UNCTAD/DITC/TED/2003/1

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT
Geneva

An Implementation Guide to the Clean Development Mechanism

UNITED NATIONS
New York and Geneva, 2003

NOTE

Symbols of the United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

UNCTAD/DITC/TED/2003/1

Contents

Tables and Figures

Foreword

On behalf of the UNCTAD/Earth Council Carbon Market Programme, I am pleased to make this study available to the public. It updates a previous publication, "Layperson's Guide to the Clean Development Mechanism", launched in mid-2002, and is part of a series aimed at enabling developing countries to evaluate risks and capture trade and investment opportunities arising from the Kyoto Protocol. The CDM Guide is also intended to assist in the pursuit of the Protocol's goal of combating global climate change in ways that do not place undue pressure on the global economy. Additional UNCTAD publications address the other Kyoto Protocol mechanisms – Emissions Trading and Joint Implementation.

The CDM Guide has been particularly relevant for policy and decision makers. Brazil used it as a basis for its own Brazilian Implementation Guide, and the United Republic of Tanzania is doing the same. Other countries have also expressed interest in using it as a model for developing their own national guides, as a means of explaining CDM to their citizens, and as a tool to interest national and international investors and project developers in CDM opportunities.

These Guides are also part of the online courses now being offered and developed by the UNCTAD/Earth Council Carbon Market E-Learning Centre (CMEC). A description of these courses and other relevant information can be found at http://www.LearnSD.org. The first course on the Clean Development Mechanism is now in its fifth session. Other courses will be available soon.

The UNCTAD/Earth Council Carbon Market Programme wishes to thank the United Nations Foundation and the United Nations Fund for International Partnerships for financing the series. We also wish to acknowledge the support of the Government of Norway and the Swiss Agency for the Environment, Forests and Landscape.

Rubens Ricupero
Secretary-General of UNCTAD

PART I

OVERVIEW

1. Background

In 1992 over 180 countries at the "Earth Summit" in Rio de Janeiro adopted the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC is a legal framework that enables Parties to the Convention to start the process of stabilizing greenhouse gases (GHGs) in the atmosphere. Parties to the UNFCCC have been meeting every year since 1994 to implement and define this framework. At the third meeting of the Parties, COP 3, the Kyoto Protocol was adopted and set legally binding GHG reductions for industrialized countries, or so-called Annex I Parties. The Kyoto Protocol enters into force when at least 55 countries ratify the treaty and these countries represent at least 55 per cent of the Annex I countries' 1990 emissions levels.[1] In time for the first compliance period (2008-2012), Annex I Parties will have to encourage or regulate private companies and individuals to reduce GHG emissions. Most of these reductions will occur within the borders of each Annex I country, but the Kyoto Protocol identifies mechanisms by which credit can be received for GHG reduction projects in non-Annex I countries.

The Clean Development Mechanism (CDM) is one of three "flexibility mechanisms" identified in the Kyoto Protocol that participating countries can use to meet their GHG reduction targets.[2] The CDM is the only mechanism under the Kyoto Protocol that involves developing countries, or non-Annex I countries. Article 12 of the Kyoto Protocol allows developed countries and countries with economies in transition (see table 1) to meet their greenhouse gas reduction commitments by engaging in CDM projects that reduce GHG emissions. Developing, or non-Annex I, countries that have ratified the Kyoto Protocol can benefit from these CDM projects to promote sustainable development. Annex I countries, in return, receive certified emission reduction (CERs) credits for investing in CDM projects in non-Annex I countries, which can be used against their GHG reduction commitments under the Kyoto Protocol.

2. The CDM

The purpose of the CDM is to benefit both the investor and host countries by contributing to sustainable development in the host developing countries and by allowing investor countries to meet their GHG reduction targets at the lowest possible cost by taking advantage of the lower marginal cost of reducing GHG emissions in developing countries. It is the sole prerogative of the host country to confirm whether the project contributes to its sustainable development. Annex I countries that have ratified the Kyoto Protocol can engage in projects in developing countries to reduce any combination of six greenhouse gases (table 1). The CER is then received by the Annex I investor to use to comply with its emission reduction targets.

As Annex I countries ratify the Kyoto Protocol, they may require companies and sectors of their economies that emit significant amounts of GHGs to choose how they want to reduce their emissions. These companies will turn to the CDM and become investors in GHG

[1] As at 2 July 2002, 74 countries had ratified the Kyoto Protocol, representing roughly 36 per cent of Annex I emissions. See http://www.unfccc.int for an up-to-date accounting.

[2] The other mechanisms are Joint Implementation (JI), whereby developed countries can receive credit for investing in GHG reductions in other developed countries; and Emissions Trading, whereby emitters can purchase credits as a market commodity.

reduction projects in developing countries. They will seek CERs to offset their emissions as their country works to reach its GHG emission reduction commitments under the Kyoto Protocol.

Table 1 Eligible donor countries, sectors and gases

Investor countries [a]			Sectors [b]	GHGs & Gas classes [c]
Australia	Hungary	Romania	Energy	Co_2: carbon dioxide
Austria	Iceland	Russian Federation	Industrial processes	CH_4: methane
Belarus	Ireland	Slovakia	Solvents and other products	N_2O: nitrous oxide
Belgium	Italy	Slovenia	Waste	HFCs: hydrofluorocarbons
Bulgaria	Japan	Spain	Land use, land use change, and forestry	PFCs: perfluorocarbons
Canada	Latvia	Sweden		SF_6: sulphur hexafluoride
Croatia	Liechtenstein	Switzerland		
Czech Republic	Lithuania	Turkey		
Denmark	Luxembourg	Ukraine		
EU	Monaco	UK		
Estonia	Netherlands	USA		
Finland	New Zealand			
France	Norway			
Germany	Poland			
Greece	Portugal			

[a] Annex I countries. These countries need to ratify the Kyoto Protocol in order to use the CDM mechanism. Entities in these countries – whether public or private – constitute the investors in CDM.
[b] For specific activities see table 4.
[c] As specified in the Kyoto Protocol, Annex A.

CERs are standardized GHG reduction credits that are becoming a commodity that can be bought and sold on the global market, and in some cases banked for the future.[3] Most CERs will be used by companies in the Annex I countries to meet their GHG reduction targets, but CERs can also be bought by others to sell on the international market, or withdrawn from the market by investors or non-governmental organizations interested in achieving a net reduction of that amount of future emissions (figure 1).

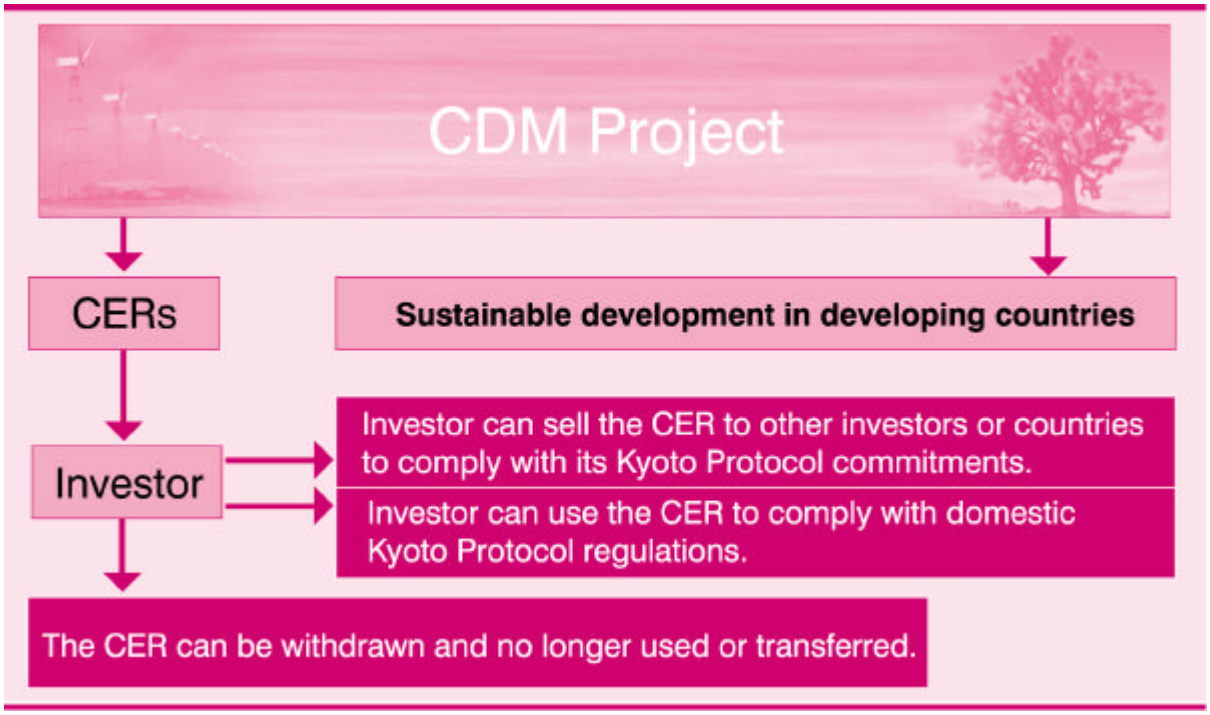
Individuals and private or public organizations can participate in CDM projects. These projects are designed to encourage investment in and transfer of environmentally safe technologies that reduce emissions of greenhouse gases. They can only be undertaken in developing, or non-Annex I countries that have ratified the Kyoto Protocol. Projects that begin after 1 January 2000 may qualify (see details below).

