The Kyoto Protocol and Clean Development Mechanism

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Kyoto Protocol

Introduction

Kyoto Protocol is an agreement on made under the Conference on Climate Change in Kyoto, Japan, in 1997. Kyoto Treaty was negotiated in in December 1997, opened for signature on March 16, 1998 and closed on March 15, 1999. The agreement came into force on February 16, 2005 following ratification by on November 18, 2004. As of September 2006, a total of 163 countries have ratified the agreement (representing over 61.6% of emissions from Annex I countries). Notable exceptions include the and . Other countries, like India and China, which have ratified the protocol, are not required to reduce carbon emissions under the present agreement.

The 1997 Kyoto Protocol of framework of UNFCCC is a key step towards the mitigation of climate change due to increased greenhouse gases accumulation in atmosphere. It was the first international agreement, which legally binds, developed nation to reduce worldwide emissions of greenhouse gases from these countries. The Kyoto Protocol, which was established for emission reduction target, states that the industrialized countries can achieve relatively inexpensive means of combating Climate change (Bruce, 1999). As a step towards this goal, different countries adopted the Kyoto Protocol in December 1997. The Kyoto agreement encourages rich nations to cut greenhouse gas emissions by an average of 5.2% below their 1990 levels over the next decade i.e.; by 2008-12. A country or company wishing to reduce or meet their emission targets can do so by investing in clean projects, which would contribute towards offsetting their GHG emissions, but would also earn the investor some “credits” which would go towards a net carbon reduction. A typical CDM project would be substituting fossil fuel-based power generation with renewable energy or a project that would improve existing energy efficiency levels. Or, as in India, by investing in forestation or community tree planting projects, called “carbon sinks”.

Article 3.4 caused a great deal of argument, as it did not specify what could be constituted as a valid sink or source and what 'additional activities' meant. The US took this article to mean that it could count forests, which already existed in its sinks, other countries argued that this was not fair and would allow countries like the US to do relatively little.

Principles of Kyoto Protocols

At its heart, Kyoto establishes the following principles:

- Kyoto is underwritten by governments and is governed by global legislation enacted under the UN’s aegis.
- Governments are separated into two general categories: developed countries, referred to as Annex 1 countries (who have accepted GHG emission reduction obligations); and developing countries, referred to as Non-Annex 1 countries (who have no GHG emission reduction obligations).
- Any Annex 1 country that fails to meet its Kyoto target will be penalized by having its reduction targets decreased by 30% in the next period.
- By 2008-2012, Annex 1 countries have to reduce their GHG emissions by around 5% below their 1990 levels (for many countries, such as the EU member states, this corresponds to some 15% below their expected GHG emissions in 2008). Reduction targets expire in 2013.

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- Kyoto includes "flexible mechanisms" which allow Annex 1 economies to meet their GHG targets by purchasing GHG emission reductions from elsewhere. These can be bought either from financial exchanges (such as the new EU Emissions Trading Scheme) or from projects which reduce emissions in non-Annex 1 economies under the Clean Development Mechanism (CDM), or in other Annex-1 countries under the JI.
- Only CDM Executive Board-accredited Certified Emission Reductions (CER) can be bought and sold in this manner. Under the aegis of the UN, Kyoto established this Bonn-based Clean Development Mechanism Executive Board to assess and approve projects ("CDM Projects") in Non-Annex 1 economies prior to awarding CERs. (A similar scheme called "Joint Implementation" or "JI" applies in transitional economies mainly covering the former Soviet Union and Eastern Europe).

Kyoto Mechanisms:

The Kyoto Protocol broke new ground by defining three innovative "flexibility mechanisms" to lower the overall costs of achieving its emissions targets. These mechanisms enable Parties to access cost-effective opportunities to reduce emissions, or to remove carbon from the atmosphere, in other countries. While the cost of limiting emissions varies considerably from region to region, the effect for the atmosphere of limiting emissions is the same, irrespective of where the action is taken.

All three mechanisms under the Kyoto Protocol are based on the Protocol's system for the accounting of targets. Under this system, the amount to which an Annex I Party (with a commitment inscribed in Annex B of the Kyoto Protocol) must reduce its emissions over the five year commitment period (known as its "assigned amount") is divided into units each equal to one tonne of carbon dioxide equivalent. These assigned amount units (AAUs), and other units defined by the Protocol, contribute the basis for the Kyoto mechanisms by providing for a Party to gain credit from action taken in other Parties that may be counted towards it own emissions target (www.unfccc.int).

The three Kyoto mechanisms are:
1. Emissions Trading
2. Joint Implementation, and
3. Clean Development Mechanism.

