Climate Change and Sustainability

Clean Development Mechanism (CDM)

Frequently asked questions

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Clean Development Mechanism

The Clean Development Mechanism (CDM) is part of the Kyoto Protocol environmental agreement. CDM projects are designed to stimulate sustainable development and reduce greenhouse gas (GHG) emissions. Revenues can be generated for investors or participants in CDM projects through the sale of carbon credits on global carbon markets.

What is the background of the CDM?

The story of the CDM begins in the early 1990s with the growing recognition among scientists and others that an increase in GHG emissions from human activity such as industry and agriculture was leading to an unacceptable rise in global temperatures.

In response to this recognition, an international environmental treaty was produced in 1992 at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro. The treaty, known as the United Nations Framework Convention on Climate Change (UNFCCC), has the stated goal of stabilizing global GHG emissions in the atmosphere.

The UNFCCC agreed that the largest share of historic and current global GHG emissions has originated in developed countries, while per capita emissions in developing countries are still relatively low. It was also acknowledged that the share of global emissions from developing countries will grow as their social and development needs increase.

The parties to the convention have met annually from 1995 in Conferences of the Parties (COP) to monitor and assess the progress made dealing with climate change. The treaty itself is considered legally non-binding. It sets no mandatory limits on GHG emissions for individual countries and contains no enforcement mechanisms. Instead, the treaty provides for updates (called "protocols") designed to set mandatory emission limits.

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What is the Kyoto Protocol and why is it important?

Adopted in 1997, the Kyoto Protocol was the first international treaty in which nations of the world agreed to undertake targets in emission reduction. The treaty places a cap on the emissions of six GHGs produced by industrialized countries. (see box).

The major distinction between the Kyoto Protocol and the UNFCCC is that the Kyoto Protocol actually committed the signatory countries to their emissions targets. The treaty went into force on 16 February 2005.

Because developed countries are principally responsible for GHG emissions, the Kyoto Protocol introduced the concept of "common but differentiated responsibilities" in reducing emissions. Developing nations were not given emissions targets since their emissions levels are relatively low. However, 38 developed countries and economies in transition agreed on an emissions reduction target of 5.2% below 1990 levels for the commitment period 2008-2012. With the current commitment period due to expire at the end of 2012, negotiations are currently taking place about a post-2012 regime.

Under the Kyoto Protocol, developed countries meet their targets primarily through national measures. However, the treaty offers them an additional means of meeting their targets by way of three market-based mechanisms:

1. Joint Implementations (JIs) that help developed countries with GHG emission reduction commitments to invest in GHG reduction projects in other developed countries
2. International Emissions Trading (IET) that enables a group of countries to create a carbon market where emission reductions can be traded like a commodity
3. The CDM that enables developed countries to sponsor GHG reduction projects in developing countries

GHG emissions regulated by the Kyoto Protocol

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Perfluorocarbons (PFCs)
- Hydrofluorocarbons (HFCs)
- Sulphur hexafluoride (SF_6)

Source: http://unfccc.int/kyoto_protocol/items/3145.php

How does the CDM work?

The CDM is the only flexible mechanism that involves both developed and developing nations.

- In developed countries, either the state or private companies invest in projects in developing countries that can be shown to measurably reduce GHG emissions.
- In developing countries, either the state or private companies are allowed to implement such projects on their own.

A CDM project must provide additional reductions in emissions than would not have occurred without the project. In practice, this means that a baseline of "what would have occurred without the project" must be defined, and any emission reductions additional to this baseline level of emissions can yield CDM credits.

