Building Blocks of the Carbon (or Emissions Trading) Market

What is Emissions Trading?

'Carbon trading', or 'emissions trading', takes place when there is sale and purchase of:

- 'permits' or 'allowances' to emit greenhouse gases; or
- 'certificates' that prove a certain reduction in emissions from a particular activity beyond what would otherwise have been the case (i.e. 'business as usual' emissions); or
- certificates that indicate a certain amount of actual emissions have been 'offset' somewhere else, through for example, carbon sequestration.

Usually, each permit, allowance or certificate is a document, often electronic, representing one tonne (1,000 kg)³ of carbon dioxide equivalent ('CO₂e') that was emitted, or *not* emitted below business-as-usual projections for emissions. The term CO₂e means that greenhouse gases other than carbon dioxide are converted to tonnes of CO₂e, based on their relative contribution to global warming. This provides for a single, uniform means of measuring emissions reductions for multiple greenhouse gases.

What is the Carbon Market?

Transactions for the sale of emissions permits, reductions or offsets together comprise the 'carbon market', which has grown exponentially since the entry into force of the Kyoto Protocol in 2002. In fact the term 'carbon market' is not entirely accurate: because carbon dioxide is only one of several greenhouse gases that can be 'traded'; and because there is not a single, unified international market for emissions reduction purchases. Rather, there are various markets in operation around the world, which can be classified as either regulated or unregulated markets and which interact with one another in different ways.

'Regulated markets' are emissions trading schemes set up under domestic or international law to provide a means for specified actors (often large industrial or power companies) to meet emissions reduction targets. Key examples include the European Union Emissions Trading Scheme and the New South Wales and Australian Capital Territory Greenhouse Gas Abatement Schemes.

Such schemes usually provide that the actors can trade emissions reduction allowances among themselves (i.e. one company that has exceeded its emissions reduction target could buy surplus allowances from another company that has emitted less greenhouse gases than its specified target). Or it may provide for a

company with an emissions reduction target to buy offsets or credits for emissions reductions achieved in some other activity, then apply these toward meeting its own target.

'Unregulated markets' arise where there are private agreements to trade or offset emissions or emissions reductions among actors who may not be legally bound to meet an emissions reduction target, but who have decided to take action anyway. Sometimes these are one-off, single agreements and sometimes they are part of wider voluntary schemes, each with its own procedures. WWF recently published a guide that explains the voluntary carbon market and compares some of the big voluntary schemes in existence: <http://assets.panda.org/downloads/vcm_report_final.pdf>.

What is the Size of the Market?

In light of the fragmented nature of the market, it is difficult to describe precisely its current and projected size. Research indicates that the entire global market was worth more than US\$30 billion in 2006, three times its value in the previous year (Capoor and Ambrosi, 2007), to then over US\$60 billion in 2007 (Point Carbon, 2008). The biggest part of the market is the European Union Emissions Trading Scheme. There are no clear figures on Indigenous involvement in the global market.

2.2 Generating Tradable Credits

Types of Activities that Generate Tradable Credits

Key greenhouse gas mitigation activities that can generate credits or offsets for sale include energy efficiency, renewable energy and land use and forestry activities. Other kinds of activities that may also generate credits but which are not addressed here include the management of methane released from landfill or waste sites or by livestock, and the substitution of oil, coal or diesel with gas, biofuels or other renewable energy for use in transportation or industrial processes. The first three are described in more detail below.

Energy Efficiency Projects

'Energy efficiency' involves reducing the amount of energy used to operate a product or to carry out a process, without reducing the quality or level of service⁴. You might choose, for example, a car that needs less fuel to travel the same

³ The American 'ton' is equal to 907.18kg.

⁴ It may also involve finding a way to make the actual generation of electricity more efficient, but that is not addressed here.

distance at the same speed as another that uses more fuel. Related to that, energy conservation may involve reducing the demand or need for energy.

Energy efficiency activities can be undertaken in industry, agriculture, electricity generation, transportation or households among others - really in any activity where an opportunity exists to use energy in a more efficient way. One example of an energy efficiency project that could attract carbon financing would be the replacement of old, inefficient light bulbs throughout a community with new light bulbs that use less electricity to give the same amount of light.

Renewable Energy Projects

'Renewable' energy can be used to provide electricity, heating or fuel for transportation similar to the way we use fossil fuels for these purposes. Such sources are called 'renewable' because, unlike oil, gas and coal, there is not a finite amount of them in the earth. Key renewable sources include wood, waste decomposition, geothermal activity, wind and solar energy. The use of renewable sources for generating energy usually involves lower emissions of greenhouse gases than the use of fossil fuels does. An example of a renewable energy project would be to switch from using a diesel generator for providing electricity, to using solar panels to provide electricity.

