

**Attachment12 : Maintenance Manual for the
Clearinghouse Staff**



www.cdmdna.emb.gov.ph

Web Systems User Manual



Japan International
Cooperation
Agency



Environmental
Management Bureau,
Department of
Environment and
Natural Resources

WWW.CDMDNA.EMB.GOV.PH web system
was developed for the Study called Capacity
Building to Promote CDM Projects in the
Philippines supported by Japan International
Cooperation Agency (JICA)

December 2006

1 Preface

About Project

Japan International Cooperation Agency (JICA) has commissioned Mitsubishi UFJ Securities (MUS) to implement the Study on Capacity Building to Promote Clean Development Mechanism (CDM) Projects in the Philippines. Under this one-year program, various mechanisms to promote the CDM was formulated and developed in the Environmental Management Bureau of the Department of Environment and Natural Resources (EMB-DENR). The CDM website is one of the major achievements of the Study and it is expected that this new feature would assist the Philippine project developers in obtaining necessary information and update on the CDM in timely manner.

The web system was developed by a local web systems developer, Ronnel Figuracion, Coffey International Development, under the supervision of the EMB-DENR and MUS.

About Manual

This manual primarily intends to provide guidance in making use of the functionalities of the above-mentioned CDM website.

This does not intend to provide a detailed orientation about the CDM. Furthermore, this document is not designed to give a detailed technical documentation of the Web System.

Although user-friendliness is one of the main aspects considered in designing the system, this user manual is still necessary to provide guidance to those who are not-so-IT-techie and make sure that system operation will operate smoothly.

The system can be accessed by browsing:

<http://www.cdmdna.emb.gov.ph>

To be able to manage the content, an authorized user shall provide a username and password sup-

plied by a CDM Helpdesk Officer. The features and functionalities of the system will be discussed in detail in the next chapters.

Some abbreviations, technical terms and conventions used in this manual shall be defined to avoid further misconceptions and confusions, as follows:

CDM - Clean Development Mechanism

DENR - Department of Environment and Natural Resources

EMB - Environmental Management Bureau

ISP - Internet Service Provider

IT - Information Technology

JICA - Japan International Cooperation Agency; the Donor

MIS - Management Information Systems

MUSCL - Mitsubishi UFJ Securities Co., Ltd.; The Japanese Managing Agent for CDM Implementation in the Philippines

User Manual - or simply "manual"; pertains to this document; a detailed guidelines for the users of CDM Web System

Target Readers

Throughout this document, it is assumed that the reader should have direct or slight involvement in the CDM to be able to relate to the topics that are being discussed. The reader can either be a CDM helpdesk staff, an EMB-DENR official, a DENR Official, a CDM project developer or other relevant stakeholders.

CDM Helpdesk Staff

Being the assigned administrators, the helpdesk

staff have the widest coverage of responsibilities in manipulating the CDM Web System. These responsibilities shall include:

- ◆ Making sure that the web pages contents are up-to-date and accurate
- ◆ Making sure that the web system is always up and accessible, that when there are unavoidable system failures, the problem shall be well-communicated to appropriate individuals for immediate action
- ◆ Promptly responding to web user concerns and feedback, that if some users are having difficulties in accessing certain functions, the CDM helpdesk staff can provide a detailed and comprehensive instruction
- ◆ Documenting all comments and recommendation for future system improvements

The nominated CDM Web System Administrator shall at least have some knowledge in computing and internet technology to be able to perform these responsibilities. This manual will also be more useful if the assigned staff have at least introductory knowledge in IT system concepts and development processes.

DENR-EMB MIS Staff

The CDM Web System will be hosted in a server computer located in EMB-MIS Office, thus, it is imperative that the CDM-EMB staff shall be knowledgeable on its operations and functions. Like in the occasion that the system became inaccessible because of some server connectivity problems, the

EMB-MIS Staff are the key persons who can solve such problems or at least be able to coordinate the problem in other concerned parties such as the ISP. This manual shall be their guide, particularly in the discussion about system architecture, for them to easily solve server/network concerns.

DENR-EMB Staff, DENR Officials, JICA Representatives and MUSCL Consultants

Though not directly involved in the CDM Web System operations, other EMB-DENR Staff, DENR Officials, JICA Representatives and MUSCL Consultants might also find this manual useful as reference and as model in their future projects.

This manual explains the features and technologies used throughout the CDM web system which can be used as a standard for designing a new web-based IT system.

Scope of Discussions

This manual covers a wide variety of topics that discuss each feature of CDM Web System in detail including:

- ◆ Features of the Public Site
- ◆ Features of the Secured Site
- ◆ Tips on doing common tasks such as text manipulation, file uploading, adding/modifying/deleting entries, and searching/filtering within lists
- ◆ Maintenance Tips



2 The Public Site



The public site pertains to the pages accessible by the viewing public. It can be reached by typing <http://www.cdmdna.emb.org.ph> in the address bar of the browser.

The Main Menu

Located in the left side of the Public site is the



CDM Public Site's Main Menu. This menu provides links to the website's main topics. It includes:

- ◆ Home
- ◆ Background Information
- ◆ CDM in the Philippines
- ◆ CDM Updates
- ◆ Questions and Answers
- ◆ Technical Resources
- ◆ Links
- ◆ Contact Us
- ◆ Site Map

Home

The Homepage is the default web page of the site. It provides links to different website content highlights. It includes:

- ◆ Hit Counter Statistics link
- ◆ Donor/Implementors Links which provide links to JICA website (<http://www.jica.go.jp/philippine/index.html>), EMB-DENR website (



Hit Counter Link



Donor/Implementors website Link



Login Link



CDM Background Information page link



Climate Change page link



Questions and Answers page link

www.emb.gov.ph/) and RP website (http://www.gov.ph/)

- ◆ Login link which is the entry point to CDM Web System secured pages. A more detailed discussion on the Secured Site feature can be found in the next chapters.
- ◆ Link to CDM Updates page
- ◆ CDM Background Information page link (Background Information > CDM)
- ◆ Climate Change page link (Background Information > Climate Change)
- ◆ Question and Answers page

When a different page in the Public Site is browsed, the Home link in the Main Menu provides a link going back to the Site's homepage.

Background Information

The background information link discusses the following topics:

- ◆ Climate change
 - Climate Change is real
 - Climate Imbalance: The Human Imprint
- ◆ UNFCCC - Toward a Stable Climate System
- ◆ Kyoto Protocol - Zero Hour: Zeroing in on GHG Emission Reductions at Origin
- ◆ CDM - Getting Involved
- ◆ Country and Convention
 - A National Concern
 - The Philippine IACC



CDM Background Information page

- National Communications on Climate change

CDM In the Philippines

The CDM In the Philippines link discusses the following topics:

- ◆ The Land
- ◆ The People
- ◆ Potential for CDM - Renewable energy Potential
 - Wind energy
 - Hydropower
 - Biomass
 - Forestry resources and fuelwood

- Philippine Energy Plan
- Air Quality Management - Philippine Clean Air Act, Implementing Rules and Regulations
- Water Quality Management - Philippine Clean Water Act, Implementing Rules and Regulations, Discharge Permit
- Solid Waste Management - Philippine Republic Act no. 9003
- Environmental Impact Assessment - Permitting Procedures, Implementing Rules and Regulations
- Toxic and Hazardous Waste Management - Procedural Manual
- ◆ Capacity Building Initiatives: Relevant Prior and On-going Assistance to the Sector



- Municipal Solid Wastes
- Solar Energy
- Geothermal Energy
- ◆ About the DNA - DNA Support Mechanisms
 - CDM Helpdesk
 - CDM Information Clearinghouse
 - CDM Technical Evaluation Committees (TECs)
 - CDM Steering Committee
 - DNA Organizational Structure
- ◆ Host Country Approval
- ◆ Philippine DNA Approval Process
- ◆ Philippine CDM Projects
- ◆ Relevant National Laws and Policies
 - Millennium Development Goals - Philippines
 - Philippine Agenda 21
 - Medium Term Philippine Development Plan
 - 2005 Investments Priorities Plan

- Completed Activities
 1. Asia Least-Cost Greenhouse Gas Abatement Strategy (ALGAS) Project
 2. Enabling the Philippines to Prepare A National Communication Program in Response to its Commitments to the UNFCCC
 3. Enabling Activity for the Maintenance and Enhancement of National Capacities to Prepare the National Communication on Climate Change
 4. NEDO's CDM Support Program for the Philippines
 5. WSSD Type II – Asia CDM Capacity Building Initiative
 6. Capacity Development For Clean Development Mechanism (CD4CDM)
 7. Palawan Alternative Rural Energy and Livelihood Support Project
 8. National Capacity Needs Self-Assessment (NCNSA) – Climate Change Component
 9. Establishment of the Clean Develop-

ment Mechanism (CDM) National Authority, Operational Framework and Support Systems for the Philippines

10. Integrated Capacity Strengthening for CDM (ICS-CDM) Project - FY2004-2005

- Ongoing Activities

1. Capacity Building to Remove Barriers to Renewable Energy Development in the Philippines (CBRED) Project

2. Philippine Efficient Lighting Market Transformation Project (PELMATP)

3. Integrated Capacity Strengthening for CDM (ICS-CDM) Program – FY2006

4. JICA Study on Capacity Building to Promote CDM Projects in the Republic of the Philippines – November 2005 to November 2006

CDM Updates



The CDM Updates is one of the pages in CDM Website with content management. The CDM Helpdesk, by accessing the secured CDM Site pages, are able to upload updates for public viewing.

In all dynamic pages in CDM Website, a search



tool is provided for easy filtering of web contents. The search tool will search for the inputted word throughout the selected menu item (i.e. CDM Updates) then displays the results one page at a time.

The CDM Update page displays contents one topic per page. A page navigation tool is provided at the bottom of the pages for easy navigation. The page navigation toolbar will tell the user how



many CDM updates are currently loaded and what update number is currently being displayed. The image above indicates that the 2nd update is currently being displayed out of the 10 total CDM updates currently been filtered.

A more detailed discussion can be found in the next chapter - The Secured Pages - on how the content of the CDM Updates page is being managed.

Questions and Answers

Another content-managed page in the CDM website is the Questions and Answers page.



The Questions and Answers page is divided in two categories:

- ◆ Frequently-Asked Questions - which lists all common inquiries about CDM.
- ◆ Other Inquiries - which lists all other inquiries sent by inquiring public through email with responses from CDM Helpdesk.

Just like the CDM Updates, the Q&A page provides a search and navigation tool.

Technical Resources

The last content-managed page in the CDM website is the Technical Resources page. It showcases a number of downloadable documents pertaining to CDM. These items are being managed by the CDM Helpdesk from the secured site. The downloadable documents are categorized into the following:

- ◆ Grid Carbon Intensity Data
- ◆ Other Data Sources for PDD Development



- ◆ DNA Documentary Requirements
- ◆ CDM Stakeholders
- ◆ Others

A category dropdown filter and search tool are provided for ease of document navigation.



Each item in the Technical Resources page gives the following:

- ◆ the document title
- ◆ the version date of the document
- ◆ the document file type



- ◆ the document file size
- ◆ a link that downloads the file when clicked

The downloadable items page lists 5 entries at a time. A page navigation toolbar is also provided to easily navigate through pages.

See discussions about page navigation toolbar in the previous page. Questions and Answers

Links

The links page provides useful links to relevant CDM websites and partners.



Contact Us

The Contact Us page provides contact information of the CDM Secretariat and CDM Helpdesk.



Site Map

The Site Map page provides an outline with links to the entire website contents.



3 The Secured Site



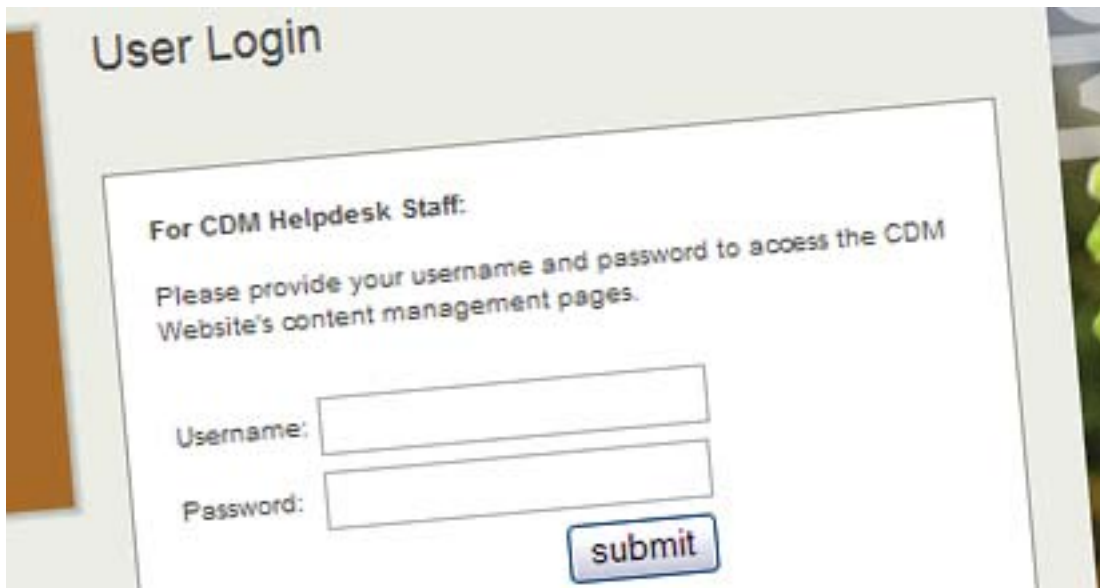
For the CDM Helpdesk to be able to manage the contents of some selected web pages in the public site, a secured site have been developed. It provides user-friendly screens that makes it easy for the CDM Helpdesk update the contents of the public

page. It also provides an e-business solution that manages the documentation of CDM operations and activities.

The Secured Site includes:

The User Login page in the Public Website provides an entry point to the system's secured site. The User Login page link can be found in the upper right corner of the Public Site's Homepage.

A valid username and password is required to be able to get inside the secured site. The management of usernames and password is being handled by the CDM Helpdesk Staff.



- ◆ Secured Homepage
- ◆ Updates Management Page
- ◆ Q&As Management Page
- ◆ Downloadable Technical Resources Management Page
- ◆ DNA Application Status Management Page
- ◆ Authorized Users Management Page

Each of these features will be discussed in the next topics.

Secured Home Page

The Secured Home Page serves as the default page when first logged in. It simply provides information about the different features that can be found in the secured site.

CDM Updates Management Page

The CDM Updates Management Page is where the content of the CDM Updates in the Public Site is being managed. It provides administrative functionalities such as:

- ◆ Adding a new CDM update
- ◆ Deleting update entry / entries
- ◆ Modifying an update entry

Adding a new CDM Update Entry

To add a new CDM entry, follow these steps:

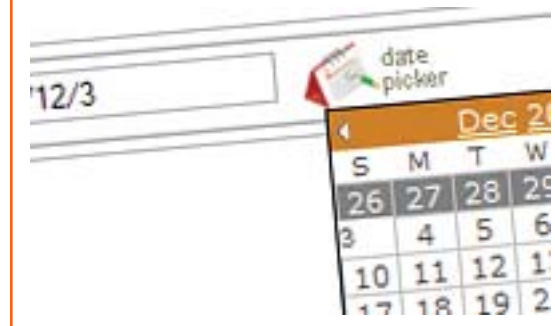
1. Click the “Manage Updates” link in the Secured Main Menu.
2. Click on “Add New Entry” button found at the bottom of the updates list
3. Provide the text for the Update Title, Date, and Details.
4. When all needed information have been entered, click on “Submit” button to save your



new update entry. Click “Cancel” if you don’t want to save anything.



A date picker tool is provided to ease entering of date on all date fields. When the date picker icon was clicked, a dynamic calendar will pop-up which allows the user to click on a date. The selected date will be transferred to the date field.



Deleting an Update Entry

To delete an entry or multiple entries in the CDM Updates list, follow these steps:

1. Click the “Manage Updates” link in the Secured Main Menu.
2. Tick on the checkboxes of the item/s you want to delete



3. Click on the “Delete Selected” button to delete all checked items. Note that the deleted items in the list cannot be revived.



Modifying an Update Entry

To modify a CDM entry, follow these steps:

1. Click the “Manage Updates” link in the Secured Main Menu.
2. Click on “Details” button found at the right side of each item.



3. In the Update Details View Page, click on “Modify”. To go back to the list, click the “Back to List” button.



4. In the Edit page, enter the desired modifications in update title, date and details then click on “Submit” to save the modifications. Click “Cancel” to go back to the updates listing without saving any modifications in the update entry.

The CDM updates management page also has search and page navigation tools to ease page navigation and content management (Discussed in previous chapter).

CDM Q&As Management Page

The CDM Q&As Management Page is where the content of the CDM Questions and Answers page in the Public Site is being managed. It provides administrative functionalities such as:

- ◆ Adding a new Q&A entry
- ◆ Deleting Q&A entry / entries
- ◆ Modifying a Q&A entry

Adding a New Q&A Entry

To add a new Q&A entry, follow these steps:

1. Click the “Manage Q&As” link in the Secured Main Menu.
2. Click on “Add New Entry” button found at the bottom of the Q&A list.

3. In the Add New Q&A page, provide the entries for the Sender, Date Sent, Email of the Sender, Question, Answer, and Date Answered. The date picker tool is provided on all date fields.
4. Click on “Submit” to save the new entry. Click on “Cancel” to go back to the list without saving.

Deleting a Q&A Entry

To delete an entry or multiple entries in the CDM Q&As list, follow these steps:

1. Click the “Manage Q&As” link in the Secured Main Menu.
2. Tick on the checkboxes of the item/s you want to delete.



3. Click on the “Delete Selected” button to delete all checked items. Note that the deleted items in the list cannot be revived.

Modifying a Q&A Entry

To modify a Q&A entry, follow these steps:

1. Click the “Manage Q&As” link in the Secured Main Menu.
2. Click on “Details” button found at the right side of each item.
3. In the Q&A Details View Page, click on “Modify”. To go back to the list, click the “Back to List” button.
4. In the Edit page, enter the desired modifications in Sender, Date Sent, Email, Question, Answer, and Date Answered then click on “Submit” to save the modifications. Click “Cancel” to go back to the updates listing without saving any modifications in the update entry.

The Q&As management page also features search and page navigation tools to ease page navigation and content management (Discussed in previous chapter).

Downloadable Technical Resources Management Page

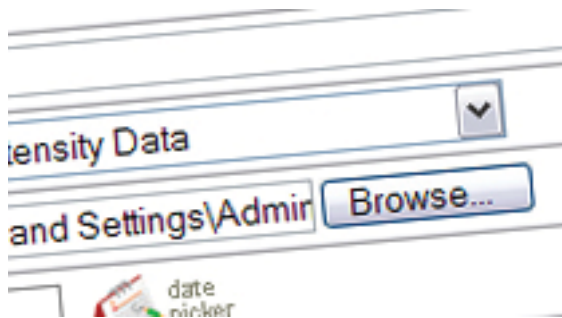
The Downloadable Technical Resources Management Page is where the content of the Technical Resources page in the Public Site is being managed. It provides administrative functionalities such as:

- ◆ Adding a new Technical Resource entry
- ◆ Deleting Technical Resource entry / entries
- ◆ Modifying a Technical Resource entry

Adding a New Technical Resource Entry

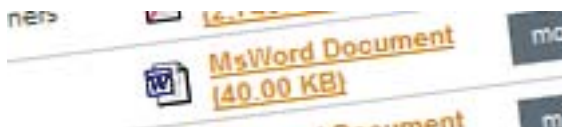
To add a new Technical Resource entry, follow these steps:

1. Click the “Manage Downloadable Technical Resource” link in the Secured Main Menu.
2. Click on “Add New Entry” button found at the bottom of the Technical Resources list.
3. In the Add New Technical Resource Entry page, provide the entries for the Title, Category, Document File Source, Date Created and Notes. The date picker tool is provided on all date fields. To input a Document File Source, click on the “Browse” button and browse for the file you want to upload.



4. Once all needed entries have been provided, click on “Submit” to save the new entry. Click on “Cancel” to go back to the list without saving.

The uploaded items will be displayed in the Technical Resources list with links on the uploaded



document in each item. To check if a correct file is attached to an entry, just click on the file link to open the file.

The document link also displays the file type icon and file size.

Deleting a Technical Resource Entry

To delete an entry or multiple entries in the CDM Technical Resources list, follow these steps:

1. Click the “Manage Technical Resources” link in the Secured Main Menu.
2. Tick on the checkboxes of the item/s you want to delete.
3. Click on the “Delete Selected” button to delete all checked items. Note that the deleted items in the list cannot be revived.

Modifying a Technical Resource Entry

To modify a Technical Resource entry, follow these steps:

1. Click the “Technical Resource” link in the Secured Main Menu.
2. Click on “Modify” button found at the right side of each item.
3. In the Technical Resource Edit Page, provide the needed modifications and click on submit. To go back to the list without saving any modification, click the “Cancel” button.

The Downloadable Technical Resources Management Page also provides search and page navigation tools.

DNA Application Status Management Page

The DNA Application Status Management allows administrative functionalities such as:

- ◆ Adding a new Project Application entry
- ◆ Deleting Project Application entry / entries
- ◆ Modifying a Project Application entry details
- ◆ Updating Project Application Status
- ◆ Uploading Project Application documentation

Adding a New DNA Project Application Entry

To add a new Project Application entry, follow these steps:

1. Click the “Manage DNA Application Status” link in the Secured Main Menu
2. Click on the “Add New Entry” button at the bottom of the DNA Project Applications list.
3. In the Add New DNA Project Application page, provide the entries for the Project Title, Developer, Region, Area Location, Address, Description and Date Submitted.
4. Click on “Submit” to save the new entry. Click on “Cancel” to go back to the list without saving.

Deleting a DNA Project Application Entry

To delete an entry or multiple entries in the DNA Project Applications list, follow these steps:

1. Click the “Manage DNA Application Status” link in the Secured Main Menu
2. Tick on the checkboxes of the item/s you want to delete.
3. Click on the “Delete Selected” button to delete all checked items. Note that the deleted items in the list cannot be revived. All associated documentation in the item that was deleted will also be removed.

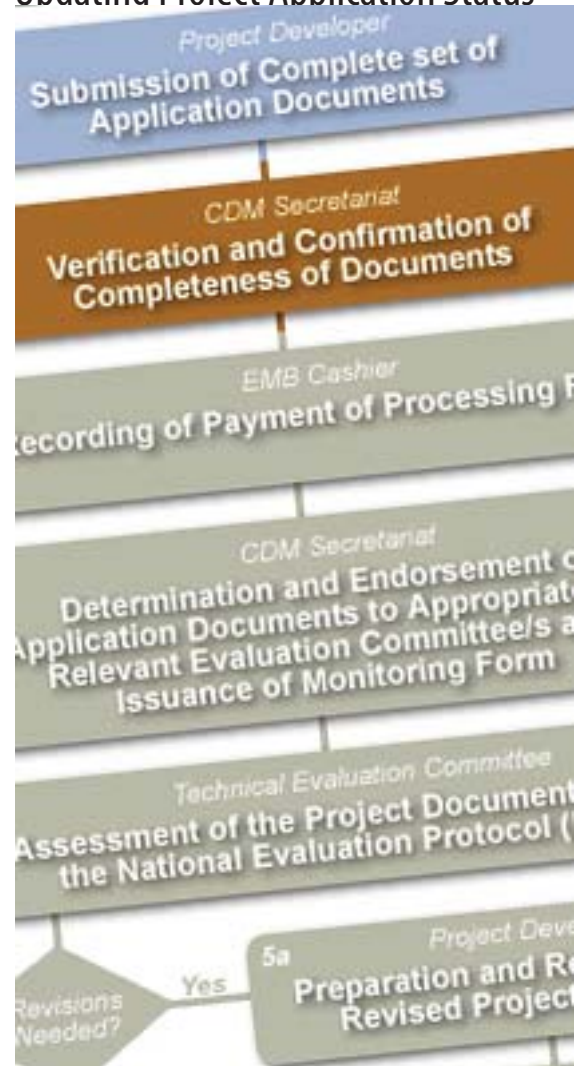
Modifying a DNA Project Application Entry

To modify a DNA Project Application entry, follow these steps:

1. Click the “Manage DNA Application Status” link in the Secured Main Menu
2. Click on “Details” button found at the right side of each item.
3. In the DNA Project Application Details View Page, click on “Modify”. To go back to the list, click the “Back to List” button.
4. In the Modify page, provide all the needed

modifications then click on “Submit” button to save the modifications. Click on “Cancel” to go back to the DNA Project Application details.

