The Clean Development Mechanism: Overview
In this presentation you will learn about the basics of the Clean Development Mechanism (CDM), the project development cycle, and forestry projects within the CDM.
Outline

1. CDM basics
2. Project development cycle
3. The role of forestry projects in CDM

Narration: This presentation is divided into three sections.
The CDM is described in Article 12 of the Kyoto Protocol. It is the only mechanism by which developing countries, also called Annex 1 countries, can participate. CDM projects are designed to foster sustainable development in these countries while helping them meet their reduction commitments under the Protocol. Participation in the CDM is voluntary. A key requirement of the CDM is additionality.
Rules for the CDM

- Annex I Parties are to refrain from using Certified Emissions Reductions (CERs) generated from **nuclear facilities** to meet their quantified greenhouse gas emissions reduction targets.
- The eligibility of land use, land-use change and forestry project activities under the CDM is limited to **afforestation and reforestation**.
- Public funding for CDM projects from Annex I Parties is not to result in the diversion of **official development assistance (ODA)** and is to be separate from, and not counted towards, the financial obligations of Annex I Parties.
  - ODA can be, and is being, used to help prepare CDM projects.
  - For example, the Danish government has used its ODA in select countries to help develop CDM projects. Then other non-ODA funds have been used by the Danish government and the private sector to actually buy the carbon credits generated by the CDM project.

**Narration:** There are several important rules of the CDM. Three examples are: 1) **Nuclear facilities cannot be used to generate CERs,** 2) **Only afforestation and reforestation projects are allowed under the CDM.** For example, **projects that reduce deforestation are not allowed,** and 3) **ODA must not be diverted to fund CDM projects.**

**Carbon credits** are a key component of national and international attempts to mitigate the growth in concentrations of greenhouse gases (GHGs). One Carbon Credit is equal to one ton of Carbon. **Carbon trading** is an application of an emissions trading approach. Greenhouse gas emissions are capped and then markets are used to allocate the emissions among the group of regulated sources. The idea is to allow market mechanisms to drive industrial and commercial processes in the direction of low emissions or less "carbon intensive" approaches than are used when there is no cost to emitting carbon dioxide and other GHGs into the atmosphere. Since GHG mitigation projects generate credits, this approach can be used to finance carbon reduction schemes between trading partners and around the world. (Explanation of carbon credits from Wikipedia: [http://en.wikipedia.org/wiki/Carbon_credit](http://en.wikipedia.org/wiki/Carbon_credit))
Narration: This figure shows how far away Japan, Canada, and the EU15 are projected to be from achieving their Kyoto targets, even after emissions trading schemes, other non-trading emission reduction policies, and government procurement programmes are taken into account. This provides an indication of how large the gross demand for carbon credits is likely to be over 2008–2012.

Canada’s position on the Kyoto Protocol remained unclear. Emissions are projected to be up to 50 per cent over target by 2012, yet there is no clear policy on purchase of carbon credits or emissions trading.

Japan has a challenging Kyoto target and an active carbon credit procurement programme. It is not yet clear how much of Japan’s remaining Kyoto gap will be met with further carbon credit procurement, or additional domestic policies.
**Narration:** This slide shows the proportion of projects by sector and the source of CER credits to date.

Distribution of CDM projects is not even across different sectors. Of all projects that are under validation, submitted for registration, or already registered, the main share is in projects for renewable energy, which account for 59 per cent. This is followed by methane reduction, including agriculture, landfill gas and coal mine methane, and energy efficiency projects (13 per cent of total projects).

The number of CERs issued per sector is not directly related to the number of projects per sector. Due to the varied nature of project categories, there is also a wide variation of greenhouse gases with different GWPs. The projects involving the most potent greenhouse gases such as hydrofluorocarbons, PFCs or N2O nevertheless lead to the issuance of 65 per cent of CERs. Although about 80 per cent of CDM projects focus on either renewable energy or methane reduction projects, their emission reductions pale in comparison to HFC and N2O, with only 33 per cent of total CERs issued.
Narration: Now you will learn about the nine steps in a CDM project cycle.