Land Use and Forestry Projects

As plants and trees act as carbon sinks, various 'land use and forestry' activities can lead to a reduction in atmospheric greenhouse gas emissions. In particular, reducing the rate of, or avoiding entirely, landclearing or deforestation is one such way because these activities release carbon dioxide into the atmosphere. Another is by planting new trees to absorb more carbon dioxide. Other land management practices may also be undertaken - such as carrying out controlled burning in the early part of the dry season to prevent more frequent and intense bushfires later in the dry season. Controlled burning may not only help to reduce emissions, but may also help to control pests and weeds, maintain traditional Indigenous land management practices and provide for employment and training opportunities.

What is Involved in Generating Tradable Credits?

Who may buy and sell credits or offsets, and the particular procedures involved in generating credits for sale, vary considerably from one regulatory scheme to the next and from one transaction to the next within the unregulated market.

Often times, the purchase of credits or offsets will take place by way of a legal agreement or contract between two or more 'parties'. The terms of the agreement may be decided upon by the parties, however, a regulatory scheme under which a sale takes place may also require

that certain terms be included in the agreement. Here are some requirements that are common in the purchase or financing of emissions reductions⁵.

1) Additionality:

Generally speaking, tradable emissions reductions must occur in addition to any reductions that would have occurred in a business-as-usual situation - i.e. they must be emissions reductions that would not have occurred without the funded activity or project. This requirement is called 'additionality'. For example, if a community has already replaced diesel generators with solar panels for providing hot water that uses less greenhouse gases, it may not be able to sell credits or offsets from the solar panels because any reduction in the amount of emissions was likely to occur anyway.

2) Measurable Emissions Reductions:

In light of the above, and in order to determine the precise nature and cost of a transaction, the emissions reductions or offsets must not only be additional, but they must be capable of being measured so that the exact amount can be ascertained (see 1 and 2 over page for more on this).

3) Anthropogenic Emissions:

The emissions or emissions reductions must generally be related in some way to human activity (called 'anthropogenic'), rather than simply being naturally occurring emissions or emissions reductions.

4) Age of the Forest or Plantation:

In the case of carbon sequestration activities (where greenhouse gas emissions are offset by an amount of carbon dioxide stored in a designated forest or plantation), the forest must usually have been planted after 1989 or some other year as designated in the agreement or rules of the trading scheme.

5) Expiration of Forest Credits:

There is sometimes a concern about the 'non-permanent' nature of credits from forest-related activities - in particular, a concern that carbon dioxide offset or stored through forestry activities may not be permanent if the trees in the forest die, are burnt down or are cleared. Because of this concern, forestry-related credits may sometimes be time bound, which means that they exist for only five, 20 or 30 years, after which time they expire. In this case, the agreement may provide that the expired credits must be renewed or replaced at the end of the time period.

⁵ The agreement or scheme under which the transaction takes place is also likely to include a range of legal provisions that are not described here. This does not serve as legal advice.

6) Sustainable Development:

The proposed activity should contribute to the 'sustainable development' of the community within which it operates. This means that it should form a part of the wider economic, social and environmental development of the community and avoid other detrimental consequences.

Planning for a Project

Before signing an agreement, the project developer or seller of the credits will usually document a clear plan that sets out: what the project will involve; how the emissions reductions or offsets will be measured and certified; the relevant actors and stakeholders; how all stakeholders have been consulted; and what are likely to be the environmental and other impacts and risks of the project.

Here are some issues to think about when developing a project plan.

1) Measuring Emissions Reductions:

For the purposes of measuring the precise amount of emissions reductions that result from any funded project (and so as to ensure that there is additionality), it is important to know the quantity of greenhouse gases already being emitted from a targeted activity, and to be able to continue measuring emissions from that activity after the project is implemented.

2) Methodology for Measuring Emissions Reductions:

There are a range of existing 'methodologies' for measuring the emissions that result from various daily and commercial activities. There are also organisations, government and scientific, that may be able to help communities to measure the emissions resulting from any single activity, so communities may not have to face this issue alone. Often, assistance from a partner organisation with measuring emissions will itself be a part of the funded emissions reducing project. So while this is a technical point, it does not have to be an insurmountable barrier to involvement in emissions reduction projects.

