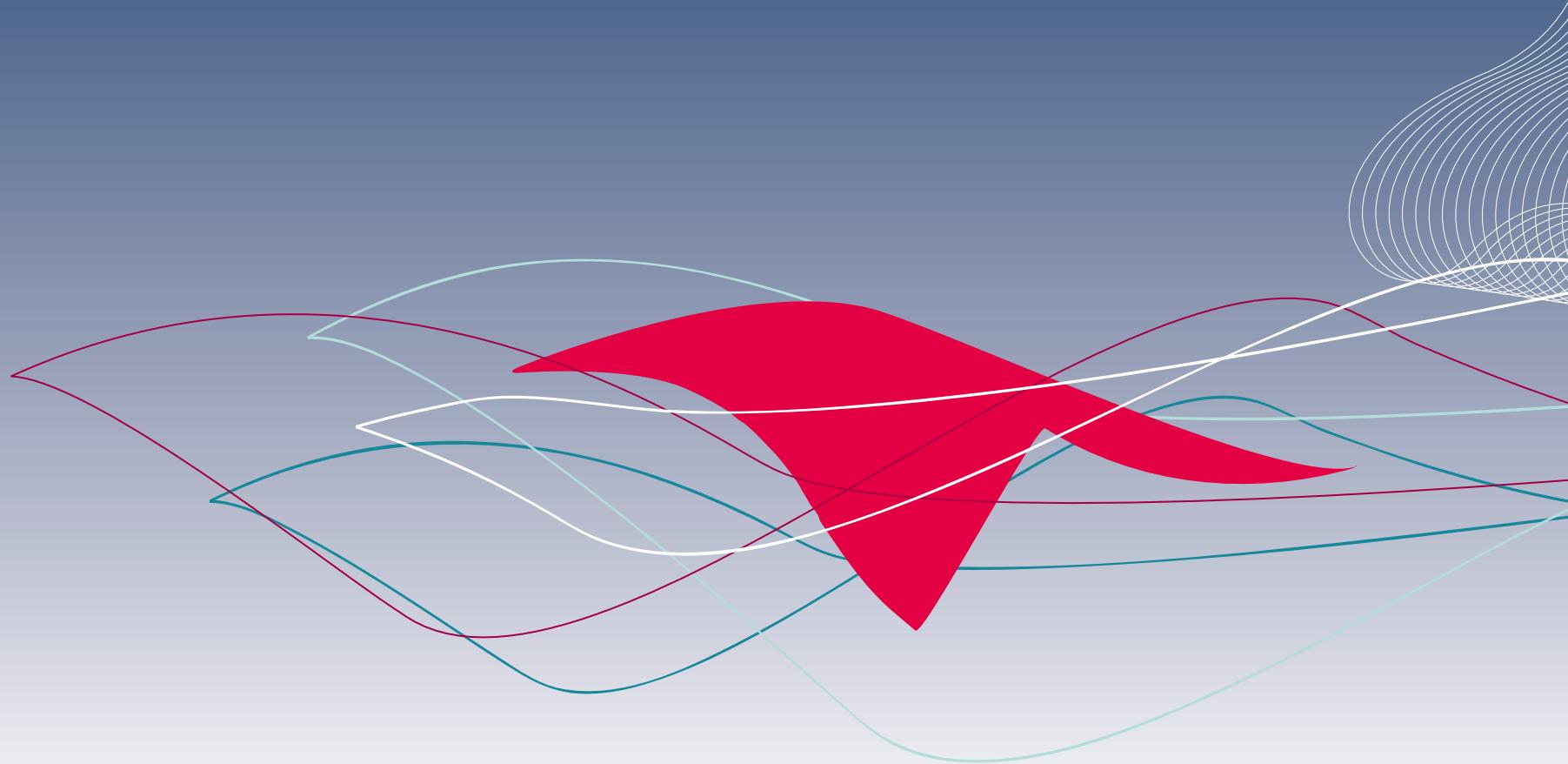


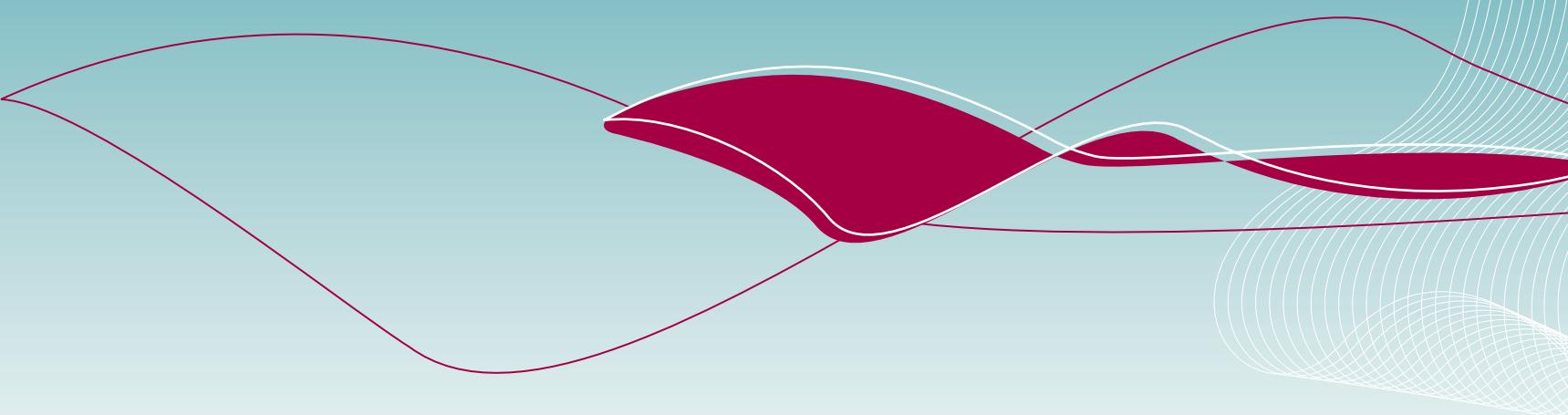
THE CLIMATE CHANGE MITIGATION AND ADAPTATION INFORMATION KIT



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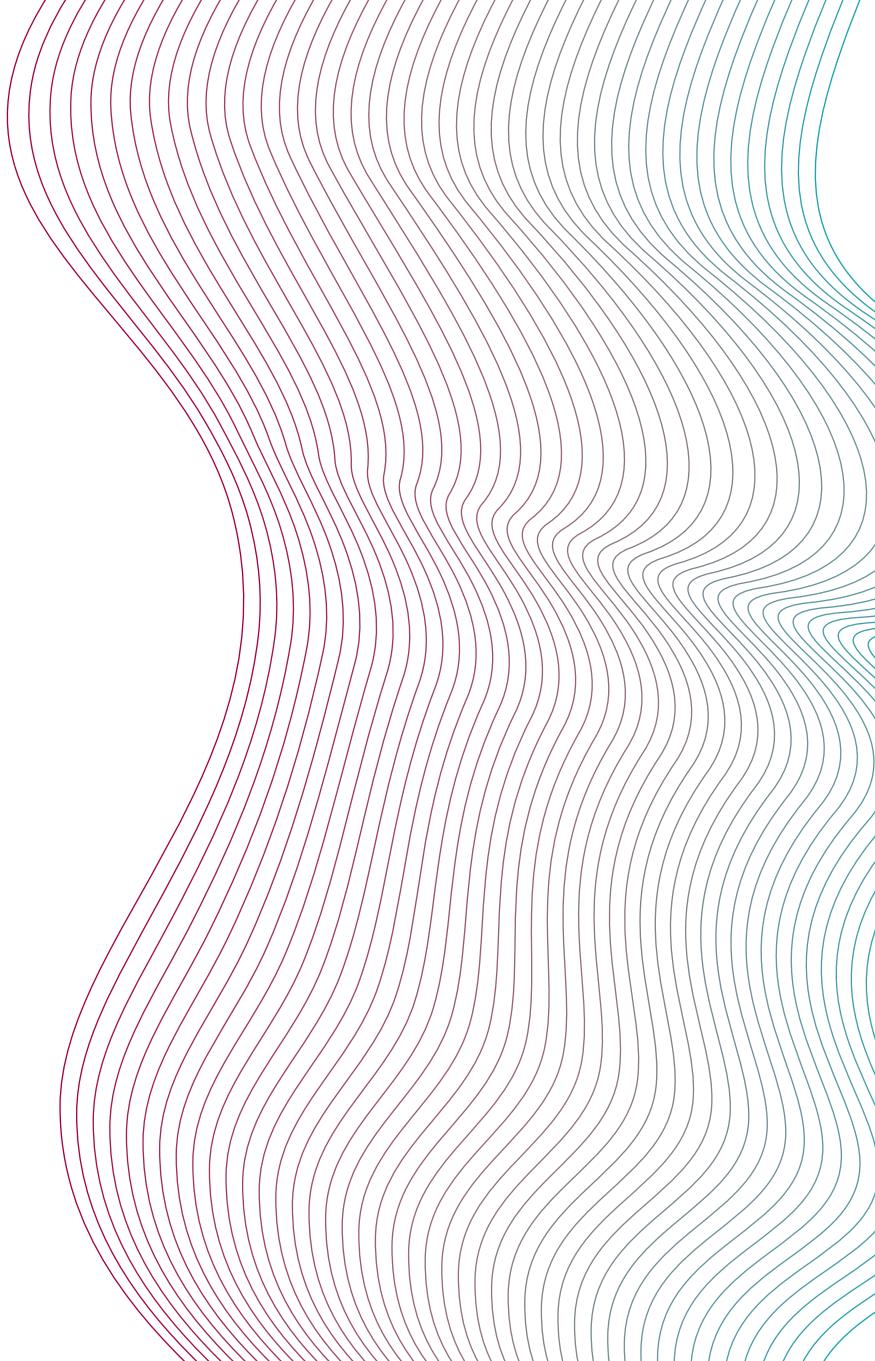
Linkages

between the United Nations Framework Convention On Climate Change (UNFCCC)
and the United Nations Convention to Combat Desertification (UNCCD)



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the United Nations Framework Convention on Climate Change
(UNFCCC)
and the United Nations Convention to Combat Desertification
(UNCCD)

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ACRONYMS

CBD	United Nations Convention on Biological Diversity
CCES	Climate Change and Compensation for Environmental Services (Strategic Programme of the GM)
CDM	Clean Development Mechanism
CER	certified emission reduction
CH4	methane
CO2	carbon dioxide
COP	Conference of the Parties
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GHG	greenhouse gas
GM	Global Mechanism (of the UNCCD)
GPS	Global Positioning Systems
JI	Joint Implementation
JLG	Joint Liaison Group
LDCF	Least Developed Countries Fund
MOP	Meeting of the Parties
NAP	National Action Programme (of the UNCCD)
NAPA	National Adaptation Programme of Action (of the UNFCCC)
N2O	nitrous oxide
PRS	poverty reduction strategy
SCCF	Special Climate Change Fund
SLM	sustainable land management
SPA	Strategic Priority for Adaptation
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change

Introduction

Today, the United Nations Convention to Combat Desertification (UNCCD) operates in an environment which has evolved considerably since the Convention was first negotiated. The policy environment has changed dramatically since the Rio Declaration as a result of the adoption of the Millennium Development Goals (MDGs), the outcomes of the World Summit on Sustainable Development (WSSD), expectations of increased support to Africa and the least-developed countries and a stronger commitment to climate change mitigation and adaptation. Entering the second decade of implementation, the UNCCD, in addition to its role in combating land degradation, drought and desertification, is increasingly recognized as an instrument that can make a lasting contribution to the achievement of sustainable development, the delivery of ecosystems services and poverty reduction in the global context of climate change.

The UNCCD Secretariat

The main functions of the Permanent Secretariat are to make arrangements for sessions of the Conference of the Parties (COP) and its subsidiary bodies under the Convention and to provide substantive services as required. The Secretariat supports the preparation of national reports; services the regional annexes on request and facilitates the process to determine optimal mechanisms for regional coordination. It also supports knowledge management systems established by the Committee on Science and Technology (CST). The activities of the Secretariat are coordinated with the secretariats of other relevant international bodies and conventions, including the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD).

The Global Mechanism

The GM supports country Parties to increase the effectiveness and efficiency of existing financial mechanisms and to promote actions leading to increased, sustainable and predictable flows of substantive financial resources for degraded lands, desertification and sustainable land management (SLM). The GM supports country Parties in the development of integrated financing strategies (IFSs), which guide the process towards the establishment of investment frameworks for UNCCD implementation, by mobilizing a blend of financial resources, including from innovative sources, as called for by the Ten-Year Strategic Plan and Framework to Enhance the Implementation of the UNCCD (2008-2018).

The GM's Strategic Programme on Climate Change and Compensation for Environmental Services (CCES)

The CCES programme seeks to leverage additional financing for UNCCD implementation by promoting synergistic approaches that address the objectives of the other two Rio Conventions with particular emphasis placed on linkages with the UNFCCC. As part of this process, the GM, in accordance with the UNCCD Ten-Year Strategic Plan and Framework to Enhance the Implementation of the Convention (2008-2018), is actively undertaking actions to support country partners in accessing innovative financing, particularly related to current and/or emerging climate change mitigation and/or adaptation financial mechanisms.

The Climate Change Mitigation and Adaptation Information Kit

This document is the first in a series that make up the GM's Climate Change Mitigation and Adaptation Information Kit. The other documents are:

- Document 2: Adaptation to Climate Change and Sustainable Land Management;
- Document 3: Mitigation to Climate Change and Sustainable Land Management;
- Document 4: Climate Change Adaptation and Mitigation Glossary.

The information kit was prepared with the support of EcoSecurities Global Consulting Services and the Food and Agriculture Organization of the United Nations (FAO) Investment Centre. For more information on the work of the UNCCD, the GM and its Strategic Programme on CCES please visit: www.global-mechanism.org/ or contact Alejandro Kilpatrick, CCES Programme Coordinator: a.kilpatrick@global-mechanism.org

Linkages between the implementation of the UNFCCC's and the UNCCD's mitigation and adaptation measures

The United Nations (UN) recognizes the interdependence of climate change, land degradation and biodiversity, and their importance for sustainable development, in the three Rio Conventions – the UNFCCC, the UNCCD and the CBD. There are strong synergies between the efforts to address the mandates of these three international agreements that are relevant in preventing and controlling land degradation. The complementary nature of the Conventions underpins the need to take a holistic and coordinated approach:

- The objective of the UNFCCC is to stabilize greenhouse gas (GHG) concentrations in the atmosphere at a level that prevents further human-induced globalwarming.
- The goal of the UNCCD is to combat desertification/land degradation and mitigate the effects of drought, which are likely to increase as a result of climate change. The UNCCD provides assistance to affected developing country Parties, particularly in Africa. The Convention entered into force in 1996, and Conferences of the Parties (COPs) are now held every two years.
- The CBD aims to conserve biodiversity, encourage the sustainable use of its components and promote the equitable sharing of benefits derived from the use of genetic resources.

The GM's CCES programme focuses on linkages between the implementation and objectives of the UNFCCC and the UNCCD since the relationship between climate change, land degradation/desertification and drought is especially clear. Climate change threatens marginal lands by increasing the risk of degradation and desertification. Moreover, land degradation – particularly from unsustainable agricultural and land management practices and deforestation – is a major contributor to increased atmospheric GHG concentrations that are responsible for human-induced climate change. An increase in extreme weather events, such as droughts and heavy rains, resulting from global warming leads to further land degradation and this desertification process affects the climate.

The COPs of all three Conventions have officially recognized that 'the objectives of the three Conventions are interlinked and that realizing synergies is important to achieve the Conventions' objectives, and to use resources efficiently'. For this purpose, in August 2001, a Joint Liaison Group (JLG) was established as an informal forum for exchanging information, exploring opportunities for synergistic activities and increasing coordination between the three Rio Conventions. The members of the JLG are the Conventions' Executive Secretaries, officers from the Conventions' scientific subsidiary bodies, and members of the secretariats.

The JLG's mandate is to facilitate cooperation at the national and international levels, identify possible areas for joint activities, and enhance coordination. There are at least three priority areas for joint collaboration: adaptation to climate change, capacity building and technology transfer, including use of the Kyoto Protocol's flexible mechanisms. The CBD, the UNFCCC and the UNCCD have collaborated on a report on the interlinkages between biodiversity and climate change since 2003. This provides advice on integrating biodiversity considerations into implementation of the UNFCCC and its Kyoto Protocol, and addresses mitigation activities based on forestry and other land-use practices that are eligible for the UNFCCC's Kyoto Protocol.

The UNCCD's support for the creation of synergy has been a main goal that has translated in coordinated action at the local level. During the first half of the 2000s, the UNCCD fostered the holding of more than 20 synergy workshops in selected countries, to draw lessons on practical approaches to attain synergistic action based on local demands. The challenge posed by the intricate relationships of climate, biological diversity, drought and desertification on the social, economic and environmental fronts in many countries has been exemplified in recent times.

It has also been amply demonstrated that there is a clear convergence of objectives among the three Rio Conventions. Parties to these Conventions have repeatedly pointed out that there is a need for a firmer convergence of the strategic approaches of the various interested parties, particularly at the country level. Moreover, the need is also recognized to focus more on a broader framework that includes a complex set of issues encompassing desertification and land management, biological diversity, climate change, socio-economic development, among others. In particular, in order to address more concretely the inter-linked issues of poverty eradication, sustainable development and environmental security, the three Rio Conventions have expressed the need to combine efforts in order to address these issues together, reflected in the theme for the 2007 World Day to Combat Desertification: 'Desertification and Climate Change – One Global Challenge'.

The UNFCCC also recognizes the close links between these topics. At the UNCCD COP8 in Madrid (2007), Yvo de Boer, UNFCCC Executive Secretary, indicated four areas of potential synergy between the UNFCCC and the UNCCD:

- forestry (e.g. reforestation, avoided deforestation and sustainable forest management), sustainable land management (SLM) and agriculture;
- mitigation, including through non-forestry activities such as fuel-switching and energy efficiency at the community level, and the use of biofuels;
- adaptation through enhancing ecosystem resilience and its capacity to adjust to changes; and
- education, awareness raising, information and science.

To address this last area, the UNCCD process has invited Parties to promote capacity building measures so that stakeholders can carry out synergistic programmes to prevent land degradation, rehabilitate degraded lands and help mitigate climate change in the agriculture, rural and land use sectors. Synergies between the UNCCD's Strategy, the National Action Programme (NAPs), and the implementation of national climate change strategies as reported in national communications and the UNFCCC's National Adaptation Programmes of Action (NAPAs), present a considerable and untapped opportunity to establish comprehensive policy instruments and cost-effective ways for implementation.

Acknowledgement of the importance of synergies still needs to be translated into practical initiatives, particularly at the country level. In general, this is the priority level for measures in all four areas (forestry, mitigation, adaptation and education), owing to the local and

regional interconnectivity of ecological processes and the opportunities for creating cumulative positive impacts from policies, integrated programmes and implementation of projects. Decisive action on mitigation and adaptation, in particular, offers a range of opportunities in agriculture, rural and land use sectors that directly and indirectly support SLM. These are described in the next section.

What can be done to foster synergies?