**Step 1**: Project proponents plan a CDM activity. There are several conditions that need to be fulfilled in order to register a CDM project activity. Project proponents should consider these conditions at the planning stage.

**Step 2**: Project proponents create a project design document, or PDD, for the activity. The PDD presents information on the essential technical and organisational aspects of the project activity and is a key input into the validation, registration, and verification of the project. The PDD contains information on the activity, the approved baseline methodology applied to the project activity, and the approved monitoring methodology applied to the project.

**Step 3**: Project proponents obtain written approvals of voluntary participation from the designated national authority of each ‘party involved’, including the host party. A ‘party involved’ is a party that provides a written approval. The registration of a project activity can take place without an Annex I party being involved at the stage of registration. The details of approval procedure is up to each Party. Project proponents may get written approvals in step 1, 2 or even 4 but they must get written approvals at least from the host party before a request for registration.

**Step 4**: Validation is the process of independent evaluation of a project activity against the requirements of the CDM on the basis of the PDD. Validation is carried out by a designated operational entity. There is a formal procedure for validation.

**Step 5**: Registration is the formal acceptance of a validated project as a CDM project activity. Registration is done by the CDM executive board. There is a formal procedure for request for registration. Project proponents pay fee at the registration stage.
Step 6: Project proponents collect and archive all relevant data necessary for calculating greenhouse gas emission reductions by a CDM project activity, in accordance with the monitoring plan written in the PDD. The monitoring plan can be revised.

Step 7: Verification is the periodic independent review and ex-post determination of the monitored greenhouse gas emission reductions. Verification is carried out by a designated operational entity. There is a formal procedure for verification. Certification is the written assurance by a designated operational entity that a project activity achieved the reductions in greenhouse gas emissions as verified. Certification is also done by a designated operational entity.

Step 8: The executive board issues a certified emission reductions, or CER, equal to the verified amount of greenhouse gas emission reductions. There is a formal procedure for issuing CERs. CERs are issued only when the share of proceeds to cover administrative expenses of the CDM has been received. Two per cent of CERs that are issued will be deducted for the share of proceeds to assist developing parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.

Step 9: CERs will be distributed among project proponents. Project proponents will exclusively decide on the distribution of CERs from a CDM project activity.
Narration: The next section will explain the role of forestry projects in the CDM.
Marrakech Accord

- CDM forestry is limited to:
  - afforestation – land unforested 50 years ago
  - reforestation – land unforested before 1990
- First commitment period is 2008-2012 when Annex 1 parties must meet their reduction obligation
- Allowed at a maximum level of 1% from the assigned amount, or cap: 140 megatonnes of CO2

Narration: The Marrakech Accord limited CDM forestry projects to afforestation and reforestation. Not included are activities such as preventing deforestation and sustainable forest management. This is because of concerns that cheap forestry credits could swamp the market, and that there could be technical difficulties such as leakage, lack of permanence, baseline setting, and monitoring.
Narration: Afforestation is different from reforestation. It is the process of establishing a forest on land that is not a forest, or has not been a forest for a long time by planting trees or their seeds. The Marrakesh Accord requires that to qualify as an afforestation project, the land to be planted has not been forested for at least 50 years.
Narration: This is the definition of reforestation based on the Marrakech Accord. The important point is that the land has been deforested within the last 50 years. In addition, only those lands with forest before 1990 are eligible for CDM.

Alternate definition:
The reestablishment of forest cover, either naturally or artificially, on land where trees have been recently removed due to harvesting or to natural disasters such as a fire, landslides, flooding, or volcanic eruption. The Marrakesh accord requires that to qualify as a reforestation project, the land has to have been deforested within the last 50 years. In addition, only those lands with forest before 1990 are eligible for CDM.
Narration: This slide shows how a forest can be defined by a host country of the Kyoto Protocol. There is some flexibility. The guidelines are that the minimum tree crown cover can be between 10 and 30 per cent, the minimum tree height can be between 2 and 5 metres, and the minimum land area can be between 0.05 and 1.0 hectares.