3) Wider Impact of Project:

In planning for an emissions reducing activity, it is important to consider what wider impacts the project may have on the community and its environment, both good and bad, and to try to ascertain if the project will help the sustainable development of the community.

4) Consultation:

It is important that all relevant stakeholders and community representatives are consulted during the planning of a project. Often times, the buyer and/or any third party financier of an emissions reducing project will seek an assurance that the local community has been consulted and is supportive of the project. Similarly, the local community and/or seller might wish to ensure that the potential buyer is acceptable to them.

5) Right to Emissions Reductions:

When a proposed activity, particularly forestry or land activities, are to take place on land that is not owned by the project developer, it may be necessary to clarify beforehand who would own the legal property rights to any emissions reduction credits or offsets generated. The same applies if the project developer owns the trees on the land, but not the land itself.

6) Verification/certification of Emissions Reductions:

An authorised third party may need to 'verify' and 'certify' the emissions reductions or offsets. Often times the scheme or agreement under which the activity is taking place will designate who is entitled to carry out these procedures.

In the case of transactions under regulatory schemes, these and many other issues will be decided upon by the rules of the scheme itself. For more information on the precise legal and regulatory issues associated with projects under the Kyoto Protocol's Clean Development Mechanism (discussed below), see the Reference list at the end of this guide.

2.3 Examples of Key Regulatory Markets

The Kyoto Protocol allows for several 'market-based mechanisms' to assist developed countries (Annex I parties) to meet their emissions reduction targets. 'Joint Implementation' allows a developed country to fund and/or run a project to reduce emissions in another developed country. The funding country can then apply the emissions reductions generated to help it to meet its own Kyoto target.

Through the 'Clean Development Mechanism' (or 'CDM'), developed countries may finance emissions reducing projects in developing countries that are party to the Kyoto Protocol then use the resulting 'certified emissions reductions' ('CERs') to offset their own emissions. This mechanism is designed to support the sustainable development objectives of developing countries and to provide for the transfer of technology to, and capacity building in, developing countries. It is a very big part of the carbon market, being worth 12 billion Euros in 2007 - an increase in 200% from 2006 and comprising 29% (in financial terms) of the overall market (Point Carbon, 2008).

In reality, views are mixed about whether the CDM has really helped to further sustainable development and technology transfer in developing countries in a substantive way. Many Indigenous communities in particular are concerned about the potentially negative impacts of CDM-related activities on their lands and livelihoods. This applies largely to Indigenous communities in developing countries not developed countries - as all CDM projects are hosted in developing countries. Types of CDM projects include: renewable energy, fuel switching (from oil, gas or diesel

to gas or biofuels), projects to capture greenhouse gases released from landfill sites; energy efficiency projects; activities to reduce methane from agricultural processes and forestry-related projects, among others.

The Kyoto Protocol is also flexible in that developed countries may decide how to reduce their emissions at a domestic level⁶. In this context, a range of emissions trading schemes and other market-based mechanisms have emerged. Examples include the European Union Emissions Trading Scheme, the Swiss Emissions Trading Scheme, the New Zealand Emissions Trading Scheme and another scheme running in several North Eastern states of the United States. The US federal government, the state of California, Japan, Canada and Australia among others, are also now in the process of (separately) considering the establishment of such schemes.

The features of each of these schemes are different. In most (but not all) cases, the government places a 'cap' on the amount of greenhouse gases that certain factories or companies can emit over a period of several years. These companies are usually from sectors of the economy that emit a lot of greenhouse gases - like heavy industry and power generation. If a company is going to emit more emissions than its cap, it can buy extra credits from another company that has managed to beat its cap (by reducing its emissions below its cap). Another way that companies can comply is to pay to offset their excess emissions through emissions reductions activities undertaken by others. This is where Indigenous communities may most likely play a role - through providing offsets, particularly through land management or forestry-related activities. The government entity administering the scheme will decide which activities can qualify as potential offsetting activities. Indigenous communities may often also be able to undertake similar activities through the voluntary market.

2.4 Carbon Financing Opportunities

Another key aspect of the overall development of efforts to reduce greenhouse gas emissions has been the emergence of a range of opportunities for indirect or third-party financing of emissions reduction activities. This is sometimes referred to as '*carbon financing*'. In fact, it may

also include other fiscal incentives, such as tax rebates or exemptions for the installation of emissions reducing equipment, such as solar water panels.