Updating Project Application Status



A dynamic diagram is provided to manage the updating of Project Application Status. To update the status of Project Application Entry, follow these steps:

1. Click the “Manage DNA Application Status” link in the Secured Main Menu
2. Click on the “Details” button on the right side of the DNA Application item that should be updated.
3. Current application status is highlighted in maroon while the next possible stage has a “Update Status” in its side. Click on “Update

Status” link beside the next possible stage.

4. In the Application Status details page, click on “Proceed” to proceed with updating the status.

Uploading a Project Application Documentation

Documentation file can be uploaded in each stage of the project application cycle. To upload a document in each stage, follow these steps:

1. Click the “Manage DNA Application Status” link in the Secured Main Menu
2. Click on the “Details” button on the right side of the DNA Application item that needs document uploading.
3. Click on the stage with maroon and blue colors. Blue-colored stage images are those stages that have been accomplished already. The maroon-colored stage image is the current stage.
4. In the Application Status Details, click on “Add”.
5. Provide the Title of the Document, File Source, and date Created entries. The File source can be entered by clicking on the “Browse” button and browsing on the desired file to be uploaded.
6. Click on the “Submit” button to save changes. Click on “Cancel” to go back without saving anything.

Authorized Users Management Page

The Authorized Users management page is where the usernames and passwords are being managed. This feature allows administrative functionalities such as:

- ◆ Adding a new authorized user account
- ◆ Managing user account like changing password, modifying user details and setting user roles.
- ◆ Deleting or deactivating a user account.



**Attachment 13 : List of Participants and Minutes
of the Workshop in Batangas, Luzon**

JICA Study on Capacity Building to Promote CDM in the Philippines

Regional Capacity Building Workshop on Clean Development Mechanism (CDM)

Hotel Pontefino, Pastor Village, Gulod Labac, Batangas City

July 25-26, 2006

| Company | Interests |
|------------------------|--|
| First Gas Power | Not very knowledgeable about the CDM and still finding out about the process and how it can be applied |
| San Miguel Corporation | Looking at the conversion of piggery lagoons into anaerobic digesters to recovery biogas. Breweries also as alternative fuel source for power generation |
| AMETCO | |
| PAL-CON Dairy | Company owns dairy farm with more than 200 cows capacity Sees direct biogas technology as a potential CDM project. |
| Hazama Corporation | |
| Hazama Corporation | Looking at the Magat Dam project as a potential CDM project |

| | |
|----------------------------|--|
| PENELCO | Developing a hydroelectric plant is too much for the cooperative as of yet. |
| Phil-Sinter Group | Currently the company being involved with live CDM project on waste heat recovery and power generation. Hope to apply for DNA approval next month. |
| First Gen Corporation | Lloking into a lot of hydro right now and trying to get CDM credits from these projects. |
| CADPI | The plant uses mud press which is a solid waste by-product in The processing industry Porenrial for methane gas recovery deom wastewater treatment system (open lagoon) |
| City Government | Considering municipal solid waste management as a potencial CDM project |
| City Government | |
| City Government | |
| PG-ENRO-LAG | Looking at a possible CDM project capturing methane from waste and leachate treatment from the landfills as main target projects for Laguna |
| Geosphere Technology, Inc. | |

JICA STUDY ON CAPACITY BUILDING TO PROMOTE CDM PROJECTS IN THE REPUBLIC OF THE PHILIPPINES



LUZON REGIONAL CAPACITY BUILDING WORKSHOP ON CDM
Hotel Pontefino, Batangas City, Batangas
25-26 July 2006

**JICA STUDY ON CAPACITY BUILDING TO PROMOTE CDM PROJECTS IN THE
REPUBLIC OF THE PHILIPPINES
LUZON REGIONAL CAPACITY BUILDING WORKSHOP ON CDM
Hotel Pontefino, Batangas City, Batangas**

DAY 1: 25 JULY 2006

WELCOME REMARKS

*Joyceline A. Goco, CDM Secretariat and Project Coordinator
Environmental Management Bureau*

On behalf of the DENR and EMB Officials, Ms. Goco welcomed all the participants and explained the rationale behind the conduct of the local workshop. In partnership with the Environmental Management Bureau (EMB) and the Department of Environment and Natural Resources (DENR), the JICA study to promote CDM in the Philippines is being implemented. Local workshops, such as the one being conducted, are being implemented to capture all sectors relevant to the CDM and maximize the participation of potential project participants and stakeholders at the regional and local levels. She briefly explained to the participants what CDM is and how it is relevant to the Philippines in terms of its environmental, social and economic benefits to the community. Lastly, she encouraged participants to ask questions so that initial notions that the participants may have on CDM may be clarified and project and sector-specific queries may be addressed.



**JICA STUDY ON CAPACITY BUILDING TO PROMOTE CDM PROJECTS IN THE
REPUBLIC OF THE PHILIPPINES**

*Hitomi Homma, Mitsubishi UFJ Securities
JICA Study Team*

Ms. Homma introduced the JICA Study currently being implemented in the Philippines in partnership with EMB and DENR. Her presentation consists of three parts: (A) Study Objectives, Area and Approach, (B) Expected Outcome, and (C) Study Team and Implementation Structure.



The Study aims to implement five activities as follows:

- ✓ **Assistance in sustainable development through the formulation of CDM promotion measures.** This activity will develop know-how to promote CDM projects and help install pertinent measures. This component will also explore

appropriate financial mechanisms to promote CDM projects. Tools will be prepared to identify potential CDM projects at the local level and monitoring guidance for registered CDM projects and a mechanism to support project developers in fulfilling their obligations for approved CDM projects will be developed.

- ✓ **Establishment of a helpdesk** which will be located at the EMB-DENR but the beneficiaries will also be project proponents in and out of Manila. The Helpdesk is aimed to function as a high-quality one-stop-shop for all the inquiries related to the Philippine CDM. As an important outcome, the Project aims to establish a helpdesk that can provide valuable input to the IACCC, the DNA, TECs and other organizations based on current knowledge of carbon markets and insights into project developers' needs.
- ✓ **Establishment of a clearinghouse** which will be housed in the EMB server. A website with high relevance to the Philippine CDM activities will be developed.
- ✓ **Implementation of workshops at local level** – Luzon, Visayas and Mindanao. Sectors and stakeholders such as local government units (LGUs), EMB regional offices, local financial institutions, project developers and NGOs will be invited to the local workshops. Practical aspects of the CDM such as baseline setting, understanding approved methodologies and its applicability to potential projects, and the production of the project design document (PDD) will be covered by the local workshops.
- ✓ **Formulation of recommendations for CDM promotion.** Recommendations on practical measures to utilize the Rules and Regulations Governing Order 320 (IRR), appropriate measures to promote CDM projects including small-scale projects, appropriate financial mechanisms to support CDM projects and guidance on monitoring techniques and other assistance for approved projects will be made to the DNA for future and long-term implementation of the CDM rules and procedure.

The Study team composed of seven professionals, divided into three groups – Helpdesk, Clearinghouse and CDM Promotion led by Mr. Junji Hatano and co-managed by Ms. Hitomi Homma, plus two local consultants are working on the project.

In addition to the Project discussion, Ms. Homma informed the plenary that a Philippine CDM clearinghouse will be launched once all the materials have been uploaded on the web. She invited the participants to also direct the queries that they may not be able to ask during the workshop to the CDM helpdesk at the EMB office. ***(Please refer to Annex 1 for details)***

CDM in Practice

*Kyoko Tochikawa, Mitsubishi UFJ Securities
JICA Study Team*



Ms. Tochikawa started off with her presentation by defining CDM as a mechanism monetizing environmental value. Since it involves real money, CDM thus gives additional revenues to GHG mitigation projects. Further, she iterated to the group that CDM status often helps with financing because it helps the project be more attractive to equity and debt investors. She then proceeded to defining Certified Emissions Reductions (CERs) as a project's representation of GHG mitigation contribution (including emission reductions before the first commitment period, 2008) which is measured in tons of CO₂ and which can be sold in exchange for hard currency. Differentiation between the carbon buyers (Annex 1 countries) and sellers (non-Annex 1 countries) has also been defined to establish a firmer understanding of the process for the benefit of the assembly.

The CDM project cycle at the international level, the two crediting periods (7 years three times renewable and the 10 year crediting periods) and a brief overview of how the CDM market is faring at the moment were discussed to show the plenary the phases that a project document goes through and how the Philippines contributes to the overall CDM carbon market. Ms. Tochikawa then proceeded to discussing price and payment involved in CDM participation. Carbon prices are determined by the law of supply and demand and that there are no official prices in the market. Most observers agree, however, that issued CERs have a similar value to EU ETS allowances. On the other hand, small-lot offers will have to accept a discount. In relation to this, comparison between contract types and pricing has been shown wherein simply put, actual CERs are worth more than when investors invest in a CDM project activity from the project's early stages because of risk considerations on the part of the project investor.

The Kyoto Protocol and the Marrakech Accords served as the basic reference to the definition of **additionality** – one of the key concepts to determining the eligibility of projects to the CDM. Per Kyoto Protocol Article 12.5c, additionality pertains to *“reductions in emissions that are additional to any that would occur in the absence of the certified project activity.”* Per Marrakech Accords Article 43, *“A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.”* Simply interpreted, the CDM status will be given only to those which cannot be implemented without it whereby projects which can or will be carried out in the course of regular business (business-as-usual) are disqualified. This is because CERs should be considered as an incentive to encourage developers to undertake GHG mitigation projects that do not happen under

usual circumstances and NOT as a reward for accomplishing GHG mitigation, no matter how much GHG reduction a project achieves. Practical advice on additionality followed suit with practical considerations based on the additionality tool.

Bundling, another concept in the CDM and as an option for small-scale project activities, as against debundling, has also been discussed. Bundling is technically allowed since it reduces the burden of transaction costs on the part of the project proponents. Bundled projects can use small scale rules if they still qualify under the small-scale threshold despite their bundled nature (15MWe / 45MWth / project emission less than 15kt/yr). However, if the total ER of the bundled projects collectively surpasses the small-scale threshold, rules for regular scale projects must then be used. On the other hand, debundling is NOT ALLOWED. This is to prevent large projects from taking advantage of the lax small scale rules on CER calculations and to prevent issues on leakage. Ms. Tochikawa then provided three determinants to see whether debundling is taking place: (a) same owners, (b) same project activity, and (c) within 1 km of each other – debundling occurs if the three determinants are true for two projects.

Since CERs are supposed to be new and additional sources of revenue, no diversion of ODA (Official Development Assistance) is allowed. Although views differ as to how “diversion” is defined, the emerging consensus is that ODA use is acceptable if: (a) ODA is used for feasibility study and underlying finance only, and (b) ODA is NOT USED to purchase CERs. Going back to additionality, it should still be viewed as a separate issue. The CDM project activity must still be able to prove that a project requires CDM assistance even with the favorable loan conditions.

Lastly, the kinds of fee that a CDM project application entails were also enlisted for the participants’ reference as follows: (a) Consulting fee for PDD production, (b) Fees to an independent third party (Designated Operational Entity), (c) Fees to be paid to UNFCCC (Registration, share of proceeds), (d) Placement/brokering fee for CER sales. Cash outlays for fee payment can, however, be made minimal and sometimes totally avoided through the following schemes: (a) Annex 1 (investor) country subsidy, (b) Buyer agrees to bear the cost, and (c) When Intermediaries absorb the cost. ***(Please refer to Annex 2 for details)***

The floor was opened for comments, queries and suggestions by the participants.

Open Forum:

| QUESTIONS / COMMENTS | RESPONSES by Ms. Tochikawa |
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| On the contract period, how does it relate to the 2012 end of commitment by the developed countries? <i>(San Miguel Corporation)</i> | The crediting period is independent of that. 2012 and crediting periods are 2 different issues |

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| <p>But if the contract ends by 2012, what happens after 2012? (<i>San Miguel Corporation</i>)</p> | <p>Good point. Our buyers, at this point, are only interested in buying CERs until 2012 but there are other buyers buying post-2012. They might be negotiating for lower CER prices (e.g. projects running 4 years after 2012 can be sold at USD15 or it can be at x-20% or 30% because nobody knows what happens after 2012) because the buyer is taking risks in buying CERs after 2012 so such will be reflected in the pricing. It does not necessarily the case that no buying occurs after 2012. As of the moment, lower CER prices are being offered after 2012</p> |
| <p>Regarding the share of proceeds, where does the share of proceeds go? Will the host community also share in the proceeds? (<i>Philippine Sinter Corporation</i>)</p> | <p>The share of proceeds will be paid to the UNFCCC. There are two tiers: one is for administration costs (at USD 0.20/CER) intended for the UN and other bodies for CDM, and the other share of proceeds goes to the adaptation fund which is 2% of the CERs. These two types of taxes do not necessarily go back to the host country but will be used to adapt to the negative effects of climate change</p> |
| <p>How are the CERs measured? Will it be in tonnage unit? Who monitors? Is it the project proponent? How are they monitored and on what time interval? Will it be on an annual or quarterly basis? (<i>O&M Manufacturing, Philippines</i>)</p> | <p>Monitoring will be on the part of the project owner. Monitoring lasts for the duration of the crediting period. Intervals will depend on the variable of monitoring. Recording frequency is up to the project owner because if the proponent reports reductions, the reductions have to be verified by the DOE. Per transaction, cost is acquired. Such matters will depend on the project</p> |
| <p>Is there a standard formula in computing for the emission reductions? May we ask for that? (<i>First Generation Corporation</i>)</p> | <p>The clearinghouse will carry the approved methodologies. There is a set formula depending on the approved methodology which stipulates the way that emission reductions are calculated. The methodologies are currently available on the UNFCCC website but will be shortly available on the DNA website as well. Methodologies are not necessarily easily understood since</p> |

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| | they are written in UN technical jargon. |
| <p>The stipulations on debundling, as I recall, were not as stringent as they are right now as have been provided in your presentation. Since new methodologies come out often, what if I have been using one for a while and then, before submission, a new methodology comes up which may not be necessarily consistent with the previous methodology used – is my preferred methodology still relevant in this case? (<i>Preferred Energy Inc</i>)</p> | <p>These provisions have just been recently added – a year ago.</p> <p>There are approved methodologies but they do change. The CDM EB tends to go towards conservatism because of methodology revisions. If the project has not yet been registered before the methodology is changed, you need to revise. There is, however, a loophole in this case: the EB would say that even with the change of methodology, if you are able to request for registration two months before the new methodology is approved, you can still use the old methodology. This is confusing but can be a loophole that can be worked around with</p> |
| <p>If the CER issuance is based on actual reductions, say you have 7-year contract, do you have to agree on a fixed price for CERs? Or does it depend on current market prices? After 2012, if buyer is not interested anymore, what is the next thing to do for the CER seller? (<i>Central Azucarera de Don Pedro</i>)</p> | <p>There are several types of contracts: fixed price contracts for CERs and contracts with floating prices where several buyers are also interested where the rest will be linked to the market price – the EU-ETS system which is considered to be the real market these days. There is a difference between floor price and market price (\$5 plus \$7.50; other times, it may be \$10)</p> <p>It is true that there aren't many buyers willing to take the risk of buying beyond 2012 but most observers would agree that even if the CDM will not exist beyond 2012, there will be similar mechanisms beyond 2012 where CERs will be sold to interested buyers. The Certificates might not be called CERs anymore but there will be buyers beyond 2012. Carbon prices are based on business decisions. The market is optimistic that another carbon trading scheme will survive post-2012</p> |

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| <p>On CERs, how do you quantify CO2 emissions? <i>(EMB Region IV-B)</i></p> | <p>Upon developing a project, find an approved methodology that stipulates how you calculate your emissions reduction. If there are no approved methodologies, submit a new methodology or wait until somebody else submits a new methodology then you can use that. For further information, please visit the UNFCCC website: http://cdm.unfccc.int.</p> |
| <p>For DENR, if we improve our efficiency by constructing a structure or equipment to improve present power station, can we be eligible for CDM?</p> <p>If so, do we have to go through the EIA process?</p> <p>If we are to follow existing processes for project application (BRMP), can we still apply for CDM?</p> | <p>EE as a project type is eligible for CDM. But you have to ask questions about additionality on a project-specific basis.</p> <p>One of the important requirements is that you must meet all the host country domestic rules and regulations. If, under normal circumstances, you need the EIA, then for CDM you need to comply with the EIA system. But if not, then CDM does not impose additional rules <i>(EMB)</i></p> <p>The CDM process starts ideally together with the project inception. The CDM process takes a lot of time. It can take 4 months to a year (especially if you proposed a new methodology). Like all other project developments, CDM development is also a process</p> |
| <p>Can you explain further financial assistance available for CDM projects? <i>(Central Azucarera de Don Pedro)</i></p> | <p>There are various institutions offering financial assistance in terms of CDM financial costs for PDD production and, if necessary, for methodology production. Agencies like NEDO (Japanese government agency), JBIC (dealing with bigger types of projects), JCF (which can bear all parts of transaction costs), KFW (German development bank), the World Bank and the Austrian government program which agrees to buy CERs and fund transaction costs in the process. The most important thing to remember, however, is that nothing is free. If you have the money,</p> |

you better pay for it yourself. If you compare the cash cost and success fee cost of having the CDM consultant paying for the third party cost, at the end of the day, if you asked someone else to pay for you, the party is bound to ask from you. So if you have a specific project in mind, talk to financial institutions to discuss what they can fund up to a certain stage – this is something you have to go and shop around for if you're interested to do a CDM project

After the coffee break, the participants were asked to introduce themselves to help the presentors and facilitators situate themselves in terms of the group's level of understanding and appreciation of CDM.



The participants were consist of individuals from the government (local government offices of Laguna and Batangas), private (power generation, distribution utilities, engineering and consultancy firms), and industries (food manufacturing, dairy farm, metal and hazardous waste handling). A small number of participants have potential CDM projects being developed by their companies, while others are still in the process of learning more about CDM for possible company involvement in the near future. Such a mix provided for the lively discussions among the participants and with the CDM experts present during the workshop. ***(Please refer to Annex 10 for the Directory of Participants)***

ELIGIBILITY CRITERIA FOR CDM PROJECTS

*Hitomi Homma, Mitsubishi UFJ Securities
JICA Study Team*

Ms. Homma started her presented by identifying criteria in determining CDM qualification for projects. She started off by enumerating three main criteria for CDM projects as follows: (a) the project is not a baseline scenario, (b) the project is “additional,” and (c) the project contributes to the sustainable development of a host country. In line with the abovementioned criteria, the baseline was defined as follows: (a) the baseline is a scenario that would occur in the absence of the proposed CDM project activity, (b) baseline emissions are the amount of GHG emissions/removals by sinks that would occur under the baseline scenario, and (c) baseline scenario and emissions can be determined using approved methodologies or proposing new methodologies (if needed). Currently, there are 30 approved methodologies, 9 consolidated approved methodologies, 19 approved small-scale methodologies, and 3 approved A/R methodologies.

To further elaborate the definitions given, Ms. Homma provided example baseline scenarios for renewable power generation, animal waste management system and energy efficiency improvement. For renewable power generation, the renewable power generated from the project will be used by the user and/or supplied to the grid. In this case, the baseline is the displacement of the grid electricity consumption of the technology in use or what would have used in the absence of the project activity. For animal waste management, mitigation of animal waste/effluent related GHG can take the form of improving AWMS practices such as installing an anaerobic digester. The likely baseline scenario is the simple discharging of animal effluent to an open lagoon, which leads to the direct release of CH₄, N₂O and CO₂ into the atmosphere as a result of the treatment process that takes place inside the lagoon. For energy efficiency improvement, the project may involve the application of new technologies or measures to existing equipment. The baseline may be the existing fuel



consumption or the amount of fuel that would be used by the existing technology that would have been operated in the absence of the project activity. After the discussion on baseline, the concept of additionality was again interjected to more clearly see the relationship of additionality and baseline in a CDM project activity. The different steps involved in the tool for the demonstration and assessment of additionality in CDM projects was discussed and shown to the assembly to illustrate more clearly and systematically how the eligibility of a potential CDM project is determined.

Lastly, since a CDM project activity requires host country approval prior to its registration with the CDM Executive Board, a project activity should be able to contribute to the host country party's sustainable development goals. In the case of the Philippines, the Sustainable Development criteria are categorized in three dimensions, namely: (a) Economic dimension, (b) Environmental dimension, and (c) Social dimension. ***(Please refer to Annex 3 for details)***

The floor was opened for comments, queries and suggestions by the participants.

Open Forum:

| QUESTIONS / COMMENTS | RESPONSES by Ms. Homma |
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| <p>Is it possible to apply for CDM for a project previously owned by another proponent?</p> <p>If, for example, I acquired a hydro electric plant from another company. When I apply for CDM, which baseline do I use? A new one or the existing one?</p> <p>Example, I'm a project developer, I'm planning to acquire an existing plant from another company, can I apply for CDM? <i>(First Generation)</i></p> | <p>It would be very difficult to demonstrate additionality and will be regarded as a BAU case for that particular case because it is an existing project.</p> <p>But if you are to develop a new hydro power plant, then there's a higher chance for that project to acquire CDM status. But if for the existing hydro power plant, a plan to rehabilitate that plant is considered, then the rehabilitation part can be eligible as a CDM activity</p> |
| <p>With regard to Step 0, I understand that for those projects implementation has already proceeded with consideration on CDM but have not yet applied for CDM eligibility. Is there a deadline? <i>(San Miguel Corporation)</i></p> | <p>For the retroactive credit, projects should have requested validation by December 31, 2005 and should be registered by December of this year. If your project has not yet been validated by December last year, then it cannot claim retroactive credits.</p> |

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| <p>For the Philippines, the National Power Corporation (NPC) is currently disposing of power plants. My own assessment is that it is still possible to apply for CDM for the power plants because it is part of the privatization program of the government. If the buyer of the power plant does something about the plant purchased from NPC, it can still prove the plant's additionality. Example, the power plants are currently delivering ½ of the project capacity. But this incremental delivery can be eligible for CDM. As an example, if a power plant is destroyed by typhoons, with the rehabilitation process, the plants can produce 90% more. In this sense, the project activity can be additional. Also, there are hydro systems not properly operated because they have no contracts, so these cannot sell and reduce fossil fuels hence, this poses a contractual concern <i>(Preferred Energy Inc.)</i></p> | |
| <p>For the Magat Dam project, there is a 360 MW hydro project. The problem in this area is that the water catchment area is highly silted because of so many fishpond operators uphill which pollutes and silts the catchment area. Siltation is, to date, at a critical level and the methane level is also high because of feeds fed to the fish. At present, the 360 MW cannot be achieved because of the siltation problem. We would like to upgrade this since the Magat Dam is supplying power for most of the Luzon area. Can we do methane gas extraction from the silted area? Idea is that after desilting, we can transfer the silt to another area and use it for reforestation and agricultural needs.</p> <p>We're talking of a sustainable energy development here because it is a whole process of desilting, capturing the methane and reforesting the area all in one. <i>(Omar Legazpi)</i></p> | <p>There are no methodologies applicable for such an activity as of this moment. The project activity, however, is potentially good.</p> <p>For now, what may be eligible for CDM is not the silt but the reforestation component of the project <i>(Bert Dalusung, PEI)</i></p> |
| <p>Some of the projects do not have certain methodologies. Are there guidelines available to assist us on developing new methodologies? <i>(Geosphere)</i></p> | <p>These are available on the UNFCCC website. But for the development of a methodology, you need to have a project case first.</p> |

CDM STEPS AND PROCESSES

*Charmion GSG Reyes, CDM Helpdesk
JICA Study Team*

Ms. Reyes started off her presentation by illustrating the geographic representation of countries and their status in terms of Kyoto ratification. As of November 2005, most of the country parties have signed and ratified the Kyoto Protocol. As of July 2006, Zambia has submitted its ratification to the UNFCCC and to date, Kazakhstan's ratification is being awaited.