The definition must be submitted by the host country to the CDM Executive Board before projects can be approved. Once the values are chosen they must remain fixed.

Most countries who have registered their definition with the CDM Executive Board have chosen the upper range of crown cover. This allows for greater area eligibility and for more activities, such as assisted natural regeneration and agroforestry, to be covered.
Narration: One of the perceived weaknesses of forestry projects is the lack of permanence of the carbon credits. For example, planted trees can be destroyed by typhoons or fires, which will release the carbon back to the atmosphere. This limitation is addressed by the concept of ‘rental’ of the service. The CERs generated are not permanent, but rather, are rented for a period of time. There are two options: temporary and long term certified emission reductions, or CERs.
How long can a CDM project last? (crediting period)

- Two options:
  - fixed – 30 years with no renewal
  - renewable – may be a maximum of 20 years and may be renewed twice for a total maximum of 60 years
- Need to determine if baseline is same or will be updated

Narration: There are two options for the duration of the project. The first option is a 30-year fixed period with no renewal. The second is a maximum of 20 years that can be renewed three times for a maximum is 60 years. The choice of crediting period depends on how long the developers want the project to last.
There is a need to determine whether the baseline is the same throughout the project period or whether it will be updated at some point.
Narration: Temporary certified emission reductions, or tCERs, provide an excellent opportunity as cost-effective, short-term solutions for compliance with urgent commitments. Many carbon-credit users perceive tCERs as more convenient than long-term certified emission reductions, or ICERs because they retain greater flexibility to react to altered market conditions and to cater to both short-term and long-term requirements. They also cause liabilities when carbon gets reversed due to management of plantations or due to disturbance.

One of main disadvantages of tCER projects is that they incur issuance fees every five years, while ICERs incur them only once. Prospective buyers prefer tCERs over ICERs.
Narration: This slide illustrates the concepts of additionality and leakage. The baseline for a CDM project activity is the scenario that reasonably represents carbon sequestration that would occur in the absence of the proposed project activity, shown by line AB. Line AC represents the carbon sequestration with the CDM project. The area between line AC and line AB represents the additional carbon sequestered by the project.

Leakage represents a decrease of carbon stocks as a result of the project. For example, reforesting the project area could displace pastoralists, which could lead them to clear adjacent forests. The amount of carbon lost is represented by line AD. The area between line AB and line AD is then subtracted to the above to obtain the net gain of carbon.
Transaction costs for forestry projects

- **Project preparation** usually by a consultancy company: US$60,000 to US$180,000
- **Validation** by a Designated Operational Entity: Estimated at US$15,000 to US$25,000
- **Registration fee by the Executive Board**: For the first 15,000 CERs, projects are charged US$0.10/CER. For anything above 15,000 they are charged US$0.20/CER
- **Monitoring costs**: Depends on project size and sample size needed, as well as on monitoring methods and intensity
- **On-going verification** by the Designated Operational Entity: US$15 to US$25,000 per audit
- **Issuance fee by the Executive Board**: The issuance fee is as above US$0.10/CER for the first 15,000 CERs, and US$0.20/CER for anything above 15,000 CERs
- **Adaptation levy by the Executive Board**: 2% of the CERs generated
- **Taxes** by the host country: Some countries claim a share of a project’s CERs in exchange for issuing a Letter of Approval that is prerequisite to registration

**Narration**: This slide presents the typical transaction costs for CDM forestry projects.
Tropical forests and the carbon market

- There are still very few takers of forestry carbon projects under the so-called Kyoto market
- It has been estimate that up to 13.6 million carbon credits may be available by 2012 based on projects in the pipeline

**Narration:** Globally, there are still very few projects in the CDM. Estimates indicate that up to 13.6 million carbon credits may be available by 2012.
Narration: As of April, less than 1 per cent of CDM projects are in forestry.
Examples of World Bank carbon funds