International organisations like the World Bank, the Asian Development Bank and the United Nations Development Programme, among others, have established a range of funds and programmes to facilitate the creation of emissions reducing activities. These programmes generally focus on emissions reducing activities in developing countries, such that little of this international finance is currently available to Indigenous peoples in developed countries. However, financing opportunities may well exist for Indigenous communities in developed countries, through domestic grant programmes⁷. The reduction of emissions might be just one aspect of a project designed to ensure sustainable land management, ecosystem protection, improved community health, the creation of employment or training opportunities, sustainable livestock management, or the development of a more stable community power supply, for example. When carrying out wider projects like these, it might often be worth considering whether they might have an emissions reducing component and whether that might assist with the attraction of finance.

2.5 Impacts of Carbon Mitigation Activities on Indigenous People

Reports are mixed as to whether climate change mitigation activities are having a positive impact on the lives and lands of Indigenous peoples. Research suggests that problems can arise when Indigenous people are not properly consulted, nor their interests taken into account, in the development of carbon mitigation activities⁸. There have been claims of some Indigenous people being evicted from lands to allow for the planting of trees or biofuel crops, or for the development of hydropower schemes, for example. Other commentators note that the growing demand for biofuel crops (for transportation fuel) may reduce the production of food crops and raise food prices (Nakashima, 2007).

If instituted appropriately, climate change mitigation activities can facilitate the availability and reliability of energy, sound water resource management, a reduction in air pollution and

⁶ Another Kyoto Protocol flexible mechanism not discussed here is that allow Annex I parties to the Kyoto Protocol to trade among themselves in seeking to meet their targets.

⁷ In the US, for example, the Department of Energy advertised in April 2008 funding opportunities for clean and efficiency energy projects in Indian country and for renewable energy deployment projects in Native Alaskan country. For information on opportunities in Australia, see separate publication, A Guide to Carbon Market and Carbon Financing Opportunities for North Australian Indigenous Land Managers.

⁸ See Griffiths, 2007; Karama Insley and Meade, 2007; Lang and Byakola, 2006; Salick and Byg, 2007; Tauli-Corpuz and Tamang, 2007; World Business Council for Sustainable Development, 2007; UNPFII, 2007, among others.

the conservation of ecosystems, plants, animals and land of importance to Indigenous people. Climate change mitigation activities may encourage a return to country, provide local employment or even encourage the maintenance of traditional practices, such as customary land management activities.

Additionally, it is important to bear in mind that Indigenous people themselves can contribute a great deal to mitigating and adapting to climate change, given their experiences of responding to natural climatic change over millennia and given their ownership of considerable tracts of forested and wild land (Nakashima, 2007; see also Oxfam 2007). More information on the effects of the carbon market on Indigenous people can be found in the resources contained in the Reference List.

3. Case Studies of Indigenous Involvement in Climate Change Mitigation Activities

Below are some examples of emissions trading or greenhouse gas reduction or offsetting projects that have involved Indigenous people.

3.1 West Arnhem Land Fire Abatement Project, Australia

Uncontrolled bushfires, particularly toward the end of the dry season, can threaten rock art, bush tucker resources and other native plant and animal species. They can also lead to greater emissions of greenhouse gases, particularly carbon dioxide, nitrous oxide and methane. Fire management was a part of customary practice on the West Arnhem Land Plateau (and other places) in the past. These practices decreased in the 20th century as traditional inhabitants moved away from country. In recent times, local Indigenous people, scientists and others have been cooperating to record information on savanna wildfires in Northern Australia and to reintroduce fire management activities.

Development of the West Arnhem Fire Management project first started in 1997, with support from the federal government (Natural Heritage Trust) and local communities, in particular, the Northern Land Council and Aboriginal traditional owners and organisations from part of West Arnhem Land. With the cooperation of the Cooperative Research Centre for Tropical Savannas Management in Darwin and local communities, the project has involved the development of strategic fire management practices.

The project uses traditional Indigenous fire management practices together with modern scientific knowledge to better control the timing and intensity of savanna fires. This includes cross-cultural planning and assessment, long cross-country bush walks, burning programs (undertaken increasingly by traditional landowners) and fire-mapping technology (see <http://www.firenorth.org.au/>). The project seeks to increase the proportion of early dry season fires to create fire breaks and patchy mosaics of burnt country to minimise late dry season burning to 15–20% of the landscape.