Many of the implementing programmes and regulations in each of the three Conventions recognize the relationships between climate change, land degradation and biodiversity. Conserving biodiversity is an essential part of SLM, which aims to combat land degradation and desertification. Many of the climate change adaptation measures mandated by the UNFCCC in the rural, agriculture and forestry sectors provide synergies with the UNCCD and the CBD. The UNFCCC calls for integrated management plans for water resources and agriculture, and for the protection and rehabilitation of areas affected by drought and desertification, especially in Africa.

The main thematic crosscutting issues identified under the UNFCCC and UNCCD could focus on development of global, regional and national action, awareness – including scientific knowledge - and outreach, as well as climate neutral SLM policies and economic and trade policies of goods and services generated in drylands. The Post-Kyoto process and the Bali Action Plan offer clear opportunities for UNCCD cooperation as part of a long-term process that requires dedicated attention. Within the context of the negotiation process towards a post-2012 climate change regime (known as the 'Copenhagen process'), there is a need to identify areas where the UNCCD can participate according to its mandate and programme of work.

Linkages between the UNFCCC and UNCCD are considerable, where the need for enhanced cooperation in dryland ecosystems is crucial in maximizing the potential of effective implementation of both Conventions. Indeed, this was highlighted by the UNFCCC Executive Secretary during UNCCD COP 8, in Madrid, noting that "Desertification, the loss of biodiversity and climate change are three inextricably linked aspects" and further stressed at the June 2008 Bonn Climate Change Talks.

To improve coordination between the Conventions, the UNCCD could focus on two specific areas: the effective contribution the UNCCD can make in addressing climate change and the specific inputs to be included in the Copenhagen Agreement from the UNCCD perspective and mandate. Response measures are required for affected countries with arid, semi-arid and dry sub humid areas, forested areas and areas susceptible to deforestation.

Collaborative action on mitigation and adaptation must be well coordinated to simultaneously address climate change, land degradation and desertification. This has the potential to strengthen the adaptive capacities of vulnerable communities, fight climate change through carbon sequestration and emission reductions, and facilitate the development of innovative Poverty Reduction Strategies (PRSs).

This approach is in line with the guidance provided by the UNCCD's COP8, which states that integrated dryland management leading to increased productivity and carbon sinks is important in reinforcing linkages between the three Rio Conventions.

What activities support UNCCD implementation and SLM?

Climate change mitigation activities

Land Degradation, desertification and persistent drought processes undermine the capacity of ecosystems to provide food, water and other services, leading to major declines in the welfare of vulnerable populations - particularly those living in drylands. Integrated approaches to tackling land degradation/desertification, drought and climate change therefore have multiple benefits, especially for vulnerable communities in areas most affected by these processes (particularly in drylands). Activities that aim to generate UNCCD co-benefits, such as CDM projects in the agriculture, rural and land use sectors, have high potential to generate multiple benefits in terms of emission reductions/removals, in halting the expansion of land degradation and desertification, and in providing effective tools for drought mitigation.

Actions that support both the UNCCD and the UNFCCC should satisfy the following activity criteria:

- be part of UNCCD strategic action planning for land degradation prevention, land rehabilitation, and poverty reduction;
- involve the UNCCD focal point; and
- focus on specific thematic priorities, such as desertification/land degradation, drought mitigation, climate change mitigation, adaptation to climate change, and biodiversity protection.

Where applicable, activities should also:

- ensure that geographic national priorities, such as those of UNCCD focal areas and/or NAPs are implemented first;
- guarantee that linkages with the UNFCCC NAPAs are made; and
- aim for convergence with other development interventions.

Intervention areas

Project interventions by definition, will be in the land use and forestry, agriculture or rural sectors, and will cover any development-related issue where a link to the UNCCD can be established. A distinction has to be made between support for the development of project activities on the ground and country-wide initiatives that introduce carbon or environmental finance as innovative financing mechanisms to support UNCCD implementation. The following table identifies activities that could qualify as UNFCCC/Kyoto Protocol projects or voluntary carbon market projects to support UNCCD implementation.

AREA	TYPE OF PROJECT
Forestry	Afforestation/reforestation Avoided deforestation Sustainable forest management Agroforestry and silvopastoral systems
Agriculture sector	Cropland and grazing management Soil conservation measures Fertilizer switch or management to reduce N ₂ O emissions Biogas and other methane-based projects Livestock management
Energy-related projects in the rural and agriculture sectors	Biofuel/bioenergy and fuel-switch projects (e.g., oil/gas) contributing to the UNCCD's mandate Small hydro projects (possibly combined with forestry activities such as watershed protection) Energy efficiency
Biodiversity, watershed and soil protection	Biodiversity, watershed and soil protection Biodiversity conservation

N₂O = nitrous oxide.

The following GHG mitigation services related to the avoidance of land degradation and desertification have the potential to generate carbon credits either under the Kyoto markets Joint Implementation (JI), CDM mechanisms, or voluntary schemes:

- **carbon sequestration** through afforestation, reforestation and restoration of degraded lands, agroforestry, cropland and grazing management and silviculture, promoting increased carbon stocks in biomass or soil carbon enhancement (e.g. alternative tillage practices);
- **carbon conservation** through conservation of biomass and soil carbon in protected areas, improved forest management practices (e.g. reduced-impact logging), and fire protection and more effective use of prescribed burning in forest and agricultural systems;
- **carbon substitution** through increased transfer of forest biomass into durable wood products to replace energy-intensive materials (e.g. steel), sustainable use of biofuels, and enhanced harvesting and utilization of waste as biofuel (e.g. sawdust);
- **GHG reduction or avoidance** through biodigestion and other methane-based projects in the agriculture and rural sectors, and energy-related projects that earmark financial resources (e.g. from carbon credits) to finance community or land-use management activities related to UNCCD goals.

Climate change adaptation activities

In addition to climate change mitigation, adaptation to the impacts of climate change is also very important. Adaptation relates not only to technical measures aimed at infrastructure, such as higher flood dams, levees and landslide barriers, but also to enabling activities and frameworks that enhance ecosystems' resilience to cope with altered climatic conditions. Examples of adaptation measures include revegetating slopes threatened by flood erosion, and maintaining the natural biodiversity of ecosystems to reduce their vulnerability. Adaptation projects are therefore very suitable ways of achieving the complementary objectives of the Rio Conventions. The forestry and agriculture sectors are important reference points for adaptation activities, mainly through maintaining functions (such as biological and crop diversity and water generation cycles) that help determine an ecosystem's ability to withstand climate change.

The UNFCCC Executive Secretary has identified the forestry sector as having particular potential for the creation of synergies. Several forestry activities have significant positive climate impacts, while helping ecosystems to become more resilient and preventing further land degradation. Agricultural activities often focus on social benefits, with adaptation measures contributing directly to food security and ecosystems' resilience to climate change. Resilient production systems and crops are an essential response to climate impacts such as changed rainfall patterns. Resilience is also achieved through management-related adaptation measures and the adoption of management plans and techniques that strengthen ecosystems' adaptation capacities, as well as through changes in cropland or forestland use.

Up to now, four funds support the implementation of measures to facilitate vulnerability assessments and adaptation: the Strategic Priority for Adaptation Fund, under the Global Environment Facility's (GEF's) Trust Fund; the Least-Developed Countries Fund (LDCF) and the

Special Climate Change Fund (SCCF), also managed by the GEF; and the Adaptation Fund, under the UNFCCC, (which is funded by a 2% share of the proceeds of certified emission reductions (CERs), i.e. carbon credits issued under the CDM), and managed by an independent board selected by the UNFCCC COP/Meeting of the Parties (MOP) and supported by the GEF. The Adaptation Fund supports developing countries in meeting the costs of adapting to the adverse effects of climate change. Adaptation measures need to be taken for all the social and economic systems that are directly or indirectly impacted by climate change. The following table outlines some of the adaptation responses that support SLM.

Agriculture and forestry sectors

Climate change threatens the suitability and productivity of crops and livestock and jeopardizes wood and non-wood production. Measures in these sectors often aim to combat soil erosion and desertification through promoting agroforestry and preventing woodland destruction. Other interventions include stabilizing soils, halting erosion and protecting watershed areas through establishing new forests and conserving existing forest cover and other vegetation. Adaptation activities can also aim to improve management practices and establish sustainable agroforestry or silvopastoral systems, which are especially relevant in dryland areas. Both crop- and grazing lands offer opportunities for species diversification to decrease dependency on one species and its harvest. In drylands, the management of water resources is important, and could often be improved. The establishment of water reservoirs and irrigation trenches can enhance production systems and reduce pressure on water resources.

Natural resources and ecosystem services

Climate change can intensify land erosion, especially in arid or semi-arid areas, alter the natural regeneration of forests, destroy and fragment habitats, affect wildlife and biodiversity, and damage water resources. In-situ protection of biodiversity, which requires the identification, restoration, protection, recovery and linking of conservation areas, can be combined with ex-situ conservation of threatened plant and animal species. In many cases, the continuing availability of ecosystem services of good quality and adequate quantity can best be ensured by working towards adaptation in other sectors, particularly forestry and agriculture.

Coastal zones

Many large population centres are built in coastal zones, which are vulnerable to the loss of land from sea-level rises and to increased storm occurrence. Productive capacities are in jeopardy, and there is a need for measures to address sea-level rise, salinization of farmland, and storm occurrence.

Suitable activities for generating synergies between the Conventions

The potential of different projects may vary widely, and not every project concept will be applicable everywhere. The suggestions that follow should therefore be used to inspire the development of ideas and projects that are suitable for local situations. Combinations of different activities are possible, as are national or regional activity programmes that encourage measures on a larger scale. Most of the following measures are possible and eligible under the Kyoto Protocol, although not all of them are common project activities. All may be carried out as emission reduction projects for the voluntary market.

Increasing carbon sequestration and conservation

Vegetation can bind carbon and remove it from the atmosphere, which helps to mitigate climate change. There are several ways of increasing the sequestration and conservation of carbon, for example through carbon sinks, by improving vegetation management or SLM techniques. Reforestation and afforestation of degraded land are already recognized under the Kyoto Protocol as project types that increase sequestration. Broadening the eligibility criteria for the CDM would increase the project opportunities in agriculture, forestry and other land uses. If this is achieved, projects that fall under the carbon potentials of soils, such as the 'biochar' type, could be eligible for funding under this framework.

The conservation of forests that would otherwise have been logged or destroyed (a concept referred to as 'avoided deforestation') is now a main focus of climate change negotiations and is considered a strong tool for reducing emissions, although it is currently eligible in the voluntary carbon market only.

There is however the need to note that forest and forestry activities, related to the Reducing Emissions from Deforestation and Degradation (REDD) mechanism, fall under the mandate of the UNFCCC. Within the UNCCD process, action could be undertaken so as to include SLM as part and parcel of solutions under the REDD process.

Practices such as conservation tillage not only reduce the energy needed to maintain land (e.g., by reducing the use of fossil fuel-powered tractors) but also increase the soil's capacity to bind and sequester carbon, and generally improve soil quality by allowing organic residues to decompose naturally. This technique is already used outside the scope of GHG mitigation projects, and investments could be made to expand it into markets such as the CDM, given its potential to create a carbon sink.

Use of bioenergy

Rather than using resources such as fossil fuels or wood to generate energy, renewable resources could be used to generate bioenergy. This would not only reduce emissions but also help to protect endangered woodlands and forests, thus helping to fight land degradation. Bioenergy is usually generated from biomass or biofuels.

Where biomass is readily available, it can replace energy dependence on the use of fossil fuels such as diesel, petrol or oil. Agricultural waste products such as straw, plant fibre and seed shells can be used to fire boilers for industrial processes, or even in domestic heating. Wood waste, such as bark or wood chips, can also be used – either untreated or processed into pellets for commercial use. A variety of biomass projects already receive financing through project-based mechanisms.

Energy crops can be cultivated to produce biofuels to generate renewable energy. Agriculture-based biofuels include bioethanol, made from plants with high starch content such as cassava, jatropha, maize and sugar cane, and biodiesel, made from plants with high oil content such as palm, soy, rapeseed and algae. Such fuels can replace fossil fuels in industrial processes, generators and even vehicles. The considerable potential for reducing GHGs through the use of biofuels is not fully exploited under the CDM owing to regulatory constraints.

Reduced or changed fertilizer use

Fertilizer is a significant source of emissions in the agriculture sector. Chemical fertilizers typically contain the GHG N₂O, and the application of fertilizer to vegetation leads to N₂O emissions. The global warming potential of these is 310 times that of carbon dioxide (CO₂) emissions over a 100-year time span.

There are several ways of reducing the use of fertilizers, and thus reducing emissions from their production and application. The quality and long-term viability of soil can be improved by improving the nutrient balance through the timing of fertilizer applications, the use of nitrification inhibitors and the utilization of existing nitrogen from organic matter instead of from fertilizers. Fertilizers can also be more precisely applied through the use of Global Positioning Systems (GPS) software, which has become more easily and cheaply available. Another option is to switch from synthetic to organic fertilizers. The emission reduction potential of this project type is largely unexplored.

Anaerobic digestion of waste

The natural decay of wastewater, crop waste (e.g., bagasse from sugar cane or empty palm fruit from oil production) and animal waste (e.g., from piggeries or cattle herds) can cause significant emissions of the potent GHG methane (CH₄), the global warming potential of which is 21 times that of CO₂ over 100 years.

To decrease these emissions, waste can be collected and stored in anaerobic digesters that range in size from large industrial ponds to small tanks suitable for single households. Following an organic digestion process, the wastewater can then be discharged as effluent. The mixture of gases created by this process can be captured using simple technology. This captured gas, which is referred to as 'biogas', typically has a high methane content and can either simply be flared, thereby reducing emissions, or be used as fuel for heat and electricity generation. This project type can help to alleviate the pressure on other natural resources and biomass for generating heat and electricity. On an industrial scale, this project type is already widespread under the Kyoto mechanisms. There are also a few examples of such projects at the household level, and these could be expanded in the future.

Modified livestock management

Emissions from livestock account for a considerable portion of emissions from the agriculture sector. Methane is produced by the fermentation of feed within animals' digestive systems, and the amount of methane an animal produces depends mainly on its digestive system and feed intake. Ruminant animals, such as cattle, buffaloes, goats, sheep and camels, generate the highest emissions because significant methane-producing fermentation occurs within their rumens. Other animals, such as horses, mules, donkeys and pigs, have comparatively

low methane emissions because much less methane-producing fermentation takes place in their digestive systems. Generally, the higher the feed intake, the higher the methane emissions.

Alternative livestock farming practices, such as ruminant enteric methane management, may help to decrease these emissions. Methods used include selective breeding, feedstock change, bio-controls and chemical processes. For example, altering the protein content of feed may reduce the emissions due to animals' digestion. Trial projects in this sector are being developed, and research to establish their environmental integrity is ongoing, but the emission reduction potential of this project type is still largely unexplored.

Use of renewable energy

Small- or large-scale use of renewable energy sources, such as solar, wind or hydropower, is a popular project type that helps to reduce emissions. Such projects help to fight land degradation by providing energy from renewable sources. The decreased reliance on fossil fuels and fuel wood for energy generation or heating reduces the pressure on forest resources.

There are several interesting examples of small- and large-scale solar energy projects, including solar water heaters, solar cookers and solar food processing for cooking, baking or pasteurization.

Biogas from anaerobic digestion (as described in the previous section) can be used for lighting and heating as another renewable energy source. A limited number of flagship projects already exist under the CDM, but the opportunities for expansion in this area are vast.

Renewable energy generation can also provide benefits. The concept of 'co-use' and 'land easements', for example, reduces the use of virgin land for renewable energy-generating plants by encouraging farmers to lease unused portions of their land to renewable energy producers. A farmer who allows a project developer to place a wind turbine on his/her land, can receive benefits in the form of either rent or, potentially, carbon credits. This type of partnership encourages renewable energy development and engages the agriculture sector. The potential for projects that offer such co-benefits is wide, and has not yet been fully explored.

Improved energy efficiency

Applying energy efficiency measures improves the use of natural resources and fossil fuels, thus reducing emissions and easing the pressure on land resources. Several examples of such projects exist.

Controlled environments

An innovative and, as yet, uncommon approach to energy efficiency may be to practise agriculture in controlled environments. Based on the assumption that a controlled climate reduces production fluctuations, such a strategy would support the development of large-scale greenhouses and aquaculture farms and reduce the dependence on land. As agriculture production from indoor, controlled greenhouses increases, the intensity of agricultural production from natural land will decrease, resulting in reduced fertilizer use, less intensive cultivation and thus reduced land degradation. It may also have positive effects on the economic situation of agriculture-intensive societies by removing the risk of climate change-induced fluctuations in agricultural production.

Using carbon finance

There are a number of direct synergies and overlaps between fighting land degradation and mitigating GHG emissions. In addition, revenues from projects without these overlaps could also be used to further the UNCCD's aims. A plethora of project opportunities exist that help to further sustainable development in communities and contribute indirectly to the fight against desertification.

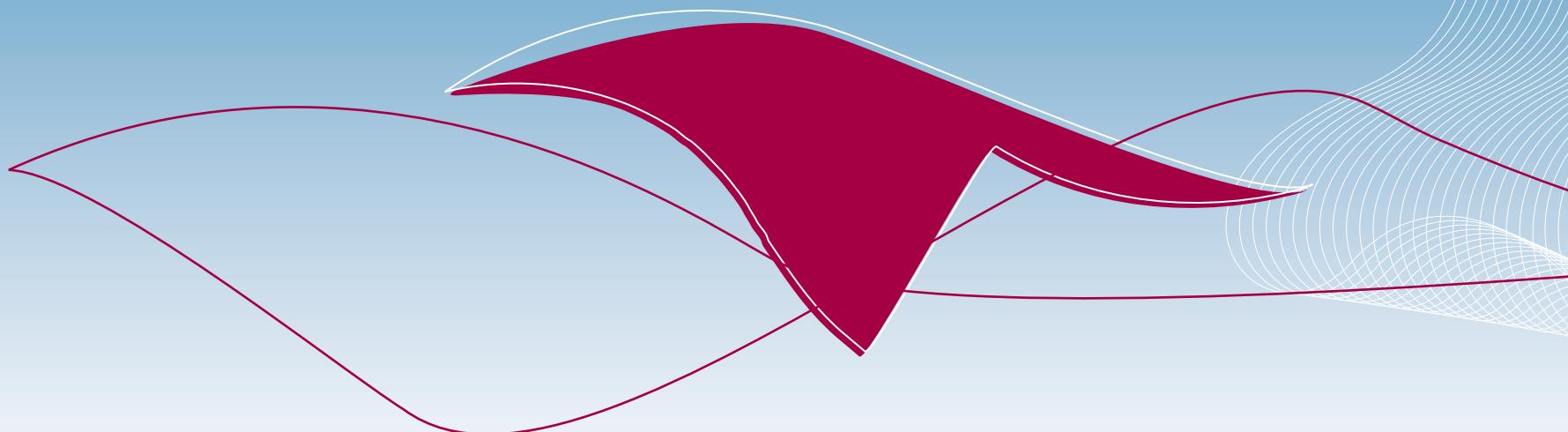
Carbon revenues from projects in established and less-established sectors could be used to support community-based development activities that contribute to SLM. For example, revenues from emission mitigating activities in the oil and gas sector could be used to offset the costs of the negative impacts identified in projects' environmental impact assessments.