- Prototype Carbon Fund (PCF)
  - all sectors
  - with loan component
- Community Development Carbon Fund (CDCF)
  - for small-scale projects
  - sector: energy, urban, waste, agroforestry
  - prioritises least developed countries (LDC)
  - contract price US$26 to US$28 per tonne of carbon
- BioCarbon Fund (BCF)
  - Land Use, Land-Use Change and Forestry (LULUCF) sector
  - to improve people livelihoods
  - to avoid erosion and desertification
  - contract price US$12 to US$16 per tonne of carbon

Narration: This slide shows examples of World Bank carbon funds and the types of projects that are eligible for each of them.
Narration: CDM forestry projects should have sustainable development benefits as mandated by Article 12 of the Kyoto Protocol.
Narration: Establishing tree plantations can be costly. For example, in the Philippines it costs about US$1,000 per hectare for the first three years of reforestation. This transaction cost is beyond the reach of small farmers. Usually, the income from carbon credits is not enough to cover the total project costs. Ideally, carbon credits should add benefits to the project.
Narration: Early CDM projects prospered because of support from partners from Annex 1 countries and financial institutions like the World Bank. These partners provide financing for transaction costs and even for establishing plantations. Partners can also provide technical assistance.

Since the income generated from carbon credits is not sufficient to cover the cost of developing a plantation, the trees that are planted should produce other products, such as timber or fruits, which could provide much higher financial return than carbon credits.
Narration: In contrast to single projects, ‘programmes of activities’ are now allowed to increase the efficiency of the CDM. PoAs is a programme coordinated by a private or public entity that provides the organisational, financial, and methodological framework for emission reductions to occur. No forestry project has been registered using the programmatic approach. But it offers a lot of potential, such as economics of scale and lower transaction costs, which can help overcome the barriers mentioned earlier.
First CDM project: Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, China

- The project activity aims to reduce threats to local forests and generate income for poor farmers by enabling the carbon sequestered by plantations to act like a ‘virtual’ cash crop for project participants.
- The overall objective is to explore and demonstrate the technical and methodological approaches related to credible carbon sequestration. The project will also enhance the livelihoods of people and native biodiversity.

Narration: The aim of the project is to reduce threats to local forests and to generate income for poor farmers. This is done by enabling the carbon sequestered by plantations to act like a ‘virtual’ cash crop for local project participants, who would gain direct benefits from harvesting the plantation, and from selling carbon credits, which in turn reduce the threats to natural forests. In addition, forest restoration in this area plays a vital role in biodiversity conservation, soil and water conservation and poverty alleviation, while sequestering carbon dioxide from the atmosphere.

The overall objective is to explore and demonstrate the technical and methodological approaches related to credible carbon sequestration. The project will also enhance the livelihoods of people and native biodiversity through reforestation activities.
Specific objectives

- To sequester CO2 through forest restoration in small watershed areas and to test and pilot how reforestation activities generate high-quality emission reductions in greenhouse gases that can be measured, monitored and certified
- To enhance biodiversity conservation by increasing the connectivity of forests adjacent to nature reserves
- To improve soil and water erosion control
- To generate income for local communities

Narration: This slide describes the specific objectives of the project.
Narration:

- The project established 2,000 hectares of multiple-use forests in Huanjiang County, Guangxi. This included approximately 830 hectares on sites neighboring Mulun National Nature Reserve and Shiwanshan National Nature Reserve, and about 1,170 hectares on sites between them.

- It also established 2,000 hectares of multiple-use forests on sites with severe soil and water erosion in Cangwu County of Guangxi.

- The project established legal structures to aid the sale of Certified Emission Reductions (CERs), test carbon purchase transactions, and accumulate experience in practical and technical measures for afforestation and reforestation CDM project activities.

- The project developed and tested local financing mechanisms for watershed management and degraded land restoration. It also developed, tested and disseminated best practices in watershed management and capacity building through training and technical assistance to the relevant agencies and communities.
**Narration:** The net human-induced greenhouse gas removals by sinks as a result of the proposed project activity is anticipated to be over 500,000 tonnes of CO2 equivalent during the crediting period between 1 January 2006 and 31 December 2035.
Thank you for your attention