In 2006, the project received funding from Darwin Liquefied Natural Gas (DLNG). An arrangement was established between DLNG and the Northern Territory government, and another arrangement was established between the Northern Territory government and the relevant local communities to enhance strategic fire management practices in part of West Arnhem Land to offset some of the greenhouse gases being emitted at the Liquefied Natural Gas plant of the DLNG consortium at Wickham Point in Darwin Harbour. Under this arrangement, the DLNG

consortium is providing funding to the Northern Territory government, which is directing \$1 million a year for 17 years to the West Arnhem Land Fire Abatement project.

It is anticipated that this can save around 100,000 tonnes of CO₂e emissions per year. Other benefits include passing on traditional ecological knowledge, better protecting the natural and cultural values of the plateau, encouraging a return to country and providing a social and economic stimulus for local Indigenous communities. In 2007, the project was awarded an Australian Museum Eureka Prize for its innovative solution to climate change.

The project is not part of any regulatory trading scheme, rather, it represents a one-off, private transaction in the unregulated market. However, the process and accounting practices used could be relevant to the future Australian emissions trading scheme. Moreover, the approach has significant potential for application in other fire-prone regions of Australia by way of other private transactions on the unregulated market.

The project provides offsets for methane and nitrous oxide emissions only, as carbon dioxide emissions may be 'reabsorbed' by new plant growth after a fire (IPCC, 1996). It is also worth noting that under some schemes and private transactions, greenhouse gas abatement projects must involve emissions caused by people, not nature⁹.

For more information, see:

- http://savanna.cdu.edu.au/information/arnhem_fire_project.html.

3.2 Bushlight, Australia

Many remote communities in Australia are not connected to the electricity grid or to gas pipelines. This means that they sometimes lack access to a reliable and affordable source of power.

Funding and support for the installation of renewable energy systems, particularly solar power systems, is a great opportunity to provide a community with a more reliable source of energy while also reducing greenhouse gas emissions. Most commonly, this occurs when solar power (and sometimes wind power) replaces diesel or small petrol generators.

⁹ There is some evidence to suggest that most fires on the West Arnhem Land Plateau over the past decade involved human activity intentionally or unintentionally.

Box 1. *Bushlight case*



Bushlight project at Ukaka, east of Alice Springs, Northern Territory, Australia.
Photo courtesy of ICAT/Bushlight.

One programme that provides for this is Bushlight, which started in July 2002. Funded by the federal government's Australian Greenhouse Office, the programme is administered by the Centre for Appropriate Technology (CAT), which is based in Alice Springs and has offices in Darwin, Derby and Cairns.

Bushlight staff work with communities to help them plan and manage their energy services in a way that suits the community. They call this the Community Energy Planning process. Through this process, Bushlight staff work with local residents to ensure that residents have the technical and other information they need to be able to choose affordable, consistent and reliable renewable energy services to meet their energy needs. The process then involves the provision of training, information and resources to help communities design and build high quality, reliable renewable energy systems and to engage services to maintain these systems.

By July 2007, the programme had installed 97 renewable energy systems in remote communities in Australia and funding for the project was extended to June 2008.

For more information, see:

- <http://www.bushlight.org.au/default.asp?home>
- <http://www.environment.gov.au/commitments/publications/bushlight.html>

3.3 Ikuntji Cool Community, Australia

The Cool Communities programme was funded by the federal government via the Australian Greenhouse Office and involved the collaboration of non-government environmental organisations. The programme, which has now finished, sought to work with communities, industry and government, to find ways to cut greenhouse gas emissions, save money and improve lifestyles.

One community involved was the remote Aboriginal community of Ikuntji in the West MacDonnell Ranges, which was the smallest community to participate in the programme. The community, which has a solid social structure, had previously undertaken other environmental and health projects with success. Its particular Cool Communities project was to provide a rubbish collection service using wheelie bins to replace the previous practice of burning off rubbish. The project was considered to be a success in providing for a new rubbish management system and in raising awareness about energy, pollution and health issues.

3.4 Forestry Management, New Zealand

In addition to the recently developed New Zealand Emissions Trading Scheme, a number of other domestic initiatives aimed at mitigating climate change are relevant to Maori landholders in New Zealand. These programmes are relevant because Maori are considerable landholders in New Zealand, including of forested land. In early 2007, when the New Zealand government was developing its emissions trading scheme and other climate change initiatives, it consulted with Maori. The report and related documents can be seen at <http://www.mfe.govt.nz/publications/climate/consultation-maori-hui-report-novo7/index.html>.