For the participants to better understand the CDM process, the CDM project cycle was compared against the conventional project cycle. Under the conventional project cycle, the process starts with **project identification**. This is then followed shortly by **feasibility assessments** where project design, environmental, technical and financial feasibilities are assessed and partners are identified; the **project structuring phase** follows shortly which involves matters pertaining to contracts, power purchase agreements, acquisition of governmental, environmental and building permits, arrangement of finance and signing agreements in the form of grants and loans; this is then followed by the **implementation phase** where the construction or upgrading of plant facilities is conducted; then the **operational phase** where the project is monitored and evaluated on the aspects of financial, environmental and technical.

For CDM projects, **project identification and feasibility assessments** would take the form of **developing a CDM project activity**. In this particular step of the whole CDM project cycle, the main actors are consist of Project Participants, Facilitators, Advisers, the Designated Operational Entity (DOE)-NM. Under this stage of the process, the project proponents assess conditions associated with CDM, the scale of the project activity, the applicability of an approved methodology (or submission of a new methodology if needed) and the schedule of fees with facilitators and CDM advisers. In this step, stakeholder consultations are conducted and EIA and other requirements are obtained. The appropriate PDD is also drafted with all the required elements and other necessary documents are also prepared and put together. This is where arrangements for project financing also come in.

The **project structuring phase** for CDM, would undergo two major sub-steps consisting of (a) approval by host country and investing countries and (b) validation and registration of CDM project activity. Major players in this stage of the process would be the Designated National Authority (DNA) for host country approval and the Designated Operational Entity (DOE) and CDM Executive Board for the validation and registration of the project activity. This step of the process consists of additional steps such as the development of the project design document (PDD), preparation of the environmental impact assessment (EIA), organization of public consultation, development and validation of baseline and monitoring plan, host country approval confirming the

project's sustainable development contributions, an option of entering into carbon reduction purchase agreements, and registration of the project as a CDM activity. In the issuance of host country approval, the DNA shall issue an unconditional written statement of approval containing the following: (a) the Party has ratified the Kyoto Protocol, (b) approval of voluntary participation in specific entities as project proponents in the specific CDM project activity, and (c) in the case of Host Parties, statement confirming that the proposed CDM project activity contributes to its sustainable development. The DNA's written approval may cover more than one project provided that all projects are clearly listed. The third party validator, or the DOE, shall receive documentation of the approval. It should also be noted that each Country Party may have different and unique approval procedures. **Validation** is the independent evaluation of a project activity by a Designated Operational Entity (DOE) against the requirements of the CDM on the basis of the Project Design Document (PDD). Under this stage, the DOEs assess the completeness, appropriateness and soundness of the project activity's selected baseline and monitoring methodologies, justification of additionality, social and environmental impact assessments, and compliance with host country and investor country criteria. DOEs are selected in accordance with a formal procedure for accreditation and designation. One of the major challenges validators face is the harmonization among DOEs to ensure consistency in the process and quality of validation. Fee estimates range from USD 15,000 to 20,000 for regular scale projects, and USD 10,000 to 15,000 for small-scale projects. Registration is the formal acceptance by the CDM EB of a validated project as a CDM project activity. A Request for Registration is valid after 8 weeks (4 weeks if small scale) if no request for review was made by one of the participating Parties or by members of the CDM EB. Registration fees include an advance payment of share of proceeds for administrative expenses (SOP-Admin) during the first year. The registration fee paid will be deducted from the share of proceeds or administration due at issuance of CERs. If the activity is not registered, however, the registration fee above USD 30,000 will be reimbursed. The DOE shall include a statement of likelihood that the project will achieve the anticipated emission reductions stated in the PDD. This statement will constitute the basis for fee calculation.

Under the **monitoring and operational phase**, additional activities for CDM projects include the **collection and archiving** of all relevant data necessary for determining the baseline, measuring GHG emission reductions within the project boundary of a CDM project activity, and leakage, as applicable. Standards recommended shall either be on a national or international level. Uncertainties associated with measurement instruments and calibration procedures for various parameters and variables should be identified. **Verification** shall consist of periodic independent review and ex-post determination by a DOE of the monitored GHG emission reductions during the selected period. The DOE to conduct the verification shall be different from the one who conducted the validation of the CDM project activity, except for small-scale project activities. The verification process shall ensure that the project has been correctly

implemented per the requirements set, verify compliance of actual monitoring systems and procedures with the project monitoring plan, establish that audit trail of project performance records is present and sustains claims of emission reductions, verify authenticity of uncertainty levels and instruments, review monitoring results and determine actual GHG emission reductions by the CDM project activity, and identify and recommend changes for future crediting periods. Certification will be in the form of a written assurance by the DOE that, during a specified time period, the CDM project activity achieved the reported emission reductions as verified based on the Verification Report. The certification shall constitute a request for issuance of CERs equal to the verified amount of GHG emission reductions and will be made publicly available. For regular scale projects, the initial verification/certification cost amounts to USD 10,000-15,000; while small-scale projects amount to USD~5,000. For the annual verification of the projects, regular scale projects will amount to USD~5,000 while small-scale will range between USD1,000 to 2,500. The third sub-step in this process is the **issuance of CERs**. The request to issue CERs will be considered final 15 days after the request is made unless a request for review is submitted by one of the participating Parties or by 3 members of the CDM EB. Such reviews will be limited to issues of fraud, malfeasance or incompetence of the DOE. The review must be completed within 30 days and make public its decision regarding the approval of the proposed issuance of CERs stating the reasons for such decision. After CERs are issued, CERs are distributed to the project participants as indicated in the PDD. The decision on the distribution of CERs from a project activity shall exclusively be taken by project participants. Upon EB instruction to issue CERs, the CDM registry administrator promptly issues the specified quantity of CERs to the specific accounts for the share of proceeds first and then the registry accounts of Parties and authorized project participants involved, in accordance with their request as mutually agreed upon by them per a distribution agreement (Emission Reduction Purchase Agreement). *(Please refer to Annex 4 for details)*

The floor was opened for comments, queries and suggestions by the participants.

Open Forum:

| QUESTIONS / COMMENTS | RESPONSES by Ms. Reyes |
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| If a project is validated and forwarded to registration and is disapproved, will there be separate charges every time you resubmit the document? | There may be. But this would depend on the project proponent's negotiations with the DOEs. |
| Is it possible to have it registered without an investor? <i>(San Miguel Corporation)</i> | Yes. But in terms of getting CERs, you need the participation of an Annex 1 country |
| When does the purchase of CERs start? Can we negotiate the price of CERs for | CERs are purchased after verification and certification. But negotiations as regards |

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| <p>the whole CDM process? Can the PP negotiate to sell within the period of project development to implementation? <i>(Philippine Sinter Corporation)</i></p> | <p>when to buy the CERs will be done during the earlier stages of the project. There is some sort of a risk when investors buy earlier – without the benefit of the project being registered first – so CERs are negotiated at a discounted price</p> <p>It is more ideal that the project proponent should have actual CERs for price negotiation. A purchase agreement may be negotiated for the projected CERs, but the prices will be discounted as compared to actual CERs. As in the case of Northwind, for example, the project has not been registered yet but the Emission Reduction Purchase Agreement (ERPA) with the World Bank is very low (at \$4.25/tCER) because during the time when they entered into an ERPA with World Bank, the Kyoto Protocol has not yet been ratified. If the project proponent negotiates the price with actual CERs at hand, then he can get a higher price because the buyer faces less risks in his investment.</p> <p>The advantages, however, of negotiating CERs at the early stages would be the provision of upfront cost for your project but discounted price for the CERs. The help of either an investor or broker to negotiate the price of CERs alongside investment in the host country would be beneficial to both parties in this case.</p> |
| <p>Are there any charges to be required by the DNA? Will the income coming from the CERs be subject to local taxation, like the VAT, for example? <i>(San Miguel Corporation)</i></p> | <p>The charges will be discussed later in the presentation concerning the DNA approval process. Per the Bureau of Investment's Investment Priority Plan (IPP) some 2 years ago, the proceeds from the CERs will have tax holidays. But since the IPP is changed yearly, no provision for such for this year. Hence, we'll be talking with BOI to provide tax holiday for CERs. We cannot guarantee that there will always be tax holidays for</p> |

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| | <p>CERs but for the meantime, we would like to give enough time for CDM projects to come in and investments to prosper first before CER taxations proceed <i>(EMB)</i></p> |
| <p>If there is an agreed amount of CERs, and then you exceed more than the agreed amount, can you sell the excess CERs at a higher price?</p> <p>What usually commands the price of the CERs? Is it the law of supply and demand? <i>(Central Azucarera de Don Pedro)</i></p> | <p>You can sell the excess CERs at a higher price to other buyers. For example, Northwind will only be selling 80% of their total CERs to World Bank. The other 20% they can sell to other buyers after they have claimed the CERs from their project.</p> <p>Yes, the law of supply and demand commands the price of CERs. Therefore, if we involve in CDM at an earlier stage, we can negotiate for higher CER prices. Otherwise, there will be more supply than demand lowering the prices in the process. The CDM is a market where carbon serves as a commodity. They say, however, that investors/buyers usually go to Asia to invest. But we have to take note that this is a market competition and we are competing with other countries. The more CDM projects we come up with now, the better <i>(EMB)</i></p> |

OPPORTUNITIES AND TYPES OF CDM PROJECTS

Alberto Dalusung III
Preferred Energy Inc.



Mr. Dalusung started by describing PEI's activities in relation to CDM. As a CDM Adviser, PEI is involved in identifying projects which may be eligible for CDM, involved in capacity building activities to support the Philippine DNA through grants from donor agencies, provide project assistance to obtain DNA approval, help in the preparation of PDD and other documents in support of CDM project validation, registration and verification, and in charge of identifying and selecting buyers of CERs for their CDM clients. In terms of opportunities for CDM projects in the country, the following main project categories contain the

respective percentage potentials per sector:

- ✓ **Wind farms (typically more than 20 MW)** – with a national technical potential of >70,000 MW. In Luzon, specifically, two potential wind projects with >25 MW potential each are in the works. First is an embedded generation for an investor-owned distribution utility in Central Luzon. Second is a wind power generation system is being developed in conjunction with an IPP using fossil fuel. In the Visayas, an integrated project for Boracay Island is being developed consisting of a 3 MW wind power component alongside waste-to-energy and transport components
- ✓ **Biomass energy systems (typically 1 MW)** – one good potential in the country is the sugar and rice hull cogeneration sectors. Alongside other 20 sugar mills, the First Farmers Bagasse Cogeneration (with Bronzeoak) is a potential for sugar cogeneration. The La Suerte Rice Hull Cogeneration in Isabela province has an estimated ~25,000 tCO₂ GHG reduction potential. Alongside 20 rice mills in other provinces, rice hull cogeneration poses a good potential for CDM in the country. The decay of biomass, specifically agro-industrial wastes (e.g. bagasse from sugar industry, rice husks, coconut shells/husks), has been recognized as major source of GHG reductions. Biomass decay results in the formation of CH₄ (methane) which has a global warming potential (GWP) 21 times that of CO₂. In the Philippines, however, the sharing system for the sugar industry makes it a much more complicated business which immediately poses a hindrance in terms of participation in a competitive market such as the CDM
- ✓ **Waste-to-energy projects (~10k-25k tCO₂/year)** – potential CDM projects for this sector include animal farms, industrial wastewater and municipal solid waste. PhilBio has over 15 piggery waste to energy projects submitted for registration, each with about 7,000 to 10,000 tCO₂e. Other large farms remain to be converted. PhilBio has completed pilot testing of alcohol slops with a total

GHG emission reduction of 54,000 tCO₂e. The 1 MW PNOC Payatas Waste-to-Energy project is projected to reduce 46,859 tCO₂ average annually for the first 7 years.

- ✓ **Hydropower projects (~2 MW to 10 MW)** – PEI is currently involved in a Mindoro Mini-Hydro project amounting to 10 and 2.5 MW generation in parallel rivers, estimated to reduce >50,000 tCO₂e. PEI is still negotiating the power purchase agreement with the IPP in the area. The project has been adjudged by World Bank as the top JI project proposal. Another project, the Cabulig Mini-Hydro, is currently being developed by the largest local hydro developers and is estimated to reduce >50,000 tCO₂e.
- ✓ **Energy efficiency (power distribution)** – typical applications for energy efficiency are those entered into with energy service companies (ESCOs) and building energy efficiency. PEI is currently doing proposals on reducing distribution losses on the part of rural electric cooperatives to be implemented as bundled projects of 15GWh each with a good potential for over 10 such projects.
- ✓ **Industrial fuel switching (cement, metal)** – for the cement industry, rice husk can be used as fuel and raw material to displace coal and because of its very high silica content, it makes for a useful raw material in clinker manufacture. An estimated potential of >100,000 tCO₂ is seen for the rice husk. For food industry, the use of biomass by-products as fuel for cogeneration is being looked into. For the metal industry, natural gas is seen as a good alternative to replace coke in melting scrap iron.
- ✓ **Afforestation and reforestation** – the Magat Hydro Power Plant privatization is a good potential project for an affo / refo CDM project activity. The power plant has been commissioned in 1983 and has a 360 MW capacity with 4x90 MW turbines. The plant is scheduled for privatization soon with key components and good potential for watershed management and reforestation. Currently, the power plant runs at 250 MW because of the siltation problem. There are other afforestation and reforestation projects being developed by other private developers. It is important to note, however, that with privatization, the concern is not really on the power plant itself but on the contract enabling the buying parties to sell in the long run. With CDM, incremental benefits are higher.

Wind maps of Regions 7 and 10 were shown to illustrate good wind potential in the country. Actual projects have been cited to show the country's level of interest and participation in the CDM and the benefits of CDM. Among the projects cited were the Northwind Bangui Bay project and the San Carlos Wind Power project.

In summary, there are a lot of potential CDM projects in the Philippines in various categories. Most projects will not be developed promptly due to lack of capital,

technology and access to specific information, i.e., amount of biomass resources in their area. Local investors stand to benefit the most given the confluence of high Philippine energy cost and presence of clean energy alternatives. ***(Please refer to Annex 5 for details)***

The floor was opened for comments, queries and suggestions by the participants.

Open Forum:

| QUESTIONS / COMMENTS | RESPONSES by Mr. Dalusung |
|--|--|
| For sugar mills, won't they be BAU if they involve in such activities? <i>(San Miguel Corporation)</i> | In Thailand, they use bagasse to power their plant and sell electricity to the grid. Here, it is not yet common practice so it is still additional |
| In addition to using bagasse, we can also use dry leaves so that it's not just burned as common practice The ashes from the boilers can be used as compost/fertilizer <i>(Central Azucarera de Don Pedro)</i> | Central Azucarera de Tarlac used to collect dry leaves but only within the estate. This may be difficult to do with neighboring farms |
| Regarding the list of projects, one potential project is the use of organic fertilizer instead of the synthetic fertilizer <i>(Central Azucarera de Don Pedro)</i> | Use of organic fertilizer is an improved farming practice but we have to look for a methodology that would capture this practice as eligible for CDM. In CDM, as long as you capture the GHG reduction concept, then your project is eligible. The major issue lies in the methodology for the project activity |
| Is it possible to convert community waste into compost? I have not seen this so far. Instead of releasing methane gas into the atmosphere, we can use it as compost <i>(Omar Legazpi)</i> | As has been mentioned previously, it would depend on the availability of a baseline methodology that would allow you to calculate how much GHGs are reduced with your project activity |
| Most of the measures, as far as energy efficiency is concerned, are BAU. So what programs are available for CDM? Personally, I think the installation of a variable frequency drive is BAU | That would be expensive. You would need the drives, controls and process optimization for such. Normally, it is not an easy decision to make. So if the proponent is to look at additionality, if the IRR is high and if you're |

| | |
|---|---|
| <p>How about efficient lighting? If this is already being done in the past, then is it BAU? (<i>Central Azucarera de Don Pedro</i>)</p> | <p>already doing it, then it's BAU. But if it is your first time to implement such technology, and the IRR is not high, then it's not BAU Efficient lighting is qualified as well</p> <p>If you are doing it in your office and not yet in your plant, you can apply for CDM for lighting retrofitting for the plant in the form of efficient lighting and cooling. As long as you can show that you need the CDM to make that decision, then it's additional. Since it's a simplified methodology, you can use small-scale methodology</p> |
|---|---|

PHILIPPINE DNA APPROVAL PROCESS AND CRITERIA

*Joyceline A. Goco, CDM Secretariat and Helpdesk
 Environmental Management Bureau (EMB)*

The Philippine Government, through the DNA, works under the basic policy of recognizing that participation in the CDM could potentially provide the Philippines with numerous benefits in terms of foreign investment in CDM project activities, employment and income opportunities, the establishment of ecologically-friendly projects that will contribute to a healthier environment, technology transfer and income from the purchase of certified emission reductions by the developed country Parties to the Kyoto Protocol.



It is, therefore, the DENR's basic policy, as the CDM DNA, to facilitate and promote CDM project activities that would: (1) contribute to the UNFCCC objective of stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate change, (2) lead to the transfer of environmentally safe and sound technology and know-how, (3) contribute to the conservation of biological diversity and sustainable use of natural resources, (4) comply with all other pertinent laws and regulations, and (5) provide measures to alleviate poverty as part of their contribution to sustainable development.

The basic policy mentioned above is guided by the following principles of: (1) States having the right to promote sustainable development through policies and measures appropriate to the conditions of the State, (2) implementing transparent, participatory,

credible, efficient and effective processes, and (3) crafting a policy framework responsive to the needs and demands of project proponents, the Government and various stakeholders which undergoes regular updates to meet evolving international CDM guidelines and recent developments in national policies, laws, rules and regulations.

To help the DNA in the CDM approval process, support mechanisms make up the DNA organizational structure.

The CDM Steering Committee is composed of three members from the government coming from the DENR, the Department of Energy (DOE) and the Department of Science and Technology (DOST), a member from the private sector as represented by the Philippine Chamber of Commerce and Industry (PCCI) and a fifth member from the NGO sector as represented by the Philippine Network on Climate Change (PNCC). All the members of the Committee are represented by a Permanent (agency Undersecretary) and Alternate member, both of whom have the same voting rights. An Undersecretary of the DENR has been designated by the DENR Secretary to serve as the Chair of the CDM Steering Committee, together with a named alternate. The Committee is responsible for reviewing the findings of the TECs and for endorsing the project application to the DENR Secretary for appropriate action, as embodied in the Committee's Endorsement Report. The Committee is also responsible for providing advice to the Secretary on the effective implementation and improvement of the Philippine CDM policy and framework.

The TECs have been established to review whether a proposed CDM project activity meets the national approval criteria. At present, there are three TECs designated to review project activities belonging to eligible sectors under the CDM – energy (Philippine Department of Energy), waste management (Environmental Management Bureau) and forestry, specifically reforestation/afforestation (Forest Management Bureau).

An office within the EMB Central Office is designated as the CDM Secretariat, which is supervised by the EMB Director. The CDM Secretariat is primarily responsible for facilitating the smooth implementation of the national approval process for proposed CDM project activities. In the process of performing their functions, said Secretariat is responsible for verifying the completeness of application documents, identifying the appropriate TEC(s) and referring a proposed CDM project activity to the appropriate TEC(s), forwarding the Evaluation Report of the appropriate TEC to the CDM Steering Committee, providing administrative and technical support to the CDM Steering Committee and facilitating the transmission of the Endorsement Report and supporting documents to the DENR Secretary, and serving as the focal point for information on the status of proposed CDM project activities that have been submitted for DNA approval, including advising the Philippine project proponents of the Secretary's decision relating to their application for a Letter of Approval. It is important to note that unless and until

a final decision has been made by the Secretary, the CDM Secretariat is prohibited to release any information on the decision made by the TEC(s) or the CDM Steering Committee regarding a particular application. Moreover, the CDM Secretariat is responsible for facilitating the dissemination of international and national requirements relating to the CDM among stakeholders and such other functions as are necessary for the implementation of the DAO 2005-17.

The entire application and approval process can be summarized into four steps namely:

Preparation of the Project Design Document/Project Application Document (PDD/PAD). The proponent of a proposed CDM project activity can choose between submitting a PAD or a PDD for host country approval. The duly accomplished document will then be submitted to the CDM Secretariat for verification of completeness. The PAD is a simplified form of the PDD. Should the proponent choose to submit a PDD instead of a PAD, the PDD has to be supplemented with the Sustainable Development Benefits Description (SDBD), the supporting documents relating to the Stakeholders' Consultation and the Proof of Legal Capacity - all of which are integral to the PAD. No matter which format the proponent chooses – whether it is a PAD or PDD – the project document must be supported by a valid Environmental Compliance Certificate (ECC) or Certificate of Non-Coverage (CNC), whichever is applicable. This will give assurance that the environmental dimension of the sustainable development criteria has been addressed. Furthermore, the project document, whether a PAD or a PDD, should also be notarized when submitting a formal application for Philippine DNA approval. For small-scale project activities, the minimum content of the SDBD should follow Section III of DAO 2005-17. For project activities not considered small-scale, necessary measures to mitigate significant negative impacts of the proposed CDM project activity should be identified. In addition, methods to monitor the major sustainable development impacts of the project should also be described.

In filling up the SDBD, proponents should satisfy the national approval criteria, with great emphasis on the sustainable development criteria categorized in three dimensions as provisioned in the DAO – social, economic and environmental dimensions. Proponents must identify appropriate project-level indicators for each criterion to give the TECs a better approximation of the sustainable development contributions of the project activity to the host community(ies).

Submission of project documents to the CDM Secretariat. After the proponent has put together the project document and all necessary attachments, along with an electronic copy inclusive of charts, tables, photos, maps, scanned documents and others, the documents are brought to the EMB Central Office for submission to the CDM Secretariat. The Secretariat, guided by its Documentary Requirements Checklist, verifies the completeness of the documents. After the documents have been verified to be complete, the Secretariat gives the proponent an Order of Payment form for payment of dues to the EMB Cashier. A filing fee of Php600.00 plus a processing fee of Php5,000.00

(for small-scale project activities) or Php10,000.00 (for project activities not considered small-scale) is paid. Documentation of Payment and an Official Receipt (OR) will be issued by the EMB Cashier. After which, the proponent goes back to the CDM Secretariat for final documentation and filing of formal application. In the event that the application documents were found to be incomplete, the CDM Secretariat shall return the said documents and advise the proponents to fulfill those requirements that were found to be deficient.

Project Evaluation. After the CDM Secretariat has checked for and verified the completeness of all documents submitted, it endorses the project documents to the relevant TEC. Energy-related project activities go to the CDM Secretariat of the DOE, Waste Management project activities go to the EMB-DENR and Reforestation/Afforestation project activities go to the FMB-DENR. Should the project activity be covered by two relevant sectors (e.g. energy and waste management for waste-to-energy technologies), the project document may be endorsed to the two relevant TECs responsible for the sectors stipulated in the project activity. Small-scale project activities are evaluated under a time frame of 5 days while project activities not considered small-scale take 9 days for evaluation.

TEC evaluation will give emphasis on the contents of the SDBD to ensure that the project activity significantly contributes to the sustainable development goals of the country, particularly of the host community. A similarly significant emphasis will also be given to the documentation of stakeholders' consultation to ensure that public participation was complied with. The ECC, for this purpose, will serve as a good indication that the project activity is in compliance with Philippine environmental policies and standards, a vital component of the sustainable development criteria.

After the TEC has finished evaluating the project activity, an Evaluation Report is drafted and submitted to the CDM Steering Committee through the CDM Secretariat. The Evaluation Report will contain the written conclusions of the TEC and its recommendations to the CDM Steering Committee, stating the grounds for each recommendation. The Report will also assess how the project proponent addressed the concerns raised in the Documentation of Stakeholders' Consultation. Upon receipt of the Evaluation Report, the CDM Secretariat compiles the reports, submits the documents to and convenes the CDM Steering Committee.