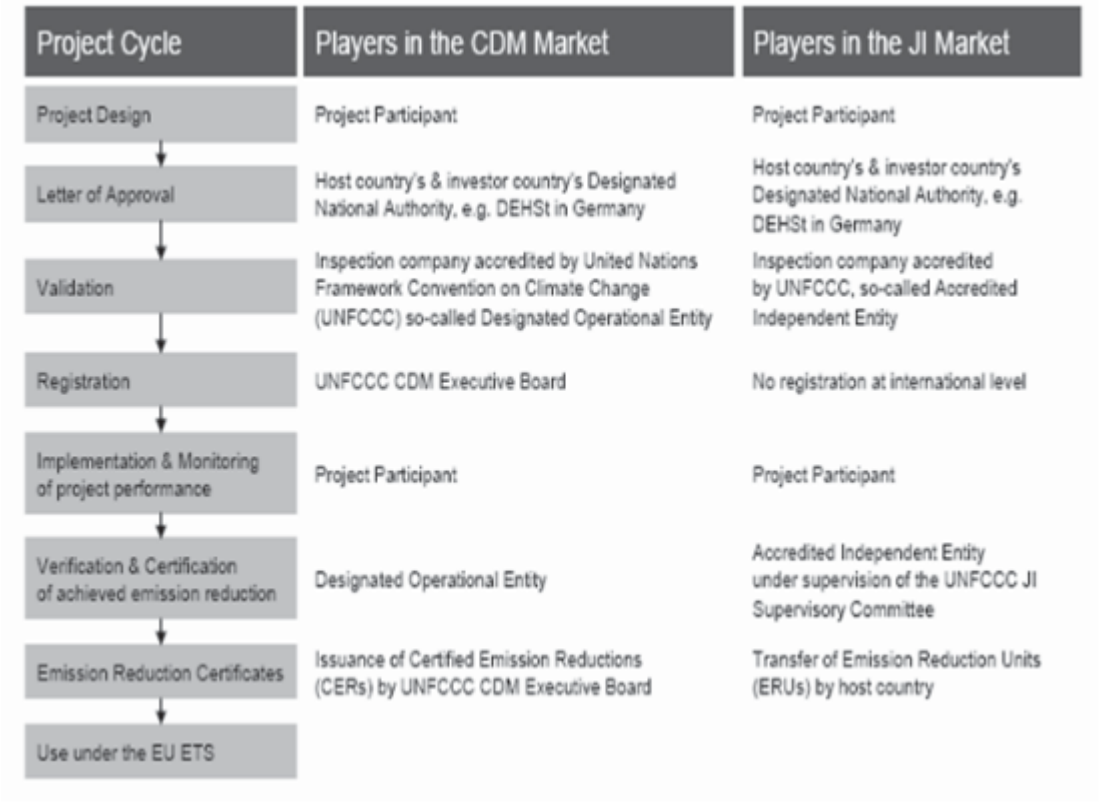
1. Emissions Trading

Article 17 of the Kyoto Protocol authorizes countries to engage in international emissions trading. This means that the Annex B countries will have the option of buying or selling some portion of their emission allowances. These allowances are called "" (AAUs)[1] in the Kyoto Protocol.

Emissions' trading is one of the flexibility mechanisms allowed under the Kyoto Protocol to enable countries to meet their emissions reduction target. Countries/companies with high internal emission reduction costs would be expected to buy certificates from countries/companies with low internal emission reduction costs. The latter entities would also be expected to maximize their production of low cost emission reduction so as to maximize their ability to sell certificates to high cost entities. The overall outcome is that the emission reduction target is met, but at a much lower cost than would be incurred by requiring each entity to achieve the emission reduction target on their own.

*1 *Assigned Amount Units (AAUs)*
The assigned amount is the total amount of greenhouse gas that each Annex B country is allowed to emit during the first commitment period of the Kyoto Protocol. An Assigned Amount Unit (AAU) is a tradable unit of 1 tCO_2e.

2. Joint Implementation



Project Cycle	Players in the CDM Market	Players in the JI Market
Project Design	Project Participant	Project Participant
Letter of Approval	Host country's & investor country's Designated National Authority, e.g. DEHSt in Germany	Host country's & investor country's Designated National Authority, e.g. DEHSt in Germany
Validation	Inspection company accredited by United Nations Framework Convention on Climate Change (UNFCCC) so-called Designated Operational Entity	Inspection company accredited by UNFCCC, so-called Accredited Independent Entity
Registration	UNFCCC CDM Executive Board	No registration at international level
Implementation & Monitoring of project performance	Project Participant	Project Participant
Verification & Certification of achieved emission reduction	Designated Operational Entity	Accredited Independent Entity under supervision of the UNFCCC JI Supervisory Committee
Emission Reduction Certificates	Issuance of Certified Emission Reductions (CERs) by UNFCCC CDM Executive Board	Transfer of Emission Reduction Units (ERUs) by host country
Use under the EU ETS		

3. The Clean Development Mechanism

The clean development mechanism allows governments or private entities in rich countries to set up emission reduction projects in developing countries. They get credit for these reductions as 'certified emission reductions (CER's)[1]. This system is different from the Joint Implementation as it promotes sustainable development on developing countries. The is the entry point for developing countries (non-Annex I) into the Kyoto Protocol on Climate Change. The mechanism was established under Article 12 of the adopted by the Third Conference of the Parties to the Framework Convention on Climate Change on December 11, 1997.