Permanent Forest Sink Initiative

The Permanent Forest Sink Initiative offers New Zealand landowners, including Maori, the opportunity to earn Kyoto Protocol assigned amount units (AAUs) when permanent forests are established. Restrictions are placed on harvesting and a permanent covenant is entered into between the government and the landowner. The scheme operates separately to the New Zealand Emissions Trading Scheme, though it is possible that participants in the Permanent Forest Sink Initiative will have the option of switching to the trading scheme once the relevant legislation is in force (www.maf.govt.nz/forestry/pfsi).

Afforestation Grant Scheme

Under the Afforestation Grant Scheme (AGS), New Zealand foresters can receive a government grant for the planting of new forests on previously unforested land. Participants own the new forests and earn income from the timber, while the government retains the sink credits and takes responsibility for meeting all harvesting and deforestation liabilities. Additional environmental benefits are anticipated, such as erosion reduction, water quality improvements and better biodiversity outcomes (New Zealand Government, September 2007).

For more information, see:

- <http://www.maf.govt.nz/forestry/pfsi/>
- <http://www.maf.govt.nz/climatechange/discussion-document/15-afforestation-options.htm>

3.5 Wind Power Project, Colombia

In December 2002, the World Bank's Prototype Carbon Fund, signed an agreement with the utility company Empresas Públicas de Medellín to purchase 800,000 tons of greenhouse gas emission reductions from the Jepirachi Wind Power Project, located in the Wayuu Indigenous Territory in Guajira, Colombia. This led to the construction of 15 windmills that deliver power to Colombia's national electricity grid. It is anticipated that over 21 years, the project will prevent 1,168,000 tons of carbon dioxide emissions, which would otherwise have occurred if the power had been generated by conventional methods.

The Jepirachi Wind Power Project seeks to contribute to the development of the host Indigenous community by financing a series of community-driven projects. The main features of the social plan are: training to facilitate direct and indirect job creation; the provision of a water desalinisation plant fed by wind power and the provision of water storage depots; and health and educational facilities.

The PCF will pay a premium of US\$0.50 per ton of emission reductions upon the implementation of the plan - in addition to the funds for the purchase of the 800,000 tons. The agreement sets out conditions for the payment of this premium, including verification that the social plan for the Wayuu people has been implemented. This is one of a range of World Bank projects that impact on or involve Indigenous people.

For more information, see:

- <http://carbonfinance.org/>
- <http://carbonfinance.org/Router.cfm?Page=BioCF&FID=9708&ItemID=9708&ft=Projects&ProjID=9635>

3.6 Native Species Reforestation, Panama

The CO₂OLUSA/Futuro Forestal project is seeking to create certified emissions credits for both regulatory and voluntary markets through sustainable reforestation in Panama. The project involves emissions reductions through: 1) sustainably managed commercial timber plantations; 2) reforestation in areas that will eventually be passed on to local communities who will be in charge of managing and protecting them to ensure the permanency of carbon storage; and 3) the protection of existing secondary forest areas that are part of the land that Futuro Forestal acquires for the implementation of its reforestation services. While the project is not being undertaken on Indigenous-owned land, it is employing a number of Indigenous people. In particular, its Las Lajas operation is close to the NgobeBugle Indigenous reserve and approximately 60% of the workers at this operation belong to the NgobeBugle Indigenous group.

For more information, see:

- <http://www.climate-standards.org/projects/index.html>

3.7 Renewable Energy Project (Biogas and Wind), Kenya

Renewable Energy for Sustainable Universal Ecology (RESCUE) seeks to develop local solutions to energy poverty, particularly through the use of wind and biogas energy. It seeks to train local artisans, some of whom are Indigenous, to build and maintain wind and biogas plants. In 2006 and 2007, RESCUE established a network comprising different groups working in the renewable energy sector in Kenya. Together with two partner members from Finland and support

from the Finnish government, the network has launched a two-year pilot project to support the building of combined wind turbines and biogas units in Kenya. The project will run for over two years with a budget of 39,000 Euro.

For more information, see:

- http://www.shalinry.org/Home_Page.html

3.8 Capacity Building for Natural Resource Management, Mexico

The 'Servicios Ambientales de Oaxaca, A.C. (SAO)' project received US\$286,800 from the Inter-American Foundation over three years from 2006. The SAO is working with residents and local authorities in ten Indigenous Zapotec, Chinantec and Mixe communities in the Oaxaca region of Mexico to improve their capacity to manage natural resources sustainably and to increase their income through offering environmental services such as carbon and water capture and biodiversity conservation. The programme will include community meetings, and training and ongoing technical assistance related to land-use planning, ecosystem mapping and monitoring, and the development of five tree nurseries on communal land.