New institutions have been created to facilitate CDM projects. A ten-member Executive Board has been appointed by the UNFCCC to oversee CDM projects. Their efforts continue to refine the rules and procedures of CDM projects. The Executive Board issues the CERs, which are entered in the official CDM registry. In addition, so-called Operational Entities will be certified by the Executive Board to validate, monitor and certify CDM projects.[4]

[3] Credits received from forestry projects are not eligible for banking.
[4] For operational entity qualification requirements see Annex II. The requirements to qualify as an operational entity are prohibitive and may inhibit entities based in developing countries from being designated operational authorities. As such, the costs for the services of Operational Entities may prove to be too high for small-scale projects.

CERs generated by CDM projects are charged 2 per cent of their value to finance a fund to help the most vulnerable countries adapt to climate change. In addition, administrative costs will also be taken out of the proceeds from CDM projects. The Executive Board is still determining this amount. Small-scale CDM projects in least developed countries are not charged.

Figure 1 The CDM dual products: CERs and sustainable development



The specifics of the CDM are set out in the next section, but there are some overarching characteristics that can be summed up as follows:

- CDM projects must be voluntary, and must have the host country's approval;
- They must meet the sustainable development goals defined by the host country;
- They must reduce GHG emissions above and beyond "business as usual";
- They must account for GHG emissions that occur outside the project boundary that are attributable to the project;
- They must include the participation of stakeholders;
- They must not contribute to environmental decline;
- They are limited to non-nuclear technology and there is a limited amount of forestry credits that are eligible;
- They must not divert from official development assistance (ODA);
- They are limited to strict physical boundaries within which GHG emissions will be reduced or sequestered; and
- They are limited to those countries that have ratified the Kyoto Protocol.

3. An emerging carbon market

In anticipation of the entry into force of the Kyoto Protocol, a carbon market is emerging. This market is fuelled by the perception that the future will be "carbon constrained" and that the economy will increasingly be decoupling from fossil fuels, and by the increased costs such as insurance losses from extreme weather events.

Many actors helped develop the market – Governments, multilateral agencies, multinational corporations. Key actors to date include Governments such as those of Denmark, the United Kingdom, and Norway, which have established early carbon trading schemes. They are closely followed by the EU, which is establishing its emissions trading scheme in 2003. The Netherlands, in particular, has shaped and accelerated this market with its CERUPT (Certified Emission Reduction Unit Procurement Tender) programme, allocating about $1.2 billion to acquire carbon credits to meet Dutch commitments under the Kyoto Protocol.

The World Bank is also a significant actor with its Prototype Carbon Fund (PCF), which together with the CERUPT programme, is already developing CDM projects. The PCF has allocated close to $200 million to greenhouse gas emission reduction projects worldwide.

Corporations such as BP and Shell are entering the mix, including procurement and investment corporations such as TransAlta, OPG and Marubeni. The Chicago Climate Exchange has also started a prototype market in the United States that may eventually serve as a model or merge with the broader global market. In addition, many large corporations have committed to GHG reduction targets on a voluntary basis. Companies such as ABB, Dupont, Entergy, IBM, Shell, Ontario Power Generation, Toyota USA, Marubeni, United Technologies Corp., TransAlta and others have voluntarily committed to reduction targets and welcome the emergence of carbon credit market to meet these commitments. Shell and BP have instituted within their organizations internal emission trading schemes that compel their operating units to internalize the cost of carbon emissions in their operations. In many cases, these companies are investing in carbon offset projects in developing countries where the abatement cost is much lower.

The CDM has had broad market impacts and is helping develop and propel this emerging market. It is within this broader context of global markets that the specifics of the CDM are set out below.

PART II

FREQUENTLY ASKED QUESTIONS

1. What are CDM projects?

Greenhouse gases (GHGs) mix uniformly in the atmosphere, making it possible to reduce emissions at any point on the planet and have the same effect. This fact enables countries pursuing GHG reductions to do so where they can be reduced at lower costs. CDM projects allow entities in Annex I countries that have ratified the Kyoto Protocol to invest in projects that reduce GHGs in non-Annex I countries while contributing to sustainable development. By investing in non-Annex I countries, investors from Annex I countries can earn certified emissions reductions (CERs) that can be used to meet GHG reduction commitments under the Kyoto Protocol. Thus, CDM projects help both developed and developing countries work together to achieve sustainable development and decrease GHG emissions.

CDM SPOTLIGHT UGANDA
The West Nile Hydropower Project

This CDM project in north-western Uganda near the borders with Congo and Sudan falls within the broader rural electrification and development plans of the Government's Energy for Rural Transformation programme. The project aims to take advantage of the dual benefits of the CDM – to promote sustainable development in rural Uganda by investing in socioeconomic development and poverty alleviation, to reduce CO_2 emissions through renewable energy and to generate CERs. Specifically, the project aims to provide inhabitants with reliable, clean and efficient electricity, increase commercial activity, provide better social services, reduce indoor air pollution and help decrease global greenhouse gas emission.

This fuel-switching and energy conservation project will generate electricity from two small hydropower plants coupled with an efficient diesel back-up generator for regional electricity transmission and distribution. The project replaces a less efficient and unreliable privately owned diesel system.

CO_2 emissions are reduced by replacing the inefficient diesel generators with hydropower, by reducing petrol transportation costs (diesel is trucked in from Kenya) and by reducing the use of kerosene used for lighting. Emission reductions are estimated at 1.8 million tons over a 20-year period.

The project is funded through the World Bank's Prototype Carbon Fund – a $180 million dollar fund dedicated to learning how to develop effective greenhouse gas reduction projects. The project will also be funded through an investor/operator, who will implement and monitor the project.

The total cost of the project is $21 million. The project will generate revenues through the sale of electricity and by selling the estimated $3 million CERs generated from the project.

Source: World Bank.

A. Definition

CDM projects produce CER credits generated from GHG emissions-reducing or emissions-avoiding projects in non-Annex I countries (UNFCCC, 1999).

B. Goals

Article 12 of the Kyoto Protocol set out three goals for the CDM:

- To help mitigate climate change;
- To help Annex I countries attain their emission reduction commitments; and
- To help non-Annex I countries achieve sustainable development.

C. Criteria

CDM projects have three overall criteria:

- Projects must be voluntary;
- Projects must be able to show long-term climate change mitigation benefits; and
- Projects must contribute to emissions reductions above and beyond business as usual (so-called additionality).

D. GHGs and gas classes

Under the Kyoto Protocol, projects that reduce six GHGs and gas classes may qualify for CDM projects; these come from varied sources of the economy (table 2).

Table 2 Anthropogenic greenhouse gases and gas classes, and sources

GHG or GHG class	Sources
CO_2: carbon dioxide	Fossil fuel combustion; deforestation; agriculture
CH_4: methane	Agriculture; land use change; biomass burning; landfills
N_2O: nitrous oxide	Fossil fuel combustion; industrial; agriculture
HFCs: hydrofluorocarbons	Industrial/manufacturing
PFCs: perfluorocarbons	Industrial/manufacturing
SF_6: sulphur hexafluoride	Electricity transmission; manufacturing

Source: Kyoto Protocol, Annex A; IPCC (2001).

E. Sectors

Investments in various sectors of non-Annex I countries may qualify for CDM credits (table 3).