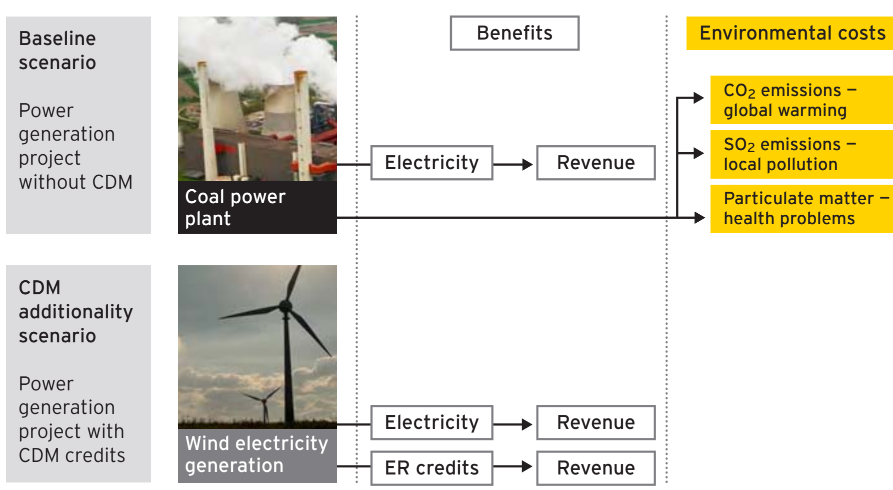
After a CDM project has been implemented, project participants receive Carbon Emission Reduction (CER) credits from the UNFCCC Executive Board.

How can companies make money with CDM projects and support their emissions targets?

Companies in industrialized countries can credit the CERs earned through their investments in CDM projects toward their emissions targets. Companies in developing countries can sell their CERs to buyers in industrialized countries. CERs can also be traded on global carbon markets, and their price is determined by buyers and sellers.

The European Union Emission Trading Scheme (EU ETS) currently drives most trading on the global carbon markets. Essentially a cap-and-trade mechanism, the EU ETS requires EU companies to either cut their emissions or buy emission allowances or carbon credits from the market.

Comparison of CDM and baseline projects



Source: Asian Development Bank

What are the top CDM developing countries?

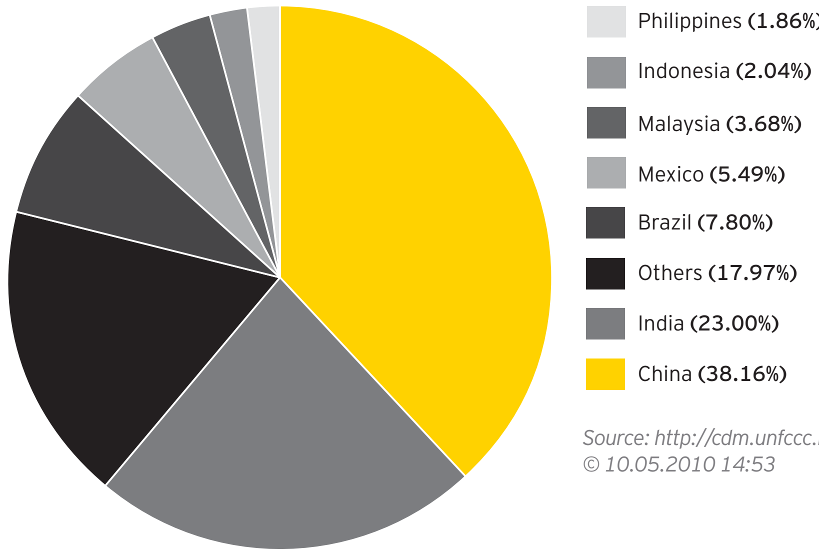
China is currently at the top of the list with a total of more than 800 project activities and 150 million CERs issued. India is second place with more than 500 project activities and 71 million CERs issued.

Can CDM projects produce significant revenues?