THE CLIMATE CHANGE MITIGATION AND ADAPTATION INFORMATION KIT

Adaptation to Climate Change and Sustainable Land Management

Step-by-step Guidelines to Developing Climate Change Adaptation Activities and Accessing Funding to Support UNCCD Implementation

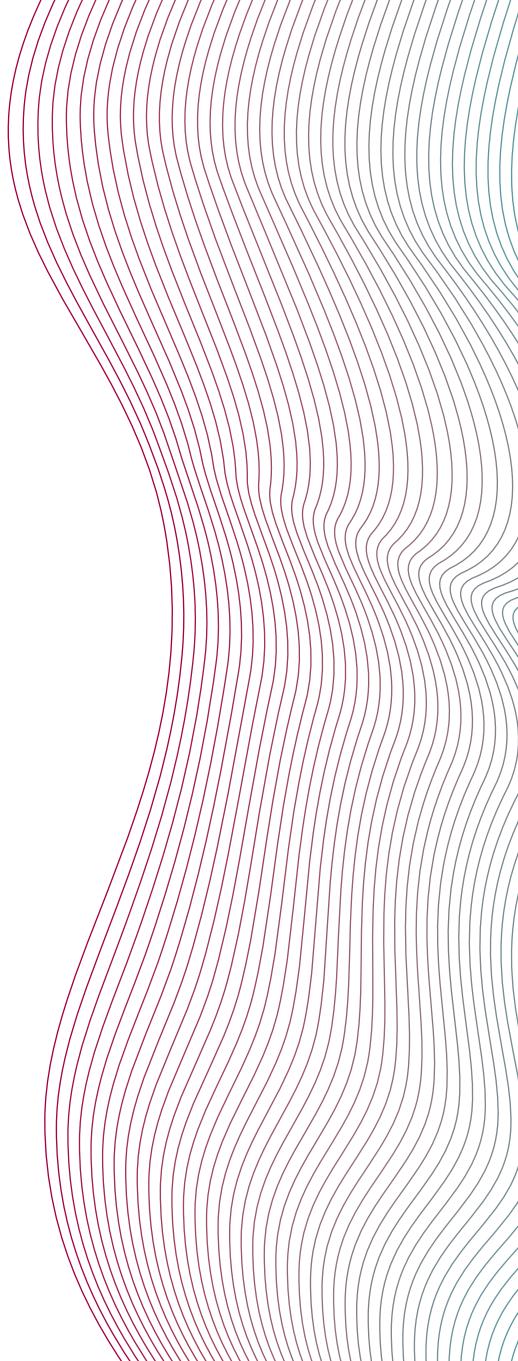


ADAPTATION to Climate Change and Sustainable Land Management

Step-by-step Guidelines to Developing Climate Change Adaptation Activities and
Accessing Funding to Support UNCCD Implementation

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ACRONYMS



AOSIS	Alliance of Small Island States
CCES	Climate Change and Compensation for Environmental Services (Strategic Programme of the GM)
CDM	Clean Development Mechanism
CER	certified emissions reduction
COP	Conference of the Parties
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GHG	greenhouse gas
GM	Global Mechanism (of the UNCCD)
IFAD	International Fund for Agricultural Development
IFS	Integrated Financing Strategy (of the GM)
JI	Joint Implementation
LDCF	Least Developed Countries' Fund
MOP	Meeting of the Parties
NAPA	National Adaptation Plan of Action
ODA	official development assistance
OECD	Organization for Economic Co-operation and Development
POP	persistent organic pollutant
PPP	public-private partnership
SCCF	Special Climate Change Fund
SLM	sustainable land management
SPA	strategic priority for adaptation
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNITAR	United Nations Institute for Training and Research
USAID	United States Agency for International Development

The Global Mechanism

The GM supports country Parties to increase the effectiveness and efficiency of existing financial mechanisms and to promote actions leading to increased, sustainable and predictable flows of substantive financial resources for degraded lands, desertification and sustainable land management (SLM). The GM supports country Parties in the development of integrated financing strategies (IFSs), which guide the process towards the establishment of investment frameworks for the implementation of the United Nations Convention to Combat Desertification (UNCCD), by mobilizing a blend of financial resources, including from innovative sources, as called for by the Ten-Year Strategic Plan and Framework to Enhance the Implementation of the UNCCD (2008-2018).

The GM's Strategic Programme on Climate Change and Compensation for Environmental Services (CCES)

The CCES programme seeks to leverage additional financing for UNCCD implementation by promoting synergistic approaches that address the objectives of the other two Rio Conventions with particular emphasis placed on linkages with the United Nations Framework Convention on Climate Change (UNFCCC). As part of this process, the GM, in accordance with the UNCCD Ten-Year Strategic Plan and Framework to Enhance the Implementation of the Convention (2008–2018), is actively undertaking actions to support country partners in accessing innovative financing, particularly related to current and/or emerging climate change mitigation and/or adaptation financial mechanisms.

The Climate Change Mitigation and Adaptation Information Kit

This document is the second in a series that make up the GM's Climate Change Mitigation and Adaptation Information Kit. The other documents are:

- Document 1: Linkages between the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD);
- Document 3: Mitigation to Climate Change and Sustainable Land Management;
- Document 4: Climate Change Adaptation and Mitigation Glossary.

The information kit was prepared with the support of EcoSecurities Global Consulting Services and the Food and Agriculture Organization of the United Nations (FAO) Investment Centre.

For more information on the work of the UNCCD, the GM and its Strategic Programme on CCES please visit: www.global-mechanism.org or contact Alejandro Kilpatrick, CCES Programme Coordinator: a.kilpatrick@global-mechanism.org

Introduction

Climate change is a reality and its impacts are felt daily by communities around the world. Fighting climate change by reducing greenhouse gas (GHG) emissions will not suffice alone to ensure that the environmental and social challenges of global warming are overcome. It is also crucial for communities to adapt to climate change. Adaptation in this context is defined as 'actions taken to help communities and ecosystems cope with changing climate conditions' (UNFCCC).

Adaptation is not a new concept. Over time, human beings and ecosystems have adapted to different environments and conditions. The current challenge lies in keeping up with the rapidly increasing need for adaptation measures as a consequence of climate change, ensuring that adaptation is considered in political and economic decision-making and is translated into action.

Adaptation is an important part of the UNFCCC and its Kyoto Protocol. In the early days of the UNFCCC, the majority of activities designed to address climate change focused on mitigation and setting binding commitments for industrialized countries to reduce their GHG emissions. With time, however, adaptation has become a higher priority on the international climate change agenda. The increasing frequency of catastrophic weather events throughout the world makes it plain for all to see that adaptation must be addressed. Delayed investment in adaptation is particularly critical for developing countries, where scientists predict the worst impacts will occur and where the greatest vulnerabilities lie. Developing countries are calling for developed countries to increase their commitment in this regard. At the same time, global corporations, particularly those related to agribusiness, are increasingly focusing on adaptation with the aim of protecting their business operations, for instance, through insurance.

There is a direct link between adaptation to climate change and the UNCCD. Projects in the agriculture and forestry sectors that help communities and ecosystems to adapt may also, for example, help fight land degradation and reduce GHG emissions. To translate the synergies between the Conventions into action, such projects must be supported.

This document is designed to assist project developers in identifying the areas where adaptation and potential projects are most needed. Its main objective is to provide initial guidelines for the development and funding of adaptation activities for stakeholders such as government officials, business operators and farmers. This guidance aims to assist project developers in identifying and mobilizing finance for their projects.

Identifying a suitable adaptation project

When stakeholders in the public or private sectors identify adaptation projects or seek to integrate adaptation measures within existing projects, it is crucial that the project selected can potentially make sustainable, long-term contributions to climate change adaptation. Detailed analyses of specific projects are required to prevent maladaptation, which would increase vulnerability to climate change. The Fourth Assessment Report of Working Group II of the Intergovernmental Panel on Climate Change, on 'Impacts, Adaptation and Vulnerability', (see www.ipcc.ch and the UNFCCC website: <http://unfccc.int>), provides basic information and examples of adaptation projects.

Owing to the wide-reaching impact of climate change, adaptation measures are manifold. They may address human, economic and physical vulnerabilities in ways that range from policy incentives to infrastructure design. Projects may include:

Safeguarding water resources: Water resources become stressed as the effects of climate change become more pronounced. Conflict between human and environmental demands is likely to intensify. Water basin management can be used to identify and adapt to these demands.

Disaster management: Disaster management strategies need to be developed and implemented for vulnerable populations. These strategies could include early warning procedures for natural disasters such as floods or droughts that are forecast to increase in frequency and magnitude. Strategic planning to minimize the impact of natural disasters in inhabited locations could also be considered. Strategies for robust protocols that alleviate the impacts of natural disasters in order to minimize loss of human life, economic assets and negative effects on rural societies, could also be implemented.

Diversifying economic activities: To minimize overall sensitivity to climate change, economies could be diversified to minimize the impact of market fluctuations.

Protecting health: As the climate changes, the potential for vector-borne diseases also changes. This is likely to have major impacts on health. The origins of such diseases and how they can be combated effectively are not yet clear; as the scientific background is not yet well understood.

Specific adaptation measures in the land use sector may include:

Protecting and enhancing agriculture and forestry: in terms of its impact on agriculture, climate change threatens the suitability and productivity of crops and livestock. Further research into and deployment of drought-resistant crops could increase food security and prevent malnutrition and starvation caused by the impacts of climate change.



Case study – Coping with drought and climate change in Ethiopia

Using a USD 1m grant from the Global Environment Facility's (GEF's) Special Climate Change Fund (SCCF) and USD 2m of co-financing, this project aims to develop and pilot a range of coping mechanisms for reducing the vulnerability of farmers and pastoralists to future climate shocks in Ethiopia. This will be achieved through activities to generate four outcomes:

Farmers/pastoralists in selected pilot sites are able to cope with drought;

Early warning systems provide farmers/pastoralists with timely and relevant information to assist them in coping with drought;

Drought preparedness and mitigation policies support farmers/pastoralists in coping with drought; and

Farmers/pastoralists inside and outside the pilot sites deploy and replicate successful approaches to coping with drought.

The project will contribute to the goal of enhancing food security and the capacity to adapt to climate change in agricultural and pastoral systems.

Source: GEF. 2005. *Medium-sized Project Proposal: Coping with Drought and Climate Change*. Washington, DC.

In terms of the forestry sector, climate change jeopardizes wood and non-wood production. Projects in this sector often aim to combat soil erosion and desertification by promoting agro-forestry and preventing woodland destruction. In such cases, adaptation focuses on enhancing

the natural regeneration of degraded forest lands, supporting reforestation, promoting agro-forestry and the adoption of sustainable forest harvests, and on management approaches.

- **Protecting natural resources and ecosystems:** The identification, restoration, protection and linking of conservation areas plays an important role in protecting biodiversity. In many cases, the continued availability of ecosystem services can be ensured by working towards adaptation in other sectors such as forestry.
- **Protecting coastal zones:** Coastal zones are vulnerable to land loss due to sea-level rises and increased storm activity. There is a demand for measures to address sea-level rise, salinization of farmlands and storm occurrence, because they jeopardize the productive capacities of large coastal cities.

Case study – Solar cooker carbon mitigation project with adaptation benefits

Solar cookers can replace biomass-fuelled cookers in rural settings, thereby reducing emissions caused by the burning of biomass. One direct benefit is that the stress on other natural resources traditionally used in stoves (e.g. wood) is reduced.

Some cookers can boil 1 litre of water in eight minutes, with a power output of 600 W. With a maximum capacity of 10 litres, these cookers can be used to cook for 10 to 15 people. Use such a cooker for 40% of the year has the potential to reduce carbon dioxide (CO₂) emissions by 3.5 tons per year. The implementation of 10 000 units, together with the aggregation of project carbon credits may result in carbon revenues in excess of USD 140 000-350 000, depending on the price of carbon credits.

Where adaptation is most needed

Climate change is a global issue that has impacts on countries throughout the world. In some cases, this effect may be positive, for example, by increasing rainfall in traditionally dry areas. In other cases, however, there will be adverse effects on the environment and on socio-economic systems.

Some countries are more able to adapt to climate change than others. Adaptive capacity is especially limited in less-developed countries. This is mainly due to a lack of financial resources, resulting in a local workforce that does not have the skills or technology to adapt to climate change efficiently and effectively. Countries with limited economic development frequently rely on agriculture in the form of subsistence farming or fishing. Drastic changes in ecosystems could have a rapid impact on the livelihoods of local communities that rely on such resources. Geographic location also plays a major role. Countries in Africa, south, east and southeast Asia, and low-lying island states, are particularly vulnerable to climate change. International adaptation funds have been set up for less- and least-developed countries, particularly for those most impacted by climate change.

Developing an adaptation project

The identification, design and implementation of an adaptation measure should involve careful analysis of the present situation and conditions, in order to avoid doing more harm than good and duplicating, or even cancelling out, other measures. The following guidelines outline some of the initial steps that allow a project developer to think through the implementation of an adaptation measure.

Identifying, designing and implementing an adaptation project

Step 1: Scope the project:

- Who is affected by and/or knowledgeable about the vulnerability?
- Is the project a priority?
- Which political processes influence the project?
- What is the aim of the project?
- How can the project be promoted?

Step 2: Establish a project team.

Step 3: Review current project-specific information:

- What information is already available?
- What policies and measures are already in place?
- How can the success of the project be determined?

Step 4: Design the project:

- What adaptation approach has been selected?
- What needs to be done (in brief)?
- Will it actually be done?
- What are the project terms of reference?

Step 5: Implement the project.

Step 6: Evaluate the project.

Step 1: Scope the project

This first step should identify the conditions in which the project will be implemented. Answering the following questions will provide a comprehensive picture of the adaptation needed and help identify other existing/proposed measures, and the synergies between these and the new project:

- 1.1 Who is affected by and/or knowledgeable about vulnerability?
- 1.2 Is the project a priority?
- 1.3 Which political processes influence the project?
- 1.4 What is the aim of the project and how realistic is its implementation?
- 1.5 How can the project be promoted?

Step 2: Establish a project team

What skills are needed to develop an adaptation measure and make it happen? Who has these skills? The project team should include people with the necessary expertise.

Step 3: Review current project-specific information

Once the project's conditions and framework have been established, the specifics need to be defined. These determine the baseline for the project. What is the current situation? Where does the vulnerability lie? Which stakeholders are affected, and to what extent? What is already being done to address this? The aim of the project should be to improve adaptation and decrease vulnerability compared with the current situation:

- 3.1 What information is already available?
- 3.2 What policies and measures are already in place?
- 3.3 How can the success of the project be determined?

Step 4 – Design the project

Based on the work done in previous steps, the project design should include a thorough analysis of the benefits an adaptation measure would have on social, environmental and economic systems in the host country. To make the project proposal more compelling and attractive to potential funding sources, the project team should include a detailed account of the resources needed to implement it and the expected outcome of activities:

- 4.1 *What adaptation approach has been selected?*
- 4.2 *What needs to be done (in brief)?*
- 4.3 *How will it actually be done?*
- 4.4 *What are the terms of reference for the project?*

Step 5: Implement the project

A project may either be a (new) component of an existing project or a completely new project. A number of aspects need to be defined as part of project implementation: the specific project tasks; the schedule; the various roles of the project contributors; the decision-making hierarchy; and the necessary resources. Financing is required to implement the measures defined in the project, as described in the following section.

Step 6: Evaluate the project

An adaptation project should be continuously evaluated after completion, to determine whether it is achieving its original objective or whether modifications or additional complementary projects are required. This post-implementation evaluation makes it easier to process future projects, replicate successful projects, and ensure continued support from stakeholders and funding sources.

Financing an adaptation project

Financing the project throughout its lifetime is crucial for its sustainability and long-term effectiveness. One aim of the GM is to support the financing of UNCCD implementation by mobilizing new sources of funding for projects that help fight desertification. The GM's Integrated Financing Strategy (IFS) is a guiding framework to locate, develop and mobilize a range of financial resources – including such new sources – to fund programmes and projects related to SLM.

The most suitable type of finance depends on the specific nature of the project in question. Some projects may make positive contributions to public wellbeing, for example, through the construction of a sea wall. Others may also generate commercial revenue, such as business-related adaptation measures undertaken through agribusiness. Although most adaptation projects in the developing world are likely to be financed through development assistance or public sector expenditure. New and innovative forms of financing adaptation through private sources are also possible. The origins and availability of different funding sources are discussed in this section.

Origins of adaptation funding

Adaptation activities may be eligible for funding from a variety of sources such as:

- private sector flows (e.g. foreign direct investment or insurance);
- public sector flows, including traditional public expenditure; and
- international community flows, through official development assistance (ODA) or funding from the various adaptation funds.

Evidence suggests that the lower the economic development of a country, the lower the share of private sector flows. Between 1998 and 2000, approximately 92% of financial flows to least-developed countries came from ODA.¹ Direct investment made up the remainder. Other low-income, lower- and upper-middle-income and high-income countries all received increasingly larger shares of direct private investment. This suggests that the poorest countries will predominantly use ODA to finance development activities, but less than 1% of this ODA funding is directed specifically to adaptation.²

This situation clarifies the discourse on mainstreaming adaptation into development funding in the international arena: if the largest financial flows to the less-developed world are from development funding, it is crucial that adaptation be regarded as an important consideration and become an integral criterion for ODA.

The international discussions on adaptation funding echo this argument. Just as the mitigation of climate change under the Kyoto Protocol is considered the responsibility of developed countries, so is financing adaptation.

Under these conditions, private sector involvement in financing adaptation remains limited. There are a number of reasons why the private sector and its market forces may not effectively invest in adaptation.

¹ Based on van Aalst, M. and Agrawala, S. 2005. Analysis of donor-supported activities and nation plans in S. Agrawala, ed. Bridge over troubled waters: linking climate change and development. Paris, Organisation for Economic Cooperation and Development (OECD).

² World Bank. 2006. An Investment Framework for Clean Energy and Development: A progress report. Prepared for the Development Committee. Washington, DC.

- **Uncertainty and imperfect information:** The efficiency of market operations and the availability of private investment depend on adequate provision of information. However, information on the effects and repercussions of climate change is scarce, especially in the less-developed world, where resources for investigating such issues are limited. Without this information, the costs and benefits of investing in adaptation cannot be determined reliably.
- **Missing and misaligned markets (public goods):** Private sector investments are unlikely to happen if the investor does not see the potential return on investment. Financing for projects that further public goods or show positive spill-over effects for the public without compensating the investor may not be forthcoming from the private sector. Depending on the situation in the project host country, there may be additional barriers to private sector financing including no public policy supporting adaptation and the absence of a reliable, transparent financing infrastructure. Although the private sector's current financing of adaptation may be limited, there are innovative options for mobilizing funding where the principles of combating desertification and promoting SLM are integrated. This is one of the strategic objectives of the GM's IFS, which aims to mobilize not only external sources of funding 'as a second door of financing' in addition to internal/national sources, but also to tap stable and sustainable innovative sources of funding that are not interrupted by changes in political dynamics or donor modalities.