Table 3 Eligible sectors and sources

Sector	Source category
Energy	Fuel combustion: energy industries; manufacturing industries and construction; transport; other sectors; other
	Fugitive emissions from fuels: solid fuels; oil and natural gas; other
Industrial processes	Mineral products; chemical industry; metal production; other production; production and consumption of halocarbons and sulphur hexafluoride; other
Solvent and other product use	Agriculture; enteric fermentation; manure management; rice cultivation; agricultural soils; prescribed burning of savannas; field burning of agricultural residues; other
Waste	Solid waste disposal on land; wastewater handling; waste incineration; other
Land use, land-use change and forestry	Afforestation and reforestation; woodlots; plantations; agroforestry

Source: Kyoto Protocol, Annex A.

Reductions from nuclear facilities are not eligible.

F. Examples

The World Bank's Prototype Carbon Fund (PCF) started in 1999 to fund emissions reduction projects that would potentially be eligible for CDM credits. Annex I countries (Canada, Finland, Japan, Netherlands, Norway and Sweden), along with over a dozen large corporations, contributed $180 million to the fund to invest in such projects.

Projects already under development or under review include (CDMWatch):

- Three biomass plants totalling 20 MW capacity in India;
- A fuel-switching and carbon sequestration project in Brazil;
- A 26 MW hydroelectric project in Chile and a 25 MW project in Costa Rica;
- Two wind energy projects of 9.6 and 8.4 MW capacity being developed in Costa Rica;
- The installation of a highly efficient gas plant in Bolivia;
- Two 15 MW wind farms in India and a 20.7 MW array in Jamaica; and
- A geothermal project in Indonesia.

Many other potential projects await development. Lawson et al. (2001) identified cost-effective CDM opportunities in Brazil's industrial sector that included retrofits and energy efficiency opportunities in the iron and steel industries; cogeneration opportunities in the oil refinery industry; and increasing the use of waste fuels opportunities in the cement industry. Other potential CDM projects may be found in the forestry, energy, industry, household and transportation sectors (table 4).

Table 4 Potential CDM projects in the forestry, energy and industry sectors

Sector	Project examples
Forestry	
Afforestation and reforestation	In open areas; plantations; woodlots; agroforestry
Energy	
Power generation	Combined-cycle turbines; distributive networks; clean coal technology
Fuel switching	Natural gas; methane; biomass and biogas; hydrogen
Cogeneration	Sugar cane; bagasse; chemical byproducts
Renewables	Wind; solar; biomass; hydro; geothermal
Efficiency	More efficient equipment, processes or design
Industry	
Efficiency	Boilers; motors; lighting
Cogeneration	Chemical, paper and metallurgy; oil refining
Retrofits	Iron and steel sector
Production process	Efficiency improvements in design and production
Waste fuels recovery	Cement sector; landfills
Household	
Conservation	Education and outreach
Appliances	Solar water heaters; biomass cooking stoves
Lighting	Fluorescent light bulbs; interior design
Transportation	
Fleet vehicles	Alternative fuel vehicles
Mass transit	Expand existing forms; light rail

Sources: Aukland et al. (2002); Seroa da Motta et al. (2000); Lawson et al. (2001); Austin and Faeth (1999).

G. Official development assistance

CDM projects cannot result in the diversion of official development assistance (ODA). Furthermore, investor countries (Annex I) are required to confirm that development assistance is not being counted towards any financial obligations under the Kyoto Protocol. In other words, CDM projects are to represent new forms of investment above and beyond existing investment activities.

2. Who can enter CDM projects?

CDM projects can involve all sectors of society – government, non-profit, business and private citizens – in cooperation between Annex I and non-Annex I countries, provided that they are legal entities in their country.

A. Investors and hosts

The principal and direct actors in CDM projects are the investors and hosts. *Investors* are entities from Annex I Parties (e.g. corporations, NGOs, foundations, and government agencies) that buy into CDM projects in non-Annex I countries and receive CER credits in exchange. *Hosts* are entities from non-Annex I Parties that accommodate and receive CDM investment in their country.

Participation requirements

Entities from non-Annex I countries that have ratified the Kyoto Protocol can host CDM projects.

Table 5 Eligible host countries

Host countries [a]				
Antigua and Barbuda	Cuba	Jamaica	Nauru	Sri Lanka
Argentina	Cyprus	Jordan	Nicaragua	UR of Tanzania
Armenia	Djibouti	***Kazakhstan***	***Niger***	Thailand
Azerbaijan	Dominican Republic	Kiribati	Palau	Trinidad and Tobago
Bahamas	Ecuador	Kyrgyzstan	Panama	Tunisia
Bangladesh	***Egypt***	Lao PDR	Papua New Guinea	Turkmenistan
Barbados	El Salvador	Lesotho	Paraguay	Tuvalu
Benin	Equatorial Guinea	Liberia	Peru	Uganda
Bhutan	Fiji	***Marshall Islands***	***Philippines***	Uruguay
Bolivia	Gambia	Malawi	Republic of Korea	Uzbekistan
Brazil	Georgia	Malaysia	Republic of Moldova	Vanuatu
Burundi	Ghana	Maldives	***Saint Lucia***	Viet Nam
Cambodia	Grenada	Mali	***Saint Vincent and the Grenadines***	***Zambia***
Cameroon	Guatemala	Malta	Samoa	
Chile	Guinea	Mauritius	Senegal	
China	Honduras	Mexico	Seychelles	
Colombia	India	Micronesia	Solomon Islands	
Costa Rica	***Indonesia***	Mongolia	South Africa	
	Israel	Morocco		

[a] Non-Annex I countries. Countries that have not ratified or signed the Kyoto Protocol as of June 2003 are in italics. The territories of Cook Islands and Niue are equally eligible.

Entities from Annex I countries that have ratified the Kyoto Protocol can invest in CDM projects (table 6)[5] and receive credits for projects that reduce various GHGs. Investors can receive credits for CDM projects if the country where they are legally recognized has:

- Its commitment quota properly calculated and recorded;
- A national accounting system of GHGs in place;
- Submitted a national greenhouse gas inventory; and
- The amounts are in accordance with the Kyoto Protocol communication requirements.

Table 6 Eligible investor countries

Investor countries [a]			
Australia	Estonia	Latvia	***Russian Federation***
Austria	Finland	***Liechtenstein***	Slovakia
Belarus	France	Lithuania	Slovenia
Belgium	Germany	Luxembourg	Spain
Bulgaria	Greece	***Monaco***	Sweden
Canada	Hungary	Netherlands	Switzerland
Croatia	Iceland	New Zealand	Turkey
Czech Republic	Ireland	Norway	***Ukraine***
Denmark	Italy	Poland	United Kingdon
European Union	Japan	Portugal	***United States***
		Romania	

[a] Annex B countries identified in the Kyoto Protocol that have GHG reduction commitments. Countries in italics have not ratified the Kyoto Protocol (as of June 2003) and are not eligible to invest in CDM projects.

[5] Annex I comprises countries that have GHG reduction commitments under the Kyoto Protocol.

If Annex I countries authorize a CDM project they must remain in good standing and remain responsible for the fulfilment of these obligations under the Kyoto Protocol. The Secretariat will keep a list of Parties that are in good standing and will make this list public. This list can be viewed on the UNFCCC website at http://unfccc.int/resource/kpstats.pdf.

B. Private sector

CDM projects are implemented through non-profit, public and private partnerships, including through the participation of local communities and groups where the projects take place. However, the private sector has the greatest opportunity with the CDM mechanism because it is within this sector that emissions cuts will be made and traded. In fact, the CDM is a market-based mechanism designed precisely with the private sector in mind. The private sector is also the recipient of increasing investment flows that can be coupled with CDM projects (Kete et al., 2001).

C. Designated Operational Entities (DOE)

Operational entities are domestic or international legal entities that carry out CDM reporting and mediating functions (see annex II for standards for accreditation). Operational entities must first be designated by the Executive Board to carry out these functions (see annex I for Executive Board responsibilities). Different countries may have different DOEs.

The DOE's responsibilities are:

- To validate CDM project activities;
- To verify and certify emissions reductions;
- To submit an annual report to the Executive Board; and
- To maintain a public list of CDM projects and make information about the projects publicly available (unless deemed proprietary or confidential).