Yes. The UNFCCC has issued more than 400 million CERs representing approximately US$6.5b in market value.[1]

1 http://cdm.unfccc.int/Statistics/Issuance/CERsIssuedByHostPartyPieChart.html], accessed May 10, 2010

CDM project activities by host country



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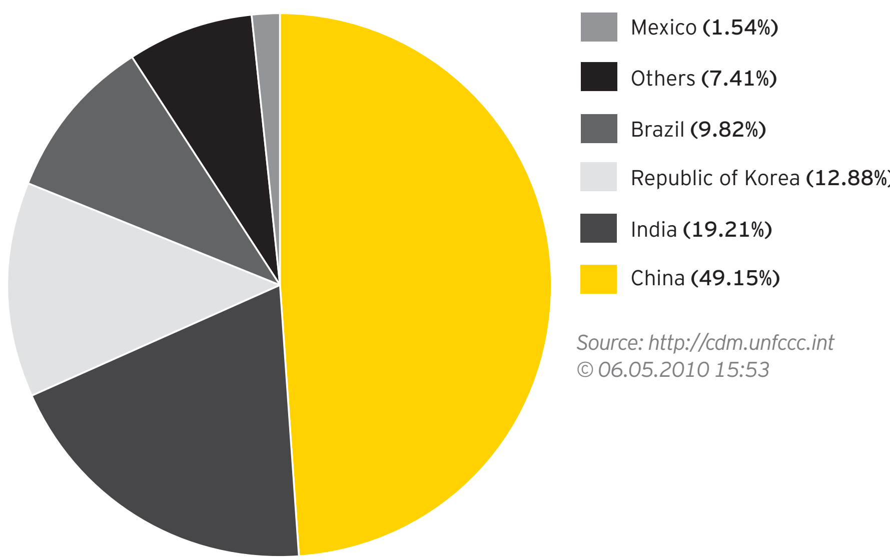
CERs issued by host country



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What are the basic steps in a CDM project cycle?

CDM projects are often complex in their structure and development, but they usually include the following steps:

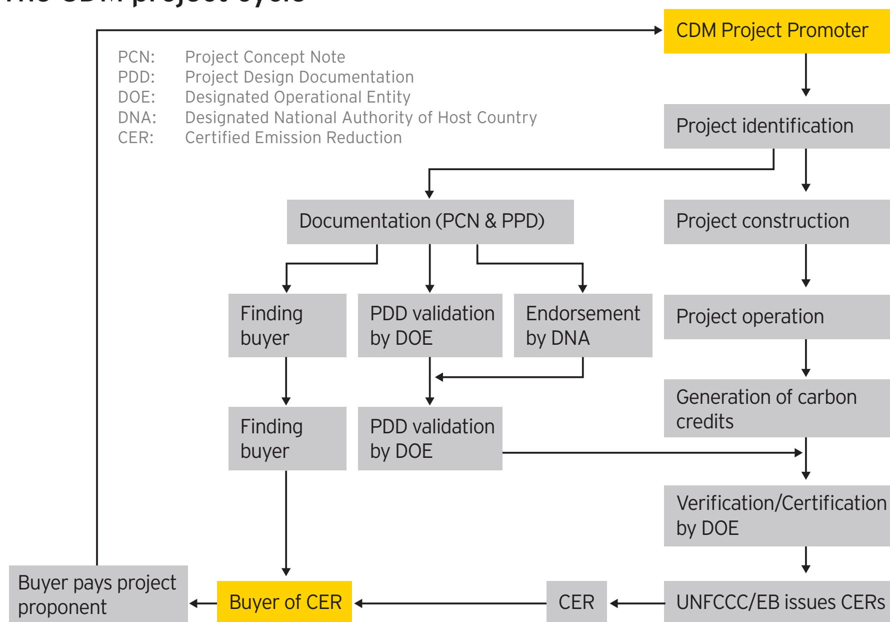
Project participants first identify a possible project and a brief description of the project is included in a Project Identification Note (PIN). The PIN is used to promote the project to the host country or to potential buyers of the CERs.

Then a Project Design Documentation (PDD) is developed according to the guidelines given by the CDM Executive Board. The PDD contains detailed information about the technology employed by the project, its contribution to sustainable development, calculations related to emission reduction and other factors.

Once the PDD is completed, the Designated National Authority (DNA) in the host country evaluates the project for its contribution to sustainable development. A designated operational entity (third-party consultant or organization) then validates the information presented in the PDD and determines if the project results in real, measurable and long-term reductions in emissions. Baseline and monitoring methodologies for CDM project activities must be approved by the CDM Executive Board.