Should the TEC require revision, clarification or additional information on any of the documents submitted by the project proponent, the TEC drafts, in writing, a request for revision before the lapse of the evaluation period (5 working days for SSc and 9 working days for non-SSc). The CDM Secretariat is furnished with a copy of the Letter of Request for Revision by the TEC. The project proponent, in this case, should respond within 15 working days upon receipt of the TEC's request for revision. Proponent's failure to respond will be considered an abandonment of the application. In the alternative, a project proponent may, within 5 working days from receipt of the

request of the TEC, submit a written undertaking indicating that it will submit the revised documents to the TEC within a period indicated in the said undertaking, acknowledging that its application will not be processed until said revised documents are submitted, and agreeing that its application will be considered abandoned upon failure to submit said documents within the period indicated in the undertaking. Upon submission by the proponent of the requested revision, clarification or additional information to the TEC, the TEC shall then re-evaluate the application based on the new submission of supporting documents within 5 working days, after which the TEC submits its Evaluation Report to the CDM Steering Committee through the CDM Secretariat.

Project Endorsement. Upon receipt of the Evaluation Report, the CDM Steering Committee assesses and deliberates the Report submitted by the TEC. This is done through en banc or ad referendum review, where and when applicable. Within 5 working days from its deliberations, the CDM Steering Committee submits its Endorsement Report to the DENR Secretary through the CDM Secretariat. Should the CDM Steering Committee decide not to adopt the TEC's recommendation, it shall state its grounds for doing so in writing. Should the project activity been referred to more than one TEC with Evaluation Reports containing different courses of action, the CDM Steering Committee shall decide which recommendation to adopt and will state its reasons for supporting such recommendation.

Project Approval/Non-Approval/Motion for Reconsideration. Upon receipt of the Endorsement Report, the DENR Secretary, as Head of the DNA, immediately acts on and reviews the CDM Steering Committee's Report and decides either to approve or disapprove the application, as will be contained in the form of a Letter of Approval or Letter of Non-Approval. It is worthy to note that the issuance of a Letter of Approval does not exempt the proponents from complying with the applicable laws, rules and regulations of the Philippines. The Letter of Approval/Non-Approval will be issued to the project proponent through the CDM Secretariat. The CDM Secretariat will formally transmit the said letter to the project proponent by registered mail.

Should a project proponent wish to seek reconsideration of a Letter of Non-Approval, a Motion for Reconsideration should be filed with the Office of the Secretary within 15 days from receipt of the Letter of Non-Approval.

As of June 2006, a total of 21 projects have already been submitted to the DNA for host country approval amounting to an estimated total of 311,560 tCO₂e/yr. Of the 21, 17 are methane recovery and electricity generation small scale project activities (from piggeries), 2 are renewable energy activities not considered small scale (wind and geothermal), 1 is a landfill gas to energy small scale project activity and 1 is a wastewater treatment not considered small scale project activity. Of the 21 projects, 8 projects have been issued Letters of Approval as of June 2006 – the first of which was issued last December 2005 for the 33 MW Northwind Bangui Bay Project and the next

seven were issued LoAs last June 30, 2006 – five from the 17 methane recovery from piggeries projects, the 20 MW Nasulo Geothermal Power Plant project, and the Wastewater Treatment Using Thermophilic Anaerobic Digester at an Ethanol Plant in the Philippines.

In closing, potential for CDM in the Philippines has yet to be fully tapped, its potential to support national development programs has not yet been fully explored, particularly for the Visayas and Mindanao regions. With the country's vast natural resources, sizeable rural population representing a large trade and investment potential and with the nature of small scale project activities providing huge potential for benefiting the poor sectors of society, the prospects for developing small-scale CDM project activities across the country are high. Lastly, CDM is essential in providing assistance to potential Philippine project proponents and developers in addressing proportionately higher business costs, limited access to information and skills and bigger risks, particularly for small scale CDM project activities. ***(Please refer to Annex 6 for details)***

The floor was opened for comments, queries and suggestions by the participants.

Open Forum:

| QUESTIONS / COMMENTS | RESPONSES by Ms. Goco |
|---|---|
| <p>Does the power generation from biogas require a separate ECC from the DENR – take for example the piggery lagoons used to produce electricity? <i>(San Miguel Corporation)</i></p> | <p>The Absolut project has a Certificate of Non-Coverage (CNC). For the piggeries, since sow capacity has increased, then a new ECC is required.</p> <p>There are available guidelines on this which can be downloaded from the EMB-EIA website, specifically for DAO 33.</p> <p>ECC application can be done parallel with the application for CDM host country approval.</p> |
| <p>Do we have to get a discharge permit aside from the ECC? <i>(Central Azucarera de Don Pedro)</i></p> | <p>A discharge permit would depend on whether the project is existing or new. Take Absolut, for example, since it is existing, it should have a discharge permit. But if the plant is still in the establishment/building stage, then there would be no discharge permit needed as of yet.</p> <p>Validators go to our office to meet with the different sections (air, wastewater) to know</p> |

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| | the requirements for the projects that they apply for. The DNA is not here to regulate but facilitate the registration and implementation of CDM projects. That is why we recommend scoping prior to the submission of the project document itself so we know whether the projects are feasible or not |
|--|--|

After the necessary concerns were raised and questions were addressed, the facilitators wrapped up for the day and encouraged the participants to come back the following day to listen to live cases of CDM projects.

DAY 2: 26 JULY 2006

RECAP OF DAY 1:

*Zarah C. Pilapil, CDM Helpdesk
JICA Study Team*



Ms. Pilapil provided a quick recapitulation of what transpired on the first day of the local workshop. In the morning, presentations and discussions focused on the rationale of the activity and the more basic aspects of CDM – eligibility criteria, additionality, baseline, bundling, unbundling. In the afternoon, presentations and discussions gave emphasis on the opportunities and projects for CDM, CDM project cycle and the host country DNA approval process that the proponent has to go through in the process of applying for CDM status.

For the day, two live cases will be shared and presented by Ms. Homma and Mr. Dalusung to show that CDM is in operation and is, indeed, working. Both experts will be presenting projects that have both been issued Letters of Approval by the Philippine DNA and which are currently posted on the UNFCCC as both have submitted request for registration by the CDM Executive Board.

CASE STUDY 1: NORTHWIND BANGUI BAY WIND PROJECT

*Alberto Dalusung III
Preferred Energy Inc. (PEI)*

Mr. Dalusung discussed relevant issues to keep in mind as far as developing and implementing CDM projects in the Philippines since not too many know that Philippine grids are still fragile, even Luzon. The grid, ideally, should be able to run even if it loses its largest unit. However, based on experience, losing just the next biggest unit caused frequent blackouts as well.

He then proceeded to discuss the advantages of wind power. Since wind is modular, it can be implemented in phases easily unlike coal. More so, money stays locally since turbines have to be maintained on a regular basis and local labor is tapped so that there would be servicemen to climb the turbines. Next, he then referred to one frequently asked question regarding wind technology and its capacity to withstand typhoons – can the turbines withstand them? The answer is YES. Wind turbines possess a mechanism of automatically stopping should the turbines reach a certain maximum level of wind velocity to prevent the machine from over speeding. This is its own way of protecting itself and prolonging its machine life as well. Other power plants' life cycle cost is dominated by fuel cost.



For wind, however, the fuel cost is zero. Wind has no water requirements for cooling as well. Hence, wind offers more advantages than disadvantages.

For the Northwind project, the turbines face the sea. This is a good location and design for the technology since this way, there is less turbulence and the wind follows a laminar flow (pertaining to fluid mechanics) ensuring a smoother passage of the wind through the turbines. Bangui Bay is not the best site as far as the wind regime is concerned. Pagudpud and other sides more westward are better. But Bangui provided the ideal mix of conditions, in terms of land leasing conditions and other elements.

In the Energy Supply Agreement (ESA) that the Northwind project entered into with the Ilocos Norte Electric Cooperative (INEC), Northwind is primarily responsible for delivering approx 74,482 MWh on the average annually for 20 yrs, sells power at discount from NPC + Transco effective price. Usually, power generated from RE is more expensive but in this case, a discount is given which is a good sustainable development benefit. The Northwind project connects and constructs transmission lines which supplies Laoag City match-point which is 50 kms away from the wind power site (transmission lines were part of the project cost). This makes the end-of-the-grid power more stable.

One sustainable development benefit SD not highlighted in the PDD was that the Project encouraged local tourism and allied activities. More tourists have come to visit the wind farm since the wind mills were inviting to look at. The project has also helped enhance the grid – where power was already weak (Laoag being the end of the transmission line) the establishment of a power source feeding into Laoag has helped the power become more stable in the Laoag area of responsibility. The installation of a wind farm in Bangui Bay has also helped spur the development of Philippine wind energy – which is a bigger deal than what has been described in the PDD.

Mr. Dalusung provided the participants with a table containing ERPA calculations for the project. The World Bank was the one who shouldered the development of the PDD and other transactions included in the CDM. Such were already factored into the price. The table also illustrated that not all the CERs to be generated by the Project will be bought by the World Bank, that only about 70% of the total CERs will be purchased by World Bank, enabling Northwind to sell the excess CERs to other potential and interested buyers. With regard to the concern as to whether the prices will fluctuate or not, the answer was that it will since prices will put into consideration factors like NPC+TRANSCO and WESM+TRANSCO.

Northwind's baseline methodology used ACM0002 or Electricity Generation from Renewable Energy. The project used the Luzon-Visayas grid as baseline. For data monitoring, fuel consumption and generation of last 5 power plants were calculated to come up with the Operating Margin (OM) and Build Margin (BM).

As an observation, Mr. Dalusung suggested some adjustments in the calculations of grid data. First, is the need to adjust Luzon statistics to include Tongonan geothermal power plants' generation exported to Luzon and to exclude SPUG power plants (since they are not connected to the grid) and generation of power plants not physically connected to the Luzon grid (especially that of MIMAROPA). Should these not be adjusted, PDD writers are limiting themselves in Visayas as a geothermal generation dominant grid, which implies that CDM in Visayas will be difficult to implement because of the lower CER potential. Second, in the calculation of OMs and BMs, World Bank calculated OM as 0.7549 tCO₂-e/MWhr and BM as 0.355 tCO₂-e/MWhr, using the 75-25 ratio of OM to BM due to the "intermittent nature of wind regime." We should, however, take into consideration that wind is not intermittent, it is variable. Batangas, in reference to the wind atlas, serves as a rich potential for wind energy resource. ***(Please refer to Annex 7 for details)***

The floor was opened for comments, queries and suggestions by the participants.

Open Forum:

| QUESTIONS / COMMENTS | RESPONSES by Mr. Dalusung |
|--|---|
| What is the wind potential for Palawan and Mindoro? <i>(EMB Region IV-B)</i> | I was not able to show the part of the wind atlas featuring Palawan and Mindoro but yes, there is great potential in these areas. |
| For the calculation of the build margin, does the 75-25 ratio apply to all other projects? Even for hydro? <i>(First Generation)</i> | No. Normally, it is at a 50-50 ratio. In the Philippines, actual physical dispatch data is available on a daily and hourly basis. With the launching of WESM a month ago, this has been mandated as well. |
| Is this publicly available? <i>(JICA Study Team)</i> | Yes. Just visit the website: www.wesm.ph |
| Are you developing hydros or do you have case studies for hydro? <i>(Central Azucarera de Don Pedro)</i> | Yes, in fact PEI is co-developer of the Bubunawan Hydro Power Project |
| How about for tidal source of energy? What is the potential of Wind in Bataan? | Yes, that is possible but difficult especially in terms of monitoring. There is a way to measure the potential of wind in Bataan. Wind potential would usually depend on the time of year. One friend visited NorthWind and said that some of the turbines were not working. But the |

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|---|--|
| <p>Is there backup or stored power source in the overall generation process? <i>(PENELCO)</i></p> | <p>visit was done during the off-peak or summer season.</p> <p>That would be the grid The turbines, though, must be synchronized evident in the same-direction rotation of the blades. Otherwise, the turbines not in sync will not be generating as much as the needed capacity from the wind energy source</p> |
| <p>What is the total cost of project? <i>(Central Azucarera de Don Pedro)</i></p> | <p>USD 51.2 million.</p> <p>The assumed tariff for selling the electricity to the Ilocos Norte Electric Cooperative (INEC) was at Php4.43/kWh. But the project got a lot of support from various sources. When you use the Capacity Asset Pricing Model, the IRR with CDM should be at 13.3 % at least before you should invest. The IRR was at 10% with CDM but they went ahead</p> |

CASE STUDY 2: WASTEWATER TREATMENT PROJECT USING A THERMOPHILIC ANAEROBIC DIGESTER AT AN ETHANOL PLANT IN THE PHILIPPINES

*Hitomi Homma, Mitsubishi UFJ Securities
JICA Study Team*

As an introduction, Mitsubishi has been advising project proponents on the CDM. The PDD for the project being presented will be uploaded for public comments as part of the request for registration. The Project used AM0013 (with some aspects of ACM0002 present). The project is located in Lian, Batangas.

Ms. Homma described the project based on its current practice where waste water from the ethanol plant is treated in the open lagoon system. In the process, large amounts of GHGs (mainly CH4) is emitted from the lagoon into the atmosphere under the current practice. At present, bunker fuel oil is used to generate thermal energy.

The proposed project will install a closed anaerobic digester which is able to consistently collect high quality methane-rich biogas. The collected biogas will be utilized to replace the bunker fuel oil, flaring excess biogas in the process. The process will help reduce odor coming from the lagoon. The Project will utilize a state-of-the-art



modern single thermophilic suspended growth anaerobic digester. Although the digester is thermophilic (49-57°C), no heating system is required. The high ambient temperature, hot distillery slops and heat generated from the anaerobic process will ensure the process temperature is maintained in the thermophilic treatment range. The digester is fully enclosed and airtight tank, preventing any CH₄ leakage. Project participants include Tanduary Distillers, Inc. for the host country (Philippines) and Mitsubishi Corporation as the investor country (Japan). The Project's emission reduction sources will be coming from two sources: (1) Avoidance of methane released into the atmosphere from the open lagoon system, and (2) Displacement of bunker fuel oil for renewable energy to generate heat to run the boiler. For the project's qualification for CDM, since the project IRR is very good, it used the barrier analysis whereby investment by Mitsubishi Corporation is contingent on the project being pursued as a CDM project since the investor is interested in CERs. Sustainable development contributions of the project include employment generation and less fossil fuel dependency (economic dimension), environmental enhancement through effluent treatment and air/water quality improvements (environmental dimension); and the provision of new skills to local laborers plus benefits to neighboring farms through the liquid fertilization program (social dimension).

The project's emission reduction estimations come from baseline emissions from the open lagoon, grid electricity generation and project emissions from the use of fossil fuel for start up, fugitive methane emission from digester or other equipment, methane emission from secondary treatment of wastewater. The CER revenues from the project enhances income stream resulting into higher project returns combined with higher status that CDM designation brings, assisting other projects in attracting equity investors in the process. The methodology for the Project can also be used to support significant enhancement of the wastewater treatment process. ***(Please refer to Annex 8 for details)***

The floor was opened for comments, queries and suggestions by the participants.

OPEN FORUM:

| QUESTIONS / COMMENTS | RESPONSES |
|--|--|
| How much is the investment cost for the project? | USD 4-5 million |
| What is the expected IRR? | Equity IRR is 10-15%, which is compared to Philippine bonds so the equity IRR is considered pretty high. |

| | |
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| <p>What is the financial scheme? (<i>First Generation</i>)</p> | <p>This is, unfortunately, confidential and limited to the project participants. Mitsubishi Corporation only gets the investment cost and other basic information about the project</p> |
| <p>On the Contracting period, how certain are we that CDM will last for 21 years? What is the chance that the rules will change and CDM will no longer be a mechanism or the Philippines will no longer be a developing country and will no longer be eligible?</p> <p>Maybe in 21 yrs, we will be developed (<i>San Miguel Corporation</i>)</p> | <p>As explained yesterday, the crediting period is either 10 years or 7 years renewable twice. Yes there is a risk but most investors are optimistic that should CDM not be existing beyond 2012, there will be other mechanisms in place.</p> <p>The Philippines will continue to be a non-annex I country, at least in the foreseeable future</p> |
| <p>Is there a possibility of having a security clause in the contract so that the interest of the investor will be protected after 2012 – meaning that the investment is still not sacrificed after such commitment period?</p> <p>What would happen to the remaining amount that you would need to pay to your banks if the contract lapses after the first crediting period? (<i>Central Azucarera de Don Pedro</i>)</p> | <p>That will be up to how you negotiate with your investor or buyer but there is really no guarantee at this point that the CDM will not change – no such promise can really be given at this time</p> <p>Decision point for payment of loan is 10 year minimum or over 21 years if a 7 year renewable twice is chosen but if you can pay off the loan in less than 10 years then you may opt to choose the 10 year crediting period</p> |
| <p>As a comment, there are Emission Reduction purchases done outside the CDM. There are visiting entities from the US-traders or brokers who have visited our office recently and they are interested in buying CERs. However, since they are from the US, they have not ratified the Protocol. For such schemes, it is possible for the proponent to increase the price of CERs since the proponent already underwent quality assurance through the CDM. The second commitment is still under negotiation at the international level. It will take some time, possibility of increasing the level of quantified emission reduction targets of Annex I countries and that there should be no gap from the first to the subsequent crediting commitments but the key thing to note is that the CERs for the first crediting period are not bankable after 2012. Since they see that the CDM practice is now working, it is probable that the CDM will continue.</p> <p>Also, please be reminded that the PDD contains a discussion on sustainable</p> | |

development. However, the Philippines requires a separate document – the SDBD – because the DNA really wants to see the actual SD benefits that your project will contribute as basis for evaluating your approval (*Joy Goco, EMB*)

INDUSTRY CONSULTATION

The floor was opened to questions and clarifications pertaining to company-specific concerns from the participants. These were welcomed and responded to by the experts.

| QUESTIONS / INQUIRIES FROM THE PARTICIPANTS | RESPONSES BY THE EXPERTS |
|--|---|
| <p>What is a possible CDM project for electric cooperatives like us?</p> <p>Currently, we emit 10kg per substation. We have 6 substations.</p> <p>In order to address the SF6 problem, we need to change the switch and other plant modifications. This is costly.</p> | <p>You can look at system loss reduction and increasing the capacity of your transformers through CDM. We know that we cannot do this on a regular basis because of financial considerations hence we can argue that many of these will not be done without CDM. If the range is below 15GW/yr, that can be considered a small scale CDM project activity. Renewable energy sources are also a possibility. As an example, La Suerte is partnering with a cooperative as their project can provide power. Electric cooperatives consider the pig farms, rice mills as your largest customers. SF6 reduction is one of your biggest potentials since it is equivalent to 20,000+ times in terms of its global warming potential (GWP).</p> <p>You may want to run the numbers. You may be surprised as you have to multiply the numbers by 20,000x. you have a big multiplier effect so a few kg of that has a large effect in terms of GHG emissions and potential CERs.</p> <p>Hence, you really have a barrier to investment. You can cite this in your additionality that you will not be able to change the system unless CDM offers that possibility</p> |

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| <p>Is there no law that requires its replacement?</p> <p>How about PCBs in transformers – can we do a CDM project addressing the PCBs in transformers? <i>(PENELCO)</i></p> | <p>To date, there is none, which is good for additionality purposes. Otherwise, it will be business-as-usual. <i>(Bert Dalusung, PEI)</i></p> <p>PCB is not classified as a GHG, however. There are six (6) gases qualified as GHGs and which are eligible under the CDM <i>(Joy Goco, EMB)</i></p> |
| <p>Can this be a correct understanding of bundling - Is it possible to go to just one CDM consultant to identify all possible CDM projects in our company?</p> <p>Is it possible to have just one PDD for different methodologies with the same project owner?</p> <p>Is it possible to have one prospective buyer for different project activities by the project owner? <i>(Central Azucarera de Don Pedro)</i></p> | <p>There are a lot of different types of CDM possible for your company – take for example waste streams and energy efficiency. <i>(Bert Dalusung, PEI)</i></p> <p>This would not be possible, however, because you have to use of different baseline and monitoring methodologies per project activity <i>(Joy Goco, EMB)</i></p> <p>It is possible. Your adviser should be able to advise you to come up with a strategy the best fits your situation. My suggestion is to start with the most easily doable CDM project and from there, you gain the experience and learn by doing. <i>(Bert Dalusung, PEI)</i></p> |
| <p>Based on your experience, how long does it take to develop a PDD?</p> <p>How long does it take from the point of validation?</p> | <p>The production of the PDD, assuming that we get all the required data, can be finished in a month. Desk review by the DOE will be for about 1-2 weeks. The DOE will then conduct site visits and interviews with the DNA for about a couple of days. Afterwards, the DOE will produce a validation report and we will need to apply for DNA approval (25 days for regular, 20 days for small scale). For the production of PDD to request for registration will take 3-4 months – if everything goes smoothly.</p> <p>It usually takes about one year. So our advise it that you wait for at least when the</p> |

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| <p>One year is the best case scenario then? <i>(First Generation)</i></p> | <p>validation is finished</p> <p>Yes. In the case of Mitsubishi, it took eight (8) weeks which is a rare case. Also, you must take into consideration the periods open for comments at the international level. <i>(Hitomi Homma, JICA Study Team)</i></p> |
| <p>Have you visited the Del Monte Pineapple manufacturing plant in Bukidnon?</p> <p>After squeezing, the bagasse is fed to the cows but the other by products can be used for bagasse. Will the decay factor also be considered? <i>(San Miguel Corporation)</i></p> | <p>I haven't visited it yet. But I am aware that we looked at cogeneration opportunities for Del Monte some years ago. Pine fruit tops are a potential source of bagasse cogeneration.</p> <p>This can be done but this will depend on the moisture content of the by-product. Yes, you should also look at the way it is being disposed. If it is merely dumped, then it is highly CDM eligible. The important thing is you have documented it and that there are reference materials as well. We have to thank MUSCL for the methodology that they used for a Cambodian project (Angkor) which we applied on a project we are presently developing. Unfortunately, the cap has been set. So for the new ones, you need to use the newest or latest version <i>(Bert Dalusung, PEI)</i></p> |
| <p>Are there CDM projects being done by LGUs? We are trying to look at our Materials Recovery Facilities (MRFs) that qualify for CDM <i>(Batangas LGU)</i></p> | <p>Yes it is possible. LLDA is one developer of CDM projects now – composting. You have to aggressively look for a partner. PhilBio's calculation estimated that the value of waste is about USD 45 million. <i>(Bert Dalusung, PEI)</i></p> |
| <p>How much is usually the total cost of applying for CDM?</p> | <p>There are costs involved every step of the way. There are costs for hiring CDM consultants like ourselves. From the production of PDD to registration, about USD 20,000 to 30,000 is expended if</p> |

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| | <p>paid in cash. But since we know that project proponents do not usually have upfront costs, we offer a success fee-based contract upon generation and issuance of CERs. If the project proponent already has a PDD and is undergoing the validation process, this is more attractive for investors. What we would advise is for you to complete at least the PDD production first, then we can help you find buyers from Annex 1 countries. <i>(Hitomi Homma, JICA Study Team)</i></p> |
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Before the group broke out for lunch for the day (especially for those without further concerns to raise with the experts), the facilitators encouraged the participants to get in touch with the experts and with the CDM helpdesk as well, for any more queries they may have in relation to the CDM process – both on the local and international level – and at different stages of the project application process. Ms. Goco also announced the launching of the CDM website in August and the conduct of workshops for ERPA negotiations and project monitoring. In closing, she also thanked everyone for their active participation and expressed hope in the participants’ development of their own CDM projects – as these are such activity’s measure of success and capacity on CDM. On behalf of JICA, DENR and partner agencies, she bid everyone thank you and safe trip back home.

Lunch was served at Robusta Restaurant.