D. Government

Governments of non-Annex I Parties play a key role in enabling and promoting CDM projects. Aukland et al. (2002) and Lawson et al. (2001) identify key actions that Governments can initiate to enable CDM projects. These include:

- Ratifying the Kyoto Protocol;
- Encouraging other countries to ratify the Kyoto Protocol;
- Establishing a national authority to oversee CDM projects;
- Identifying requirements for CDM projects such as sustainable development criteria;
- Identifying specific projects that meet these criteria;
- Developing enforceable environmental regulations;
- Providing incentives that promote the CDM and emissions reduction opportunities;
- Building national capacity and infrastructure for CDM projects;
- Setting up integrated national procedures and infrastructure for CDM projects;
- Promoting CDM projects and participation;
- Facilitating investment procedures;
- Coordinating between industries to identify CDM opportunities; and
- Developing a "master plan" for a national CDM strategy.

E. National Authority

Governments in developing countries are required to designate a national authority for CDM projects. The Designated National Authority is responsible for certifying that the project contributes to the sustainable development goals of the host country. This takes the form of a letter stating approval of the CDM project. Designated National Authorities are being designated. An up-to-date list and contact information can be found at http://www.unfccc.int/cdm/DNA.

3. What are the outcomes of CDM projects?

With the implementation of the Kyoto Protocol there will be a growing demand for carbon credits as Annex I countries seek lower-cost ways to meet their commitments. This demand will be affected by the rules developed for the CDM, the transaction costs involved in CDM projects, and the particular marginal costs of hosts' and investors' emissions reductions (Lawson et al., 2001). While taking these factors into account, the outcomes of the various CDM projects will depend on the success in attracting foreign investment and selling credits in this emerging multi-billion dollar a year market (Aukland et al., 2002; Lawson et al., 2001). The magnitude of this market offers the potential for broad development worldwide, but the outcomes will vary depending on the formation of CDM infrastructure and stakeholder priorities.

In general, the outcomes of CDM projects may include:

- More resources to pursue sustainable development goals;
- Increased foreign investment and removal of market barriers to make new projects possible;
- Increasing a company's competitive advantage over its competitors; and
- A potential source for additional income streams.

4. Why would CDM projects take place?

In order to meet their Kyoto Protocol commitments, entities in Annex I will invest in CDM projects in developing countries where GHG reductions are more cost-effective. When Governments in developed countries undertake commitments to reduce emissions under the Kyoto Protocol, they may put in place various policies and measures (e.g. taxes, regulations, standards) that compel entities (private sector companies, government agencies, etc.) to seek cost-effective ways of complying with these policies and measures. The latter may accept CDM credits or CERs from regulated entities, thus creating incentives for investment and use of CERs resulting from CDM projects.

In this context, CDM projects offer many opportunities for various actors (table 7). Overall, these projects offer a new opportunity to develop and attract foreign investment while providing a cost-effective way of meeting environmental goals.

Table 7 Potential actors and reasons for participation in CDM projects

Actor	Reason for participation
Developing country	Promote sustainable development through investment
Developed country	Meet Kyoto Protocol commitments at low costs
Non-governmental organizations	Promote the environment and development
Corporations	Offset emissions; investment opportunity
Niche company	Commercial opportunity; diffuse technology
Industry associations	New opportunities for members
Brokers	Commercial opportunity
Development banks	Promote sustainable development; create new markets
Institutional investors	Portfolio diversification; socially responsible investing

Source: Baumert et al. (2000: 11).

A. Benefits

The benefits derived from participating in a CDM project are inclusive, win-win, for both investor and host.

i. ***Hosting entity***

Hosting entities stand to gain from additional investments in their enterprise. The benefits will vary with each case, but in general hosting entities will benefit from technology transfer, more efficient design, enhanced project feasibility and capital investment. These investments can yield decisive competitive advantages. Once CER credits are produced from CDM projects, they can be sold like any other commodity.[6] CERs will be sought after by those entities required to reduce GHGs or by CER brokers because they represent a low-cost means of meeting GHG reduction targets.

ii. ***Hosting country***

CDM projects are a potential source for new foreign investment. The CDM concept was first proposed by Brazil and stands as a medium for developing countries to receive foreign investment to achieve their development goals while reducing global climate change. CDM projects can also augment existing development projects. Both are opportunities to further sustainable development goals in the emerging low-carbon global economy. Other benefits include biodiversity protection, cleaner air and water, and sources of employment and poverty alleviation (Austin and Faeth, 1999).

[6] The idea of unilateral CDM projects, that is generating CERs without an Annex I investor, has been raised in several venues. At this point it is unknown how the Executive Board will decide to proceed on this matter. However, unilateral CDM projects are not currently prohibited.

iii. ***Investing entity***

CDM projects enable private and other entities to comply with domestic GHG reduction regulations and are a mechanism intended to help Annex I countries meet their Kyoto commitments at lower costs. Investing entities may develop and invest in CDM projects depending on financial returns. The return on investment will be CER credits that can be used against their GHG reduction commitments, or CERs can be banked or sold. Investing may take the form of financial contribution, full or partial equity, loan or lease financing, or a purchasing agreement for CERs (Pembina Institute, 2002). CDM projects also provide an opportunity for investing entities to associate their organization with sustainable development priorities.

iv. ***Investing country***

CDM projects are an option for Annex I countries to receive emission reduction credits at lower costs since the marginal costs of GHG emissions reductions are generally lower in developing countries than in Annex I countries. CDM projects also offer an established, accountable and secure investment avenue and climate supported by the UNFCCC and administered by the Executive Board.

B. Benefits for the planet

The CDM is one of three flexibility mechanisms being used to achieve GHG reductions with the hope of eventually stabilizing the global climate. By pursuing emissions reductions where they can be achieved at lower costs, the CDM policy option is not only economically advantageous and politically expedient, but also moves development paths towards ecological sustainability, taking advantage of clean development and more efficient technologies.

5. Where can CDM projects take place?

CDM projects can take place in non-Annex I countries that will ratify or have ratified the Kyoto Protocol. As with any commercial venture, there can be many reasons why a particular country may be chosen – cost of technological upgrade or retrofit; potential return on investment; tax structure; openness to foreign investment; legal infrastructure; availability of financing; labour availability and costs; stability; momentum or existing business relationships and partnerships; government cooperation; technological expertise; monitoring capabilities; and so on.

Sokona and Nanasta (2000: 11) suggest that in order to develop an enabling environment that will attract CDM projects in Africa, a comprehensive strategy including stronger institutional capacities for a regulatory and monitoring framework needs to be conceived. They also suggest that the "other basic capacities that seem indispensable include":

- An established business environment;
- Appropriate and well-linked administrative and institutional frameworks;
- An adequate and well-maintained infrastructure;
- Capable project developers and business managers;
- Firm links between the private sector, government and NGOs; and
- Development of accessible project information databases.

CDM SPOTLIGHT COLOMBIA
The Jepirachi Carbon Offset Project

The Jepirachi project is in north-eastern Colombia near the Wayuu Indian Territory. It is a wind energy project; the energy generated from these turbines replaces coal and gas-based power plants.

This project also seeks to take advantage of the dual benefits of the CDM – sustainable development and the generation of CERs. Although currently impoverished, this area of the country has good wind energy potential. This project will be used as a demonstration project for the commercial potential of wind energy in the area, thereby facilitating further investment. The project also develops Colombia's expertise in wind energy development, and new power generation technology will be transferred. The people of the region can benefit from this project through structures for compensation built into the project, which goes directly to the community, and through job creation and increased economic activity.

The project will provide clean energy to the national electricity grid by installing 15 1.3 MW wind generators for a total capacity of 19.5 MW. It will replace current thermal power generation, thus, along with CO_2, reducing tropospheric ozone, SO_x, and NO_x emissions.

The project costs are $20.6 million and are funded through the World Bank's Prototype Carbon Fund. The total emissions reductions are estimated at 1.2 million tons of CO_2 over 21 years.

Colombia granted this project its approval in 2001 and it is expected to start in October 2003.

Source: World Bank.

These criteria, and others, will have to be evaluated by the project participants and potential investors on a case-by-case basis to identify promising CDM locations.

Developing countries can actively pursue CDM projects, however, by establishing a competitive CDM-investment environment, aggressively pursuing CDM investment and commencing unilateral CDM projects. CDM projects are already starting in Costa Rica, India, Brazil, Indonesia, China, Jamaica and Morocco, and in many other parts of the world.