For more information, see:

- <http://www.iaf.gov>

3.9 Renewable Energy and Energy Efficiency Projects in First Nations and Inuit Communities, Canada

Indian and Northern Affairs Canada (INAC) operates a Climate Change Program. From 2003 to 2007, as part of this programme, INAC together with Natural Resources Canada administered the Aboriginal and Northern Community Action Program, with CAD\$30.7 million of funding. The Action Program sought to 'increase the capacity and involvement of Aboriginal and Northern communities in climate change activities, and contribute to the development of initiatives and opportunities to address the sustainable energy needs, climate change impacts and adaptation needs within these communities'. It focused on helping remote Aboriginal and Northern communities with community energy planning, capacity building and awareness raising, energy efficiency, renewable energy, alternate diesel technologies and sustainable transportation. It is hoped that these projects will lead to a reduction of 1.2 megatonnes of CO₂e between 2008 and 2012. For details of a wide range of particular projects carried out under this programme, see:

- INAC (2007), Reflections on Success: A Sustainable Future in a Changing Climate
http://www.ainc-inac.gc.ca/clc/ss/ros_e.html

Reference List

Climate Change

IPCC (2007), *Fourth Assessment Report Climate Change 2007: Synthesis Report, Summary for Policymakers* <http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf>. [Also useful for information on impacts of climate change on Indigenous people.]

UNFCCC, 'Glossary', <http://unfccc.int/resource/cd_roms/na1/ghg_inventories/english/8_glossary/Glossary.htm#B>.

Impact of Climate Change on Indigenous Peoples

ACIA (2004), *Impacts of a Warming Climate: Arctic Climate Impact Assessment* (Cambridge University Press: Cambridge) <<http://www.amap.no/acia/>>.

M Macchi et al (March 2008), *Indigenous and Traditional Peoples and Climate Change*, IUCN Issues Paper <http://cmsdata.iucn.org/downloads/indigenous_peoples_climate_change.pdf>.

D Nakashima for doCOP (July-September 2007), 'The Local & Indigenous Knowledge Systems programme of UNESCO' (Update 76) <http://portal.unesco.org/science/en/files/6060/11954900091links_doCIP.pdf/links%2BdoCIP.pdf>.

Oxfam (November 2007), *Up in Smoke? Asia and the Pacific*, Fifth Report from the Working Group on Climate Change and Development <http://www.oxfam.org.uk/resources/policy/climate_change/downloads/asia_up_in_smoke.pdf>.

J Salick and A Byg (May 2007), *Indigenous Peoples and Climate Change* (Tyndall Centre for Climate Change: Oxford) <<http://www.tyndall.ac.uk/publications/Indigenouspeoples.pdf>>.

UNDP (2007), *Fighting Climate Change: Human Solidarity in a Divided World*, Human Development Report 2007/2008 <http://hdr.undp.org/en/media/hdr_20072008_en_complete.pdf>.

UNPFIIIS (November 2007), *Climate Change: An Overview, Paper prepared by the Secretariat of the United Nations Permanent Forum on Indigenous Issues* <http://www.un.org/esa/socdev/unpfii/documents/Climate_change_overview.doc>.

The Carbon Market and Emissions Reducing Activities

A Kollmuss, H Zink and C Polycarp (March 2008), 'Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Offset Standards' (WWF) <http://assets.panda.org/downloads/vcm_report_final.pdf>.

Australian Museum (2007), 'WINNER - West Arnhem Land Wildfire Abatement: Putting Out the Northern Territory's Wild Fires' <<http://austmus.gov.au/eureka/index.cfm?objectid=B8571ED8-E569-EC02-3DF65CB2178B1DD8>>.

K Capoor and P Ambrosi for the World Bank (May 2007), *State and Trends of the Carbon Market 2007* (World Bank Institute: Washington, D.C.) <http://carbonfinance.org/docs/Carbon_Trends_2007_FINAL_-_May_2.pdf>.

K Hamilton et al for Ecosystem Marketplace and New Carbon Finance (July 2007), *State of the Voluntary Carbon Markets 2007: Picking Up Steam* <http://ecosystemmarketplace.com/documents/acrobat/StateoftheVoluntaryCarbonMarket18July_Final.pdf>.

New Zealand Government (September 2007), *Forestry in a New Zealand Emissions Trading Scheme* (New Zealand Government: Wellington) <<http://www.maf.govt.nz/climatechange/background-reports-and-analysis/forestry-in-nz-emissions-trading-scheme/>>.