**Attachment 14 : List of Participants and Minutes
of the Workshop in Cebu, Visayas**

JICA Study on Capacity Building to Promote CDM in the Philippines

Regional Capacity Building Workshop on Clean Development Mechanism (CDM)

Holiday Plaza Hotel, F. Ramos Street, Cebu City

September 11-12, 2006

| Company | Type of Industry |
|--|--------------------------|
| Local Government Unit | Local Government Unit |
| Dating Bayan Foundation | |
| Universal Robina Suval Milling Company (URSUMCO) | Sugar Mill |
| Palm, Inc. | Palm Oil Mill |
| Victorias Milling Corporation | Sugar Mill and Refinery |
| Local Government Unit | Local Government Unit |
| Provincial Health Office, Negros Occidental | Provincial Health Office |
| Brutus Food Systems | |
| Cebu Electric Cooperative I | Electric Cooperative |
| Cebu Electric Cooperative II | Electric Cooperative |
| Cebu Electric Cooperative III | Electric Cooperative |
| Cebu Electric Cooperative I | Electric Cooperative |
| Philippine Bio Sciences Co., Inc. | Research and Development |

| | |
|--|--------------------------|
| Philippine Bio Sciences Co., Inc. | Research and Development |
| PK-Cebu | |
| PhilBev-Kanlaon (San Miguel Corporation Subsidiary Philippine Beverage Partners) | Beverage Industry |
| First Farmers Holdings Co. | Piggery |
| Iloilo Electric Cooperative II | Electric Cooperative |
| Local Government Unit-Bohol BEMO | Local Government Unit |
| PENRO-LGU, Iloilo | DENR-PENRO |
| Iloilo Electric Cooperative III | Electric Cooperative |
| BOMEDCO | Agricultural Corporation |
| Philippine Bio Sciences Co., Inc. | Research and Development |
| PR-Cebu | |
| DENR-EMB VII | DENR |
| University of San Carlos Affiliated Noncon Energy Center (USCANEC) | University |
| DENR-EMB VI | DENR |

JICA STUDY ON CAPACITY BUILDING TO PROMOTE CDM PROJECTS IN THE REPUBLIC OF THE PHILIPPINES



**VISAYAS REGIONAL CAPACITY BUILDING WORKSHOP ON
CDM**

Cebu Holiday Plaza Hotel, Cebu City

11-12 September 2006

**JICA STUDY ON CAPACITY BUILDING TO PROMOTE CDM PROJECTS IN THE
REPUBLIC OF THE PHILIPPINES
VISAYAS REGIONAL CAPACITY BUILDING WORKSHOP ON CDM
Cebu Holiday Plaza Hotel, Cebu City**

DAY 1: 11 SEPTEMBER 2006

The workshop started with a brief introduction by Ms. Charmion Reyes of CDM as a new policy enabling environment-friendly technology. Through capacity building activities and studies such as the current activity being supported by JICA, partnerships and collaborations are established and strengthened in the area of CDM. She then requested each one to introduce themselves, describe their line of work and the organization they are affiliated with.

The participants consist of those from the government, private and civil society sectors. Some of which, work with the provincial health offices in Cebu and neighboring provinces, regional offices of the DENR and EMB and affiliated non-conventional energy centers of the PDOE. Participants from the private sectors are either the pollution control officers or the business owners themselves. Others, who may have attended other capacity building workshops prior to the one being conducted, are in the process of coming up with project proposals to address water pollution and utilize waste-to-energy technology in the process. Businesses include sugar milling companies, food manufacturing, oil palm plantation, and one from a mineral water plant. There were several representatives from the electric utility of Cebu and the neighboring province of Iloilo.



After the introductions, Ms. Goco gave her welcome remarks.

WELCOME REMARKS

*Joyceline A. Goco, CDM Secretariat and Helpdesk Head
Environmental Management Bureau*

On behalf of the DENR and EMB Officials, Ms. Goco welcomed all the participants and explained the rationale behind the conduct of the local workshop.



In partnership with the Environmental Management Bureau (EMB) and the Department of Environment and Natural Resources (DENR), the JICA study to promote CDM in the Philippines is being implemented. Local workshops, such as the one being conducted, are being implemented to capture all sectors relevant to the CDM and maximize the participation of potential project participants and stakeholders at the regional and local levels. Being in the second leg of the series of local workshops, she briefly explained to the participants what CDM is and how it is relevant to the Philippines in terms of its environmental, social and economic benefits to the

community – considering the two main objectives of the CDM for the host country which are sustainable development and emission reductions. Lastly, she encouraged participants to ask questions so that initial notions that the participants may have on CDM may be clarified and project and sector-specific queries may be addressed. She put great emphasis in saying that it is important for the participants to have an understanding of CDM since CDM is a relatively new concept and that it provides for the participation of the private entities. She then ended by wishing everyone to have a fruitful day and to convince their own companies to participate in the CDM. She also mentioned that there will be one-on-one consultations with the resource persons on the last day of the workshop should they like to pursue projects on CDM.

A 15-minute film showing was shown to the assembly to provide a summary explanation of what climate change and CDM is.

This was followed by Ms. Atsuko Nuibe's presentation on CDM in Practice.

CDM IN PRACTICE

*Atsuko Nuibe, Senior Consultant for MUSCL
JICA Study Team*

Ms. Nuibe started off with her presentation by defining CDM as a mechanism monetizing environmental value. Since it involves real money, CDM thus gives additional revenues to GHG mitigation projects. Further, she iterated to the group that CDM status often helps with financing because it helps the project be more attractive to equity and debt investors. She then proceeded to defining Certified Emissions Reductions (CERs) as a project's representation of GHG



mitigation contribution (including emission reductions before the first commitment period, 2008) which is measured in tons of CO₂ and which can be sold in exchange for hard currency. Differentiation between the carbon buyers (Annex 1 countries) and sellers (non-Annex 1 countries) has also been defined to establish a firmer understanding of the process for the benefit of the assembly.

The CDM project cycle at the international level, the two crediting periods (7 years three times renewable and the 10 year crediting periods) and a brief overview of how the CDM market is faring at the moment were discussed to show the plenary the phases that a project document goes through and how the Philippines contributes to the overall CDM carbon market. Ms. Nuibe then proceeded to discussing price and payment involved in CDM participation. Carbon prices are determined by the law of supply and demand and that there are no official prices in the market. Most observers agree, however, that issued CERs have a similar value to EU ETS allowances. On the other hand, small-lot offers will have to accept a discount. In relation to this, comparison between contract types and pricing has been shown wherein simply put, actual CERs are worth more than when investors invest in a CDM project activity from the project's early stages because of risk considerations on the part of the project investor.

The Kyoto Protocol and the Marrakech Accords served as the basic reference to the definition of **additionality** – one of the key concepts to determining the eligibility of projects to the CDM. Per Kyoto Protocol Article 12.5c, additionality pertains to *“reductions in emissions that are additional to any that would occur in the absence of the certified project activity.”* Per Marrakech Accords Article 43, *“A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.”* Simply interpreted, the CDM status will be given only to those which cannot be implemented without it whereby projects which can or will be carried out in the course of regular business (business-as-usual) are disqualified. This is because CERs should be considered as an incentive to encourage developers to undertake GHG mitigation projects that do not happen under usual circumstances and NOT as a reward for accomplishing GHG mitigation, no matter how much GHG reduction a project achieves. Practical advice on additionality followed suit with practical considerations based on the additionality tool.

Bundling, another concept in the CDM and as an option for small-scale project activities, as against debundling, has also been discussed. Bundling is technically allowed since it reduces the burden of transaction costs on the part of the project proponents. Bundled projects can use small scale rules if they still qualify under the small-scale threshold despite their bundled nature (15MWe / 45MWth / project emission less than 15kt/yr). However, if the total ER of the bundled projects collectively surpasses the small-scale threshold, rules for regular scale projects must then be used. On the other hand, debundling is NOT ALLOWED. This is to prevent large projects from taking advantage of the lax small scale rules on CER calculations and to prevent issues on leakage. Ms. Nuibe then provided three determinants to see whether debundling is taking place: (a) same owners, (b) same project activity, and (c) within 1 km of each other – debundling occurs if the three determinants are true for two projects.

Since CERs are supposed to be new and additional sources of revenue, no diversion of ODA (Official Development Assistance) is allowed. Although views differ as to how "diversion" is defined, the emerging consensus is that ODA use is acceptable if: (a) ODA is used for feasibility study and underlying finance only, and (b) ODA is NOT USED to purchase CERs. Going back to additionality, it should still be viewed as a separate issue. The CDM project activity must still be able to prove that a project requires CDM assistance even with the favorable loan conditions.

Lastly, the kinds of fee that a CDM project application entails were also enlisted for the participants' reference as follows: (a) Consulting fee for PDD production, (b) Fees to an independent third party (Designated Operational Entity), (c) Fees to be paid to UNFCCC (Registration, share of proceeds), (d) Placement/brokering fee for CER sales. Cash outlays for fee payment can, however, be made minimal and sometimes totally avoided through the following schemes: (a) Annex 1 (investor) country subsidy, (b) Buyer agrees to bear the cost, and (c) When Intermediaries absorb the cost. ***(Please refer to Annex 1 for details)***

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|--|
| <p>Will the CERs to be issued those that have already been realized by the project?</p> <p>So CERs are issued after the fact? After validation?</p> | <p>Yes. Monitoring has to be done on the actual reduction of the project by the project proponent. This, in turn, will have to be verified by the third party validator or the DOE</p> <p>Since verification costs money, this is usually done on a yearly basis. Normally, one year after the verification, the first CERs will be issued</p> |
| <p>Who shoulders the pre-development cost? Problem foreseen in this stage of the project.</p> | <p>This will be discussed later in the presentation</p> |
| <p>For the range of projects mentioned, can we have some idea of power range for the projects? From 100 kW to MW?</p> | <p>It depends. Small-scale could be 15 MW. You can visit the UNFCCC website.</p> <p>There are a lot of SSc below 1 MW and a lot of large-scale projects above 100 MW</p> |
| <p>On slide 22 on practical advice on additionality, letter (a), could you please specify what the major part is in this case?</p> <p>Should the project be approved before being registered?</p> | <p>This consists from PDD preparation up until registration. This takes a while as a major part of the CDM process. Once after registration, then less major</p> <p>Yes. We recommend that it is approved before being registered</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|--|--|
| <p>If parties enter into upfront payment, is this deductible from the future carbon stock? Or is it pure grant or subsidy?</p> | <p>Your future buyer may be interested in absorbing project preparation costs for you. In a sense, discounting could happen. But this depends on the offer that the buyer can offer to the seller. This is negotiable.</p> |
| <p>If we have an existing project without the CDM yet, can we do the reverse? Is that possible? Your presentation says you do not start construction of the project until after the CDM is considered</p> <p>Can we then construct a second project with CDM in mind?</p> <p>So CDM project first before construction?</p> | <p>What is the current status of the project?</p> <p>It is not impossible but it might be difficult for you to demonstrate additionality</p> <p>Yes</p> |
| <p>If CDM is an incentive, then why not a reward? It's supposed to be an incentive to undergo GHG reduction but it means differently to say that it is not a reward. What, then, will it take for an entity to undergo this type of application? Won't an incentive be a reward by undertaking such a project?</p> <p>When you apply for it and go through all the troubles, you would expect a reward for all your efforts. Maybe it's a matter of wording. But does this mean, overall, that there's still something you can get out of the project?</p> | <p>It's an incentive to reduce GHG emissions</p> <p>Yes</p> |
| <p>In clarification of the previous point, maybe you could further explain the concept of "icing on the cake". Basically, what is meant by additionality is that you cannot implement the project without CDM. Therefore, it is not just a reward in itself. If reward, connotes the possibility of project being implemented without CDM assistance. But if incentive, need CDM to implement project</p> | |
| <p>If you have a project that is in place but not yet operational, can you engage in CDM?</p> | <p>It is possible. But it all would be on a case-to-case basis. We have to learn more about the project status and the details before we can do it.</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|---|
| <p>What methodologies are being used for CDM projects?</p> <p>Example, for reforestation of Mt. Kanlaon, is it medium or small scale?</p> | <p>Depending on what type of project you have, there are approximately 30 methodologies available for regular scale 20 for small scale projects.</p> <p>For SSc afforestation, the project activity should not exceed 8,000 kilotons. For regular scale, 3 methodologies have been approved</p> |
| <p>We are thinking of pursuing a project to pursue both terrestrial (forest) and around the bay. The bay in the project is polluted and we hope to divert the liquid effluents from the industries into a catchment from which we can derive methane. It's a big lake and it's massively polluted. We even had fish scares in the past. There is also land scraping happening in the mountain where realty developers scrape the mountain for subdivision development. If we allow this to continue without any intervention or proactive measures, then Cebu's environment will be degraded as time passes by.</p> | <p>Methane emitted from the project can be captured. This sounds like an interesting project but we have to consider that the bottomline for CDM project activities is the use of methodology approved by the UNFCCC. If the project's methodology is not covered by an approved methodology, then the proponent has to formulate a new methodology to be applied for approval.</p> |

CDM Steps and Processes

*Charmion Grace SG Reyes, CDM Helpdesk
JICA Study Team*

Ms. Reyes started off her presentation by illustrating the geographic representation of countries and their status in terms of Kyoto ratification. As of November 2005, most of the country parties have signed and ratified the Kyoto Protocol. As of July 2006, Zambia has submitted its ratification to the UNFCCC and to date, Kazakhstan's ratification is being awaited.



For the participants to better understand the CDM process, the CDM project cycle was compared against the conventional project cycle. Under the conventional project cycle, the

process starts with **project identification**. This is then followed shortly by **feasibility assessments** where project design, environmental, technical and financial feasibilities are assessed and partners are identified; the **project structuring phase** follows shortly which involves matters pertaining to contracts, power purchase agreements, acquisition of governmental, environmental and building permits, arrangement of finance and signing agreements in the form of grants and loans; this is then followed by the **implementation phase** where the construction or upgrading of plant facilities is conducted; then the **operational phase** where the project is monitored and evaluated on the aspects of financial, environmental and technical.

For CDM projects, **project identification and feasibility assessments** would take the form of **developing a CDM project activity**. In this particular step of the whole CDM project cycle, the main actors are consist of Project Participants, Facilitators, Advisers, the Designated Operational Entity (DOE)-NM. Under this stage of the process, the project proponents assess conditions associated with CDM, the scale of the project activity, the applicability of an approved methodology (or submission of a new methodology if needed) and the schedule of fees with facilitators and CDM advisers. In this step, stakeholder consultations are conducted and EIA and other requirements are obtained. The appropriate PDD is also drafted with all the required elements and other necessary documents are also prepared and put together. This is where arrangements for project financing also come in.

The **project structuring phase** for CDM, would undergo two major sub-steps consisting of (a) approval by host country and investing countries and (b) validation and registration of CDM project activity. Major players in this stage of the process would be the Designated National Authority (DNA) for host country approval and the Designated Operational Entity (DOE) and CDM Executive Board for the validation and registration of the project activity. This step of the process consists of additional steps such as the development of the project design document (PDD), preparation of the environmental impact assessment (EIA), organization of public consultation, development and validation of baseline and monitoring plan, host country approval confirming the project's sustainable development contributions, an option of entering into carbon reduction purchase agreements, and registration of the project as a CDM activity. In the issuance of host country approval, the DNA shall issue an unconditional written statement of approval containing the following: (a) the Party has ratified the Kyoto Protocol, (b) approval of voluntary participation in specific entities as project proponents in the specific CDM project activity, and (c) in the case of Host Parties, statement confirming that the proposed CDM project activity contributes to its sustainable development. The DNA's written approval may cover more than one project provided that all projects are clearly listed. The third party validator, or the DOE, shall receive documentation of the approval. It should also be noted that each Country Party may have different and unique approval procedures. **Validation** is the independent evaluation of a project activity by a Designated Operational Entity (DOE) against the requirements of the CDM on the basis of the Project Design Document (PDD). Under this stage, the DOEs assess the completeness, appropriateness and soundness of the project activity's selected baseline and monitoring methodologies, justification of additionality, social and environmental impact assessments, and compliance with host country and investor country criteria. DOEs are selected in accordance with a formal

procedure for accreditation and designation. One of the major challenges validators face is the harmonization among DOEs to ensure consistency in the process and quality of validation. Fee estimates range from USD 15,000 to 20,000 for regular scale projects, and USD 10,000 to 15,000 for small-scale projects. Registration is the formal acceptance by the CDM EB of a validated project as a CDM project activity. A Request for Registration is valid after 8 weeks (4 weeks if small scale) if no request for review was made by one of the participating Parties or by members of the CDM EB. Registration fees include an advance payment of share of proceeds for administrative expenses (SOP-Admin) during the first year. The registration fee paid will be deducted from the share of proceeds or administration due at issuance of CERs. If the activity is not registered, however, the registration fee above USD 30,000 will be reimbursed. The DOE shall include a statement of likelihood that the project will achieve the anticipated emission reductions stated in the PDD. This statement will constitute the basis for fee calculation.

Under the **monitoring and operational phase**, additional activities for CDM projects include the **collection and archiving** of all relevant data necessary for determining the baseline, measuring GHG emission reductions within the project boundary of a CDM project activity, and leakage, as applicable. Standards recommended shall either be on a national or international level. Uncertainties associated with measurement instruments and calibration procedures for various parameters and variables should be identified. **Verification** shall consist of periodic independent review and ex-post determination by a DOE of the monitored GHG emission reductions during the selected period. The DOE to conduct the verification shall be different from the one who conducted the validation of the CDM project activity, except for small-scale project activities. The verification process shall ensure that the project has been correctly implemented per the requirements set, verify compliance of actual monitoring systems and procedures with the project monitoring plan, establish that audit trail of project performance records is present and sustains claims of emission reductions, verify authenticity of uncertainty levels and instruments, review monitoring results and determine actual GHG emission reductions by the CDM project activity, and identify and recommend changes for future crediting periods. Certification will be in the form of a written assurance by the DOE that, during a specified time period, the CDM project activity achieved the reported emission reductions as verified based on the Verification Report. The certification shall constitute a request for issuance of CERs equal to the verified amount of GHG emission reductions and will be made publicly available. For regular scale projects, the initial verification/certification cost amounts to USD 10,000-15,000; while small-scale projects amount to USD~5,000. For the annual verification of the projects, regular scale projects will amount to USD~5,000 while small-scale will range between USD1,000 to 2,500. The third sub-step in this process is the **issuance of CERs**. The request to issue CERs will be considered final 15 days after the request is made unless a request for review is submitted by one of the participating Parties or by 3 members of the CDM EB. Such reviews will be limited to issues of fraud, malfeasance or incompetence of the DOE. The review must be completed within 30 days and make public its decision regarding the approval of the proposed issuance of CERs stating the reasons for such decision. After CERs are issued, CERs are distributed to the project participants as indicated in the PDD. The decision on the distribution of CERs from a

project activity shall exclusively be taken by project participants. Upon EB instruction to issue CERs, the CDM registry administrator promptly issues the specified quantity of CERs to the specific accounts for the share of proceeds first and then the registry accounts of Parties and authorized project participants involved, in accordance with their request as mutually agreed upon by them per a distribution agreement (Emission Reduction Purchase Agreement). ***(Please refer to Annex 2 for details)***

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|--|--|
| <p>Regarding the requirements of public consultation, can the stakeholder consultation conducted for getting an ECC qualify as a stakeholders' consultation for the CDM? (First Farmers)</p> | <p>A simple answer would be YES. Such can be a subject for the formulation of supplementary guidelines at a later time. There is a timing element involved in this matter that's why there is no specific answer given. If the EIA stakeholders' consultation has been conducted 5 years ago, then there may have been changes that may have occurred which needs to be considered in the documentation of the consultation.</p> |
| <p>The fees may actually look daunting. But such details would depend on the negotiation between the buyer and seller. The buyer can agree to cover the costs for those fees. Unless, of course, the proponent decides to develop the project on their own then they would require additional capital. Normally, however, they offer to answer for costs for each step of the process.</p> | |
| <p>What is the status of PhilBio projects?</p> | <p>Ms. Goco will present that particular aspect. There is a portion in her presentation dedicated to the actual projects submitted to the DNA</p> |

CDM ELIGIBILITY CRITERIA

*Ms. Zarah Marie Lalaine C. Pilapil, CDM Helpdesk
JICA Study Team*

Ms. Pilapil started her presentation by identifying criteria in determining CDM qualification for projects. She started off by enumerating three main criteria for CDM



projects as follows: (a) the project is not a baseline scenario, (b) the project is "additional," and (c) the project contributes to the sustainable development of a host country. In line with the abovementioned criteria, the baseline was defined as follows: (a) the baseline is a scenario that would occur in the absence of the proposed CDM project activity, (b) baseline emissions are the amount of GHG emissions/removals by sinks that would occur under the baseline scenario, and (c) baseline scenario and emissions can be determined using approved methodologies or proposing new methodologies (if needed). Currently, there are 30 approved methodologies, 9 consolidated approved methodologies, 19 approved small-scale methodologies, and 3 approved A/R methodologies.

To further elaborate the definitions given, Ms. Pilapil provided example baseline scenarios for renewable power generation, animal waste management system and energy efficiency improvement. For renewable power generation, the renewable power generated from the project will be used by the user and/or supplied to the grid. In this case, the baseline is the displacement of the grid electricity consumption of the technology in use or what would have used in the absence of the project activity. For animal waste management, mitigation of animal waste/effluent related GHG can take the form of improving AWMS practices such as installing an anaerobic digester. The likely baseline scenario is the simple discharging of animal effluent to an open lagoon, which leads to the direct release of CH₄, N₂O and CO₂ into the atmosphere as a result of the treatment process that takes place inside the lagoon. For energy efficiency improvement, the project may involve the application of new technologies or measures to existing equipment. The baseline may be the existing fuel consumption or the amount of fuel that would be used by the existing technology that would have been operated in the absence of the project activity. After the discussion on baseline, the concept of additionality was again interjected to more clearly see the relationship of additionality and baseline in a CDM project activity. The different steps involved in the tool for the demonstration and assessment of additionality in CDM projects was discussed and shown to the assembly to illustrate more clearly and systematically how the eligibility of a potential CDM project is determined.

Lastly, since a CDM project activity requires host country approval prior to its registration with the CDM Executive Board, a project activity should be able to contribute to the host country party's sustainable development goals. In the case of the Philippines, the Sustainable Development criteria are categorized in three dimensions, namely: (a) Economic dimension, (b) Environmental dimension, and (c) Social dimension. ***(Please refer to Annex 3 for details)***

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|---|
| If we have an existing landfill, who determines additionality for us? | There are CDM advisors who can help you come up with points to demonstrate that the project is additional |

The afternoon session consist of presentations on the opportunities and types of CDM projects and what the project proponent has to go through when applying for host country approval.

OPPORTUNITIES AND TYPES OF CDM PROJECTS

Alberto Dalusung III, Business Development Manager Preferred Energy Inc.

Mr. Dalusung started by describing PEI's activities in relation to CDM. As a CDM Adviser, PEI is involved in identifying projects which may be eligible for CDM, involved in capacity building activities to support the Philippine DNA through grants from donor agencies, provide project assistance to obtain DNA approval, help in the preparation of PDD and other documents in support of CDM project validation, registration and verification, and in charge of identifying and selecting buyers of CERs for their CDM clients. In terms of opportunities for CDM projects in the country, the following main project categories contain the respective percentage potentials per sector:



- ✓ **Wind farms (typically more than 20 MW)** – with a national technical potential of >70,000 MW. In Luzon, specifically, two potential wind projects with >25 MW potential each are in the works. First is an embedded generation for an investor-owned distribution utility is Central Luzon. Second is a wind power generation system is being developed in conjunction with an IPP using fossil fuel. In the Visayas, an integrated project for Boracay Island is being developed consisting of a 3 MW wind power component alongside waste-to-energy and transport components. If one is to compare costs between wind and diesel, the only problem with wind is the upfront cost and intermittency in supply and familiarity with the technology. Wind is competitive but it should involve a lot of studies to determine whether the site is good or not. However, it should also be noted that wind is becoming a more common option that power companies are looking at. Issues in terms of integration with the grid should be addressed as well.