6. When can CDM projects start?

Project activities starting after 1 January 2000 are eligible CDM projects, but must be registered by 31 December 2005. A project can receive credits for emissions reductions only after the initiation of the CDM project (i.e. under Article 12 of the Kyoto Protocol, no credit will be issued for prior activities that may have reduced GHG emissions). Credits from CDM projects can be used at any time after an investing country has ratified the Kyoto Protocol and the Kyoto Protocol has taken effect.[7]

Prompt start

Simplified rules have been developed to facilitate a prompt start for small-scale CDM projects. The intent is that if established procedures are followed, small-scale projects can get underway quickly. Small-scale projects are defined as:

- Renewable energy projects of less than 15 MW capacity;
- Energy efficiency improvement projects of less than 15 GWh/year; and
- Other projects of less than 15 kilotonnes CO_2 equivalent emissions.

Operational entities will be provisionally designated and accredited for these projects. To date, no legal entities have been designated by the Executive Board. There are 13 organizations that have applied for designation and decisions are expected soon.

[7] It is expected that the Kyoto Protocol will enter force in early autumn 2003.

7. How are CDM projects implemented?

The project-specific rules for CDM projects as described in the Marrakech Accords decided at COP 7 in November 2001, and subsequent decisions taken by the Executive Board, are summarized below. Where appropriate, checklists for project participants are provided below. All costs of the steps enumerated below are borne by the project participants, subject to the agreement between the entities involved.

The CDM project process consists of five steps (table 8).

Table 8 CDM activity cycle under the Marrakech Accords

Step	Definition	Responsible Entity
1. PROJECT DESIGN	A document with the information needed about the proposed CDM project that is submitted for validation.	Project participants
2. VALIDATION	Validation is the process of independent evaluation of a CDM project.	Operational entity
and		
REGISTRATION	Registration is the formal acceptance of a validated project by the UNFCCC.	Executive Board
3. MONITORING	The collection and archiving of all relevant data necessary for establishing GHG emissions by sources occurring within the project boundary during the crediting period.	Project participants
4. VERIFICATION	Verification is the periodic independent review and determination that GHG reductions have occurred as a result of the registered CDM project activity during the crediting period.	Operational entity
and		
CERTIFICATION	Certification is the written assurance that a project activity achieved the GHG reductions stated during the specified time period.	Operational entity
5. ISSUANCE	Certified emission reductions (CERs) are issued to the Parties' account.	Executive Board

The **project design** originates from the host country, and can be developed in cooperation with another entity, presumably in an Annex I country. Feasibility studies based on the project's potential and local conditions should be assessed, and approval should be received from the host Government. **Validation** by the operational entity takes place where the operational entity resides. Operational entities can be located anywhere as long as they qualify (see annex II). The operational entity passes the validation report on to the Executive Board for **registration**. Project participants then monitor the project according to an approved **monitoring** plan (see below). The operational entity reviews and audits CDM projects, including on-site visits, to **verify** the GHG reductions and then delivers a report to

the Executive Board **certifying** the reduction. On the basis of the certification report, the Executive Board **issues** the CERs. These five steps will now be more fully developed and taken in order.

STEP 1: PROJECT DESIGN

Overall, the project design should define the GHG boundaries of the project; calculate the baseline emissions amounts and the reductions incurred due to the project; state the crediting period; and adjust for leakages (Aukland et al., 2002).

The following checklist is derived from the Marrakech Accords for potential CDM project proposals. Small-scale projects can submit a simplified project design document. See appendix II for a template.

Form 1 Project design checklist (Appendix B of the Marrakech Accords)

Project description should include:	
	The project's purpose;
	A technical explanation of the project;
	If technology will be transferred, an explanation of how this transfer will occur;
	A description and justification of the project's boundary;
	A statement of how long the project will last;
	Identification of the crediting period that is being applied for:
	A maximum of seven years, which can be renewed twice;[8] or
	A maximum of 10 years with no renewal.
	A description of how this project reduces GHGs above and beyond "business as usual" (so-called additionality);
	Documentation and references to impacts that are considered significant to the host Party, including a transboundary, social and/or environmental impact assessment;
	Information on any source of public funding for the project and how this funding is not diverted from official development assistance, and is not part of the financial obligations of the Parties;
	A summary of stakeholder comments, including a description of the stakeholder process, and how these comments were considered in the project.[9]
Monitoring plan (see Step 3 for more details)	
	Identify data needs and data quality. Are they accurate? Comparable? Complete? Valid?
	State what methodologies will be used to collect the data and monitor the project, and how the quality of these activities will be verified.
	If a new monitoring methodology is being proposed:
	Describe the new methodology;
	Assess its strengths and weaknesses;
	State whether the methodology has been applied successfully elsewhere.

[8] Provided the original baseline is still valid or has been updated.
[9] A CDM project must be held up for stakeholder comment for 30 days.

Form 1 (continued)

Baseline methodology[10]
If using an approved methodology, provide (see below):
A statement of which methodology was chosen (see explanations below);
Status Quo Emissions
Market Conditions
Best Available Technology
A statement of how this methodology will be used;
If using a new methodology provide:
A statement on how the baseline was established in a transparent and conservative manner;[11]
A description and justification of this new baseline methodology;
An assessment of its strengths and weaknesses;
Description of key parameters, data sources and assumptions;
An assessment of uncertainties;
Baseline emissions projections;
How this methodology will address "leakage";
How this baseline considers national or sectoral circumstances.

Approved baseline methodologies

Three baseline methodologies are acceptable as laid out in the Marrakech Accords:

- **Status Quo Emissions**: Assumes a baseline from a projection of historic and current trends, or business as usual, where emission factors are based on this trend and reductions are calculated from it.
- **Market Conditions**: Assumes a baseline from current market conditions where emission factors are based on the technology used in the market and reductions are calculated by applying this technology.
- **Best Available Technology**: Assumes a baseline from the most efficient technological processes (the top 20 per cent of their category under similar circumstances) available where emission factors are based on the commercial availability of this technology and reductions are calculated by applying it (Pembina Institute, 2002).

[10] A baseline is a scenario that represents the GHG emissions from all sectors and sources that would occur without the CDM project, or that represents business as usual.
[11] Standardized methodologies should be conservative and not overestimate emissions reductions.

Form 1 (continued)

Calculations[12]
A. Describe and calculate baseline GHG emissions by sources.
B. Describe and calculate leakage.
Sum A and B to determine the CDM project emissions.
C. Describe and calculate or estimate GHG emissions by source within the project boundary.
D. Describe and calculate project leakage.
Sum C and D to calculate baseline emissions.
Subtract CDM project emissions from baseline emissions to calculate the emission reductions of the CDM project ((A+B) – (C+D))

Note: all calculations should be converted into carbon dioxide equivalent (CO_2e) totals. For a CO_2e calculation worksheet see annex IV.

STEP 2: VALIDATION AND REGISTRATION

On the basis of the project design, the operational entity will evaluate and validate the proposed CDM project. The operational entity will check to make sure the following are included and addressed in the project design:

- The project is voluntary and is approved by the host country;
- The project complies with the Marrakech Accords and subsequent decisions;
- It is shown that GHG emissions decreases are above and beyond business as usual;
- It includes stakeholder comments;
- It includes an environmental impact analysis;
- That the project boundary comprises all GHG sources that are under the control of the project participants and that are attributable to the CDM project (so-called leakage); if not, these amounts must be adjusted;
- That the baseline methodology complies with previously approved methods:

    - New baseline methodologies need to be submitted to the Executive Board for approval;
    - Baseline calculations must be transparent and conservative, and account for uncertainty;
        - Calculations are per project and reflect the relevant national and sectoral circumstances and may include a future scenario based on national circumstances;
        - Calculations were made by an approved baseline methodology (see above).

[12] Include references, if any, to support your calculations and formulas.

  - Baselines must not reflect factors outside project boundaries, including unseen forces or natural disasters; and
- That a crediting period was chosen.

The operational entity needs confirmation from the host Party (Government) that the project assists in achieving sustainable development and that participation is voluntary. This confirmation will be made public and will be open for comment. The designated National Authority for CDM in non-Annex I Parties is expected to fulfil this role.[13]

Registration

The Executive Board will formally accept the project based on the operational entity's validation report. This process is called registration, and it becomes final eight weeks after the report is received by the Executive Board (G41). If the Executive Board requires a review, the review will consider the validation requirements and communicate the decision to the participants and the public. A rejected project can be reconsidered after it is revised in accordance with all procedures above. Registration is necessary to continue with the verification, certification, and issuance of CERs.

- CDM projects can be eligible for validation and registration if registered before 31 December 2005.