The potential routes for enabling private sector involvement in the financing of adaptation, depend on the types of finance available. In general, three forms of finance can be used to develop projects: equity, grants and loans (debt). Most projects incorporate a mix of two or more of these sources, and most adaptation projects tend to be financed through the host country's public sector using national public funds or international community flows (from

grants or loans). The private sector can be mobilized through the provision of equity or a mix of two or more types of finance. In such cases, environmental benefits could be commoditized – for example, through the Clean Development Mechanism (CDM) – to provide financial returns on investment in an adaptation activity.

Equity

Equity is capital raised from the shareholders of a company. Shareholders have only a residual claim to the assets of the company that runs a project. They are the last in line after other stakeholders such as lenders (e.g. banks) have been repaid. This form of finance represents the highest level of risk, and the expected returns for equity holders are accordingly higher than for lenders. Such a model may be interesting to agribusiness investors supported by bank debt. From the project developer's point of view, equity has the advantage of not having to be paid back, thereby freeing up cash flow, which is often particularly important during the early years of a project.

Equity providers receive returns through dividends (distributions of cash from after-tax profits), or from the sale of shares. Typically, equity providers will cover only part of a project's total cost, as the rate of return on equity can be increased by increasing the amount of debt in the project finance structure.

Equity can come from many different sources, and different providers will have different expectations regarding the degree of control they exercise and the risk and return on their investments. Principal sources of equity for projects include project sponsors, venture capital funds, private equity funds and the issuing of shares via a stock market.

Because private sector investment in adaptation is a recent innovation, equity is rarely considered a source of finance. To raise equity, capital is required, and this is frequently not

available in less-developed countries. To overcome this barrier, new and innovative financing concepts are required, including, for instance, capitalizing on the mitigation elements of an adaptation project through the CDM. When carefully thought out, such projects may also result in sustainable development benefits to poor, rural communities. Communities may benefit from having company employees and their families living in and around the agribusiness project sites where drought resistance or flood protection measures are being implemented.³

National public funds

Projects designed to benefit the public are traditionally financed by national public funds. The ministries of the host country influence the way in which such monies are used. The long-term prioritization of adaptation in project host countries is therefore essential to ensure the sustainable development of long-term adaptation strategies and projects. Less-developed countries that suffer from limited funds rely heavily on support from the international community through bilateral or multilateral aid to finance projects.

Grants

A grant is a sum of money provided by a third party to a project, person or organization that contributes to the objectives of the third party. In general, grants are provided to projects that are commercially marginal, and do not need to be repaid (provided the stated purpose of the grant funding is achieved). In some cases, however, grants may be convertible to loans or equity if the project achieves commercial success (when this is the case, it is stated in the terms and conditions of the grant). Grants are typically provided by government organizations to least-developed countries and cover only a percentage of project costs; other forms of finance are therefore also required.

³ For more information on how such private sector involvement could be designed, see the section on private sector involvement.

Adaptation funds

The Global Environment Facility (GEF) is the main instrument for financing adaptation. It operates three funds that provide grants specifically geared towards adaptation activities. The World Bank estimates that only a minor portion – much less than 1% – of other sources of funding (such as ODA) and concessional lending is specifically directed to adaptation. Although the GEF also aims to finance projects, the idea is that its involvement will help to

	Extent of benefits	Scope of focus	Focus areas	
GEF funds				
Strategic Priority for Adaptation (SPA)	Global	Environmental	Biodiversity, climate change, international waters, land degradation, POPs ⁵	
Least Developed Countries Fund (LDCF)	Local, regional or global	Developmental	Health, agriculture, water; infrastructure	
Special Climate Change Fund (SCCF)	Local, regional or global	Developmental	Health, agriculture, water; infrastructure	
Other funds				
Adaptation Fund	Community, regional or national	Full adaptation cost of projects and programmes addressing adverse effects of climate change	Water resources, agriculture, coastal zone management and marine resources, ecosystem management	

⁵ Persistent organic pollutant.

attract co-financing – some activities or projects may receive full-cost funding, particularly under the Least Developed Countries Fund (LDCF). In addition, an Adaptation Fund has been set up under the Kyoto Protocol; supervised and managed by an independent board under the UNFCCC and supported through the GEF. The fund is replenished by a 2% levy on returns from CDM projects, so its size varies depending on the performance of the CDM market. Details of these four adaptation funds are given in Table I.

	Size (million USD)	Eligibility
GEF funds		
Strategic Priority for Adaptation (SPA)	50	Non-Annex I
Least Developed Countries Fund (LDCF)	115	LDCs not in Annex I
Special Climate Change Fund (SCCF)	50	Non-Annex I
Other funds		
Adaptation Fund	100-500	Particularly vulnerable developing country Parties; AOSIS ⁶

⁶ Alliance of Small Island States.

Loans (debt)

A loan or debt is a sum of money provided by a third party to a project, person or organization that must be repaid, either during or at the end of its agreed term, plus interest for the borrowing period. Most loans to projects are provided by banks. There are many different types of loans, such as senior or junior (or subordinate) loans or debt, which are serviced according to different conditions and timeframes. Multilateral development banks may provide low-interest loans or debt at preferential (below-market) rates for projects that meet particular economic, social or environmental objectives, such as adaptation.

Private sector involvement

Private sector financing of adaptation in the forestry, land use and agriculture sectors in the less-developed world is still in its infancy, and there are few relevant examples of project opportunities. Nevertheless, there are a number of options for involving private sector investors in adaptation that help to combat desertification.

Linking mitigation and adaptation through use of carbon credit revenues

One option is to use a GHG mitigation component. Through Kyoto Protocol mechanisms such as the CDM or Joint Implementation (JI), an additional revenue source may be identified for projects that not only mitigate GHGs sold on the carbon market, but also contribute to adaptation. Such projects may be implemented outside the United Nations – governed scheme through the voluntary project scheme. While climate change mitigation projects have the option of receiving revenues from the generation and sale of carbon credits, adaptation measures are frequently funded by public money. The combination of these two aspects in one project could motivate the private sector to invest in adaptation as part of

a mitigation activity, and the overall funding situation for both mitigation and adaptation projects could be improved.

If adaptation projects are to benefit from GHG mitigation revenue, it is crucial that eligible project types are identified. These may include projects that protect and enhance agriculture and forestry, such as the use of new agricultural techniques, including: reduced use of fertilizer; the implementation of SLM practices, including conservation tillage; and the use of bioenergy from biomass and biofuels. The reduction of emissions through avoided deforestation may also result in significant GHG revenue opportunities. Not only do all these project types help to reduce emissions, thus offering interesting opportunities for private sector investors such as agribusinesses, but they can also make significant contributions to the fight against desertification.

In addition, the sale of environmental services and GHG mitigation services could be commoditized. For example, improved forest or land management, afforestation and reforestation, protection of natural resources and ecosystems and related activities could be included in payment agreements between water users and watershed managers.

Using public-private partnerships

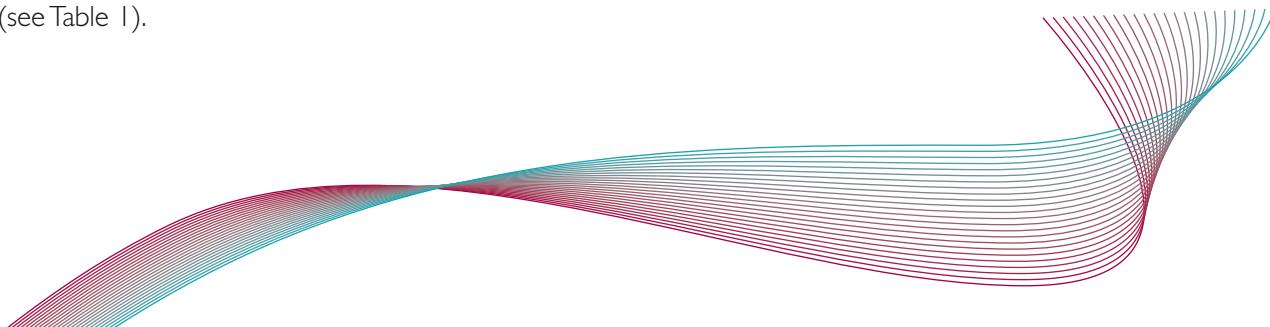
Another option for increasing private sector involvement in adaptation activities is public-private partnerships (PPPs) that aim to harness private efficiency and resources to meet goals that benefit the public. In line with the GM's aims, the establishment of such partnerships may help to identify and use synergies to finance and implement adaptation projects that not only support the public good but also result in economic returns for private investors. An example would be the development of climate-resilient crops through a PPP aiming to combat desertification and help protect the biophysical foundations of agriculture, such as forests, soils and water.

Involving the insurance sector

Insurance is another area through which private sector companies can become involved in financing adaptation. Investors can purchase insurance to protect their investments from risks such as floods, hurricanes or crop loss – many of which are related to climate change. Insurance companies may protect themselves, in turn, through reinsurance, with companies such as Munich Re. However, the insurance sector faces considerable constraints to operating efficiently in the less-developed world. Owing to the lack of climate change data and information on the damaging effects of climate change, risk analyses cannot always be conducted. In addition, the financial infrastructure in the host country may be poorly developed, or there may not be sufficient money available to cover insurance payments. A PPP, together with a supportive public policy environment, may be a useful mechanism to support development of the insurance sector, for example, for agribusiness. These are goals towards which the GM's IFS is working.

Formulating a project proposal

Before an adaptation project can receive finance, a project proposal or business plan has to be prepared for submission to potential donor organizations and investors. The information contained in such a document typically draws on work carried out during development of the project. Depending on the type of project, a proposal may be forwarded to the GEF for funding from one of its three funds. This section introduces some of the key requirements for completing project proposals under the various GEF funds. The eligibility criteria vary from fund to fund (see Table 1).



Strategic Priority for Adaptation (SPA) under the GEF Trust Fund

The eligibility requirements that need to be documented in project proposals include those required of all GEF-funded projects: projects must be country-driven, incur incremental costs for global benefits, be replicable and sustainable, and involve stakeholders. Project designs must demonstrate stakeholder involvement at all stages of the process; from project preparation to pipeline entrance throughout the project's lifetime. A 'double increment' for project costs must also be established through a two-part alternative project scenario, with the cost of the environmental benefits in the absence of global warming to be funded by the GEF Trust Fund, and the cost of ensuring the robustness of measures against the risk of global warming to be funded as a SPA. The double-increment should be demonstrated through comparison with the baseline scenario.

LDCF

All least-developed countries are eligible to apply for funding from the LDCF. The application process begins with preparation of a National Adaptation Plan of Action (NAPA) that outlines the priority areas for a country to meet its adaptive goals. Project proposals should be based on the areas discussed in the NAPA. When the NAPA has been finalized and made public, the country can begin the cycle of design, development and implementation of individual projects. Following implementation, monitoring and evaluation occur throughout the project lifespan to assess the effectiveness of the activities.

The LDCF incorporates several innovative elements that are designed to ease the process for least-developed countries, including a sliding scale tool to simplify cost calculations; the option of full-cost financing for projects; no requirement to show global environmental benefits; an expedited project cycle; and a rolling application and review process.

SCCF

All non-Annex I countries are eligible to apply for funding through the SCCF. Project proposals must follow the adaptation guidelines set out by the country in its national communications or NAPAs. Project design, development and implementation should utilize the templates and guidelines made available through the GEF.

Like the LDCF, the SCCF also contains elements allowing for a more streamlined process. These include the consideration of additional costs in determining the level of funding, the provision of a sliding scale option to calculate costs, and a rolling application and review process.

Potential GEF implementing agencies, such as the United Nations Development Programme (UNDP) or the United Nations Environment Programme (UNEP), or potential executing agencies, such as the Food and Agriculture Organization of the United Nations (FAO) and the International Fund for Agricultural Development (IFAD) may be contacted to facilitate the project proposal process and access to funds. For more information on GEF funding please see the final section of this document.

Adaptation Fund

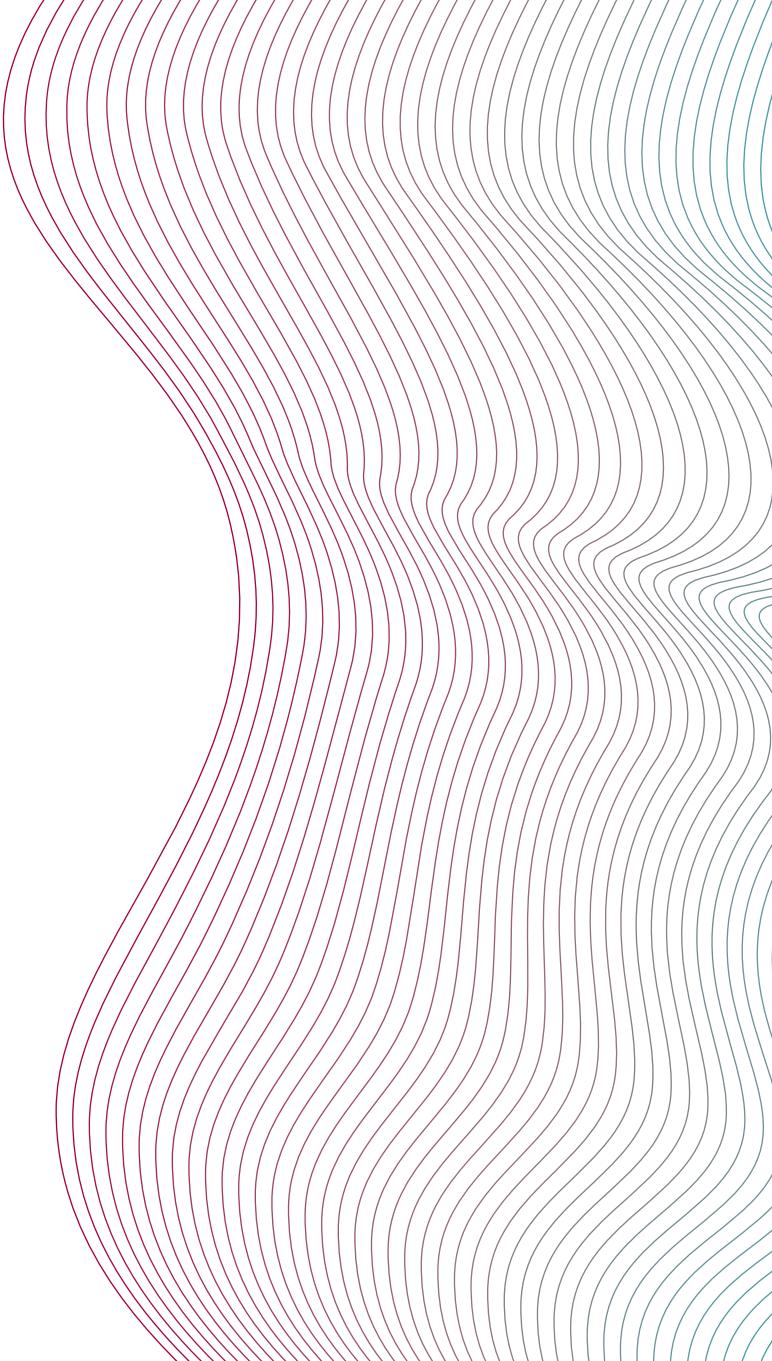
In late 2007, at the 13th Conference of the Parties to the UNFCCC, in Bali, which also served as the third Meeting of the Parties to the Kyoto Protocol (COP13/MOP3), an Adaptation Fund was established to fund concrete adaptation projects and programmes in developing countries that are party to the Kyoto Protocol. The Fund will be supervised and managed by an independent board under the authority and guidance of the COP/MOP, with the GEF providing secretarial support and the World Bank acting as a trustee. The board will consist of 16 members representing the different Parties to the Protocol. Its responsibilities will include determining strategic priorities of the Fund, setting policies and guidelines

and selecting projects. Requirements for project proposals applying to the Adaptation Fund are yet to be established.

Funds will be sourced from private individuals, voluntary contributions and 2% of the proceeds from the CDM. In early 2008, the Adaptation Fund had more than 2 300 000 certified emissions reductions (CERs) in a holding account. These are expected to be tapped when the Fund becomes operational, while additional CERs will accumulate at least until the end of 2012. Depending on the sales value of a CER, the overall size of the Fund is estimated between USD 100 million and USD 500 million.

Projects will have to follow national sustainable development strategies, NAPAs, Poverty Reduction Strategies and national communications. Developing country Parties to the Kyoto Protocol that are 'particularly vulnerable to the adverse effects of climate change' are eligible to apply for funding, and are likely to include AOSIS and other countries with fragile ecosystems. The Fund will finance 'concrete adaptation projects and programmes that are country-driven and are based on needs, views and priorities' (UNFCCC) of the requesting Party. Proposals will likely be evaluated on a rolling, yearly basis, with 'short and efficient project development and approval cycles and expedited processing of eligible activities' (UNFCCC).

RESOURCES





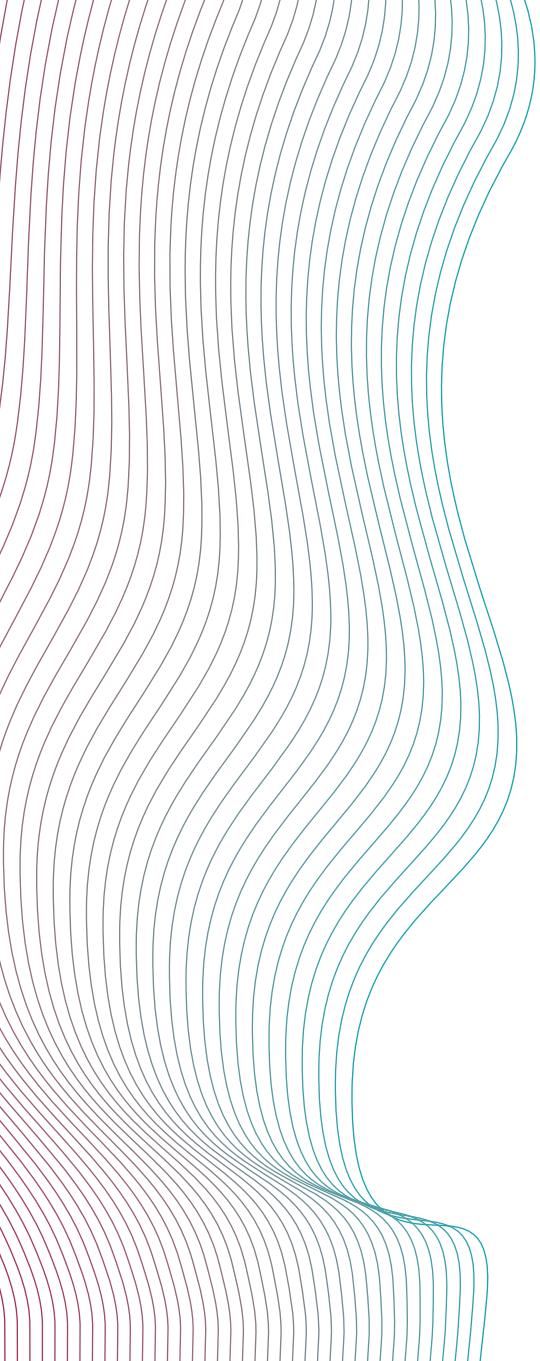
For an in-depth review of the latest science of adaptation, visit: www.ipcc.ch

For examples of adaptation projects visit the UNFCCC's Local Coping Strategies Database:
<http://maindb.unfccc.int/public/adaptation>

For more information on NAPAs and National Communications, visit:
UNFCCC: www.unfccc.int
UNITAR: www.napa-pana.org
UNDP: <http://napa.undp.org>

For more detailed guidance on the development of adaptation projects, visit:
UNDP: www.undp.org/gef/adaptation
UNDP Adaptation policy frameworks for climate change: developing strategies, policies and measures: www.undp.org/gef/undp-gef_publications/undp-gef_publications.html
United States Agency for International Development (USAID) Adaptation guidance manual: www.usaid.gov/

For further information and guidance on how to prepare proposals for project financing consult UNFCCC. 2006.