- ✓ **Biomass energy systems (typically 1 MW)** – one good potential in the country is the sugar and rice hull cogeneration sectors. Alongside other 20 sugar

mills, the First Farmers Bagasse Cogeneration is a potential for sugar cogeneration. The La Suerte Rice Hull Cogeneration in Isabela province has an estimated ~25,000 tCO₂ GHG reduction potential. Alongside 20 rice mills in other provinces, rice hull cogeneration poses a good potential for CDM in the country. The decay of biomass, specifically agro-industrial wastes (e.g. bagasse from sugar industry, rice husks, coconut shells/husks), has been recognized as major source of GHG reductions. Biomass decay results in the formation of CH₄ (methane) which has a global warming potential (GWP) 21 times that of CO₂. In the Philippines, however, the sharing system for the sugar industry makes it a much more complicated business which immediately poses a hindrance in terms of participation in a competitive market such as the CDM.

- ✓ **Waste-to-energy projects (~10k-25k tCO₂/year)** – potential CDM projects for this sector include animal farms, industrial wastewater and municipal solid waste. PhilBio has over 15 piggery waste to energy projects submitted for registration, each with about 7,000 to 10,000 tCO₂e. Other large farms remain to be converted. PhilBio has completed pilot testing of alcohol slops with a total GHG emission reduction of 54,000 tCO₂e. The 1 MW PNOC Payatas Waste-to-Energy project is projected to reduce 46,859 tCO₂ average annually for the first 7 years.
- ✓ **Hydropower projects (~2 MW to 10 MW)** – PEI is currently involved in a Mindoro Mini-Hydro project amounting to 10 and 2.5 MW generation in parallel rivers, estimated to reduce >50,000 tCO₂e. PEI is still negotiating the power purchase agreement with the IPP in the area. The project has been adjudged by World Bank as the top JI project proposal. Another project, the Cabulig Mini-Hydro, is currently being developed by the largest local hydro developers and is estimated to reduce >50,000 tCO₂e. We hardly hear of commercial practice for hydro because it is difficult to do so. But with the Mini-Hydro Law, incentives are available for the commercialization of the technology. However, it should still be noted that even with such a law, there is still low implementation of hydro projects. This then becomes an additionality point for CDM.
- ✓ **Energy efficiency (power distribution)** – typical applications for energy efficiency are those entered into with energy service companies (ESCOs) and building energy efficiency. PEI is currently doing proposals on reducing distribution losses on the part of rural electric cooperatives to be implemented as bundled projects of 15GWh each with a good potential for over 10 such projects. In terms of additionality, the difficulty in justifying capital investments for energy efficiency can be a point applicable for the additionality of energy efficiency component in projects since establishments and businesses who may involve themselves in energy efficiency are not really in the business of energy efficiency. Hence, if something is done to achieve energy efficiency, then it is automatically additional.
- ✓ **Industrial fuel switching (cement, metal)** – for the cement industry, rice husk can be used as fuel and raw material to displace coal and because of its very high silica content, it makes for a useful raw material in clinker manufacture.

An estimated potential of >100,000 tCO₂ is seen for the rice husk. For food industry, the use of biomass by-products as fuel for cogeneration is being looked into. For the metal industry, natural gas is seen as a good alternative to replace coke in melting scrap iron.

- ✓ **Afforestation and reforestation** – the Magat Hydro Power Plant privatization is a good potential project for an affo / refo CDM project activity. The power plant has been commissioned in 1983 and has a 360 MW capacity with 4x90 MW turbines. The plant is scheduled for privatization soon with key components and good potential for watershed management and reforestation. Currently, the power plant runs at 250 MW because of the siltation problem. There are other afforestation and reforestation projects being developed by other private developers. It is important to note, however, that with privatization, the concern is not really on the power plant itself but on the contract enabling the buying parties to sell in the long run. With CDM, incremental benefits are higher.

Wind maps of Regions 7 and 10 were shown to illustrate good wind potential in the country. Actual projects have been cited to show the country's level of interest and participation in the CDM and the benefits of CDM. Among the projects cited were the Northwind Bangui Bay project and the San Carlos Wind Power project.

In summary, there are a lot of potential CDM projects in the Philippines in various categories. Most projects will not be developed promptly due to lack of capital, technology and access to specific information, i.e., amount of biomass resources in their area. Local investors stand to benefit the most given the confluence of high Philippine energy cost and presence of clean energy alternatives. *(Please refer to Annex 4 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| I read from an article that rice hull is considered a major source of methane? Is this true? | Yes as it belongs to the agricultural sector. There is a method called the dry pond method which prevents the release of methane into the atmosphere. However, there is no methodology for this yet for CDM. |
| For Payatas, the methane being recovered is superficial. We told them to go deeper | For it to go to such tCO ₂ e, it has to install a system (piping, engine). As it currently stands, Payatas will not have any GHG emission reduction as of yet until the project is implemented. Currently, therefore, the methane just continues to get exhausted into the atmosphere. |
| As a matter of fact, it has been an issue | This is what CDM aims to achieve – ensure |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|--|
| that it has now become a ticking time bomb | safety, improve sanitation in the area and other additional benefits. |
| Why the absence of geothermal? | <p>It was just not included in the presentation. But for the Philippines, a large scale geothermal project activity has already submitted their application letter for host country approval – 20 MW Nasulo geothermal.</p> <p>We should, however, consider the fact that compared to the US, we are the only country with the largest geothermal supply. Unlike the US where geothermal is not conventional, we have even more geothermal than wind potential. Hence, additionality might be difficult to prove for such types of projects.</p> |
| Martel: on the emission factors, clarification please? | |
| <p>Can you please clarify discussion on emission factors please? In our case, diesel emission is 3.2 kg but the government proposes a mix of 1% biodiesel for cars. So what is the significance of 3.2?</p> <p>Emission of diesel is 3.2 kg, but government proposes mix of 1% biodiesel for cars.</p> <p>So what is the significance of 3.2?</p> | <p>In this case, whatever diesel is displaced, just multiply by 3.2. For CDM the value of diesel displaced is what will be computed for GHG reduction and CER calculations.</p> |
| As a follow up to the previous question, if we are planning to put up a power plant with biomass displacing a plant previously powered by geothermal, then based on the additionality guideline, the biomass power plant then cannot avail of CDM? Our area (Negros Oriental) is powered by the Palinpinon grid. | <p>This is where it becomes important for you to make a very good assessment of the displacement that occurs. If the displacement is electricity from the grid, for example, then you have to be very careful in making the right assumptions. Why do you say you're displacing geothermal? Isn't the Palinpinon grid a part of the entire grid? Geothermal can be considered a baseload so no matter what</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| | <p>time of day it is, the plant can be run. Power supply is constant. Even with the use of geothermal to generate power, bunker and diesel may also be used alongside geothermal supply. Even if the majority of generation may come from geothermal, then you can displace either bunker or diesel. In this aspect, the question lies in whether the data is available. Based on our experience, we can say that there is none yet. But in the near future, this can be available courtesy of the WESM. It's actually currently ongoing. If, for example, you're in Luzon and you want to know yesterday's dispatch, then you can mainly download it through the WESM website. With the WESM, you may be able to know, on a daily basis, the dispatch of several power plants and establish a trend. Under the CDM, there is a real need to account for what you displace.</p> |
| <p>I have worked with Tongonan Geothermal Power with Eco Asia. Tongonan I by itself has a 112.5 MW reserve geothermal steam. There are plenty more of reserve geothermal steam fields up to Tongonan V. Why doesn't the government use the reserves? They only use mostly diesel. In Bohol, we use geothermal power from Leyte using submarine cables from Maasin. The government would always say that we are incapable of using geothermal. Why not utilize everything?</p> | <p>As a former DOE corporate planning employee, we have been doing geothermal steam pricing runs for the government in the past. Tongonan was built for Luzon, not for Visayas. Even if Tongonan is in Leyte, it is primarily a Luzon grid, connecting to Luzon through submarine cables (high voltage DC). Between Luzon and Leyte, capacity is already used to its full capacity until Tongnan I. Transmission system upgrade becomes important in this stage, therefore. Without which, it will not be viable for government to produce more power. First cost is considerably more expensive. However, in light of the current cost of energy and efforts on the part of the world to reduce GHGs, it might be possible. Hence, even if it can answer more than your capacity needs, the government still needs funds for such upgrades.</p> |
| <p>Submarine cables are actually more</p> | <p>We can consider this a transmission issue</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| expensive. We have land transportation from Manila to Leyte. We already have access. It is possible, therefore to build sub-transmission stations. | rather than a generation issue. |
| Where did you get 50,000 tons CO2? | Hydro has no emission. Therefore, if you produce hydro power, we replace oil or coal which emit GHGs into the atmosphere. Hydro is clean. The fuel source being displaced emits a lot of GHGs into the atmosphere. Under the CDM, we are then computing for what has been displaced. For example, we have a project and we replaced the fossil fuel currently being used. Natural gas can be an alternative in this case. Although it still emits a small amount of gas into the atmosphere, it's a lot cleaner than oil or bunker fuel |
| Going back to EF of diesel, if there would be a project producing bio-diesel and it produces 100,000 liters, can that be basis for CER calculation? As of now, there are no laws mandating the use of bio-diesel. If I apply for such a project now, can I then apply it for CDM? | As long as there is no law that mandates the production of bio-diesel, its production is additional. In this case, the government has to be careful in making the laws especially for ensuring the additionality of potential CDM projects. It is then important for proponents to do their prospective projects as soon as possible, discuss with DENR your proposed project and explain its components soonest for CDM application |
| There is so much enthusiasm on the part of government allocating Php800 million to develop jatropha which is something that is not necessarily better | Jatropha is a good opportunity. Whether P800M allocation of the government on this is ok or not is still subject for discussion. But it's generally an opportunity. |

PHILIPPINE DNA APPROVAL PROCESS AND CRITERIA

*Joyceline A. Goco, CDM Secretariat and Helpdesk
Environmental Management Bureau (EMB)*

The Philippine Government, through the DNA, works under the basic policy of recognizing that participation in the CDM could potentially provide the Philippines with numerous benefits in terms of foreign investment in CDM project activities, employment and income opportunities, the establishment of ecologically-friendly projects that will contribute to a healthier environment, technology transfer and income from the purchase of certified emission reductions by the developed country Parties to the Kyoto Protocol.



It is, therefore, the DENR's basic policy, as the CDM DNA, to facilitate and promote CDM project activities that would: (1) contribute to the UNFCCC objective of stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate change, (2) lead to the transfer of environmentally safe and sound technology and know-how, (3) contribute to the conservation of biological diversity and sustainable use of natural resources, (4) comply with all other pertinent laws and regulations, and (5) provide measures to alleviate poverty as part of their contribution to sustainable development.

The basic policy mentioned above is guided by the following principles of: (1) States having the right to promote sustainable development through policies and measures appropriate to the conditions of the State, (2) implementing transparent, participatory, credible, efficient and effective processes, and (3) crafting a policy framework responsive to the needs and demands of project proponents, the Government and various stakeholders which undergoes regular updates to meet evolving international CDM guidelines and recent developments in national policies, laws, rules and regulations.

To help the DNA in the CDM approval process, support mechanisms make up the DNA organizational structure.

The CDM Steering Committee is composed of three members from the government coming from the DENR, the Department of Energy (DOE) and the Department of Science and Technology (DOST), a member from the private sector as represented by the Philippine Chamber of Commerce and Industry (PCCI) and a fifth member from the NGO sector as represented by the Philippine Network on Climate Change (PNCC). All the members of the Committee are represented by a Permanent (agency Undersecretary) and Alternate member, both of whom have the same voting rights. An Undersecretary of the DENR has been designated by the DENR Secretary to serve as the Chair of the CDM Steering Committee, together with a named alternate. The Committee is responsible for reviewing the findings of the TECs and for endorsing the project application to the DENR Secretary for appropriate action, as embodied in the Committee's Endorsement Report. The Committee is also responsible for providing advice to the Secretary on the effective implementation and improvement of the Philippine CDM policy and framework.

The TECs have been established to review whether a proposed CDM project activity meets the national approval criteria. At present, there are three TECs designated to review project activities belonging to eligible sectors under the CDM – energy (Philippine Department of Energy), waste management (Environmental Management Bureau) and forestry, specifically reforestation/afforestation (Forest Management Bureau).

An office within the EMB Central Office is designated as the CDM Secretariat, which is supervised by the EMB Director. The CDM Secretariat is primarily responsible for facilitating the smooth implementation of the national approval process for proposed CDM project activities. In the process of performing their functions, said Secretariat is responsible for verifying the completeness of application documents, identifying the appropriate TEC(s) and referring a proposed CDM project activity to the appropriate TEC(s), forwarding the Evaluation Report of the appropriate TEC to the CDM Steering Committee, providing administrative and technical support to the CDM Steering Committee and facilitating the transmission of the Endorsement Report and supporting documents to the DENR Secretary, and serving as the focal point for information on the status of proposed CDM project activities that have been submitted for DNA approval, including advising the Philippine project proponents of the Secretary's decision relating to their application for a Letter of Approval. It is important to note that unless and until a final decision has been made by the Secretary, the CDM Secretariat is prohibited to release any information on the decision made by the TEC(s) or the CDM Steering Committee regarding a particular application. Moreover, the CDM Secretariat is responsible for facilitating the dissemination of international and national requirements relating to the CDM among stakeholders and such other functions as are necessary for the implementation of the DAO 2005-17.

The entire application and approval process can be summarized into four steps namely:

Preparation of the Project Design Document/Project Application Document (PDD/PAD). The proponent of a proposed CDM project activity can choose between submitting a PAD or a PDD for host country approval. The duly accomplished document will then be submitted to the CDM Secretariat for verification of completeness. The PAD is a simplified form of the PDD. Should the proponent choose to submit a PDD instead of a PAD, the PDD has to be supplemented with the Sustainable Development Benefits Description (SDBD), the supporting documents relating to the Stakeholders' Consultation and the Proof of Legal Capacity - all of which are integral to the PAD. No matter which format the proponent chooses – whether it is a PAD or PDD – the project document must be supported by a valid Environmental Compliance Certificate (ECC) or Certificate of Non-Coverage (CNC), whichever is applicable. This will give assurance that the environmental dimension of the sustainable development criteria has been addressed. Furthermore, the project document, whether a PAD or a PDD, should also be notarized when submitting a formal application for Philippine DNA approval. For small-scale project activities, the minimum content of the SDBD should follow Section III of DAO 2005-17. For project activities not considered small-scale, necessary measures to mitigate significant negative impacts of the proposed CDM project activity should be identified. In addition, methods to monitor the major sustainable development impacts of the project should also be described.

In filling up the SDBD, proponents should satisfy the national approval criteria, with great emphasis on the sustainable development criteria categorized in three dimensions as provisioned in the DAO – social, economic and environmental dimensions. Proponents must identify appropriate project-level indicators for each criterion to give the TECs a better approximation of the sustainable development contributions of the project activity to the host community(ies).

Submission of project documents to the CDM Secretariat. After the proponent has put together the project document and all necessary attachments, along with an electronic copy inclusive of charts, tables, photos, maps, scanned documents and others, the documents are brought to the EMB Central Office for submission to the CDM Secretariat. The Secretariat, guided by its Documentary Requirements Checklist, verifies the completeness of the documents. After the documents have been verified to be complete, the Secretariat gives the proponent an Order of Payment form for payment of dues to the EMB Cashier. A filing fee of Php600.00 plus a processing fee of Php5,000.00 (for small-scale project activities) or Php10,000.00 (for project activities not considered small-scale) is paid. Documentation of Payment and an Official Receipt (OR) will be issued by the EMB Cashier. After which, the proponent goes back to the CDM Secretariat for final documentation and filing of formal application. In the event that the application documents were found to be incomplete, the CDM Secretariat shall return the said documents and advise the proponents to fulfill those requirements that were found to be deficient.

Project Evaluation. After the CDM Secretariat has checked for and verified the completeness of all documents submitted, it endorses the project documents to the relevant TEC. Energy-related project activities go to the CDM Secretariat of the DOE, Waste Management project activities go to the EMB-DENR and Reforestation/Afforestation project activities go to the FMB-DENR. Should the project activity be covered by two relevant sectors (e.g. energy and waste management for waste-to-energy technologies), the project document may be endorsed to the two relevant TECs responsible for the sectors stipulated in the project activity. Small-scale project activities are evaluated under a time frame of 5 days while project activities not considered small-scale take 9 days for evaluation.

TEC evaluation will give emphasis on the contents of the SDBD to ensure that the project activity significantly contributes to the sustainable development goals of the country, particularly of the host community. A similarly significant emphasis will also be given to the documentation of stakeholders' consultation to ensure that public participation was complied with. The ECC, for this purpose, will serve as a good indication that the project activity is in compliance with Philippine environmental policies and standards, a vital component of the sustainable development criteria.

After the TEC has finished evaluating the project activity, an Evaluation Report is drafted and submitted to the CDM Steering Committee through the CDM Secretariat. The Evaluation Report will contain the written conclusions of the TEC and its recommendations to the CDM Steering Committee, stating the grounds for each recommendation. The Report will also assess how the project proponent addressed the

concerns raised in the Documentation of Stakeholders' Consultation. Upon receipt of the Evaluation Report, the CDM Secretariat compiles the reports, submits the documents to and convenes the CDM Steering Committee.

Should the TEC require revision, clarification or additional information on any of the documents submitted by the project proponent, the TEC drafts, in writing, a request for revision before the lapse of the evaluation period (5 working days for SSc and 9 working days for non-SSc). The CDM Secretariat is furnished with a copy of the Letter of Request for Revision by the TEC. The project proponent, in this case, should respond within 15 working days upon receipt of the TEC's request for revision. Proponent's failure to respond will be considered an abandonment of the application. In the alternative, a project proponent may, within 5 working days from receipt of the request of the TEC, submit a written undertaking indicating that it will submit the revised documents to the TEC within a period indicated in the said undertaking, acknowledging that its application will not be processed until said revised documents are submitted, and agreeing that its application will be considered abandoned upon failure to submit said documents within the period indicated in the undertaking. Upon submission by the proponent of the requested revision, clarification or additional information to the TEC, the TEC shall then re-evaluate the application based on the new submission of supporting documents within 5 working days, after which the TEC submits its Evaluation Report to the CDM Steering Committee through the CDM Secretariat.

Project Endorsement. Upon receipt of the Evaluation Report, the CDM Steering Committee assesses and deliberates the Report submitted by the TEC. This is done through en banc or ad referendum review, where and when applicable. Within 5 working days from its deliberations, the CDM Steering Committee submits its Endorsement Report to the DENR Secretary through the CDM Secretariat. Should the CDM Steering Committee decide not to adopt the TEC's recommendation, it shall state its grounds for doing so in writing. Should the project activity been referred to more than one TEC with Evaluation Reports containing different courses of action, the CDM Steering Committee shall decide which recommendation to adopt and will state its reasons for supporting such recommendation.

Project Approval/Non-Approval/Motion for Reconsideration. Upon receipt of the Endorsement Report, the DENR Secretary, as Head of the DNA, immediately acts on and reviews the CDM Steering Committee's Report and decides either to approve or disapprove the application, as will be contained in the form of a Letter of Approval or Letter of Non-Approval. It is worthy to note that the issuance of a Letter of Approval does not exempt the proponents from complying with the applicable laws, rules and regulations of the Philippines. The Letter of Approval/Non-Approval will be issued to the project proponent through the CDM Secretariat. The CDM Secretariat will formally transmit the said letter to the project proponent by registered mail.

Should a project proponent wish to seek reconsideration of a Letter of Non-Approval, a Motion for Reconsideration should be filed with the Office of the Secretary within 15 days from receipt of the Letter of Non-Approval.

As of June 2006, a total of 21 projects have already been submitted to the DNA for host country approval amounting to an estimated total of 311,560 tCO₂e/yr. Of the 21, 17 are methane recovery and electricity generation small scale project activities (from piggeries), 2 are renewable energy activities not considered small scale (wind and geothermal), 1 is a landfill gas to energy small scale project activity and 1 is a wastewater treatment not considered small scale project activity. Of the 21 projects, 8 projects have been issued Letters of Approval as of June 2006 – the first of which was issued last December 2005 for the 33 MW Northwind Bangui Bay Project and the next seven were issued LoAs last June 30, 2006 – five from the 17 methane recovery from piggeries projects, the 20 MW Nasulo Geothermal Power Plant project, and the Wastewater Treatment Using Thermophilic Anaerobic Digester at an Ethanol Plant in the Philippines.

In closing, potential for CDM in the Philippines has yet to be fully tapped, its potential to support national development programs has not yet been fully explored, particularly for the Visayas and Mindanao regions. With the country's vast natural resources, sizeable rural population representing a large trade and investment potential and with the nature of small scale project activities providing huge potential for benefiting the poor sectors of society, the prospects for developing small-scale CDM project activities across the country are high. Lastly, CDM is essential in providing assistance to potential Philippine project proponents and developers in addressing proportionately higher business costs, limited access to information and skills and bigger risks, particularly for small scale CDM project activities. *(Please refer to Annex 5 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| <p>What are the usual things that delay approval by the DNA? (PEI)</p> | <p>One factor could be the conduct and documentation of stakeholders' consultation. It should be conducted at or near the project site for it to be a valid consultation. We have encountered consultations conducted in Luzon when in fact the project site is located in Mindanao. This is not a valid consultation.</p> <p>Another is the Proof of Legal Capacity. Whoever is the project participant should also be the one reflected in the SEC registration. We have encountered such inconsistencies in the past hence, the delay of the approval of such projects.</p> <p>On the ECC/CNC issuance, any upgrades should be accounted for in the application for ECC or CNC. If, for example, the</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| | <p>project had a 500-sow capacity in the past, and has upgraded to 8,000 now, new ECC/CNC issuance is definitely needed. In addition to this, discharge permits for ongoing projects should also be applied for.</p> <p>On the Sustainable Development Benefits Description (SDBD), the proponent should discuss what benefits the project activity will contribute to the community and not only the benefits to the project proponent. Whatever benefits will be partaken by the community should be explicitated in the document. We, thence, suggest scoping with the CDM Secretariat to determine what should be done so the proponents do not have to go back and forth to the Secretariat for the completion of necessary documents.</p> <p>Tomorrow, we will be having one-on-one consultations with the resource persons from PEI and Mitsubishi. There are means and ways to encourage proponents to participate in the CDM without them having to shell out upfront payment</p> |
| Is there any accreditation process being done for CDM advisors? | None. This is applicable only to Designated Operational Entities (DOEs) which are internationally accredited. |
| If we have, for example, a potential project in mind. Is it possible for your office to designate some people to help proponents fine tune the PDD? Would it be possible for one staff from the EMB, for example, to give us advice and help us facilitate the completion of a project? | This can be arranged. If, for example, there are several projects in Region 7, then it might be possible for an EMB representative to visit the potential projects and help potential project proponents. |
| There was a seminar conducted by DBP wherein they mentioned that they have funds coming from Europe and the invited proponents for proposal submissions. | This can be good. As the CDM Secretariat, we cannot do the PDD for you. There will be a conflict of interest because we are the ones also issuing Letters of Approval. We could guide you but not write your PDD for you. |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| Is solar energy eligible? | Definitely. But always put to mind upfront cost versus profit from the CDM. If profits are merely break-even, will you still pursue the project? These are factors that need to be considered. |
| For the processing of documents, is it centralized in Manila or are there regional processing centers available? | This time, all transactions are done in Manila. We still have to capacitate our regional offices. The concept is relatively new so we're still learning in the process. Our objective here is to facilitate and not to regulate the process. |
| May we know what the status of the Iloilo reforestation project? This is being conducted c/o the Municipality of Ahoy. | We have not received any concept paper or PDD for that project. But it is nice to hear that there are such projects being developed |

CASE STUDY 1: NORTHWIND BANGUI BAY WIND PROJECT

*Alberto Dalusung III, Business Development Manager
Preferred Energy Inc. (PEI)*

Mr. Dalusung discussed relevant issues to keep in mind as far as developing and implementing CDM projects in the Philippines since not too many know that Philippine grids are still fragile, even Luzon. The grid, ideally, should be able to run even if it loses its largest unit. However, based on experience, losing just the next biggest unit caused frequent blackouts as well.