STEP 3: MONITORING

A monitoring plan must be included with the project design. As with baseline methodologies, monitoring methodologies must comply with previously approved methods or with a new approved methodology. If a new methodology is used, it must be shown to be successfully applied elsewhere.

- The project participants are to implement the monitoring plan.

- Any revisions to the monitoring plan must be justified and submitted again for validation.

The implementation of the registered monitoring plan is a condition for verification, certification and issuance of CERs, and must be submitted to the operational entity in order to move ahead to Step 4 - verification and certification.

In addition to the requirements listed in Form 1, the Marrakech Accords require that specific GHG data, calculations and quality assurance measures be listed in the project design (Form 2).

[13] Currently there are no standardized sustainable criteria; therefore, it is important for Governments to adopt criteria that make sense for their circumstances, but that are meaningful as well and work towards ecological, social and economic sustainability.

Form 2 Monitoring plan checklist

The monitoring plan	
☐	Include the emission data necessary for estimating or measuring GHG emissions within the project boundaries and crediting period.
☐	Include data on that which identifies all potential sources of GHG from outside the project area.
☐	Include assurance on data quality and control procedures.
☐	Include procedures for the periodic calculations of GHG reductions by sources and "leakages".
☐	Emissions-reductions must be calculated by the registered methodology, subtracting actual emissions by sources from the baseline emissions, and adjusted for leakage.
☐	Provide supporting documentation for all these steps.

Small-scale CDM projects may use the simplified modalities and procedures. See appendix II for a template.

STEP 4: VERIFICATION AND CERTIFICATION

The operational entity will then review the monitored emissions reductions that have occurred as a result of the CDM project and provide written assurance, or certification, that the project achieved the stated reductions in the specified period. Written certification will be based on this verification report and is considered final 15 days after being received by the Executive Board. Certification ensures that GHG emission reductions above and beyond business as usual did in fact occur. The written certification is delivered to the Parties, Executive Board and the public (unless deemed proprietary or confidential).

The operational entity will do the following:

- Verify the methodologies used;
- Make sure the documentation is complete, and if necessary, recommend changes;
- Determine emissions reductions;
- Inform project participants of any concerns; and
- Provide a verification report to the project participants.

The operational entity will also (I62):

- Make on-site inspections;
- Interview stakeholders;
- Collect measurements;
- Observe practices; and
- Test the accuracy of monitoring equipment.

STEP 5: ISSUANCE OF CERs

The written certification report will include a request that the Executive Board issue a CER equal to the amount of GHG emission reductions realized by the CDM project. The issuance is final 15 days after receiving the request for issuance, unless there is reason to believe that the operational entity engaged in fraud or malfeasance, or is incompetent. In such cases, the Executive Board makes its review within 30 days following the decision to review the operational entity's certification to the Executive Board. These decisions are also made public.

The CDM registry administrator (part of the Executive Board) deposits the CERs in the registry accounts of the Parties and project participants, minus administrative expenses. For registry requirements and procedures, see Annex III.

PART III

ANNEXES AND APPENDICES

Annex I

THE EXECUTIVE BOARD

CDM projects are overseen by a 10-member Executive Board, which is appointed and held accountable by the Parties to the UNFCCC, or the Conference of Parties (COP), and countries that have ratified the Kyoto Protocol, or the Meeting of the Parties (MOP).

The Executive Board's responsibilities are to:

- Oversee CDM projects;
- Report, maintain, develop and recommend CDM rules, modalities and procedures;
- Accredit operational entities, with occasional spot checks, and suspend accredited status if necessary;
- Report on the equitable distribution of CDM projects;
- Make CDM activities and opportunities public (except when proprietary or confidential); and
- Manage the CDM registry.

On baseline and monitoring methodologies, the Executive Board shall give *general* guidance and:

- Elaborate on the provisions relating to baseline and monitoring methodologies;
- Promote consistency, transparency and predictability;
- Ensure real, measurable reductions in emissions that reflect what actually happened within the CDM project boundary;
- Ensure a good geographical coverage of CDM projects; and
- Address additionality.

On baseline and monitoring methodologies, the Executive Board shall give *specific* guidance on:

- The definition of project categories that have common characteristics for baseline setting and monitoring, including guidance on the multiple project aggregation within common geographical regions;
- The standardization of methodologies for reasonable BAU estimations;
- Monitoring methodologies that accurately measure the actual reductions as a result of the project activity;
- Other methodological tools that help in choosing the most appropriate methodology given the project's circumstances;
- Data availability;
- The need for consistency and cost-effectiveness;
- Determining project boundaries and "leakage";
- How to account for national or regional political, economic circumstances; and
- How to compare factors such as different fuels and technologies.

Finally, the Executive Board shall also consider:

- Host country or regional practices and trends; and
- Least-cost technology options for CDM projects.

Annex II

STANDARDS FOR THE ACCREDITATION OF OPERATIONAL ENTITIES

The qualifications necessary for becoming an operational entity are extensive and may be prohibitive. The potential operational entity has to be a domestic or international legal entity with the administrative and management capacity and financial stability needed to carry out all functions required under the CDM.

The entity must also have:

- Expertise or have access to the expertise needed to carry out the various CDM functions;
- A good understanding of the modalities, procedures, guidelines, decisions and issues of the CDM process, and the COP/MOP and Executive Board decisions;
- Expertise in environmental issues;
- Expertise in setting baselines and monitoring emissions;
- Expertise in environmental auditing and accounting methodologies, including emissions by sources; and
- Expertise in regional and sectoral circumstances.

The prospective operational entity should be able to work in a credible, independent, non-discriminatory and transparent manner, complying with applicable national law, and have documented safeguards of impartiality; there should be no conflict of interests between the operational entity and the CDM project.

The potential operational entity must also make the following available to the Executive Board for accreditation:

- The names of the relevant personnel;
- An organizational administrative chart;
- Its quality assurance policies and procedures;
- Its administrative procedures, including document control;
- Its policies and procedures for recruiting qualified personnel; and
- Its complaints, appeals and dispute procedures.

The potential operational entity must have no malpractice, fraud or any other incompatible legal proceedings pending.

Finally, if the operational entity will also be identifying, developing, or financing CDM projects, it must:

- Make a declaration about its current and future CDM activities;
- Clearly show no conflict of interest with other parts of the organization or other functions it may have;
- Show how it manages to minimize any risk to impartiality;
- Show that it has no commercial or financial interests that may influence its impartiality and independence; and
- Have the capacity to safeguard the confidentiality of the information it gathers from project participants.

Annex III

CDM REGISTRY REQUIREMENTS

The CDM registry will be established and maintained by an Executive Board administrator.

The CDM registry will be a standardized electronic database containing data on the issuance, holding, transfer and acquisition of certified emissions reductions (CERs). Data storage will conform to COP/MOP technical standards to ensure accuracy, transparency and efficient data exchange between national registries.

The following accounts will be included in the CDM registry:

- An Executive Board pending account where CERs are issued before being transferred to other accounts;
- A holding account(s) for each non-Annex I Party hosting a CDM project or Party that requests an account;
- An account(s) for the purpose of holding cancelled ERUs, CERs, AAUs and RMUs when accreditation has been withdrawn or suspended for some project; and
- An account(s) for proceeds from certified projects to cover administrative expenses and to help particularly vulnerable developing Parties adapt to climate change.[14]

CERs can be held only in one account at any given time – there can be no double counting.

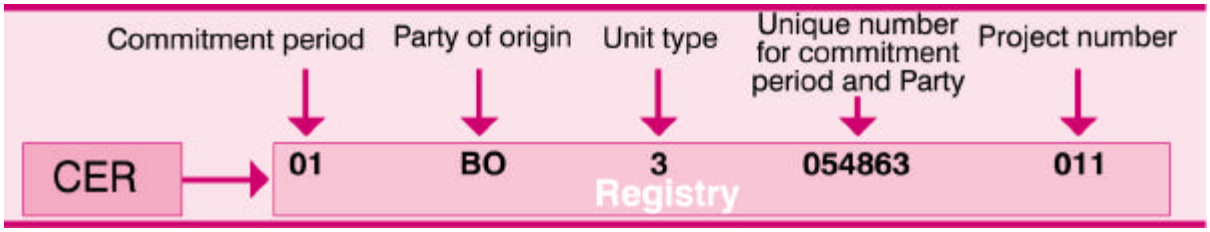
Each account within the CDM registry will have a unique account number with the Party/organization identifier number and a unique number for the account of the Party or organization (figure 2).