Preparing and presenting proposals – a guidebook on preparing technology transfer projects for financing,
<http://unfccc.int>

Templates to file for GEF funding are available on the projects page of the GEF Website: www.thegef.org

More information on the Adaptation Fund is available on the UNFCCC's website:
http://unfccc.int/cooperation_and_support/financial_mechanism/items/3659.php



THE CLIMATE CHANGE MITIGATION AND ADAPTATION INFORMATION KIT

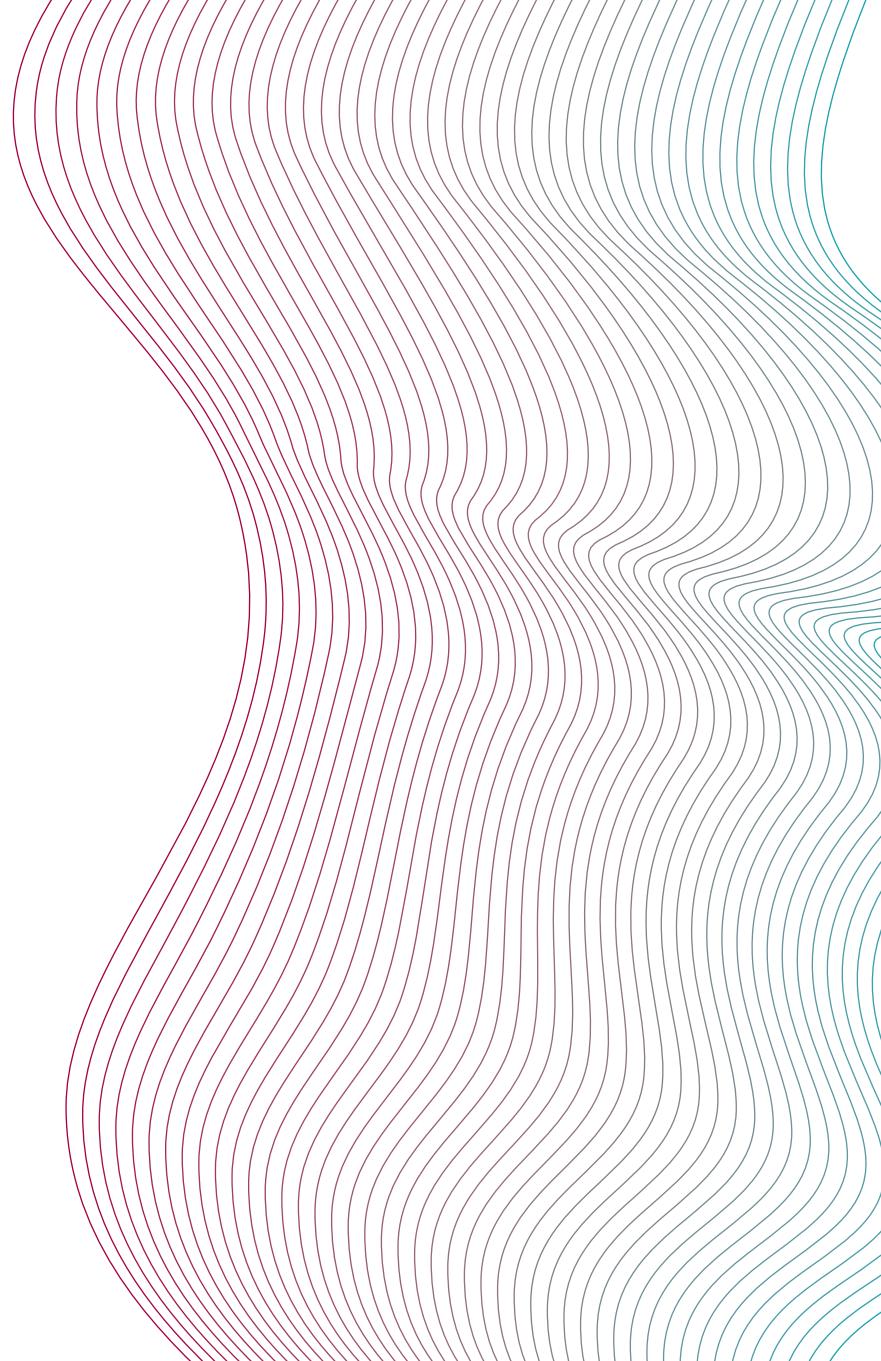
Mitigation to Climate Change and Sustainable Land Management

Step-by-step Guidelines to Developing Greenhouse Gas Mitigation Activities and Accessing Carbon Finance to Support UNCCD Implementation

MITIGATION to Climate Change and Sustainable Land Management

Step-by-step Guidelines to Developing Greenhouse Gas Mitigation Activities
and Accessing Carbon Finance to Support UNCCD Implementation

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ACRONYMS

CBD	United Nations Convention on Biological Diversity
CCES	Climate Change and Compensation for Environmental Services (Strategic Programme of the GM)
CCX	Chicago Climate Exchange
CDM	Clean Development Mechanism
CER	certified emissions reduction
CO ₂	carbon dioxide
CPA	CDM programme activity
DNA	Designated National Authority
DOE	Designated Operational Entity



ERPA	Emissions Reduction Purchase Agreement
ERU	emissions reduction unit
ETS	Emissions Trading Scheme
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GHG	greenhouse gas
GM	Global Mechanism of the UNCCD
JI	Joint Implementation
LULUCF	land-use, land-use change and forestry
MFI	micro-finance institution
N2O	nitrous oxide
NAP	National Action Plan of the UNCCD
NGO	non-governmental organization
ODA	official development assistance
PDD	project design document
PIN	Project Identification Note
PoA	Programme of Activities
POSAF	Socio-Environmental and Forestry Development Programme
REDD	Reduced Emissions from Deforestation and Degradation
RGGI	Regional Greenhouse Gas Initiative
SLM	sustainable land management
tCER	temporary certified emissions reduction
tCO2e	tonne of carbon dioxide (CO ₂) equivalent
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
VER	verified emissions reduction
VERPA	Verified Emissions Reduction Purchase Agreement

The Global Mechanism

The GM supports country Parties to increase the effectiveness and efficiency of existing financial mechanisms and to promote actions leading to increased, sustainable and predictable flows of substantive financial resources for degraded lands, desertification and sustainable land management (SLM). The GM supports country Parties in the development of integrated financing strategies (IFSs), which guide the process towards the establishment of investment frameworks for the implementation of the United Nations Convention to Combat Desertification (UNCCD), by mobilizing a blend of financial resources, including from innovative sources, as called for by the Ten-Year Strategic Plan and Framework to Enhance the Implementation of the UNCCD (2008-2018).

The GM's Strategic Programme on Climate Change and Compensation for Environmental Services (CCES)

The CCES programme seeks to leverage additional financing for UNCCD implementation by promoting synergistic approaches that address the objectives of the other two Rio Conventions with particular emphasis placed on linkages with the United Nations Framework Convention on Climate Change (UNFCCC). As part of this process, the GM, in accordance with the UNCCD Ten-Year Strategic Plan and Framework to Enhance the Implementation of the Convention (2008–2018), is actively undertaking actions to support country partners in accessing innovative financing, particularly related to current and/or emerging climate change mitigation and/or adaptation financial mechanisms.

The Climate Change Mitigation and Adaptation Information Kit

This document is the third in a series that make up the GM's Climate Change Mitigation and Adaptation Information Kit. The other documents are:

- Document 1: Linkages between the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD);
- Document 2: Adaptation to Climate Change and Sustainable Land Management;
- Document 4: Climate Change Adaptation and Mitigation Glossary.

The information kit was prepared with the support of EcoSecurities Global Consulting Services and the Food and Agriculture Organization of the United Nations (FAO) Investment Centre.

For more information on the work of the UNCCD, the GM and its Strategic Programme on CCES please visit: www.global-mechanism.org/ or contact Alejandro Kilpatrick, CCES Programme Coordinator: a.kilpatrick@global-mechanism.org



Introduction

Both the UNFCCC and the UNCCD are relevant to the prevention and control of land degradation. There are strong synergies between measures to combat desertification and efforts to tackle climate change. There are also strong linkages between the underlying environmental problems; while climatic changes threaten marginal lands by increasing the risk of desertification, land degradation and particularly deforestation, are major contributors to increased atmospheric greenhouse gas (GHG) concentrations.

GHG emissions are the result of a variety of processes, including industrial, agricultural and land-use activities, and those in the processing sectors. Climate change mitigation aims to ensure that the amounts of GHGs produced during these processes are reduced. Mitigation may occur on a broad scale; for example, by implementing policies leading to a GHG reduction across a whole sector, or on a project-specific level.

There are two principal options for project-based mitigation of GHGs, both of which may offer financial returns on emissions reductions:

I) The Clean Development Mechanism (CDM) and Joint Implementation (JI) under the Kyoto Protocol, regulated by the United Nations (UN). The CDM was designed to allow developed nations to pay for emissions reductions resulting from projects in less-developed countries. The CDM is the focus of this document. The basic concept of JI is comparable to the CDM. The difference lies in the fact that JI projects are implemented in other developed countries, especially economies in transition in Eastern Europe and the former Soviet Union, rather than in developing countries. Emitters in developed countries can purchase emissions reductions from CDM and JI projects to reach their mandatory emissions reduction targets.

2) Voluntary projects are outside the Kyoto framework and do not comply with a universally-recognized and 'policed' regulatory framework. The voluntary approach may therefore be applicable to projects that do not meet the regulatory requirements set out by the CDM and JI. Emissions reductions from voluntary projects are typically purchased by private or public sector stakeholders whose activities are not regulated but who wish to respond to climate change, or prepare for future emissions targets that they may be subject to.

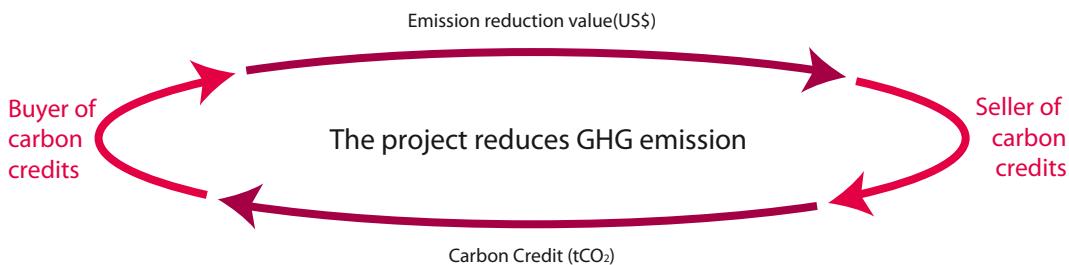


Figure 1: The revenue flow for GHG mitigation projects

How does project-based mitigation of GHGs work?

In principle, an individual or a company may choose to develop a project that leads to reduced GHG emissions. Such projects may also help to combat desertification, thereby contributing to UNCCD implementation. Project examples include: reforestation of degraded land; use of methane captured from piggeries or agricultural waste to generate electricity; and use of biomass from agricultural products to generate heat and electricity, resulting in avoided deforestation. If the developer and implementer of such projects can demonstrate that a project results in reduced GHGs, the reductions can be sold as carbon credits on a per ton of carbon dioxide equivalent (tCO₂e) basis. Credits generated by a CDM project are referred to as certified emissions reductions (CERs), and credits from a JI project as emissions reduction units (ERUs). Credits for forestry projects are dealt with separately as they are frequently considered temporary, given the limited life spans of forests and risks such as fire. Credits from these CDM projects are thus referred to as temporary certified emissions reductions (tCERs). Credits from voluntary projects are termed verified emissions reductions (VERs).

There are many different carbon credit buyers and traders. Some purchase credits to comply with their allocated mandatory emissions caps under the Kyoto Protocol. The Protocol obliges each developed country that has ratified it, to cut emissions to a specific level by the end of 2012. For instance, Italy must reduce its GHG emissions by 8% compared to those in the Kyoto baseline year of 1990. This has provided an incentive for setting up the European Union (EU) Emissions Trading Scheme (ETS), which is the largest single market for carbon credits. It places caps on carbon emissions for major emitters, such as electricity generating companies in its member countries. tCERs are not eligible under the ETS. Japan is another major buyer of carbon credits to meet their compliance targets. Organizations with mandatory caps under the Protocol may use CERs and ERUs to meet their compliance targets. VERs are not eligible, however, under this compliance regime.

There are also other voluntary and mandatory schemes around the world that are not regulated through the Kyoto Protocol. Electricity producers in the Australian state of New South Wales, for instance, are regulated under a mandatory local abatement scheme. The number of voluntary schemes continues to grow, and includes the Chicago Climate Exchange (CCX) and the Regional Greenhouse Gas Initiative (RGGI) in the northeastern states of the United States. The flourishing voluntary markets in the United States and the EU are stimulated for the most part by the demand for VERs from organizations and companies seeking to limit their GHG environmental footprint. For example, the emissions from taking a plane to go on holiday can be calculated and offset by purchasing carbon credits to make the flight carbon-neutral. Increasing global awareness and concern about climate change are resulting in an ever-increasing demand for carbon credits. A number of voluntary and mandatory non-Kyoto schemes allow for the trading of both UN-regulated CERs and VERs.

Suitable project types

Certain project types help achieve the aims of both the UNFCCC and the UNCCD. The UNCCD addresses desertification, defined as land degradation in arid, semi-arid, and dry sub-humid areas resulting from various factors including climatic variations and human activities. Land degradation, desertification and climate change are interlinked and have negative impacts on one another: climatic variations are one of the major causes of land degradation and desertification, while land degradation – especially through deforestation – has a major impact on GHG concentrations. At the same time, land degradation, particularly deforestation, contributes to climate change through the CO₂ released and the sequestered carbon in biomass and soils lost, which add to global warming.

Land degradation also has major impacts on biodiversity, as vegetative cover and soils are denuded and ecosystems degraded or fragmented. The preservation of biodiversity is therefore an essential part of sustainable land management (SLM) practices that aim to combat land degradation, desertification and climate change.

In response to these overlaps, the GM of the UNCCD, supported by EcoSecurities, has developed a 'labeling' concept that provides project participants with a set of simple criteria to visibly show that their initiatives support the goals of both the UNFCCC and the UNCCD, and potentially those of the United Nations Convention on Biological Diversity (CBD), by generating carbon credits or other environmental services. Such labelling can illustrate the multiple benefits of a project, enhancing its profile and facilitating discussions with potential investors.

UNFCCC project categories include: manufacturing and chemical industries; mining, mineral and metal production; solvent use; and fugitive emissions from fuels (solid fuels, oil and gas); and from the production and consumption of halocarbons and sulphur hexafluoride. Although such projects make a crucial contribution to mitigating GHGs, they do not directly address the synergies with the UNCCD.

Other project areas support the work of the UNCCD more directly. The essential feature of these projects is that they have an impact on the use of environmental resources through carbon sequestration, conservation and substitution, and can therefore generate carbon credits and revenues for avoided land degradation and desertification - either under voluntary schemes or under the UN-policed CDM and JI, as illustrated below:

- Carbon sequestration can be achieved through, inter alia, afforestation, reforestation and restoration of degraded lands, agroforestry, and cropland and grazing manage-



ment. All these activities promote increased carbon stocks in biomass and enhance soil carbon through, for instance, alternative tillage practices in cropland management. Afforestation and reforestation are eligible under both the UN-regulated CDM and JI, while the other land-use, land-use change and forestry (LULUCF) project types are eligible under JI only. All would be suitable for voluntary projects.

Case study – VERs from carbon sequestration in sustainable forestry systems in Mexico

The voluntary Scolel té project in the state of Chiapas in Mexico helps to sequester carbon in forest and agricultural systems. At the same time, it aims to support sustainable livelihoods for local rural communities. The project is part of Mexico's official Programme of Joint Implementation to Reduce Climate Change and is registered with the United States Initiative for Joint Implementation.

Local farmers can use a carbon management system to design their own sequestration projects in forestry or agroforestry systems, taking into account their needs, priorities and capabilities. Such projects may include changing from pasture to plantations, or restoring degraded forest. The size and type of a project determine the quantity of emissions reductions. Projects are independently assessed and verified. VERs from this project have been sold to a variety of private and public sector organizations.

- Carbon conservation occurs through conserving biomass and related carbon stocks in protected areas, improving forest management practices (e.g. selective felling and reduced-impact logging), fire protection, and promoting more effective use of prescribed burning, within forest and agricultural systems.
- Carbon substitution can be accomplished through increased conversion of forest biomass into durable wood products to replace energy-intensive materials such as steel; for the sustainable production and use of biofuels; and through greater use of harvest and agricultural waste such as sawdust as an alternative biomass, or animal waste digestion for the production of methane, for use as renewable fuels.

Biomass fuel-switch projects are already eligible under the CDM and JI, although their potential has not yet been fully exploited. Specific biofuel activities are also eligible under these mechanisms, but are restricted. The use of a voluntary approach may make all of these project types eligible.

Case study: GM supports regional system for environmental service payments to farmers in Nicaragua

The GM, with EcoSecurities' assistance, has supported a CDM project in the land use and forestry sector on drylands with high levels of degraded soils. This project is in the Pacific region of Nicaragua, in the municipality of San Francisco Libre and the Rio Grande river basin. As part of the project, agroforestry systems, forestry plantations, assisted natural regeneration and silvopastoral systems are now being implemented on agricultural and farmlands covering an area of about 8 000 ha.

The Socio-Environmental and Forestry Development Programme (POSAF) has been working

in this region since 2003. POSAF is associated with the Ministry of Natural Resources and the Environment of Nicaragua and was established as a technology transfer programme for the adoption of productive systems and the sustainable use of natural resources. Local non-governmental organizations (NGOs) implement and promote the programme by means of direct and indirect incentives to small and medium-sized producers.

The GM chose to support this new project financially and technically because it furthers UNCCD goals by converting highly degraded agricultural lands into forestry plantations, agroforestry, silvopastoral systems and natural forests. Other programmes aid sustainable agricultural practices by ensuring the permanence of the reforestation, thereby supporting the prevention of further land degradation and generating benefits for local stakeholders and communities. The GM has also supported a co-funding opportunity that enabled POSAF to finalize the project design and negotiate with the Spanish Carbon Fund for the sale of its credits.

The co-benefits are that POSAF will assist in the implementation of forestry activities on degraded or degrading lands. Activities will be managed by local farmers and communities with support from POSAF and local NGOs, and will provide additional income through the generation of carbon credits. POSAF will also assist project participants in establishing agroforestry and improved agricultural practices on farmlands outside the CDM project boundaries, through education and agricultural extension work, including support for the marketing and sale of products.