Point Carbon (March 2008), *Carbon 2008: Post-2012 is now*, Røine, K, E Tvinneheim and H Hasselknippe (eds) <<http://www.pointcarbon.com/Home/Box%20elements/Right%20column/article27438-509.html>>.

Reuters (18 January 2008), 'Global Carbon Market Grows 80 Percent in 2007' <<http://www.reuters.com/article/pressRelease/idUS194049+18-Jan-2008+BW20080118>>.

Tropical Savannas CRC (undated), 'West Arnhem Land Fire Abatement Project' <http://www.savanna.cdu.edu.au/information/arnhem_fire_project.html>.

J Woinarski et al (2007), *The Nature of Northern Australia, Its natural values, Ecological Processes and Future Prospects* (ANU E Press: Canberra) <http://epress.anu.edu.au/nature_na/pdf/whole_book.pdf>. [This publication is about the status and future prospects for the land of Northern Australian.]

World Business Council for Sustainable Development (2007), *Biofuels*, <http://www.wbcsd.org/DocRoot/YVi6bCZqslJPg5XJscak/Biofuels_201107_for%20print.pdf>.

Impact of Emissions Reduction Activities on Indigenous People

T Griffiths (June 2007), 'Seeing 'RED'? 'Avoided deforestation' and the rights of Indigenous Peoples and local communities' <http://www.forestpeoples.org/documents/ifi_igo/avoided_deforestation_red_juno7_eng.pdf>.

C Karamea Insley and R Meade (October 2007), *Maori Impacts from Emissions Trading Scheme: Interim High Level Findings* <<http://www.climate-change.govt.nz/files/maori-impacts-from-ets.pdf>>.

C Lang and T Byakola (2006), “A funny place to store carbon”: UWA-FACE Foundation’s tree planting project in Mount Elgon National Park, Uganda <http://www.forestpeoples.org/documents/africa/uganda_carbon_proj_wrm_deco6_eng.pdf>.

V Tauli-Corpuz and P Tamang (2007), *Oil Palm and Other Commercial Tree Plantations, Monocropping: Impacts on Indigenous Peoples’ Land Tenure and Resource Management Systems and Livelihoods* (prepared for the Sixth Session of the UNPFII, E/C.19/2007/CRP.6) <http://www.un.org/esa/socdev/unpfii/documents/6session_crp6.doc>.

Legal and Regulatory Aspects of the Clean Development Mechanism

M Socorro Z Manguiat et al, (2005) *Legal Aspects in the Implementation of CDM Forestry Projects*, (IUCN) <<http://www.iucn.org/themes/law/pdftdocuments/EPLP59EN.pdf>>.

Institute for Global Environmental Strategies, *CDM Country Guides* (for Cambodia, China, India, Indonesia, the Philippines, and Thailand, among others) at <<http://www.iges.or.jp/en/news/topic/0512cdm.html>>.

Baker & McKenzie (with donor funding), *CDM Rulebook* - an online database of all CDM Rules <<http://cdmrulebook.org/>>.

Guidebook to Markets and Commercialization of Forestry and CDM Projects (2007) <<http://www.proyectoforma.com/Documentos/GuidebooktoMarketsandCommercializationofCDMforestryProjects.pdf>>.

Tropical Agricultural Research and Higher Education Center (2007), *Update on Markets for Forestry Offsets* <<http://www.proyectoforma.com/Documentos/UpdateOnMarketsForForestryOffsets.pdf>>.

UNEP, CDM4CDM programme website includes various publications on particular CDM topics at <<http://www.cd4cdm.org/publications.htm>>.

The Institute of Advanced Studies of United Nations University (UNU-IAS) was inaugurated in April 1996. We conduct research, postgraduate education, and capacity development, both in-house and in cooperation with an interactive network of academic institutions and international organisations.

The institute's research concentrates on exploring the key catalysts and drivers of sustainable development which often depend on our capacity to harmonise, if not optimise, the interaction between societal and natural systems. This includes the development and use of new technologies, information, and biotechnology; major trends and pressures such as urbanisation, regionalisation, and globalisation; as well as the exploration of integrated approaches to policy making, decision making, and environmental governance.



**UNITED NATIONS
UNIVERSITY**

UNU-IAS

Institute of Advanced Studies

**United Nations University
Institute of Advanced Studies**
53–67 Jingumae 5–chome
Shibuya-ku, Tokyo 150–8304
Japan

Tel +81-3-5467-2323
Fax +81-3-5467-2324
Email unuias@ias.unu.edu
URL <http://www.ias.unu.edu>