When instructed by the Executive Board to issue CERs for a CDM project, the registry administrator will:

- Issue the pending quantity into the Executive Board's pending account;
- Take the share of CERs needed to cover administrative costs and adaptation assistance and put them in the appropriate proceeds accounts; and
- Put the remaining CERs in the registry accounts of the project participants and Parties involved.

[14] This account comes from a 2 per cent fee charged to the value of the CERs generated.

Figure 2 CER registry serial numbers



Source: Howard (2001).

If accreditation has been suspended, the ERUs, CERs, AAUs and/or RMUs equal to the excess CERs issued will be transferred to the cancellation account and cannot be used again for GHG reduction compliance.

Finally, non-confidential information will be made public via the Internet. This information will include:

- Up-to-date information on each account in the registry by:
  - Account name;
  - Representative identifier;
  - Representative name and contact information.
- CDM project information for each project that has received CERs:
  - Project name;
  - Location;
  - Year(s) of CER issuance;
  - Operational entity;
  - Public reports.
- Holding and transaction information by serial number for each year:
  - Total quantity of CERs in each account;
  - Total quantity of CERs issued;
  - Total number of CERs transferred with the identity of the accounts;
  - Total quantity of ERUs, CERs, AAUs and RMUs cancelled;
  - Current CER holdings in each account.

Annex IV

CO_2 EQUIVALENT CALCULATION WORKSHEET

All units should be converted into metric tonnes before being inserted into this worksheet.

GHG	Baseline emissions	-	CDM Project emissions	=	Net reduction	×	GWP[a]	=	CO_2e[b]
CO_2		-		=		×	1	=	
CH_4		-		=		×	21	=	
N_2O		-		=		×	310	=	
HFC-23		-		=		×	11 700	=	
HFC-125		-		=		×	2 800	=	
HFC-134a		-		=		×	1 300	=	
HFC-152a		-		=		×	140	=	
CF_4		-		=		×	6 500	=	
C_2F_6		-		=		×	9 200	=	
SF_6		-		=		×	23 900	=	
Totals		-		=					
								Grand total	

Source: Pembina Institute (2002: 60-1).
[a]Global warming potential as related to CO_2.
[b]Carbon dioxide equivalent.

Appendix I

THE KYOTO PROTOCOL: ARTICLE 12

1. A clean development mechanism is hereby defined.

2. The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3.

3. Under the clean development mechanism: (a) Parties not included in Annex I will benefit from project activities resulting in certified emission reductions; and (b) Parties included in Annex I may use the certified emission reductions accruing from such project activities to contribute to compliance with part of their quantified emission limitation and reduction commitments under Article 3, as determined by the Conference of the Parties serving as the meeting of the Parties to this Protocol.

4. The clean development mechanism shall be subject to the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Protocol and be supervised by an executive board of the clean development mechanism.

5. Emission reductions resulting from each project activity shall be certified by operational entities to be designated by the Conference of the Parties serving as the meeting of the Parties to this Protocol, on the basis of: (a) Voluntary participation approved by each Party involved; (b) Real, measurable, and long-term benefits related to the mitigation of climate change; and FCCC/CP/1997/L.7/Add.1 English Page 14 (c) Reductions in emissions that are additional to any that would occur in the absence of the certified project activity.

6. The clean development mechanism shall assist in arranging funding of certified project activities as necessary.

7. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first session, elaborate modalities and procedures with the objective of ensuring transparency, efficiency and accountability through independent auditing and verification of project activities.

8. The Conference of the Parties serving as the meeting of the Parties to this Protocol shall ensure that a share of the proceeds from certified project activities is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.

9. Participation under the clean development mechanism, including in activities mentioned in paragraph 3(a) above and acquisition of certified emission reductions, may involve private and/or public entities, and is to be subject to whatever guidance may be provided by the executive board of the clean development mechanism.

10. Certified emission reductions obtained during the period from the year 2000 up to the beginning of the first commitment period can be used to assist in achieving compliance in the first commitment period.

Appendix II

PROJECT DESIGN TEMPLATE

This template was developed as a generic organizational tool that can be used to organize your ideas and information. The information in this template includes all the categories necessary for developing a project design document, including small-scale projects. Official information on the project design can be found at http://www.unfccc.int/cdm.

I. GENERAL DESCRIPTION OF THE PROJECT

A. Title of the project

B. Project description

a) What is the goal of your project?
b) How does your project contribute to sustainable development for the participants?

C. Project participants

a) Who are the investors in this project?
b) Who are the hosts of this project?
c) Are there any other participants in this project?
d) What is the nature of the participants above? Public entity? Private entity?
e) What is their function?

D. Technical description

a) Location: Identify the country, region/state/province, and city/town/community of the project.
b) What are the unique qualities of the project site?

E. Project category

Identify the project category from the table below. If your project does not fit into these categories you can create your own category and description.

Category		
Type I **Renewable energy**	**Type II** **Energy efficiency improvements**	**Type III** **Other projects**
A. Electricity generation by the user/household	A. Supply-side transmission and distribution activities	A. Agriculture
B. Mechanical energy for the user/enterprise	B. Supply-side generation	B. Switching fossil fuels
C. Thermal energy	C. Demand-side activities	C. Emissions reductions in transport
D. Electricity generation for a system	D. Energy efficiency and fuel switching for industrial facilities	D. Methane recovery
	E. Energy efficiency and fuel switching for buildings	

F. Technology

Identify what environmentally friendly technology, including know-how, will be adopted with this project.

G. GHG reduction

Identify what GHG(s) will be reduced by this project. Also, include an explanation of why these reductions will be attributed to the project activities, that is, above and beyond business as usual.

H. Public funding

State whether public funding will be used for this project. If public funding is being used, what is its source?

II. BASELINE METHODOLOGY

A. Approved methodology

Identify the approved methodology you would use for this project from the list of approved baseline methodologies (see page 22 above).

B. Appropriateness

State why this baseline methodology is appropriate for this project.

C. Application

Describe how the baseline methodology will be applied in this project.

D. Project boundaries

Describe the project boundaries.

E. Flowchart

Draw a flowchart of the project with its main components and connections.

F. Leakage

Describe how the baseline methodology accounts for the whole project boundary.

G. Additionality

Explain how this project will decrease GHGs above and beyond business as usual. In other words, how will emissions decrease from the baseline you established?

III. CREDITING PERIOD

A. Duration of the project

a) When will the project start (i.e. starting date)?
b) What is the operational lifetime of the project (in months)?

B. Crediting period

a) What crediting period are you choosing?
   Option 1: Renewable crediting period: at most 7 years, can be renewed twice
   Option 2: Fixed crediting period: at most 10 years
b) Why did you choose that period?

IV. MONITORING PLAN

A. Methodology

a) Identify the methodology you propose from the list of approved monitoring methodologies at http://unfccc.int/cdm/methapp.html
b) State why this monitoring methodology is appropriate for this project.
c) Describe how the monitoring methodology will be applied in this project.

B. Leakage

How will GHG emissions from outside the project boundary be monitored?

C. Quality control

How will quality control and quality assurance in this monitoring plan be ensured? For example, consider the uncertainties associated with the data and the procedures needed to ensure the quality of the data.

V. CALCULATION OF GHGs

a) How will you calculate each GHG associated with the project?
b) How will you calculate and account for leakage?
c) Use table in annex IV.

VI. ENVIRONMENTAL IMPACTS

a) What environmental impacts will be reduced or mitigated by implementing this project? Provide documentation.
b) What environmental impacts will result from this project (if any)?

VII. STAKEHOLDER COMMENTS

a) Stakeholders' comments must also be submitted with the project design. Provide a list of stakeholders involved with your project.
b) How will you incorporate these concerns into the design of your CDM project?

Appendix III

GLOSSARY OF TERMS AND ACRONYMS

AAU	Assigned amount unit: one metric tonne of carbon dioxide equivalent.
Additionality	GHG reductions above and beyond business as usual.
Afforestation	The conversion of land that had not been forested to forested land through planting, seeding and other methods.
Annex B	The 39 developed countries designated in Annex B of the Kyoto Protocol that have GHG reduction commitments.
Annex I	The 36 developed countries designated in Annex I of the UNFCCC that had non-binding GHG reduction commitments to 1990 levels by 2000.
Baseline	A scenario that represents the GHG emissions from all sectors and sources that would occur without the CDM project (see BAU).
BAU	Business as usual: project outcomes that would result in the absence of a CDM project.
CDM	Clean Development Mechanism: a policy whereby industrialized countries receive credits against their emissions reduction commitments for investment in greenhouse gas reduction projects in the developing countries.
CER	Certified emission reduction: one metric tonne of carbon dioxide equivalent.
COP/MOP	Conference of Parties and Meeting of the Parties: countries that are signatory Parties to the UNFCCC (see below).
DOE	Designated operational entity: accredited organization that validates, monitors and certifies CDM projects and emissions reductions.
Donor	The Annex I country, organization or individual that invests in a CDM project to reduce GHGs in a developing country (see Investor).
ERU	Emission reduction unit: one metric tonne of carbon dioxide equivalent.