GHG reduction or avoidance can also be realized through projects focusing on bio-digestion (the decomposition of organic matter and animal waste), other methane-based projects in the agriculture and rural sectors, and through energy-related projects that earmark financial resources (e.g. from carbon credits) to finance community or land-use management activities supporting UNCCD goals. Such projects could include renewable energy projects using wind, hydro or solar power on a small or large scale. Other options include utilizing the

revenues from carbon mitigation activities in the oil and gas sector to contribute to fighting desertification in degraded lands. There are a number of options for developing such project types under the CDM and JI.

In addition to these examples, there is also a great deal of untapped mitigation potential in the agricultural, land use and forestry sectors, including through reduced use of N₂O, improvements in livestock management and use of bioenergy from biomass.

Case study: Using the CDM for sustainable biofuel production in Namibia

A CDM reforestation project established ca. 72 000 ha of *Jatropha curcas* plantations on degraded lands along the Okavango River in northeastern Namibia.

These trees provide biodiesel as a renewable source of energy, and the project can claim carbon credits from the substitution of fossil fuels, as well as from carbon sequestration in the biomass of the planted trees.

The project involves local communities in a region affected by extreme poverty, and will provide sustainable incomes to some 3 500 families. The plantations have the potential to generate tCERs equivalent to ca. 8 million tCO₂e by 2012. The project's biodiesel production also has the potential to generate emissions reductions by substituting fossil fuels.

Case study: Small-scale biogas plants under the CDM in Nepal

A registered CDM project in Nepal involves the placement of up to 1.9 million small anaerobic digesters to produce biogas in poor rural communities. The digesters capture biogas from

latrines and animal waste that can be burned to generate thermal energy for cooking. The capacity of the installed biogas plants ranges from 1.16 to 2.32 kW. Emissions reductions result from the replacement of conventional fuel sources for cooking, such as fuelwood, thus easing the pressure on local ecosystems containing biomass. The project also mitigates nitrous oxide (N₂O) and methane emissions due to the waste management procedures and the remaining bioslurry in the digesters may be used instead of chemical fertilizers. So far, 150 000 biogas plants have been installed.

The carbon revenue from the project goes into a fund that is used by microfinance institutions in rural areas. These organizations can provide microcredit to cover the upfront cost of biogas plant construction, thereby enabling the poorest households to access the technology.

Suitable regions for project development

The UNCCD's national, subregional and regional action programmes (NAPs, SRAPs and RAPs) focus on combating desertification in Africa, Asia, Latin America and the Caribbean, Central and Eastern Europe, and the Mediterranean Basin. Signatories to the UNCCD in these areas must be supported. Many have developed NAPs that identify geographic priority areas where action on land degradation is most needed. NAPs can therefore help identify key areas that would benefit from mitigation projects contributing to combating desertification. Revenue from mitigation projects could be earmarked and channelled into projects in these priority areas.

Identifying a suitable GHG mitigation project

Not every environmental project is a potential GHG mitigation project. The key criteria listed here should be checked to determine whether a project qualifies for emissions reductions. If a project meets these criteria, the project developer should conduct a more detailed feasibility study.

Identifying a GHG reduction project

A GHG reduction project satisfies the following criteria:

- The project reduces a GHG;
- The project is additional;
- The project supports sustainable development;
- The project uses a specific methodology; and
- The project results in real, measurable emissions reductions.

Does the project reduce a GHG? The Intergovernmental Panel on Climate Change defined a list of six gases that cause global warming (see following table). Some of these are more harmful than others. N₂O, which is frequently emitted during fertilizer production, has 310 times the global warming potential of CO₂. It is a precondition of both the CDM and voluntary emissions projects, that at least one of these GHGs is reduced.

GHG	Global warming potential in 100 years (multiplying factor)
Carbon dioxide (CO ₂)	x 1
Methane (CH ₄)	x 21
Nitrous oxide (N ₂ O)	x 310
Hydro-fluorocarbons (HFCs)	x 150–1 700
Perfluorocarbons (PFCs)	x 6 500–9 200
Sulphur hexafluoride (SF ₆)	x 2 900

Is the project additional? A project is additional if it makes reductions that would otherwise not occur. Proof that the project delivers emissions reductions that are over and above the business-as-usual scenario must be provided, as must the fact that the revenue from selling credits was considered when the project was first designed, and that without these credits, the project would be financially unattractive or subject to market barriers. Proving additionality is mandatory for every CDM project. On the voluntary market, the additionality regulation is less strictly enforced, but most voluntary schemes also require such proof, and buyers of VERs frequently stipulate additionality as a requirement. More information on how to prove the additionality of a project is contained in this information kit for the demonstration and assessment of additionality available on the UNFCCC Website: <http://cdm.unfccc.int/methodologies/index.html>

Does the project support sustainable development? A crucial component of every project is that it supports sustainable development. Developing countries that host CDM projects must have a defined set of sustainable development criteria against which to assess each project before approving or rejecting it. The impacts that a project will or may have on the environment and local stakeholders must therefore be carefully screened. Will there be significant positive impacts or negative ones? Many projects that reduce GHGs also have positive sustainable development impacts, and proof of this must also be provided. Voluntary projects are less strictly regulated, but they too, as a general rule, aim to contribute to sustainable development.

Figure 2: Egyptian sustainable development criteria

Social criteria	Economic criteria	Environmental criteria
improve quality of life; alleviate poverty;	provide financial returns to local entities;	reduce GHG emissions;
improve equity; and	have a positive impact on the balance of payments;	reduce the use of fossil fuels;
improve employment opportunities	result in transfer of financial resources; and have a positive impact on the national economy (e.g. infrastructure, export and import substitution, energy savings, payback periods and the state of technology).	conserve local resources; reduce pressure on local environments; provide improved health and other environmental benefits; meet national renewable energy targets; and increase energy efficiency and conservation.

What are CDM Programmes of Activities (PoAs)? In essence, a CDM PoA, or Programmatic CDM, is an umbrella project for the implementation of numerous, widespread CDM project activities of the same type, referred to as CDM Programme Activities (CPAs), under a programme initiated by a private or public sector entity. As for any CDM project, CPAs must result in additional emissions reductions. The PoA is registered with the CDM Executive Board, much as a 'traditional' CDM project is, and CPAs can be added to the registered PoA as they are implemented.

The novelty of this approach and its perceived advantage compared with traditional CDM project activities is that emission reducing activities that may not have been feasible under the traditional CDM, in view of their small size, can be grouped into one single PoA. This can decrease the implementation time and the transaction costs involved.

Is there a project methodology? In order to calculate the emissions reductions a project generates, a methodology needs to be applied. Methodologies are continuously being developed and approved specifically for the CDM. These are detailed and contain a variety of components and eligibility criteria for ensuring the integrity and reliability of the calculations. Methodologies include calculation of the emissions with and without the project, and information on leakage, such as project-induced GHG emissions outside the project boundary as defined in the document. If a project does not meet the eligibility criteria of an existing methodology, a new methodology can be developed and must be approved by the UN policing bodies for the CDM – the Executive Board and the Methodology Panel. Because of their regulated nature, CDM methodologies, or versions of them, are also often applied to voluntary projects and function as blueprints for new methodologies. There is no regulation regarding the methodologies to be used for the voluntary market as a whole; different schemes stipulate different requirements. More information on CDM methodologies is available on the UNFCCC Website: <http://cdm.unfccc.int/methodologies/index.html>

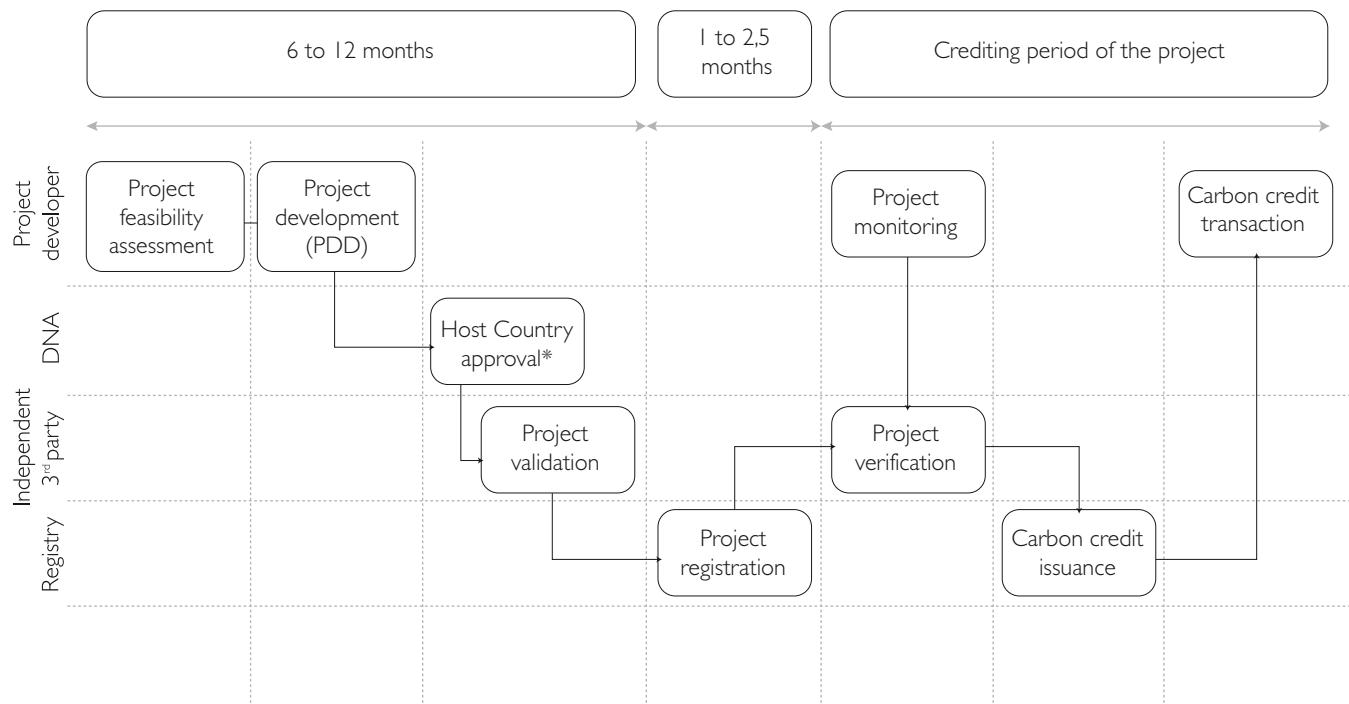
What volume of emissions reductions does the project result in? Developing a project in order to claim emissions reductions requires time and money, and may not be worthwhile if the sale of emissions reductions from the project does not justify the project development costs. It is therefore important to establish the quantity of emissions reductions in tCO₂e per year that the project produces. At the very least, the sale of emissions reductions should cover the cost of the project's GHG component. About 25% of projects in the global CDM pipeline, result in emissions reductions of 100 000 to 500 000 tCO₂e per year. It is expected that the average volume per project will decrease over time, as larger projects are developed and an increasing number of smaller projects come into the pipeline. However, it must be remembered that carbon revenue alone will not finance a project. Instead, it must be seen as an additional source of revenue. Small projects can accumulate emissions reductions from a variety of activities e.g. by bundling a number of activities or registering them as part of a CDM PoA. In general, the more emissions reductions the project results in, the greater the additional revenue.

Developing a GHG mitigation project

GHG mitigation projects can be developed in different ways and under various schemes. Under the Kyoto Protocol, for example, the CDM is a high-profile regulatory mechanism with a rigorous and transparent set of rules and regulations 'policed' by the UN. Moreover, not all projects are eligible. Projects may also be developed under a voluntary scheme. Although there are a number of standards for such projects, no commonly accepted and 'policed' framework is currently in place. Developers of voluntary projects frequently aim to achieve standards similar to those of the CDM in order to ensure the environmental in-

tegrity and sustainability of these projects. Transparency and quality that are comparable to Kyoto standards are frequently considered key criteria by credit buyers. Development of all project types therefore involves the following similar, basic steps, for the project to become a reality. These steps are described in the following sections.

Figure 3: Steps in developing a GHG mitigation project



Step 1: Project feasibility assessment

As with any kind of project, developers should first assess the feasibility of a GHG mitigation project. In-house capacity permitting, the assessment may be conducted by the project developer. Alternatively, outside expertise (such as a GHG-specific consultant) may be contracted. There are various dimensions to an assessment, however two key questions should always be considered:

- Can the project be implemented under the current conditions?
- Would this project be implemented in a business-as-usual scenario (i.e. without receiving an extra revenue stream through the sale of emissions reductions?). In other words, is it additional?

Developers should assess the economic, political and environmental dimensions of the project, and the likelihood that it will meet minimum standards under a compliance or voluntary framework. It is crucial that financing is available for the planning, implementation and operational phases of a project, so as to ensure its overall viability. Even when carbon credits from a project can be sold, thereby creating an additional source of revenue, these alone are not usually sufficient to finance the project.

CDM/voluntary: Stringent feasibility assessments should be conducted for both CDM and voluntary projects.

Step 2: Project development

If the conclusions of the project feasibility assessment are positive, project development can be considered. Development includes not only the implementation and construction of project infrastructure and technology on the ground, but also the completion of a project

design document (PDD), which clearly states what the project will do and exactly how it will achieve GHG reductions, compared to the baseline scenario (see Figure 4). As for the feasibility assessment, the project developer may use internal capacity to develop the project, or hire external expertise.

CDM: There are strict requirements for the development of CDM projects. To calculate the quantity of GHGs mitigated (in tCO₂e) UN-approved methodologies have to be used and the results presented in a transparent, conventional way. An existing methodology for calculating emissions reductions may be applied, or a new one developed. The project documentation also includes information on how the project differs from the business-as-usual scenario, and why implementation would not have happened without the revenue from the sale of the emissions reductions (i.e. proof of additionality as mentioned in the previous step). The project's impacts on the environment and stakeholders (i.e. its socio-economic impacts) must also be described, as the future monitoring of emissions reductions.

Voluntary: Generally, the requirements for implementation and the documentation that has to be produced for a voluntary project are comparable to those of a CDM project. Buyers from voluntary projects frequently stipulate project requirements for the purchase of VERs that are as stringent as those of the CDM. Nevertheless, the rules and regulations differ from standard to standard, e.g. the level of information required for the project, the methodologies used for calculating and monitoring emissions reductions, and how to prove additionality, where required.

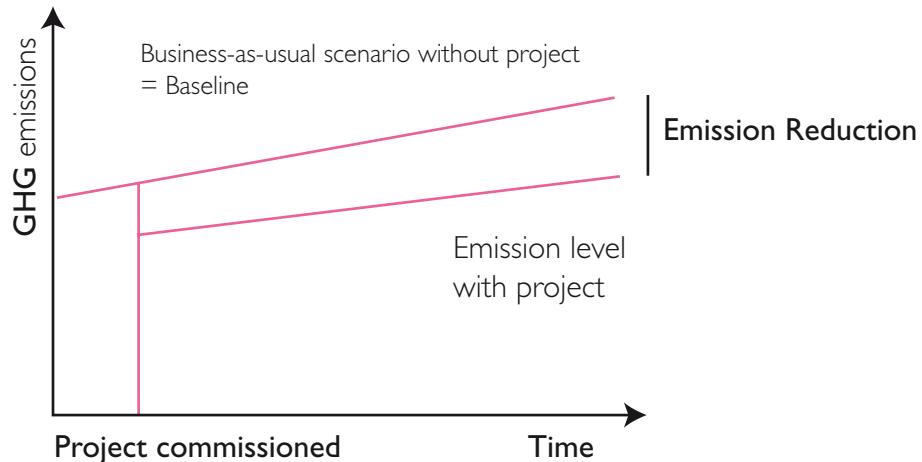


Figure 4: Calculating emissions with and without the project

Step 3: Host country approval

To ensure that a project complies with the aims and objectives for economic, social and environmental sustainable development of the host country, the country's approval must be sought. Such approval is usually granted by a specifically-designated organization within a government ministry, and is based on an assessment of country-specific sustainable development criteria.

CDM: Gaining host country approval through a Designated National Authority (DNA) is a prerequisite for implementation of a CDM project. DNAs are frequently located in a ministry of the project host country.

Voluntary: For voluntary projects, a letter of endorsement from the DNA may be sought. Although the DNA does not issue host country approval for a VER project, it may issue a letter of endorsement upon presentation of the project documentation.

Step 4: Project validation

To ensure that all the information included in the PDD is trustworthy and accurate, a third party may validate the project and its documentation. Validation helps to ensure that a project meets minimum quality criteria and that the calculations for computing GHG emissions reductions are accurate. Frequently, a validator will require additional information on the project, visit the site and seek clarification and modifications of the project documents in line with specific reporting criteria.

CDM: Validation is mandatory under the CDM and must be conducted through an independent, UN-approved organization, referred to as the Designated Operational Entity (DOE).

Voluntary: Validation is frequently a minimum requirement for voluntary projects to ensure their environmental integrity.

Step 5: Project registration

If the project is successfully validated, it may be registered with an official organization to demonstrate its compliance with a certain set of rules.

CDM: To register a CDM project with the CDM Executive Board of the UN, all the previous steps must have been successfully completed. CERs may only be issued if the project is successfully registered.

Voluntary: If the project is implemented under a voluntary scheme, standards such as the Climate, Community and Biodiversity Standard or the Voluntary Gold Standard may be used to ensure compliance with environmental and social criteria. Projects may also be registered with the Bank of New York's Global Registry and Custody service, the CCX, or another regime. A list of registries is annexed to this document.

Step 6: Project monitoring and verification

Depending on the project type and the equipment involved, a project can last several years or even decades. To ensure that the conditions set out in the PDD are present throughout the project's lifespan, project information is regularly verified. This prevents the project developer from attempting to sell emissions reductions that have not been achieved because the project is not being properly implemented or maintained. Validation is verified by an independent third party. For successful verification, the project developer must ensure that the project's key parameters with an impact on GHG emissions are closely monitored.

CDM: Verification is mandatory for CDM projects, and must be conducted by a UN-approved DOE. For large-scale projects, verification must be undertaken by a different DOE from the one used for validation, while for small-scale projects, the same DOE may be used.

Voluntary: For voluntary projects, the verification of emissions reductions depends on the requirements of the standard used. Most project developers claim that their emissions reductions are verified by an independent party.

Step 7: Credit issuance

If verification reveals that the project has been appropriately implemented and that GHG emissions reductions are occurring as planned, emissions reduction credits may be issued.

CDM: On successful project verification, the CDM Executive Board issues CERs which are deposited in a holding account of the officially-designated recipient (often that of the project developer). CERs may then be transferred into other holding accounts.

Voluntary: Owing to the lack of an international policing body for voluntary projects, credits for standardized and registered voluntary projects are issued in line with the requirements stipulated by the body issuing the credits, or those of the buyer.

Step 8: Transaction of carbon credits

To sell carbon credits, a contract is needed that stipulates the conditions under which the credits will be sold and the selling price of each credit. Such a contract should be put in place as early as possible during the project cycle, once it has been decided to implement the project.

CDM: The contract is referred to as an Emissions Reduction Purchase Agreement (ERPA). Once an ERPA is in place, the project developer can sell carbon credits to the buyer based on the conditions stipulated in the contract.