The CDM arose out of the negotiations of the Kyoto Protocol in 1997. The CDM is meant to benefit both industrial and developing countries. For industrial countries, the CDM will provide access to emission reduction credits based on GHG abatement projects undertaken in developing countries where the costs of reducing emissions might be considerably lower than the costs of comparable reductions at home. The CDM provides developing countries with opportunities to become active participants in international efforts to curb GHG emissions.

The dual goals of the CDM are to promote sustainable development in developing countries, and to allow industrialized countries to earn emissions credits from their investments in emission-reducing projects in developing countries.

To earn credits under the CDM, the project proponent must prove and have verified that the greenhouse gas emissions reductions are real, measurable and additional to what would have occurred in the absence of the project.

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To prevent industrialized countries from making unlimited use of CDM, Article 6.1 d) has a provision that use of CDM be 'supplemental' to domestic actions to reduce emissions. The CDM gained momentum in 2005 after the entry into force of the Kyoto Protocol. Before the Protocol entered into force, investors considered this a key risk factor. As of 28 November 2006, 421 projects had been registered by the CDM Executive Board as CDM projects. These projects reduce greenhouse gas emissions by an estimated 104,124,494 ton CO_2 equivalent per year (UNFCCC, 2006).

If Community forest is included in the 'Kyoto protocol' under CDM, it can regularly get certain income from the CDM. Under this mechanism, it has been clarified that the forest that has been managed through the participatory approach will get income through their carbon trading. Natural forest, which has been managed as community forest have been excluded from carbon credit (www.wwfnepal.org). In the , only and are eligible to produce CERs in the first commitment period of the (2008–2012). Forest conservation activities or activities avoiding , which would result in emission and reduction through the conservation of existing carbon stocks but it is not eligible at this time. Also agricultural carbon sequestration is not possible yet.

International structure for CDM

The CDM is supervised by an Executive Board, which itself operates under the authority of the Parties. The Executive Board is composed of 10 members, including one representative from each of the five official UN regions (Africa, Asia, Latin America and the Caribbean, Central and Eastern Europe, and OECD), one from the small island developing states, and two each from Annex I and non-Annex I Parties. The Executive Board held its opening meeting at the Marrakech talks in November 2001, marking the launch of the CDM. The Executive Board will accredit independent organizations-known as operational entities-that will validate proposed CDM projects, verify the resulting emission reductions, and certify those emission reductions as CERs. Another key task is the maintenance of a CDM registry, which will issue new CERs, manage an account for CERs levied for adaptation and administrative expenses, and maintain a CER account for each non-Annex I Party hosting a CDM project.

Benefit from CDM to Country

The basic principle of the CDM is simple: developed countries can invest in low-cost abatement opportunities in developing countries and receive credit for the resulting emissions reductions, thus reducing the cutbacks needed within their borders. While the CDM lowers the cost of compliance with the Protocol for developed countries, developing countries will benefit as well, not just from the increased investment flows, but also from the requirements that these investments advance sustainable development goals. The CDM encourages developing countries to participate by promising that development priorities and initiatives will be addressed as part of the package. This recognizes that only through long-term development will all countries be able to play a role in protecting the climate.

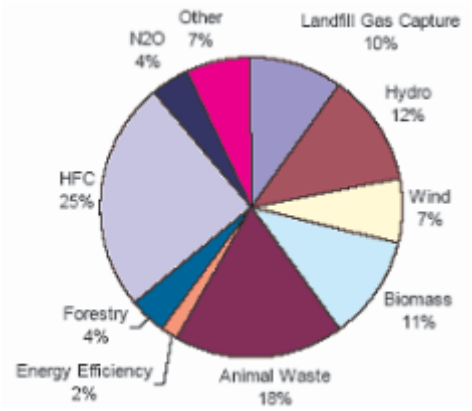
From the developing country perspective, the CDM can:

- Attract capital for projects that assist in the shift to a more prosperous but less carbon-intensive economy.
- Encourage and permit the active participation of both private and public sectors.
- Provide a tool of technology transfer, if investment is channeled into projects that replace old and inefficient fossil fuel technology, or create new industries in environmentally sustainable technologies, and
- Help define investment priorities in projects that meet sustainable development goals. Specifically, the CDM can contribute to a developing country's sustainable development objectives through:
- Transfer of technology and financial resources.
- Sustainable ways of energy production.
- Increasing energy efficiency & conservation.
- Poverty alleviation through income and employment generation; and
- Local environmental side benefits.

Types of CDM projects worldwide

An analysis of CDM project types shows that HFC-23 destruction dominates, comprising about a quarter of the ERs supplied from January 2004 to April 2005. But methane and N_2O capture from animal waste is now second, with 18 per cent of the volume supplied. Biomass energy, hydro and landfill gas capture share third place, with about 10 per cent of the volume supplied. Projects abating non-CO_2 gases (N_2O, HFCs and methane) account for 57 per cent of the volume supplied. And even for more than two thirds of the total volume supplied if biomass energy is added to this group. On the other hand, energy efficiency and fuel switching account for only about 4 per cent of the total volume supplied. This is likely to continue in the foreseeable future, as projects with emission reductions that can be generated quickly are developed to meet first commitment period requirements (Gonsalves, J. B, 2006).

Types of CDM projects worldwide



Source: World Bank/IETA

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