Executive Board	Oversees CDM projects for the UNFCCC and is held accountable by the COP/MOP.
GHG	Greenhouse gas: The Kyoto Protocol recognizes the following greenhouse gases and gas classes as eligible for reductions credits: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).
Host	The non-Annex I developing country, organization or individual that is the recipient of CDM project investment.
Investor	The Annex I country, organization or individual that invests in a CDM project to reduce GHGs in a developing country.
Kyoto Protocol	The international treaty that sets GHG reduction goals for participating countries and designates CDM projects as one of the mechanisms to achieve these reductions.
Leakage	The net change of anthropogenic emissions by sources of greenhouse gases that occurs outside the project boundary and that is measurable and attributable to the CDM project activity.
Operational Entity	A legal entity designated by the Executive Board to oversee and validate CDM projects (same as DOE).
RMU	A removal unit: one metric tonne of carbon dioxide equivalent.
Reforestation	The conversion of previously forested land to forested land through planting, seeding and other methods.
Small-scale projects	Renewable energy projects of less than 15 MW capacity; energy efficiency improvement projects of less than 15 GWh/year; or other projects of less than 15 kilotonnes CO_2 equivalent emissions.
Stakeholders	Communities, groups or individuals affected, or likely to be affected, by the CDM project.
UNFCCC	United Nations Framework Convention on Climate Change: an international legal framework established in 1992 at the "Earth Summit" in Rio to address climate change.

Sources

Aukland, Louise, Pedro Moura Costa, Stephen Bass, Saleemul Huq, Natasha Landell-Mills, Richard Tipper and Rebecca Carr, "Laying the Foundations for Clean Development: Preparing the Land Use Sector. A Quick Guide to the Clean Development Mechanism", March 2002, available at http://www.cdmcapacity.org.

Austin, Duncan and Paul Faeth, "How much sustainable development can we expect from the Clean Development Mechanism?", World Resources Institute, 1999, available at http://www.wri.org/cdm/cdm-note.html.

Baumert, Kevin A. and Elena Petkova, "How will the Clean Development Mechanism ensure transparency, public engagement, and accountability?", World Resources Institute, available at http://www.wri.org/cdm/public.html.

Baumert, Kevin A., Nancy Kete and Christiana Figueres, "Designing the Clean Development Mechanism to meet the needs of a broad range of interests", World Resources Institute, 2000, available at http://www.wri.org/cdm/cdm-note2.html.

Baumert, Kevin and Nancy Kete, "Designing the Clean Development Mechanism: Operational and Institutional Issues", World Resources Institute, available at http://www.wri.org/pdf/oecd_cdm.pdf.

CDMWatch, Validated Projects page, available at http://www.cdmwatch.org.

Howard, Andrew, "Modalities for the accounting of assigned amounts under Article 7.4 of the Kyoto Protocol", presentation at COP 7, Marrakech, Morocco, 30 October 2001.

IPCC (Intergovernmental Panel on Climate Change), "Climate Change 2001: Mitigation", World Meteorological Organization and United Nations Environment Programme, 2001.

Kete, Nancy, Ruchi Bhandari and Kevin A. Baumert, "Should Development Aid Be Used to Finance The Clean Development Mechanism?", World Resources Institute, Climate Note, April 2001, available at http://wri.org/wri/.

Lawson, Karen, Jia Li and Cathleen Kelly, "Identifying Investment Opportunities for the Clean Development Mechanism (CDM) in Brazil's Industrial Sector", Center for Clean Air Policy, August 2001.

MHSPE (1) (Ministry of Housing, Spatial Planning and the Environment of the Netherlands), "Standardized Baselines and Streamlined Monitoring for Selected Small-Scale Clean Development Mechanism Development Activities", Volume 2c: "Baseline Studies for Small-Scale Project Activities, A Guide for Project Developers", Version 1.0, December 2001.

MHSPE (2) (Ministry of Housing, Spatial Planning and the Environment of the Netherlands), "Operational Guidelines for Baseline Studies, Validation, Monitoring and Verification of Clean Development Mechanism Project Activities", Volume 1: "Introduction: A Guide for Project Developers and Validation/Verification Bodies", Version 1.0, October 2001.

MHSPE (3) (Ministry of Housing, Spatial Planning and the Environment of the Netherlands), "Operational Guidelines for Baseline Studies, Validation, Monitoring and Verification of Clean Development Mechanism Project Activities", Volume 2a: "Baseline Studies, Monitoring and Reporting: A Guide for Project Developers", Version 1.0, October 2001.

MHSPE (4) (Ministry of Housing, Spatial Planning and the Environment of the Netherlands), "Operational Guidelines for Baseline Studies, Validation, Monitoring and Verification of Clean Development Mechanism Project Activities", Volume 2b: "Baseline Studies for Specific Project Categories: A Guide for Project Developers", Version 1.0, October 2001.

MHSPE (5) (Ministry of Housing, Spatial Planning and the Environment of the Netherlands), "Baselines for CDM: Suggested Approaches", September 2001.

PCF (Prototype Carbon Fund), "Project Idea Note or PIN", World Bank, 8 May 2002, available at http://prototypecarbonfund.org/router.cfm?Page=DocLib&Dtype=2.

Pembina Institute (Pembina Institute for Appropriate Development), "A User's Guide to the Clean Development Mechanism", June 2002, available at http://www.pembina.org/publications_item.asp?id=130.

Pew Center on Global Climate Change, "Summary of the Marrakech Accords on Climate Change", available at http://www.pewclimate.org/cop7/update_110901.cfm.

Pew Center on Global Climate Change, "Policymaker's Guide", available at http://www.pewclimate.org/policyguide.

Pew Center on Global Climate Change, "Climate Change Glossary", available at http://www.pewclimate.org/policyguide.

Rosenzweig, Richard, Mathew Varilek and Josef Janssen, "The Emerging International Greenhouse Gas Market", Pew Center on Global Climate Change, March 2002.

Senter International, "Cerupt: CDM projects in developing countries", available at http://www.senter.nl/asp/page.asp?id=i001236&alias=erupt.

Seroa da Motta, Ronaldo, Claudio Ferraz and Carlos E. R. Young, "Brazil: CDM Opportunities and Benefits", in D. Austin and P. Faeth, "Financing Sustainable Development with the Clean Development Mechanism", World Resources Institute, 2000.

Sokona, Youba and Djimingué Nanasta, "The Clean Development Mechanism: An African Delusion?", *Change*, n. 54, October-November 2000: 8-11.

Stewart, Richard, "The Clean Development Mechanism: Building International Public-Private Partnerships", UNCTAD/GDS/GFSB/Misc.7, 1999.

UNFCCC (1) (United Nations Framework Convention on Climate Change), Clean Development Mechanism website, available at http://unfccc.int/cdm/.

UNFCCC (2) (United Nations Framework Convention on Climate Change), "Glossary of Climate Change Acronyms and Jargon", available at http://unfccc.int/siteinfo/glossary.html.

UNFCCC (3) (United Nations Framework Convention on Climate Change), "A Guide to the Climate Change Convention and its Kyoto Protocol", 2002, available at http://unfccc.int.

UNFCCC (4) (United Nations Framework Convention on Climate Change), "A Guide to the Climate Change Convention and its Kyoto Protocol", 2nd edition, 2002, available at http://unfccc.int.

UNFCCC (5) (United Nations Framework Convention on Climate Change), "The Kyoto Protocol to the United Nations Framework Convention on Climate Change", available at http://cop3.unfccc.int/.

UNFCCC (United Nations Framework Convention on Climate Change) and UNEP (United Nations Environment Programme), "Understanding Climate Change: A Beginner's Guide to the UN Framework Convention and its Kyoto Protocol", 1999.

World Bank, "The Prototype Carbon Fund", available at http://www.prototypecarbonfund.org/router.cfm?Page=DocLib&Dtype=1.