Voluntary: A contract is usually required to sell voluntary emissions reductions. This is referred to as Verified Emissions Reduction Purchase Agreement (VERPA).

Negotiating a (V)ERPA

A (V)ERPA is the single most important contract in the development of a GHG mitigation project. It establishes the essential terms and conditions under which the project will be developed and identifies the buyer of the carbon credits. Most importantly, it stipulates the volume and price of the carbon credits that the seller, (frequently the project developer), will sell to the buyer. Identifying the buyer and negotiating the contract should take place as early as possible in the project development cycle.

Before signing the (V)ERPA, the buyer will want to conduct thorough due diligence of the project. Due diligence includes assessing the project technology and site, the legal ownership of the project and thus the potential carbon credits and the underlying project financing. Assessment of the project's emissions reduction element is based on the criteria listed at the beginning of this document. If no PDD has been developed, a short Project Identification Note (PIN) with key project data may be drafted. The buyer may also wish to conduct a site visit to inspect the potential project.

The negotiation of the (V)ERPA assigns roles and responsibilities to the contract partners. The final contract determines which project participant is responsible for each aspect of the project. Issues such as tax payments connected with the project or the sale of emissions reductions, the issuing of routine progress reports and fulfilment of requirements for project registration (e.g. adequate documentation, local stakeholder consultation, project monitoring and maintenance), are addressed therein. The (V)ERPA also contains arbitration provisions, the law governing the contract and the language to be used for all communications/documentation.

The (V)ERPA between a buyer and a seller of carbon credits can be structured in many different ways. The sale may take the form of a spot transaction, a forward sale, or an option. The most common form of transaction is a forward sale, with defined quantities of carbon credits (either fixed amounts or percentages of the total carbon credits generated by the project) to be sold at defined future delivery dates for a specified price (which may be fixed or linked to a reference price). By negotiating the terms of the ERPA, the seller has a significant degree of control over the distribution of risk between buyer and seller.

Contract types vary according to prices paid:

- The lowest prices are typically paid when the project developer (or seller) does not guarantee delivery of a flexible (non-firm) volume of carbon credits, while the buyer guarantees to buy under very few preconditions.
- The next lowest prices are paid when the buyer guarantees to buy only under a number of preconditions.
- Prices are higher when the seller guarantees to deliver a definite (firm) volume, while the buyer guarantees to buy under the same preconditions.
- The highest prices are charged when the seller guarantees delivery and agrees to pay for substitute carbon credits or provide cash if the emissions reductions do not materialize, and the buyer guarantees to buy.

A CDM ERPA template, including standardized wording can be found at: www.ieto.org or www.cerspa.com

The carbon market

In early 2008, 937 CDM projects were registered with the UNFCCC and are expected to lead to approximately 1.16 billion CERs by the end of 2012. More than 2 900 other projects are in the pipeline. Eighty-three of the projects registered (6.85%) are in the agricultural sector and 1 (0.08%) is in the afforestation/reforestation sector. An additional 14 projects in afforestation and reforestation are under validation.

The average price of a CER - based on different CER broker prices - was EUR 14.69 in December 2007. Although this price is likely to change due to the lack of standardization in the market, it is a good indication of the overall value of the CDM sector.

The compliance market for Kyoto-ratifying countries consists of the EU (with varying degrees of involvement of the member states) and Japan. These markets therefore constitute the main demand for emissions reduction credits. It is widely expected that Canada may not meet its 2012 Kyoto target, while Australia ratified the Protocol only recently. The EU's ETS is a key market for the trade of CERs. However, at the time of writing, tCERs from LULUCF projects are not eligible under the ETS.

Reliable market intelligence on the voluntary market is difficult to come by, because of this market's unregulated nature. Surveys suggest that the voluntary market is significantly smaller than the CDM market. According to the State of the voluntary carbon market (2007) report, a total 23.7 million VERs were traded in 2006: 10.3 million on the CCX, and 13.4 million in the over-the-counter voluntary offset market. The price of credits ranged significantly, from USD 0.45 to USD 45, with an average of USD 4.10. However, this market is set to consolidate and strengthen in the future.

It is important to note that according to the 2007 report, a higher percentage of forestry-based credits and credits sourced out of Africa come from the voluntary market, than from the Kyoto compliance market. At the time of writing, the voluntary market is also the only source of credits from avoided deforestation projects. The North American and European markets are said to account for the lion's share of VER demand.

Financing GHG mitigation projects

Although the sale of carbon credits can provide additional cash flow for GHG mitigation projects, it is not designed to finance projects in their entirety. It is therefore crucial that sufficient underlying financing exists for project implementation and maintenance in the long term. There are a number of options for financing CDM and voluntary projects. UNCCD stakeholders should leverage these financing options as far as possible, to gain access to climate change funding for projects that combat desertification.

Most of the costs related to registering a GHG mitigation project are incurred during the planning phase. This must therefore be regarded as a high-risk investment, since these costs will not be recovered if the project is not implemented. Such costs must be covered by risk capital - either equity or grants that do not have to be repaid if the project is not realized. Voluntary projects that rely heavily on the sale of carbon credits can incur similar costs during the planning phase.

The main sources of finance for project costs during the planning phase are:

- Government tenders and carbon funds that often pay a proportion of planning costs in return for a contract to purchase some or all of the resulting emissions reductions (see Annex for lists of government and private sector funds).
- Private sector project developers that may cover part or all of the costs arising from registration requirements for a project's GHG mitigation in return for a contract to purchase some or all of the resulting emissions reductions.
- Project hosts i.e. public or private sector entities that provide their own internal funds to develop projects with which they are associated, for example, as landowners, fuel supply providers or off-takers of project products and services, other than carbon credits.

The situation is more complex in terms of the costs incurred during the construction phase. Depending on the project type, these costs are generally much higher than those in the planning phase, even though CDM projects are still relatively small (typically less than USD 20 million). The potential sources of finance at this stage include:

- lenders that may provide limited-recourse debt to relatively large projects with secure revenue streams and relatively low risks, or to other projects with recourse to a financially strong sponsor;
- private sector project developers that may be able to finance smaller projects with their own equity investments;

- project hosts that may be able to finance smaller projects from their own internal funds;
- equipment suppliers that may provide assets on lease or credit; and
- carbon credit buyers that may provide upfront payments against future carbon credit deliveries.

Based on these sources, different models can be used to finance GHG mitigation projects. The models described in the following paragraphs have been observed mainly on the CDM market, but can also apply to voluntary projects. It should be noted, however, that the voluntary market is less transparent and information on financing voluntary projects is limited.

Conventional project financing

GHG mitigation projects face a number of structural challenges in obtaining any form of financing, particularly bank debt. Projects are typically small, and the loans required are often too small to justify a bank's investment in a GHG mitigation project. Small-scale projects in the land use sector are particularly likely to be affected by such constraints. Climate-friendly technologies such as renewables are usually also more capital-intensive than fossil fuel alternatives. In addition, lenders to developing country projects often involve higher interest rates or repayment over shorter loan periods than the project can sustain. Furthermore, the regulatory risks of the carbon market can be significant. For example, only when the Kyoto Protocol came into force in February 2005, was the legal foundation of the compliance market established. All of this has led to a relative scarcity of bank loans to CDM projects to date, with few exceptions.

100% equity investment by a private sector mitigation project developer

A far more common financing model involves specialized CDM and voluntary project developers, who invest directly in a GHG mitigation project in return for part or full ownership of the resulting carbon credits. The advantage of this is the speedy and comparatively simple availability of finance at lower risk to the project host. On the downside, the project host may easily feel that control over the project has been lost, since implementation is handed over to mitigation experts. Moreover, equity investors claim a high share of returns from the project, given the investment risk they are taking.

Corporate financing by the project host

In essence, corporate financing by the project host is much the same as 100% equity financing by a project developer, with the difference that in corporate financing, the project host assumes the role of the project developer. This allows the host to control the carbon credits and such a financing model can also usually be put into place more quickly. The disadvantage is that the capacity to fulfil all the requirements of a GHG mitigation project may be lacking; in which case external expertise will have to be sought.

Equipment lease financing

Equipment often accounts for a large percentage of the total upfront capital expenditure of a GHG mitigation project, and equipment providers can be a source of project finance. Some suppliers of specialized equipment may be willing to lease the equipment to a project host or developer, rather than selling it outright, particularly when the equipment is of value to the supplier even after it has been used by the customer. This is effectively a loan from the equipment supplier, secured on the equipment itself, which remains under the ownership of the supplier, unless at an agreed stage in the contract, it is sold to the project host or developer.

Upfront payments

The buyer of the carbon credits is another potential source of finance for a project. Normally, there is a mismatch between the upfront investment needed for project construction and the receipt of payments for emissions reductions that usually occurs only once the project is completed and the emissions reductions are verified. This mismatch can be reduced if a buyer is prepared to make an upfront payment for future delivery of carbon credits from the project.

An upfront payment is effectively a loan provided by the carbon credit buyer. If this loan is secured against the future delivery of carbon credits only, as set out in a (V)ERPA, it is high risk, since it is exposed to the same risks as any conventional loan but without the lender having the ability to seize project assets in the event of non-payment (although the lender does have legal title to the carbon credits). Consequently, most carbon credit buyers apply a relatively high discount rate to the future value of the credits when formulating offers of upfront payments. In financial terms, this is equivalent to charging a high interest rate. Alternatively, the credit buyer may require a guarantee or other security, such as a letter of credit from an investment bank. In this case, the cost of the guarantee must be taken into consideration.

Low-interest loans or debt

A number of development banks with lending programmes in the less-developed countries can function as 'last resort lenders' to projects that would otherwise have difficulty obtaining finance. Examples of such institutions include the World Bank, the Asian Development Bank, the African Development Bank, the Inter-American Development Bank and the European Bank for Reconstruction and Development. With the aim of supporting poverty reduction and economic growth in developing and transition economies, these institutions can sometimes provide loans at lower interest rates than are generally available in the host countries.

In many cases, such funding is complementary to financing from other local or international sources. A number of banks and bilateral funding bodies also offer support in the development of the CDM or GHG mitigation components of eligible projects, including through providing grants and direct assistance in developing the necessary documents. (See Annex for a list of institutions that offer such assistance).

It should be noted that financing a CDM project from public funding sources must not result in official development assistance (ODA) being diverted. The sources of public funding must be kept separate and not count towards the financial obligations of the donating developed country. When a project is financed by public funds, the project developer is required to provide information on the public funding sourced from developed countries, in order to prove that public funding has not led to ODA being used for any purpose other than that for which it was intended.

Micro-credit

Micro-credit is similar to traditional bank debt finance, but aims to provide very small amounts of credit to lenders with limited ability to pay, particularly in rural areas of developing countries. Finance is provided by local institutions, referred to as micro-finance institutions (MFIs), which have local presence and experience in rural areas. Regarding GHG mitigation, micro-credit is typically applicable to (very) small-scale projects, particularly those that involve end-users purchasing specific technology such as solar water heaters, biodigesters, and more efficient cooking stoves.

RESOURCES



For information on all CDM modalities, procedures, methodologies and projects, see the UNFCCC CDM Website:
<http://cdm.unfccc.int>

For more information on the following voluntary schemes visit:

Climate, Community and Biodiversity Standard:
www.climate-standards.org

Gold Standard, CDM and voluntary: www.cdmgoldstandard.org

Chicago Climate Exchange: www.chicagoclimatex.com

Voluntary Carbon Standard: www.v-c-s.org

For an overview of voluntary carbon standards visit:

New Carbon Finance (July 2007) State of the voluntary carbon markets 2007: Picking up steam: www.newcarbonfinance.com

Clean Air Cool Planet (December 2006) A consumer's guide to retail carbon offset providers: www.cleanair-coolplanet.org

Voluntary Carbon Standard (November 2007) Guidance for agriculture, forestry and other land use projects: www.v-c-s.org

For more information on preparing and presenting proposals and project financing visit:

UNFCCC (2006) Preparing and presenting proposals – a guidebook on preparing technology transfer projects for financing:
www.unfccc.int

UNEP Risoe (2006) Guidebook to financing CDM projects:
www.cd4cdm.org

For an ERPA template visit www.ieto.org or www.cerspa.com

For more legal guidance visit:
UNEP Risoe (2004) Legal issues guidebook for the CDM:
www.cd4cdm.org

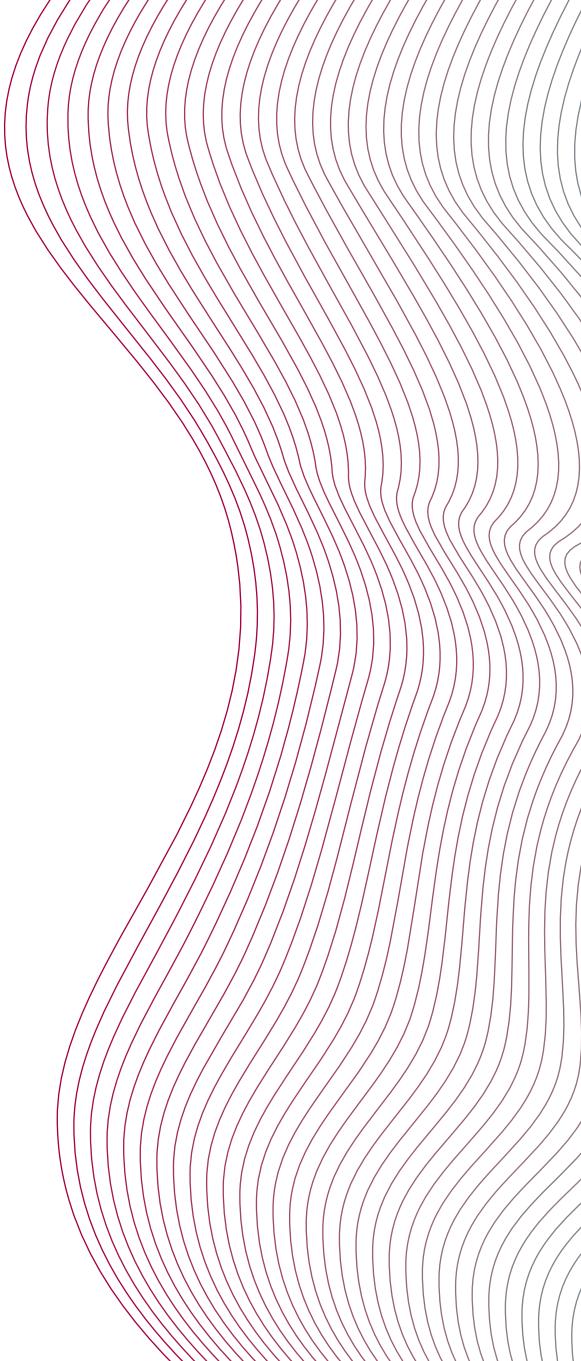
For a list of private financiers, the following link provides an overview of commercial banks worldwide:
<http://tfs.xproject.ru/bankwatch/eng/bnksrtd/banks.html>

For information on the World Bank Group's work on carbon finance, see: <http://carbonfinance.org>

For more information on planning a business and guidance on business plans, visit the United States Small Business Administration (SBA): www.sba.gov

ANNEX I

Funds and financiers



Multilateral and government carbon fund

FUND	MANAGEMENT	TYPE OF PROJECTS AND GEOGRAPHIC FOCUS
Austrian JI/CDM Programme: www.ji-cdm-austria.at/en	Kommunalkredit Public Consulting	<ul style="list-style-type: none">- All CDM/JI project types.- Memoranda of Understanding with: Argentina; Bolivia; Bulgaria; China; Colombia; Czech Republic; Ecuador; Estonia; Hungary; Indonesia; Latvia; Mexico; Morocco; New Zealand; Peru; Romania; Slovakia; Tunisia; and Vietnam.
Belgian JI/CDM tender: www.klimaat.be/jicdm tender/	Belgian Federal Government	<ul style="list-style-type: none">- All CDM/JI project types (excluding LULUCF), with preference for small-scale projects in energy efficiency and renewable energy.- Geographic focus: Africa; least-developed countries; partner countries of Belgian Development Cooperation.

CMD PROJECT SUPPORT AND FUND DATES

- Maximum of 50% (EUR 40 000) of project document costs (e.g. baseline study, monitoring plan, validation).
 - Ongoing calls for projects.
 - To be fully invested in 2012.
-
- Contribution to proposal document costs (minimum of EUR 27 500) if project developer commits exclusively to the fund.
 - First tender for projects closed, second tender launched late 2006.
 - Prepayment of up to 50% of contract under certain conditions.
 - Operational until 2012.

FUND	MANAGEMENT	TYPE OF PROJECTS AND GEOGRAPHIC FOCUS
BioCarbon Fund: www.carbonfinance.org	World Bank Carbon Finance Group	<ul style="list-style-type: none"> - CDM: afforestation/reforestation - JI: LULUCF. - Plans to purchase credits not applicable under Kyoto Protocol.
CAF-Netherlands CDM Facility: www.caf.com	Corporation Andina de Fomento (CAF)	<ul style="list-style-type: none"> - CDM projects in energy, mass transport, industry and waste sectors. - Geographic focus: members of CAF and other Latin American and Caribbean countries.
CAF-Spain Carbon Initiative : www.caf.com	Corporation Andina de Fomento (CAF)	Same as CAF-Netherlands CDM Facility
Community Development Carbon Fund: www.carbonfinance.org	World Bank Carbon Finance Unit	<ul style="list-style-type: none"> - All CDM project types (including afforestation, reforestation and LULUCF) that make sustainable contribution to community development. - Large-scale projects must yield > 50,000 tCO2e per year.

CMD PROJECT SUPPORT AND FUND DATES

- Some project documents paid by Fund (baseline study, additionality, verification), but charged to project if approved.
 - Expected to stop purchases in 2017.
-
- Up to 100% of project document costs, decided on project-by-project basis.
 - To be fully invested in 2012.

Same as CAF- Netherlands CDM Facility

- Project document costs (baseline study, monitoring plan, PDD) initially covered by Fund, but reimbursed via adjustment of CER level after issuance.
- Closed to investors.
- Operational until 2015.

FUND	MANAGEMENT	TYPE OF PROJECTS AND GEOGRAPHIC FOCUS
Danish Carbon Public Procurement Programme: www.danishcarbon.dk	Danish Environmental Protection Agency (DEPA)	<ul style="list-style-type: none"> - CDM/JI projects in renewable energy, fuel-switching, energy efficiency, methane capture, industrial emissions reductions. - Geographic focus: Central and Eastern Europe; Central Asia; and Caucasus. - Large-scale projects must yield > 50,000 tCO2e per year.
EcoSecurities/ Standard Bank Carbon Facility: www.ecosecurities.com , www.standardbank.com	EcoSecurities, Standard Bank	<ul style="list-style-type: none"> -CDM/JI (Tracks 1 and 2) excluding sequestration projects -Geographic focus: Central and Eastern Europe - Large-scale projects must yield > 50,000 tCO2e per year
Flemish Government JI/CDM Tender: www.energiesparen.be/fxm	The Flemish Region	<ul style="list-style-type: none"> - CDM/JI (Track 2), preference for energy saving, energy efficiency, renewables.