He then proceeded to discuss the advantages of wind power. Since wind is modular, it can be implemented in phases easily unlike coal. More so, money stays locally since turbines have to be maintained on a regular basis and local labor is tapped so that there would be servicemen to climb the turbines. Next, he then referred to one frequently asked question regarding wind technology and its capacity to withstand typhoons – can the turbines withstand them? The answer is YES. Wind turbines possess a mechanism of automatically stopping should the turbines reach a certain maximum level of wind velocity to prevent the machine from over speeding. This is its own way of protecting itself and prolonging its machine life as well. Other power plants' life cycle cost is dominated by fuel cost. For wind, however, the fuel cost is zero. Wind has no



water requirements for cooling as well. Hence, wind offers more advantages than disadvantages.

For the Northwind project, the turbines face the sea. This is a good location and design for the technology since this way, there is less turbulence and the wind follows a laminar flow (pertaining to fluid mechanics) ensuring a smoother passage of the wind through the turbines. Bangui Bay is not the best site as far as the wind regime is concerned. Pagudpud and other sides more westward are better. But Bangui provided the ideal mix of conditions, in terms of land leasing conditions and other elements.

In the Energy Supply Agreement (ESA) that the Northwind project entered into with the Ilocos Norte Electric Cooperative (INEC), Northwind is primarily responsible for delivering approx 74,482 MWh on the average annually for 20 yrs, sells power at discount from NPC + Transco effective price. Usually, power generated from RE is more expensive but in this case, a discount is given which is a good sustainable development benefit. The Northwind project connects and constructs transmission lines which supplies Laoag City match-point which is 50 kms away from the wind power site (transmission lines were part of the project cost). This makes the end-of-the-grid power more stable.

One sustainable development benefit SD not highlighted in the PDD was that the Project encouraged local tourism and allied activities. More tourists have come to visit the wind farm since the wind mills were inviting to look at. The project has also helped enhance the grid – where power was already weak (Laoag being the end of the transmission line) the establishment of a power source feeding into Laoag has helped the power become more stable in the Laoag area of responsibility. The installation of a wind farm in Bangui Bay has also helped spur the development of Philippine wind energy – which is a bigger deal than what has been described in the PDD.

Mr. Dalusung provided the participants with a table containing ERPA calculations for the project. The World Bank was the one who shouldered the development of the PDD and other transactions included in the CDM. Such were already factored into the price. The table also illustrated that not all the CERs to be generated by the Project will be bought by the World Bank, that only about 70% of the total CERs will be purchased by World Bank, enabling Northwind to sell the excess CERs to other potential and interested buyers. With regard to the concern as to whether the prices will fluctuate or not, the answer was that it will since prices will put into consideration factors like NPC+TRANSCO and WESM+TRANSCO.

Northwind's baseline methodology used ACM0002 or Electricity Generation from Renewable Energy. The project used the Luzon-Visayas grid as baseline. For data monitoring, fuel consumption and generation of last 5 power plants were calculated to come up with the Operating Margin (OM) and Build Margin (BM).

As an observation, Mr. Dalusung suggested some adjustments in the calculations of grid data. First, is the need to adjust Luzon statistics to include Tongonan geothermal power plants' generation exported to Luzon and to exclude SPUG power plants (since they are not connected to the grid) and generation of power plants not physically connected to

the Luzon grid (especially that of MIMAROPA). Should these not be adjusted, PDD writers are limiting themselves in Visayas as a geothermal generation dominant grid, which implies that CDM in Visayas will be difficult to implement because of the lower CER potential. Second, in the calculation of OMs and BMs, World Bank calculated OM as 0.7549 tCO₂-e/MWhr and BM as 0.355 tCO₂-e/MWhr, using the 75-25 ratio of OM to BM due to the “intermittent nature of wind regime.” We should, however, take into consideration that wind is not intermittent, it is variable. *(Please refer to Annex 6 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|--|---|
| Is wind power something you are promoting more compared to solar energy? | Not necessarily. It just happens to be the first project approved by the DNA and first project that entered into an ERPA which enables us to talk about all the components of entering into a CDM project – Letter of Approval, ERPA, etc. But if you have similar projects, the same sort of procedures will apply. |
| What is more costly in your opinion? Solar or wind power? | I am quite biased toward wind power since I was part of the team that developed the wind map. It is more cost-effective than solar as well. CEPALCO has a 1 MW solar farm. But before it happened, it received a 70% grant from the GEF. Otherwise, CEPALCO would not have ventured into such an investment. Solar could compete for small-scale island applications. But the best sources of RE, for CDM purposes, would have to be wind, hydro, biomass and biogas. Solar can be quite expensive and not that competitive for utility-scale applications. |
| How do you address wind power intermittency issues? (CEBECO 1) | Between wind and coal, coal and other fossil fuels may have 85-90% capacity factors. In the past, the best capacity factor for coal is 70%. On paper, however, coal is 85% in capacity. Planning assumptions are usually different as compared to actual operations data. On an average, coal fire thermal efficiency is 33% heat rate and is around 10,000 BTU/kWh. Based on an experience in archiving, the Naga Thermal Coal-Fired |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|--|
| | power plant in Cebu is 14,000 BTU/kWh, which means a lot of coal is being used. Ironically, however, no one is alarmed with the numbers. |
| For our in-house consumption for power, I have seen one using wind power. | <p>There is a lot of wind power available at the utility scale, small-scale and medium-scale applications. You can have wind from 1 kW to 7 MW. But for CDM, such a small application is not worth it considering the costs that the proponent has to undergo.</p> <p>For any CDM project, the proponent has to choose the best methodology to use. You have to be able to determine if the methodology you choose is the best for your project. But if you're successful, the rewards can be great.</p> |

WRAP-UP FOR DAY 1

*Ms. Joyceline A. Goco, CDM Secretariat and Helpdesk Head
Environmental Management Bureau*

Ms. Goco thanked everyone for their active participation and expressed hope to see everyone come back on the second day with more active participation. She also advised the participants that they can consult with the MUSCL representative, Ms. Nuibe, on what could be potential CDM projects since MUSCL has already done a lot of projects and written several methodologies approved by the CDM EB.



RECAP OF DAY 1

*Joyceline A. Goco, CDM Secretariat and Helpdesk Head
Environmental Management Bureau*



Ms. Goco recapitulated the first day of the workshop starting off with a brief explanation of climate change and CDM, an introduction of the practical aspects of CDM, CDM steps and processes, opportunities and the DNA approval process that prospective project proponents have to go through at the national level. As a sample live case study, the Northwind project was used to demonstrate what particular preparations need to be undertaken by proponents in applying for CDM.

She also mentioned the receipt of a text message saying that Northwind is now officially registered with the CDM Executive Board and is hoping for the same for the Absolut Tanduay – Mitsubishi CDM wastewater treatment project by the end of the month. She pointed out the interest comments and questions raised the day before especially emphasizing CDM transaction costs, CER ownerships, grid delineation and the request for CDM staff to look into possible eligibility of projects at the regional level.

With this, she thanked the participants for coming back on the second day, again invited and encouraged the participants to interact with the resource persons, and hoped for another day of fruitful discussions.

CASE STUDY 2: WASTEWATER TREATMENT PROJECT IN MALAYSIA

*Atsuko Nuibe, Mitsubishi UFJ Securities
JICA Study Team*

Ms. Nuibe presented a CDM project on wastewater treatment located in Pantai Remis, Malaysia in the Pantai Remis Palm Oil Sdn Bhd. The plant currently produces 660 cubic meters of POME, whereby the POME is treated in open lagoons consisting of anaerobic digestion in deep ponds and aerobic digestion in shallow ponds. The open lagoons release significant amounts of GHG into the atmosphere.



As a background, palm oil cultivation and processing is a key industry in Malaysia. Of all the industries, the palm oil industry generates the largest amounts of biomass wastes in the form of empty fruit bunch, mesocarp fiber, palm shell and palm oil mill effluent. Malaysian law requires that POME with high biochemical oxygen demand (BOD) be treated first before being discharged into waterways. To address this concern, the most common POME treatment is by anaerobic digestion in deep ponds or aerobic digestion in shallow ponds to reduce BOD to the allowable legal limit. However, since 2001, an

estimated 1,230 million cubic meters of biogas has been emitted and there is little incentive and experience in the collection and utilization of the gas.

To address the abovementioned concerns, the Bumibiopower Methane Extraction and Power Generation Project has been proposed, which was established in year 2000 for the CDM. The project will install a covered bio-reactor which will close prevent CH₄ emissions, reduce POME decay odors and extract biogas from the closed system by flaring excess methane at the end of the whole process. The project will be installing an electricity generator with a capacity of 1-1.5 MW using biogas to generate power and/or heat for use on site and export to the grid. The project will treat approximately 182,400 cubic meters of POME per year.

Since there was no approved methodology applicable for the project, a new baseline methodology was developed by Mitsubishi UFJ Securities which is entitled ***“Forced methane extraction from organic waste-water treatment plants for grid-connected electricity supply and/or heat production” (AM0013)*** with the following applicability conditions: (a) the existing treatment system must be an open lagoon at least 1 meter deep, which holds the sludge for at least one year and where the temperature never falls below 15 ° C; (b) the new treatment system provides accelerated treatment of the sludge in a bioreactor; (c) the captured methane is used for electricity generation and/or heat production; and (d) the generation capacity does not exceed 15 MW.

The project has two emission reduction sources which are (1) avoidance of methane released in the wastewater treatment in open lagoon system, and (2) displacement of grid electricity for renewable energy. Baseline emission calculation were premised on these two emission reduction sources as well. The baseline scenario is determined to be the continuation of current practice, i.e. the wastewater continued to be treated in open lagoon and methane being emitted into the air. In terms of additionality, investment barrier test results show that even with the sales of electricity as the only source of revenue, this is not sufficient to cover the capital investment, therefore, without being registered as a CDM project activity, the project would lack sufficient financing and faces an investment barrier in the process. For the prevailing practice barrier test, all 380 palm oil processing mills in Malaysia have their treatment facilities in environmentally sensitive areas and no equipment upgrading has been done for the last 20 years. Furthermore, there are no available incentives to implement equipment upgrades, therefore making it evident that the project will not occur without CDM assistance. On the technological barrier, the anaerobic digester is a more advanced technology which requires the skilled and properly trained laborers for operation and maintenance.

On the sustainable development component of the project, it contributes to the host country's sustainable development goals through the creation of jobs during construction and operation, development of a new energy source that has great potential for rural areas in line with Malaysia's "5 Energy" Policy (economic dimension); addressing the problems of effluent treatment, reduction of GHG emissions from POME lagoons and production of renewable energy thereby reducing dependency on fossil fuel (environmental dimension); demonstration of best practice or successful utilization of

advanced biogas reactor technology and training for local engineers to operate and maintain the plant (social dimension).

In terms of leakage (which is the increased emissions outside the project boundary resulting from the Project Activity), the leakage from the project is zero since the POME has no economic value and there are no competing biogas plants which use POME for this source. Monitoring will be done based on (1) the volume of POME at the digester, (2) COD concentration of POME at digester, (3) the amount of electricity supplied to the grid, and (4) the amount of methane entering the boiler/generator. In terms of sustainability, a 21-year contract for the Bumibio project has been entered into for continuous supply of POME for the project, hence, sustainability is taken care of in this case.

In summary, the methodology applied for the project (AM0013) can be used to support significant enhancement of wastewater treatment processes. The project of this type will be of interest to any industry which discharges wastewater with high organic content. ***(Please refer to Annex 7 for details)***

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|--|
| <p>What is baseline scenario for a bio-ethanol plant which is not yet existing? We have high BOD levels. We are thinking of proposing a new ethanol plant. What would be the baseline scenario in this case? Is it letting the wastewater out onto the rivers instead?</p> | <p>In that case, there is no baseline at this point because baseline is supposed to be the current practice</p> |
| <p>In our case, we have an anaerobic lagoon approx 4 meters deep. Will the flow rate be a significant factor in methane extraction?</p> <p>Does the methane need to be impounded? We have an average of 8,000 cu meters per day of wastewater being treated.</p> <p>What is the minimum BOD load?</p> | <p>Yes it is. The volume of POME you treat will affect CER calculation. The more you have, the more methane reduction you can get.</p> <p>That's actually a lot of methane and BOD to be addressed, depending on what kind of wastewater you have.</p> <p>There is no minimum. Whatever factor you have will be calculated for CERs. Depending on the wastewater, it can still be a CDM project.</p> |
| <p>Regarding baseline scenario, if the project is not yet implemented, can it be based on an existing plant? Or do you have to wait</p> | <p>Whatever is the current practice is the baseline</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| <p>for the plant to be completed before you have the baseline scenario?</p> <p>If CDM has not yet started, can the baseline scenario be an existing industry?</p> <p>If a project is not yet in place, whether there is an existing similar project or not, can this be used as a baseline?</p> | <p>Yes</p> <p>Yes</p> |
| <p>I see that there are 2 possible ways by which an alco gas can apply for CDM. One of which is wastewater treatment and the production of alco gas. Can alco gas apply for CDM as a renewable fuel? So we can achieve a double whammy in this case – 2 possible projects for CDM.</p> <p>So there can be 2 sources of CERs?</p> | <p>You can have two different projects using two different methodologies. If there are two different methodologies for one project, then the proponent develops two separate PDDs, hence, two separate CDM projects in the process. The slops part is a different project activity from the production of ethanol part.</p> <p>Yes. Bumibio power has a similar set up.</p> |
| <p>On the monitoring, should data for that be logged or computerized? Or do we have to install instruments for monitoring?</p> | <p>No need for the instruments to be new. But you have to have a mechanism to log in data monitored. The baseline and monitoring methodology of your choice will also tell you what type of monitoring you will be undertaking under the methodology. If you need to buy new instruments under the said methodology, then that's something you would have to consider.</p> <p>In developing CDM projects, it is highly recommended that project participants look at methodologies approved by the Executive Board to make it easier for the former. Existing approved methodologies spell out details for the projects that the proponent wants to develop. This is the advantage of using approved methodologies. Otherwise, for hybrid projects, if the methodology is not able to cover possible sources of CERs then it is useful to look at the other methodologies</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|---|
| | <p>or maybe formulate a new one. It is a good thing to be able to find many sources for your CERs.</p> |
| <p>What is the ongoing price per ton of carbon?</p> | <p>There is no official price as it is dictated by several factors – law of supply and demand, project scale, and other factors. But we can help you find the best-priced buyer. But just to give you an idea, the running rate is between USD 5-15/tCER. It depends on what stage you're going to enter into a contract, the quality of the project and level of effort – these are factors to be considered for negotiating CER prices. If, for example, the project is only at the project idea stage, then the price will be higher. If you have the CERs already, then they can be sold at much higher prices because risks have been reduced on the part of the buyer. It already has overcome hurdles along the way. In cases where the proponent signed an ERPA with the buyer, the excess amount of CERs beyond what the buyer and seller negotiated can be sold at much higher prices to other buyers.</p> <p>As an example, Northwind signed an ERPA with the World Bank even before the Kyoto Protocol entered into force. The cost then was just USD4.25/tCER. But the risk on the part of World Bank putting their money (20%) into the development phase is deductible from the profit of sales by the CERs. Overall, CERs are basically dictated by the law of supply and demand.</p> |
| <p>Does biogas purification qualify for CERs? We purify biogas of its methane content. Remove CO₂ and H₂S for industrial use.</p> | <p>The capture of methane is eligible. Biogas still has methane at a certain percentage. In this case, what is counted is methane. You don't have to purify it. Once you have the biogas, you already have what is required under the CDM. If you have the un-pure biogas, that is enough. Just count the methane. The concept of purifying the</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| | engine is not necessary under the CDM. |
| How about other GHGs? | You count that as well. If in the project, for example, you are avoiding SF6 or other nitrous gases, you can take that into account as well. |

Before proceeding to the presentation on PIN formulation and emission reduction calculation, Mr. Dalusung provided the participants with a sample PDD for the Payatas Landfill Project.

CASE STUDY 3: PAYATAS LANDFILL PROJECT

*Alberto Dalusung III, Business Development Manager
Preferred Energy Inc. (PEI)*

Since there were potential projects on the landfill sector raised by the participants, Mr. Dalusung gave a sample of the Payatas PDD to demonstrate how landfill projects can enter into the CDM. He summarized issues with regard to the Payatas project in the areas of project ownership, decline of methane stocks (considering that the Payatas landfill is an old dumpsite) and the costs behind the preparation of the project. ***(Please refer to Annex 8 for details)***

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| The landfill in Bohol is already in the stage where the area/municipality which will be financed by the DTA will be identified. That landfill is being organized by the municipality because the construction of a landfill entails a big amount of money. Emphasis should be placed on the amount of methane gas that will be captured – upon construction finish, how will methane gas be accounted for? Considering it is a new landfill, will it then use only the new solid waste or will old and existing solid waste be delivered to the new landfill? How about the amount of waste in the | Has the dumpsite been left open? If so, the methane is then left to be emitted into the atmosphere. There is nothing we can do anything about that anymore. In fact, for baseline and additionality purposes, such a setup is ideal because CDM is then additional to maintain and operate it properly. But the old one can also be covered and capture methane. Then again, it will require additional investment and it might be costly to cover. The fact, however, that the landfills exist points to the existence of a baseline scenario for the project. |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| closed dumpsite from the 10 municipalities? | |
| On the monitoring of LFG, we use the flow meter. Who will be responsible for the monitoring? Who checks the accuracy? | The project owners are responsible for the monitoring. Verification will be done by the DOE wherein counterchecking will be conducted to look at whatever has been monitored. |
| Our company is involved in a sanitary landfill. We require all municipalities to safely close all open dumpsites. If we have CDM as an incentive, then it will help convince municipalities to properly close all dumpsites. | As a suggestion, if you're the local government and you mandate such an activity, then there is no additionality for the project activity anymore. If you require your constituents to do such, then there's no additionality because compliance to the law can proceed without the CDM component. For CDM, therefore, I would suggest that you do not require it if you can. But you can recommend as guidance or as a model that the constituent use the dumpsite for landfill. It is important for the proponents to know how the mechanism operates. |

Since the CDM is a learning-by-doing concept and templates evolve and change, it is important to keep oneself updated with the evolution of CDM-related documents. The PIN may not be the required document to submit to the EB but it has been developed and used by project developers to initiate the CDM process and develop the proponents' project concept into actual CDM project activities. Ms. Nuibe then proceeded to present the PIN and emission reduction calculation.

PIN and Emission Reduction Calculation

*Ms. Atsuko Nuibe, Mitsubishi UFJ Securities
JICA Study Team*



In her presentation, Ms. Nuibe discussed the concept of the project idea note, how to prepare an effective PIN, explained the concept of emission reduction, calculation using applicable methodologies to one's chosen project activity, enumerated commonly used methodologies for biomass projects, and presented case studies on the choice of methodologies and the calculation methodologies that go with the methodologies of choice.

On the PIN concept, the document consists of 4-5 pages providing indicative information on the project in terms of project objective, project description and technology, project developer and sponsors, environmental and social impacts/benefits, expected GHG emission reduction and finance. The PIN may be produced by many project developers to facilitate discussions with potential equity investors or other project participants and search for potential buyers for CERs generated from the project.

On the formulation of an effective PIN, clear statements with regard to the project activity's GHG emission reduction, additionality, sustainable development impacts to the host country, and project activity viability are needed. Guidelines for PIN formulation have been provided for in the presentation.

A brief review of the baseline emission reduction was provided and how this can be calculated was explained by saying that the proponent needs to use an approved baseline methodology which dictates how the baseline scenario is set and how baseline emission are calculated, and what other factors should be included and calculated in project emissions and leakage.

A brief look at CDM statistics from the UNFCCC website shows that as of June 2006, there have been 834 biomass projects submitted to the UNFCCC where estimated CERs from biomass projects range from of 2,400tCO₂ to 318,000 tCO₂/year. She then proceeded to discuss how different methodologies change the perception of risks by giving examples of EB decisions in their different meetings. An enumeration of biomass-related methodologies followed suit where similarities between and among methodologies were also pointed out. *(Please refer to Annex 9 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| For biomass-related methodologies, do we only apply whatever is relevant to that particular project? Or can it be that I.A can be in combination with I.B? We can both use and sell the power generated from the power plant. | If you want to mix both components, then you can just use I.D. I.A does not have the grid-connected component. If you are to consider the grid-connected component, use methodology I.D even if electricity is generated in-house. |
| Can we use I.D and III.B together at the same time? | What fuel will be displaced? What will be used to displace that fuel? If it is a diesel to biomass conversion, then you can use I.B. If you're doing a project with an IPP using diesel, then you can use III.B. This |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| | is a combination of methane capture and electricity generation as key components. |
| So do you say that we can only use one methodology per application? | You then need to have separate methodologies for methane capture and electricity generation. |
| What methodology do I use if I install a biomass system to generate electricity for in-house consumption and supply to the grid? | You should use I.D for such project |
| For a rice mill generating power using diesel gen sets, if it uses rice husk for power generation and steam (thermal energy), there will be thermal energy generation, methane and decay avoidance. Baseline situation is that the mill is burning diesel for its own plant operation, burning kerosene to dry palay and the mill also buys electricity from the grid. In this case, can the proponent use I.C, III.B and III.E all at the same time? My targeted methodologies are actually for electricity and fuel. | <p>III.E can be applied for any other project with electricity displacement.</p> <p>With regard to using all three methodologies all at the same time in a PDD, it is possible. The proponent just needs to add the CER calculations all up.</p> |
| There are instances wherein a project is developed into two full blown CDM projects. It would depend on the condition existing for the chosen methodology as to when it can be combined into one project. For big cases, say hybrid, AR is separated from energy components and considered as two separate projects (CDM Helpdesk) | |
| In CDM, it's very important that your projects are measurable and benefits are long term. So the proponent needs to put instruments and loggers and procedures in place. Even if you get approved and registered, the validator will still look at the accuracy and integrity of the data presented | |
| What type of project is this? | This is small-scale. If it is a regular scale CDM project, leakage is accounted for. |
| If interested for AR, is there any study done for CDM in the Philippines? | There is a small-scale reforestation project being done in Laguna de Bay. The UP Los Banos College of Forestry under Dr. Lasco is doing a lot of research on carbon sequestration in the past. Now, they're doing a document on LLDA watershed |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| | management. |

Certificates of Completion were then given to the participants at the end of the workshop.

**Attachemtn15 : List of Participants and Minutes
of the Workshop in Davao, Mindanao**

JICA STUDY ON CAPACITY BUILDING TO PROMOTE CDM PROJECTS IN THE REPUBLIC OF THE PHILIPPINES



**MINDANAO REGIONAL CAPACITY BUILDING WORKSHOP ON
CDM
The Royal Mandaya Hotel, Davao City
14-15 September 2006**

**JICA STUDY ON CAPACITY BUILDING TO PROMOTE CDM PROJECTS IN THE
REPUBLIC OF THE PHILIPPINES
MINDANAO REGIONAL CAPACITY BUILDING WORKSHOP ON CDM
The Royal Mandaya Hotel, Davao City**

DAY 1: 14 SEPTEMBER 2006

The workshop started with a brief introduction by Ms. Charmion Reyes of CDM as a new policy enabling environment-friendly technology. Through capacity building activities and studies such as the current activity being supported by JICA, partnerships and collaborations are established and strengthened in the area of CDM. She then requested each one to introduce themselves, describe their line of work and the organization they are affiliated with.

The participants consist of those from the government, private, civil society and the academe. Some of the participants come from regional offices of the DENR and EMB from Davao to the southernmost provinces of the Philippines. Other government sector participants come from the Department of Science and Technology and the Department of Trade and Industry. Sugar companies, solid waste contractors, power companies, cement plant manufacturers, livestock, piggery farm owners and Chamber of Commerce representatives make up the private sector representation in the workshop.

After the introductions, Ms. Goco gave her welcome remarks.