A Monitoring Report is prepared for the Designated Operational Entity (DOE), requesting registration and verifying emissions reductions. After a successful validation, the project is registered with the UNFCCC, which issues CERs to the project participants.

The CDM project cycle



Source: UNFCCC

A selection of CDM project areas supported by Ernst & Young

Industry	Project
Energy supply ‣ Power generation ‣ Oil and gas	‣ Coal/gas/renewable power generation ‣ Fuel switching (from fossil fuel to green fuel) ‣ Co-generation
Mining	‣ Industrial energy efficiency ‣ Abatement of fugitive emissions from coal mines
Manufacturing ‣ Iron and steel ‣ Cement ‣ Paper and pulp	‣ Fuel switching ‣ Waste heat recovery ‣ CO_2 recovery ‣ Increased industrial energy efficiency
Forestry and agriculture	‣ Afforestation (seeding new forests) and reforestation ‣ Improved management of natural woodlands ‣ Manure management with the capture of CH_4
Transportation	‣ Improved public transport and traffic management ‣ Modal shift from air to train, road to train ‣ Vehicle fuel switching (hybrids) and increased vehicle efficiency
Construction	‣ Energy efficiency in building design ‣ Solar water heating and energy-efficient appliances ‣ Fuel switching

Source: Ernst & Young

How can Ernst & Young assist with CDM projects?

Ernst & Young is one of the leading advisors to CDM projects in the world. We have been engaged in over 750 CDM projects globally. This includes almost 200 successful CDM registrations, 148 CDM issuances and the approval of 12 UNFCCC methodologies.

Backed by this experience, Ernst & Young can help organizations with the identification of a wide range of CDM investments, analyzing potential projects on a risk-weighted basis. Once the project and technologies have been identified and the deal approved, we can provide services to assist clients across the CDM project cycle.

With Ernst & Young, organizations can develop a detailed carbon strategy designed to leverage today's opportunities in CDM investments while supporting long-term business requirements and objectives.

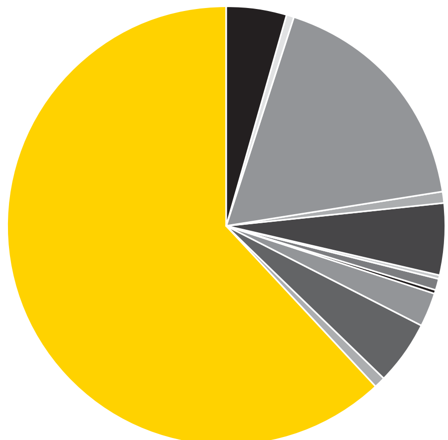
Additional points of view that may interest you

Download our current thought leadership and research findings at ey.com/climatechange

Action amid uncertainty: the business response to climate change

This global survey of 300 corporate executives from 16 countries with at least US$1b in annual revenue found that corporate executives expect to make significant investments to deliver both cost savings and revenue generation opportunities relating to climate change. Find out why – despite challenging economic conditions and regulatory uncertainty – they believe that the climate change agenda will significantly impact business performance and strategy over the next few years.

Distribution of CDM projects by scope



- (01) Energy industries (renewable -/non-renewable sources) **(61.70%)**
- (02) Energy distribution **(0.00%)**
- (03) Energy demand **(0.94%)**
- (04) Manufacturing industries **(4.80%)**
- (05) Chemical industries **(2.51%)**
- (06) Construction **(0.00%)**
- (07) Transport **(0.11%)**
- (08) Mining/mineral production **(0.98%)**
- (09) Metal production **(0.26%)**
- (10) Fugitive emissions from fuels (solid, oil, and gas) **(5.10%)**
- (11) Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride **(0.83%)**
- (12) Solvent use **(0.00%)**
- (13) Waste handling and disposal **(17.59%)**
- (14) Afforestation and reforestation **(0.53%)**
- (15) Agriculture **(4.65%)**

Source: http://cdm.unfcc.int © 10.05.2010 14:53

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