CMD PROJECT SUPPORT AND FUND DATES

- Accepted proposals may be offered DKK200,000 for further development
 - Fourth tender opened in 2006 with PIN submission deadlines throughout the year.
 - To be fully invested by 2012 .
-
- Project documents (including host country approval) prepared by Facility and paid by Danish Government. Project developer pays verification costs.
 - Operational until 2012 (possibility of prorogation).
-
- No support offered.

FUND	MANAGEMENT	TYPE OF PROJECTS AND GEOGRAPHIC FOCUS
Italian Carbon Fund: www.carbonfinance.org	World Bank Carbon Finance Unit	<ul style="list-style-type: none"> - CDM/JI projects, especially in renewables, methane capture, gas flaring and carbon sequestration. - Geographic focus: the Mediterranean; the Balkans; Latin America; and the Middle East.
Multilateral Carbon Credit Fund (MCCF): www.ebrd.com	European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB)	<ul style="list-style-type: none"> - CDM/JI projects and facilitation of green investment schemes. - Credits purchased from EBRD/EIB-financed projects only - Geographic focus: EBRD lending countries (Eastern Europe, Central Asia).
Netherlands Carbon Facility (INCaF): www.ifc.org/carbonfinance	International Finance Corporation (IFC)	<ul style="list-style-type: none"> - CDM projects with focus on renewable energy, energy efficiency, capture and use of methane, fuel-switching, mitigation of potent GHGs.
Netherlands CDM Facility: www.carbonfinance.org	World Bank Carbon Finance Unit	<ul style="list-style-type: none"> - CDM projects (including LULUCF) in renewables, biomass, energy efficiency, fuel-switching, methane recovery, and carbon sequestration.

CMD PROJECT SUPPORT AND FUND DATES

- Project document costs (baseline study, monitoring plan, PDD) initially covered by Fund, but reimbursed via adjustment of CER level after issuance.
- Operational until 2014

NA.

- Project document costs not generally paid, but may be requested by client. Costs must be reimbursed or are integrated into CER price.
- To be fully invested in 2007.
- Ongoing IFC activity planned.

- Project document costs (baseline study, monitoring plan, PDD) initially covered by Fund, but reimbursed via adjustment of CER level after issuance.
- To be fully invested in 2006.

FUND	MANAGEMENT	TYPE OF PROJECTS AND GEOGRAPHIC FOCUS
Prototype Carbon Fund (PCF): www.carbonfinance.org	World Bank Carbon Finance Unit	<ul style="list-style-type: none"> - CDM/JI projects (including LULUCF). - Projects must yield > 30,000 tCO2e per year.
Rabobank-Dutch Government CDM Facility: www.rabobank.com	Rabobank	<ul style="list-style-type: none"> - CDM projects (excluding forestry). - Geographic focus: where Bank is active, and especially in China, India, Brazil and Mexico. - Preference for projects with 1 mt of CERs before 2012
Spanish Carbon Fund: www.carbonfinance.org	World Bank Carbon Finance Unit	<ul style="list-style-type: none"> - CDM/JI projects with sustainable development component in renewable energy, biomass, agricultural waste, urban waste management, industrial processes. - Geographic focus: Latin America, North Africa and Europe.
Swedish International Climate Investment Program (SICLIP) 2002–2012: www.stem.se	Swedish Energy Agency	<ul style="list-style-type: none"> - CDM/JI projects, preference for renewable energy, energy efficiency, small and medium-sized projects. - Geographic scope: Asia, Latin America, Africa, Central and Eastern Europe.

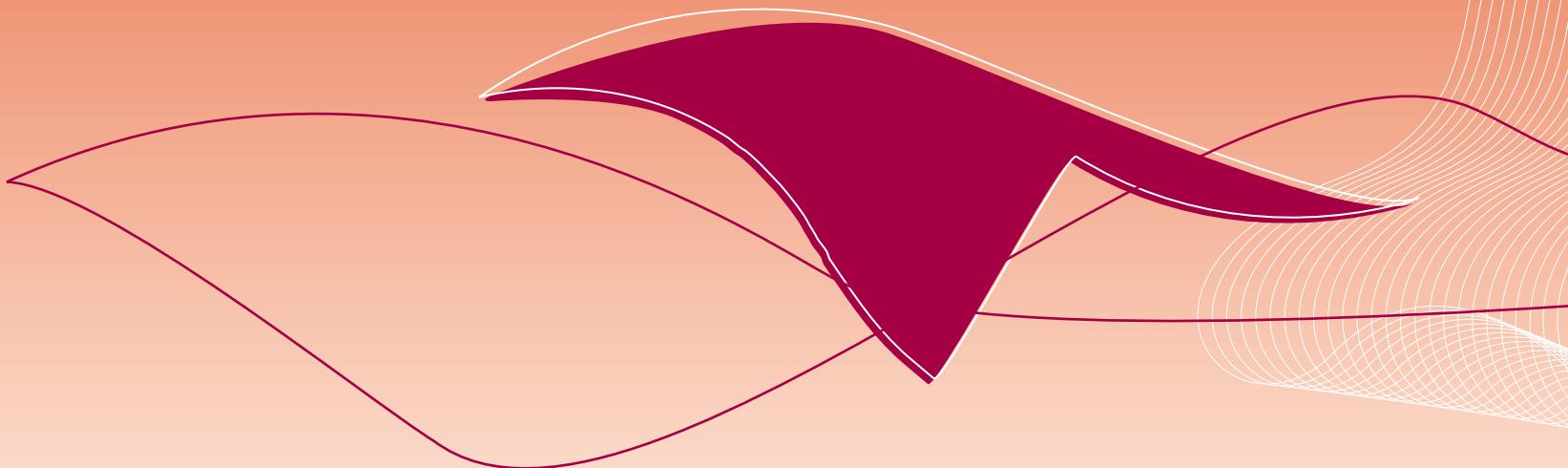
CMD PROJECT SUPPORT AND FUND DATES

- Project document costs (baseline study, monitoring plan, PDD) initially covered by Fund, but reimbursed via adjustment of CER level after issuance.
 - Operational until 2013 unless participants decide to extend.
-
- Project-specific.
 - To be fully invested in 2012.
-
-
-
- Project document costs (baseline study, monitoring plan, PDD) initially covered by Fund, but reclaimed once project is approved.
 - Operational until 2015.
-
-
-
- Support for document preparation provided on request.
 - Covers up to + 50% of costs.
 - To be fully invested in 2007.



THE CLIMATE CHANGE MITIGATION AND ADAPTATION INFORMATION KIT

Climate Change Mitigation and Adaptation **GLOSSARY**



CLIMATE CHANGE MITIGATION AND ADAPTATION GLOSSARY

The Global Mechanism

The GM supports country Parties to increase the effectiveness and efficiency of existing financial mechanisms and to promote actions leading to increased, sustainable and predictable flows of substantive financial resources for degraded lands, desertification and sustainable land management (SLM). The GM supports country Parties in the development of integrated financing strategies (IFSs), which guide the process towards the establishment of investment frameworks for the implementation of the United Nations Convention to Combat Desertification (UNCCD), by mobilizing a blend of financial resources, including from innovative sources, as called for by the Ten-Year Strategic Plan and Framework to Enhance the Implementation of the UNCCD (2008-2018).

The GM's Strategic Programme on Climate Change and Compensation for Environmental Services (CCES)

The CCES programme seeks to leverage additional financing for UNCCD implementation by promoting synergistic approaches that address the objectives of the other two Rio Conventions with particular emphasis placed on linkages with the United Nations Framework Convention on Climate Change (UNFCCC). As part of this process, the GM, in accordance with the UNCCD Ten-Year Strategic Plan and Framework to Enhance the Implementation of the Convention (2008–2018), is actively undertaking actions to support country partners in accessing innovative financing, particularly related to current and/or emerging climate change mitigation and/or adaptation financial mechanisms.

The Climate Change Mitigation and Adaptation Information Kit

This document is the last of four that make up the GM's Climate Change Mitigation and Adaptation Information Kit. The other three documents are:

- Document 1: Linkages between the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification;
- Document 2: Adaptation to Climate Change and Sustainable Land Management; and
- Document 3: Mitigation to Climate Change and Sustainable Land Management;

The information kit was prepared with the support of EcoSecurities Global Consulting Services and the Food and Agriculture Organization of the United Nations (FAO) Investment Centre.

More information

For more information on the work of the UNCCD, the GM and its Strategic Programme on CCES please visit: www.global-mechanism.org or contact Alejandro Kilpatrick, CCES Programme Coordinator: a.kilpatrick@global-mechanism.org



Adaptation

'Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, to moderate harm or exploit beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation.' (International Panel on Climate Change - IPCC)

Adaptive capacity

'The ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damage, to take advantage of opportunities, or to cope with the consequences.' (IPCC)

Additionality

The requirement that the emissions reductions resulting from a climate change mitigation project are over and above those that would have been achieved had the project not taken place (business-as-usual scenario).

Agriculture, forestry and other land use

AFOLU

Broad categorization of sectors with emissions reduction potential. Not all activities, gases and lands in this category are covered under the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol.

Annex I Parties

Countries listed in Annex I to the UNFCCC i.e. developed countries with quantitative emissions reduction targets under the Kyoto Protocol.

Alliance of Small Island States

AOSIS

Alliance of 43 low-lying small island states and observers from all oceans and regions: Africa; the Caribbean; the Indian Ocean; the Mediterranean; and the Pacific and South China Sea.

Baseline

An assessment of the status quo or business-as-usual scenario that would have occurred in the absence of a project. For a mitigation project, it refers to the emission levels without the project. For an adaptation project, it refers to the vulnerability without the project.

Business as usual

BAU

The continuation of the status quo. It usually refers to a scenario in which an emissions reducing activity/project has not taken place.





Carbon credit

Generic term for an allowance for emitting 1 metric ton of carbon dioxide equivalent (tCO₂e).

Chicago Climate Exchange

CCX

A trading platform for verified/voluntary emission reductions (VERs), located in the United States.

Climate Change and Compensation for Environmental Services

CCES

The GM's Strategic Programme that mobilizes climate change funding through its work.

Clean Development Mechanism

CDM

Introduced by the Kyoto Protocol to govern project-level carbon credit activities in non-Annex I countries of the UNFCCC.

Certified emissions reduction

CER

Carbon credit from a CDM project, expressed in tCO₂e.

Carbon dioxide

CO₂

The most common greenhouse gas (GHG).

**Carbon dioxide equivalent
CO₂e**

Unit in which different greenhouse gases can be measured, based on their global warming potential.

First commitment period (2008 - 2012)

The period in which Annex I countries must show that they have met their Kyoto targets.

**Conference of the Parties
COP**

The governing body and supreme decision-making authority for the Parties to the UNFCCC.

**Convention on Biological Diversity
CBD**

International legal instrument under the UN to safeguard biodiversity. Signed at the Earth Summit in Rio de Janeiro, Brazil, the CBD entered into force on 29 December 1993.

**Designated National Authority
DNA**

Climate change focal point of a UNFCCC country Party that approves CDM projects in the project host country.





e

Designated Operational Entity

DOE

Independent third party, approved by the COP/MOP (Meeting of the Parties) that validates and verifies CDM/Joint Implementation (JI) projects. Includes companies such as: Det Norske Veritas (DNV); TÜV Süd; and SGS that are all involved in validation and certification.

Environmental impact assessment

EIA

An assessment of the impact that a project will have on the environment.

Emissions trading

Mechanism introduced by Article 17 of the Kyoto Protocol allowing trade of emissions allowances (AAUs) between Annex I countries. Also refers more generally to trading carbon credits.

Executive Board (of the CDM)

EB

International authority that supervises the registration of CDM projects and CDM-related procedures.

Emission Reduction Purchase Agreement

ERPA

Contractual agreement for the purchase of carbon credits/CERs.



European Union Emissions Trading Scheme

EU ETS

Cap-and-trade scheme for GHG emissions from major industrial sectors within the European Union (EU).

Global Environment Facility

GEF

An independent financial organization that provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities and that are related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. Also charged with implementing and managing the different adaptation funds.

Greenhouse gas

GHG

Defined by the Intergovernmental Panel on Climate Change (IPCC) as one of a group of six gases that contribute to human-induced climate change: carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); perfluorocarbons (PFCs); hydrofluorocarbons (HFCs); and sulphur hexafluoride (SF₆).

Global Mechanism

GM

A subsidiary body of the UNCCD with a mandate to ‘increase the effectiveness and efficiency of existing financial mechanisms...[and]...to promote actions leading to the mobilization and channelling of substantial financial resources to affected developing country Parties.’ (Article 21, UNCCD).



Global warming potential

GWP

The potency of a GHG with regards to its impact on climate change, expressed in comparison with the GWP of carbon dioxide, which is 1.

Host country

Country in which a GHG mitigation or adaptation project is implemented.

Investor country

Country purchasing or receiving as a return on investments, carbon credits accruing from a GHGs emission reduction project.

Intergovernmental Panel on Climate Change (IPCC)

IPCC

Established in 1988 by the WMO and the UNEP, the IPCC surveys worldwide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change observed and projected impacts and options for adaptation and mitigation.

Joint Implementation

JI

Mechanism introduced by the Kyoto Protocol to govern project-level carbon credit activities between Annex I countries.

Joint Liaison Group

JLG

UN group to ensure liaison between the three Rio Conventions: the CBD; the UNCCD; and the UNFCCC.

Kyoto Protocol

KP

International legal instrument on climate change containing emissions reduction commitments for Annex I Parties.

Least Developed Countries Fund

LDCF

An adaptation fund managed by the GEF and directed towards least developed countries.

Letter of Approval

LoA

Letter issued by a DNA in the approval process of a CDM project.

Land use, land-use change and forestry

LULUCF

Kyoto Protocol term for terrestrial carbon sink activities (forestry, agriculture, etc.).





Modalities and procedures

M&Ps

Rules governing the operations of the CDM, as agreed by the Parties to the Kyoto Protocol.

Marrakesh Accords

Agreements on rules and regulations reached at UNFCCC's COP7, with an emphasis on the CDM, including M&Ps.

Conference of the Parties serving as the Meeting of the Parties

COP /MOP

Under the UNFCCC, the Conference of the Parties (COP) also serves as the Meeting of the Parties (MOP) to the Kyoto Protocol. However, countries having ratified the Convention but not the Protocol may attend the MOP, without any right of decision.

Mitigation

A human intervention to reduce the sources or enhance the sinks of GHGs.

National Action Plans

NAPs

The plans developed by UNCCD member countries for combating desertification.



National Adaptation Plans of Action

NAPAs

'Documents prepared by least developed countries (LDCs) identifying urgent and immediate activities useful for coping with climate change. NAPAs are presented to the international donor community for support' (UNFCCC)

Non-governmental organization

NGO

A special interest group with no affiliation to any government.

Non-Annex I countries

Countries not listed in Annex I to the UNFCCC; generally developing countries that are currently without quantified emission reduction targets.

Official development assistance

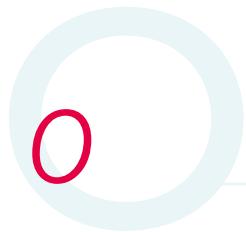
ODA

Development aid from developed to developing countries.

Programme of activities

POA

An umbrella project for the implementation of numerous, diffuse CDM project activities, referred to as CDM Programme Activities (CPAs), under a programme initiated by a private or public sector entity.





Project design document

PDD

Document that must be prepared and submitted to the CDM Executive Board through a DOE in order to register a CDM project.

Project identification note

PIN

Preliminary CDM feasibility study that is not a statutory part of the CDM process but is often produced to facilitate host country approval and/or project financing.

Public private partnership

PPP

Collaboration between public institutions and private sector companies with the aim of harnessing private sector efficiency and resources to meet goals that benefit the public.

Reducing Emissions from Deforestation and Forest Degradation

REDD

Refers to the concept of compensation for reducing emissions from deforestation and land degradation. Also commonly referred to as 'avoided deforestation'.

Regional Greenhouse Gas Initiative

RGGI

A cooperative effort by 9 United States northeast and mid-Atlantic states to design a regional cap-and-trade programme initially covering CO₂ emissions from power plants in the region.



Sensitivity

'The degree to which a system is affected by climate-related stimuli - either adversely or beneficially. The effect may be direct (e.g. a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g. damages caused by an increase in the frequency of coastal flooding due to sea level rise).' (IPCC)

Special Climate Change Fund

SCCF

Established under the UNFCCC in 2001 to finance projects relating to: adaptation; technology transfer; capacity building; energy; transport; industry; agriculture; forestry; waste management; and economic diversification. The fund became operational in 2004 and is administered by the GEF.

Strategic Priority for Adaptation

SPA

As part of the GEF Trust Fund, supports pilot and demonstration projects that address local adaptation needs and generate global environmental benefits in all GEF focal areas.

Sustainable development

Achieving economic and social goals in ways that can be supported in the long term by conserving resources, protecting the environment, and ensuring human health and welfare.

Sustainable land management

SLM

Land use practices that ensure land, water, and vegetation adequately support land-based production systems for the current and future generations. SLM is 'the foundation of sustainable agriculture and a strategic component of sustainable development and poverty alleviation[...]' (World Bank).

Temporary Certified Emission Reduction

tCER

A CER (tCO₂e), issued to project participants in an afforestation/reforestation project activity under the CDM which expires at the end of the commitment period following that in which it was issued. (The first commitment period is 2008-2012, while the second is expected to run from 2013-2017)

Ton of carbon dioxide equivalent

tCO₂e

Common unit for carbon credits.

United Nations Convention to Combat Desertification

UNCCD

International legal instrument under the UN to combat desertification, land degradation and mitigate the effects of drought. The Convention was adopted in Paris on 17 June 1994 and entered into force on 26 December 1996.

United Nations Conference on Environment and Development

UNCED

Also known as the “Earth Summit” this conference was held in Rio de Janeiro in June 1992.

United Nations Development Programme

UNDP

UN body created in 1965, acting as the largest multilateral source of development assistance in the world and responsible for coordinating UN development-related work.

United Nations Environment Programme

UNEP

UN body, created in 1972, responsible for coordinating UN environmental activities, assisting developing countries in implementing environmentally-sound policies and encouraging sustainable development through sound environmental practices.

United Nations Framework Convention on Climate Change

UNFCCC

International legal instrument to address climate change, developed at the UNCED, held in Rio de Janeiro in 1992 and that entered into force on 21 March 1994. The ultimate objective of the Convention is ‘to stabilize GHG concentrations in the atmosphere at a level that would prevent further human-induced global warming’ (UNFCCC)



Validation

Procedure whereby a third party assesses a CDM project and its documentation to ensure that all information included in the PDD is trustworthy and accurate.

Verified Emission Reduction

VER

A carbon credit that has been verified by an independent third party, but has not been approved under the Kyoto Protocol.

Verification

The periodic independent review and ex-post determination by an independent entity of the monitored GHG emission reductions that have occurred as a result of a CDM/JI project activity in a given period.

voluntary emission reduction

A carbon credit created specifically for the voluntary offset market.

Voluntary Emission Reduction Purchase Agreement

VERPA

Contractual agreement for the purchase of voluntary carbon credits / CERs.

Vulnerability

'The degree to which a system is susceptible to, or unable to cope with the adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity' (IPCC).



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