WELCOME REMARKS

*Joyceline A. Goco, CDM Secretariat and Helpdesk Head
Environmental Management Bureau*

On behalf of the DENR and EMB Officials, Ms. Goco welcomed all the participants and explained the rationale behind the conduct of the local workshop. In partnership with the Environmental Management Bureau (EMB) and the Department of Environment and Natural Resources (DENR), the JICA study to promote CDM in the Philippines is being implemented. Local workshops, such as the one being conducted, are being implemented to capture all sectors relevant to the CDM and maximize the participation of potential project participants and stakeholders at the regional and local levels. Being in the second leg of the series of local workshops, she briefly explained to the participants what CDM is and how it is relevant to the Philippines in terms of its environmental, social and economic benefits to the community – considering the two main objectives of the CDM for the host country which are sustainable development and emission reductions. Lastly, she encouraged participants to ask questions so that initial notions that the participants may have on CDM may be clarified and project and sector-specific queries may be addressed. She put great emphasis in saying that it is important



for the participants to have an understanding of CDM since CDM is a relatively new concept and that it provides for the participation of the private entities. She then ended by wishing everyone to have a fruitful day and to convince their own companies to participate in the CDM. She also mentioned that there will be one-on-one consultations with the resource persons on the last day of the workshop should they like to pursue projects on CDM.

OPENING REMARKS: OVERVIEW OF JICA ASSISTANCE ON CDM

Masato Kawanishi, Senior Advisor

Japan International Cooperating Agency (JICA)

Mr. Kawanishi expressed appreciation and a deep sense of honor for giving the opening remarks for the Davao leg of local workshops. He briefly introduced himself as a Senior Advisor of JICA and one who is in charge of assistance on global environmental issues particularly on climate change. A brief overview of JICA assistance on CDM was given with the main focus for CDM to assist recipient countries in enhancing capacity to enhance CDM projects. Assistance for capacity development in CDM host countries such as the Philippines, Argentina and Chile (specific to sink CDM). Monitoring plans on alternative energy development were developed in countries such as Indonesia (for geothermal) and Laos (for micro-hydro). Training courses in Japan are being given to capacitate host country participants in workshops for climate change (covering both mitigation and adaptation) and training courses specific to CDM and JI.



JICA engages into such capacity building activities with the objectives of (1) contributing to sustainable development in developing countries, (2) contributing to combating climate change and an indirect objective of (3) contributing to the Japanese government's achievement of its commitment under the Kyoto Protocol. ***(Please refer to Annex 1 for details)***

BACKGROUND OF JICA STUDY

Hitomi Homma, Mitsubishi UFJ Securities

JICA Study Team

Ms. Homma introduced the JICA Study currently being implemented in the Philippines in partnership with EMB and DENR. Her presentation consists of three parts: (A) Study Objectives, Area and Approach, (B) Expected Outcome, and (C) Study Team and Implementation Structure.

The Study aims to implement five activities as follows:



- ✓ **Assistance in sustainable development through the formulation of CDM promotion measures.** This activity will develop know-how to promote CDM projects and help install pertinent measures. This component will also explore appropriate financial mechanisms to promote CDM projects. Tools will be prepared to identify potential CDM projects at the local level and monitoring guidance for registered CDM projects and a mechanism to support project developers in fulfilling their obligations for approved CDM projects will be developed.
- ✓ **Establishment of a helpdesk** which will be located at the EMB-DENR but the beneficiaries will also be project proponents in and out of Manila. The Helpdesk is aimed to function as a high-quality one-stop-shop for all the inquiries related to the Philippine CDM. As an important outcome, the Project aims to establish a helpdesk that can provide valuable input to the IACCC, the DNA, TECs and other organizations based on current knowledge of carbon markets and insights into project developers' needs.
- ✓ **Establishment of a clearinghouse** which will be housed in the EMB server. A website with high relevance to the Philippine CDM activities will be developed.
- ✓ **Implementation of workshops at local level** – Luzon, Visayas and Mindanao. Sectors and stakeholders such as local government units (LGUs), EMB regional offices, local financial institutions, project developers and NGOs will be invited to the local workshops. Practical aspects of the CDM such as baseline setting, understanding approved methodologies and its applicability to potential projects, and the production of the project design document (PDD) will be covered by the local workshops.
- ✓ **Formulation of recommendations for CDM promotion.** Recommendations on practical measures to utilize the Rules and Regulations Governing Order 320 (IRR), appropriate measures to promote CDM projects including small-scale projects, appropriate financial mechanisms to support CDM projects and guidance on monitoring techniques and other assistance for approved projects will be made to the DNA for future and long-term implementation of the CDM rules and procedure.

The Study team composed of seven professionals, divided into three groups – Helpdesk, Clearinghouse and CDM Promotion led by Mr. Junji Hatano and co-managed by Ms. Hitomi Homma, plus two local consultants are working on the project.

In addition to the Project discussion, Ms. Homma informed the plenary that a Philippine CDM clearinghouse will be launched once all the materials have been uploaded on the web. She invited the participants to also direct the queries that they may not be able to ask during the workshop to the CDM helpdesk at the EMB office. *(Please refer to Annex 2 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| What is the role of the Japanese | On the JICA role and the Japanese |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| <p>government through the JICA and the Kyoto Protocol?</p> <p>Who sets the standards as far as carbon trading is concerned?</p> <p>What is the role of the clearinghouse in the Philippine setting? Is it the one responsible in setting the standards for CDM and, if cleared, is it the one recommending decisions at the international level? There might have been a terminology problem in this aspect because if it is a clearinghouse, it's supposed to be where rules are cleared before they are disseminated at the international level.</p> | <p>government's role, it is basically to assist developing countries and enhance capacity to host CDM projects so that it could better contribute to the sustainable development of the host country. This is the role of JICA. In relation to the Japanese government, we hope to indirectly contribute to Japan's compliance to emission reductions under the Kyoto Protocol. We have a 6% commitment as of now. CDM could be counted as a part of the commitment of the Japanese government. Our assistance in capacity development in developing countries could lead to an indirect compliance with Kyoto Protocol commitments. But as stressed earlier, we are not going to be directly involved in actual CDM projects. What we do is assist the government to develop capacity to coordinate all efforts in relation to CDM implementation.</p> <p>For the 2nd question, the CDM EB is the decision making body deciding on the modalities and procedures for CDM. The clearinghouse is mainly a CDM website that will be established within the DENR website for information dissemination at the local and international level. This way, project developers can benefit from host country CDM information. Before project developers enter into CDM, it is important for them to know latest rules and information on CDM – both at the international level and per host country level. It will also help project participants to determine how their projects would qualify. In the website, there are rules and documents. There is a checklist of documents, criteria and rules for evaluating projects, and the rules are contained in this clearinghouse. But the project participant cannot apply online. We cannot do that yet because there is a TEC which evaluates CDM projects</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| | depending on what type of projects are submitted |
| Is this in collaboration with JCF? | No |
| On the expected outcomes as discussed by Ms. Homma, regarding the promotion measures, it was stated that the exploration of appropriate financial mechanisms will be done. As mentioned earlier, DBP is participating in the CDM. How come it is only them participating in the CDM? | At this time, it has only been DBP who has expressed interest in financing CDM projects. But internationally, there are several carbon fund facilities that support the development and purchase of carbon credits. As of this time, only DBP has the capacity. Landbank has expressed initial interest but have not received any capacity building program yet at this time. We conducted an orientation as to what CDM is with commercial banks. But such banks have not internalized what CDM is all about. In the future, however, we are hoping that more commercial banks will have been able to internalize and are able to finance CDM projects. |

A 15-minute film showing was shown to the assembly to provide a summary explanation of what climate change and CDM is.

This was followed by Ms. Hitomi Homma's presentation on CDM in Practice.

CDM IN PRACTICE

*Hitomi Homma, Mitsubishi UFJ Securities
JICA Study Team*



Ms. Homma started off with her presentation by defining CDM as a mechanism monetizing environmental value. Since it involves real money, CDM thus gives additional revenues to GHG mitigation projects. Further, she iterated to the group that CDM status often helps with financing because it helps the project be more attractive to equity and debt investors. She then proceeded to defining Certified Emissions Reductions (CERs) as a project's representation of GHG mitigation contribution (including emission reductions before the first commitment period, 2008) which is measured in tons of CO2

and which can be sold in exchange for hard currency. Differentiation between the carbon buyers (Annex 1 countries) and sellers (non-Annex 1 countries) has also been defined to establish a firmer understanding of the process for the benefit of the assembly.

The CDM project cycle at the international level, the two crediting periods (7 years three times renewable and the 10 year crediting periods) and a brief overview of how the CDM market is faring at the moment were discussed to show the plenary the phases that a project document goes through and how the Philippines contributes to the overall CDM carbon market. Ms. Homma then proceeded to discussing price and payment involved in CDM participation. Carbon prices are determined by the law of supply and demand and that there are no official prices in the market. Most observers agree, however, that issued CERs have a similar value to EU ETS allowances. On the other hand, small-lot offers will have to accept a discount. In relation to this, comparison between contract types and pricing has been shown wherein simply put, actual CERs are worth more than when investors invest in a CDM project activity from the project's early stages because of risk considerations on the part of the project investor.

The Kyoto Protocol and the Marrakech Accords served as the basic reference to the definition of **additionality** – one of the key concepts to determining the eligibility of projects to the CDM. Per Kyoto Protocol Article 12.5c, additionality pertains to *“reductions in emissions that are additional to any that would occur in the absence of the certified project activity.”* Per Marrakech Accords Article 43, *“A CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.”* Simply interpreted, the CDM status will be given only to those which cannot be implemented without it whereby projects which can or will be carried out in the course of regular business (business-as-usual) are disqualified. This is because CERs should be considered as an incentive to encourage developers to undertake GHG mitigation projects that do not happen under usual circumstances and NOT as a reward for accomplishing GHG mitigation, no matter how much GHG reduction a project achieves. Practical advice on additionality followed suit with practical considerations based on the additionality tool.

Bundling, another concept in the CDM and as an option for small-scale project activities, as against debundling, has also been discussed. Bundling is technically allowed since it reduces the burden of transaction costs on the part of the project proponents. Bundled projects can use small scale rules if they still qualify under the small-scale threshold despite their bundled nature (15MWe / 45MWth / project emission less than 15kt/yr). However, if the total ER of the bundled projects collectively surpasses the small-scale threshold, rules for regular scale projects must then be used. On the other hand, debundling is NOT ALLOWED. This is to prevent large projects from taking advantage of the lax small scale rules on CER calculations and to prevent issues on leakage. Ms. Homma then provided three determinants to see whether debundling is taking place: (a) same owners, (b) same project activity, and (c) within 1 km of each other – debundling occurs if the three determinants are true for two projects.

Since CERs are supposed to be new and additional sources of revenue, no diversion of ODA (Official Development Assistance) is allowed. Although views differ as to how “diversion” is defined, the emerging consensus is that ODA use is acceptable if: (a) ODA is used for feasibility study and underlying finance only, and (b) ODA is NOT USED to purchase CERs. Going back to additionality, it should still be viewed as a separate issue. The CDM project activity must still be able to prove that a project requires CDM assistance even with the favorable loan conditions.

Lastly, the kinds of fee that a CDM project application entails were also enlisted for the participants’ reference as follows: (a) Consulting fee for PDD production, (b) Fees to an independent third party (Designated Operational Entity), (c) Fees to be paid to UNFCCC (Registration, share of proceeds), (d) Placement/brokering fee for CER sales. Cash outlays for fee payment can, however, be made minimal and sometimes totally avoided through the following schemes: (a) Annex 1 (investor) country subsidy, (b) Buyer agrees to bear the cost, and (c) When Intermediaries absorb the cost. ***(Please refer to Annex 3 for details)***

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| What is the range of CER prices? | Between 15-17 euros/tCO2 |
| On the additionality principle, can a hog farm which will undertake a biogas methane capture project be qualified for CDM after a test of additionality? | Have you installed a digester? If not, then the project activity is additional. The current situation should be that there is no digester at the site. The CDM component can be the methane capture which will be used for biogas digestion. It should be highlighted that because of the CDM, the proponent is able to acquire a biogas digester. |
| We are into cleaner production activities. On the biogas digester possibility, for DBP, is there an incentive by way of a loan or concessional interest rates for CDM projects? Would there be a template we can easily accomplish so we can easily apply for CDM projects? | Our company is very much into environmental projects. So if your project supports the CDM or reduces pollution, we have funds with concessional rates for environmental projects but not zero interest rates <i>(DBP)</i> For CDM templates, there is. Download from the website given in the slides. For all the PDDs under the validation stage, you can take a look at the PDDs belonging to sectors of your interest from the UNFCCC website. |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| <p>On GWP, do you mean to tell us that CO2 is equivalent to 1 unit?</p> | <p>CER prices are determined where one CER is equal to 1 tCO2. If a proponent implements a wastewater project, you displace methane in the process. It has 21 times more GWP than CO2. Hence, 1 unit of methane = 21 units of CO2, making it 1 unit of methane equivalent to 21 CERs.</p> |
| <p>Why do buyers prefer methane?</p> | <p>There is more CER equivalence with methane projects in one single project as compared to CO2. This is the reason why developed countries are more keen on buying CERs to comply with KP obligations.</p> |
| <p>Why did the US did not ratify the KP despite the potential of benefiting from the mechanisms of the KP?</p> <p>Japan is in the same position, but this is a global effort</p> | <p>Annex 1 countries are obliged to reduce domestically aside from efforts to reduce emissions in non-Annex 1 countries. They are quite afraid that domestic efforts under the KP will slow down their economy. In short, KP ratification is a political matter. The US sees this as a big effort on their part. Further, they also want developing countries to have commitments as well, especially China and India. Bush is even questioning the IPCC study and saying that these are just projections and not actual emissions of what are really happening. Currently, the UD emits 36% of total global emissions since 1990. Although there are states that have voluntarily come up with schemes for emission reductions in California, for example, these are only select states. The US claims that they are doing efforts domestically and internally to reduce emissions. Hopefully, in the next COP, the topic will cover matters beyond 2012 and that US will decide to come on board and commit to reduce under the Kyoto Protocol.</p> |
| <p>From the handout, as an observation, China and US are not included when in fact China uses coal as major source for energy. How come they were not one of the signatories?</p> | <p>China is a non-Annex 1 country. All non-Annex 1 countries do not have obligations to reduce GHG emissions. Only developed/Annex 1 countries have emissions and other countries with</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| <p>Considering that they are big countries, we also have to consider that there are other protocols (transboundary emissions) that should be addressed. Under the Montreal Protocol, they are now doing phase-out activity. HFCs GWP is so high. How do we reconcile this to understand the incident?</p> | <p>economies in transition. This time, since it is classified as a developing country, China has no reduction commitments as of yet.</p> <p>That's the irony there. The GHG PFCs are alternative to ozone-depleting gases but have been discovered to be very potent GHGs. Negotiations were undertaken at the international level. At the national level, what we could do is comply with commitment to phase out ODS. In the Philippines, though, we do not manufacture PFCs, we only import them. So there is a very little percentage of PFC emissions in the country.</p> <p>There are already a lot of talks on the US needing to come aboard. But this is international in nature. We cannot just simply urge them because they have national interests to protect as well.</p> |
| <p>Masato: at the international regime, there is effort to coordinate. There is serious discussion on how to better coordinate the climate change regime. Post-Kyoto considerations also under discussion.</p> | |

CDM STEPS AND PROCESSES

*Charmion Grace SG Reyes, CDM Helpdesk
JICA Study Team*

Ms. Reyes started off her presentation by illustrating the geographic representation of countries and their status in terms of Kyoto ratification. As of November 2005, most of the country parties have signed and ratified the Kyoto Protocol. As of July 2006, Zambia has submitted its ratification to the UNFCCC and to date, Kazakhstan's ratification is being awaited.



For the participants to better understand the CDM process, the CDM project cycle was compared against the conventional project cycle. Under the conventional project cycle, the process starts with **project identification**. This is then followed shortly by **feasibility assessments** where project design, environmental, technical and financial

feasibilities are assessed and partners are identified; the **project structuring phase** follows shortly which involves matters pertaining to contracts, power purchase agreements, acquisition of governmental, environmental and building permits, arrangement of finance and signing agreements in the form of grants and loans; this is then followed by the **implementation phase** where the construction or upgrading of plant facilities is conducted; then the **operational phase** where the project is monitored and evaluated on the aspects of financial, environmental and technical.

For CDM projects, **project identification and feasibility assessments** would take the form of **developing a CDM project activity**. In this particular step of the whole CDM project cycle, the main actors are consist of Project Participants, Facilitators, Advisers, the Designated Operational Entity (DOE)-NM. Under this stage of the process, the project proponents assess conditions associated with CDM, the scale of the project activity, the applicability of an approved methodology (or submission of a new methodology if needed) and the schedule of fees with facilitators and CDM advisers. In this step, stakeholder consultations are conducted and EIA and other requirements are obtained. The appropriate PDD is also drafted with all the required elements and other necessary documents are also prepared and put together. This is where arrangements for project financing also come in.

The **project structuring phase** for CDM, would undergo two major sub-steps consisting of (a) approval by host country and investing countries and (b) validation and registration of CDM project activity. Major players in this stage of the process would be the Designated National Authority (DNA) for host country approval and the Designated Operational Entity (DOE) and CDM Executive Board for the validation and registration of the project activity. This step of the process consists of additional steps such as the development of the project design document (PDD), preparation of the environmental impact assessment (EIA), organization of public consultation, development and validation of baseline and monitoring plan, host country approval confirming the project's sustainable development contributions, an option of entering into carbon reduction purchase agreements, and registration of the project as a CDM activity. In the issuance of host country approval, the DNA shall issue an unconditional written statement of approval containing the following: (a) the Party has ratified the Kyoto Protocol, (b) approval of voluntary participation in specific entities as project proponents in the specific CDM project activity, and (c) in the case of Host Parties, statement confirming that the proposed CDM project activity contributes to its sustainable development. The DNA's written approval may cover more than one project provided that all projects are clearly listed. The third party validator, or the DOE, shall receive documentation of the approval. It should also be noted that each Country Party may have different and unique approval procedures. **Validation** is the independent evaluation of a project activity by a Designated Operational Entity (DOE) against the requirements of the CDM on the basis of the Project Design Document (PDD). Under this stage, the DOEs assess the completeness, appropriateness and soundness of the project activity's selected baseline and monitoring methodologies, justification of additionality, social and environmental impact assessments, and compliance with host country and investor country criteria. DOEs are selected in accordance with a formal procedure for accreditation and designation. One of the major challenges validators face is the harmonization among DOEs to ensure consistency in the process and quality

of validation. Fee estimates range from USD 15,000 to 20,000 for regular scale projects, and USD 10,000 to 15,000 for small-scale projects. Registration is the formal acceptance by the CDM EB of a validated project as a CDM project activity. A Request for Registration is valid after 8 weeks (4 weeks if small scale) if no request for review was made by one of the participating Parties or by members of the CDM EB. Registration fees include an advance payment of share of proceeds for administrative expenses (SOP-Admin) during the first year. The registration fee paid will be deducted from the share of proceeds or administration due at issuance of CERs. If the activity is not registered, however, the registration fee above USD 30,000 will be reimbursed. The DOE shall include a statement of likelihood that the project will achieve the anticipated emission reductions stated in the PDD. This statement will constitute the basis for fee calculation.

Under the **monitoring and operational phase**, additional activities for CDM projects include the **collection and archiving** of all relevant data necessary for determining the baseline, measuring GHG emission reductions within the project boundary of a CDM project activity, and leakage, as applicable. Standards recommended shall either be on a national or international level. Uncertainties associated with measurement instruments and calibration procedures for various parameters and variables should be identified. **Verification** shall consist of periodic independent review and ex-post determination by a DOE of the monitored GHG emission reductions during the selected period. The DOE to conduct the verification shall be different from the one who conducted the validation of the CDM project activity, except for small-scale project activities. The verification process shall ensure that the project has been correctly implemented per the requirements set, verify compliance of actual monitoring systems and procedures with the project monitoring plan, establish that audit trail of project performance records is present and sustains claims of emission reductions, verify authenticity of uncertainty levels and instruments, review monitoring results and determine actual GHG emission reductions by the CDM project activity, and identify and recommend changes for future crediting periods. Certification will be in the form of a written assurance by the DOE that, during a specified time period, the CDM project activity achieved the reported emission reductions as verified based on the Verification Report. The certification shall constitute a request for issuance of CERs equal to the verified amount of GHG emission reductions and will be made publicly available. For regular scale projects, the initial verification/certification cost amounts to USD 10,000-15,000; while small-scale projects amount to USD~5,000. For the annual verification of the projects, regular scale projects will amount to USD~5,000 while small-scale will range between USD1,000 to 2,500. The third sub-step in this process is the **issuance of CERs**. The request to issue CERs will be considered final 15 days after the request is made unless a request for review is submitted by one of the participating Parties or by 3 members of the CDM EB. Such reviews will be limited to issues of fraud, malfeasance or incompetence of the DOE. The review must be completed within 30 days and make public its decision regarding the approval of the proposed issuance of CERs stating the reasons for such decision. After CERs are issued, CERs are distributed to the project participants as indicated in the PDD. The decision on the distribution of CERs from a project activity shall exclusively be taken by project participants. Upon EB instruction to issue CERs, the CDM registry administrator promptly issues the specified quantity of

CERs to the specific accounts for the share of proceeds first and then the registry accounts of Parties and authorized project participants involved, in accordance with their request as mutually agreed upon by them per a distribution agreement (Emission Reduction Purchase Agreement). ***(Please refer to Annex 4 for details)***

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| How do you measure a small-scale and large scale project? | This is prescribed by the EB. This has been outlined already. Just follow what has been outlined by the EB in your respective projects. |
| <p>Sugar industries emit CO₂, what is the scale 1 there for the previous slides?</p> <p>For our system, we use extended aeration so no methane gas is produced. What is the "1" scale there?</p> | <p>For the wastewater, you emit methane. The GWP of which is computed in comparison with carbon dioxide.</p> <p>It's the GWP wherein 1tCO₂e = 1 CER</p> |
| <p>Are there sugar companies engaged in this?</p> <p>Foreigners came to assess our smoke stacks looking for CO₂ for the manufacture of dry ice but they never came back. Are there CDM projects with this kind of scope?</p> <p>We are currently putting up mechanisms to lower pollution levels. We are within parameters according to government standards for compliance. If we want to reduce emissions lower than the DENR standards, can we do this as a CDM project? We use bagasse.</p> | <p>Yes there are a number of sugar companies with CDM projects covering CDM scopes</p> <p>We are not familiar of any CDM project for dry ice manufacture. But if you have a project description that you can share with our resource persons, then they can discuss with you in terms of how to make them into CDM project activities.</p> <p>If you have an excess amount of gas you're generating, then you can apply that for CDM. If, however, such a project is merely in compliance with government standards, then it is a business-as-usual scenario since there is a regulatory standard you have to meet. If you use diesel or fossil based fuels in your operations, you can do cogeneration as a CDM project. Sugar milling projects are mostly cogeneration – especially those that are already registered or currently undergoing validation. A critical aspect of</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| | the CDM is whether you can measure actual reductions through your CO2 capture or not. |

CDM ELIGIBILITY CRITERIA

*Ms. Zarah Marie Lalaine C. Pilapil, CDM Helpdesk
JICA Study Team*

Ms. Pilapil started her presented by identifying criteria in determining CDM qualification for projects. She started off by enumerating three main criteria for CDM projects as follows: (a) the project is not a baseline scenario, (b) the project is “additional,” and (c) the project contributes to the sustainable development of a host country. In line with the abovementioned criteria, the baseline was defined as follows: (a) the baseline is a scenario that would occur in the absence of the proposed CDM project activity, (b) baseline emissions are the amount of GHG emissions/removals by sinks that would occur under the baseline scenario, and (c) baseline scenario and emissions can be determined using approved methodologies or proposing new methodologies (if needed). Currently, there are 30 approved methodologies, 9 consolidated approved methodologies, 19 approved small-scale methodologies, and 3 approved A/R methodologies.

To further elaborate the definitions given, Ms. Pilapil provided example baseline scenarios for renewable power generation, animal waste management system and energy efficiency improvement. For renewable power generation, the renewable power generated from the project will be used by the user and/or supplied to the grid. In this case, the baseline is the displacement of the grid electricity consumption of the technology in use or what would have used in the absence of the project activity. For animal waste management, mitigation of animal waste/effluent related GHG can take the form of improving AWMS practices such as installing an anaerobic digester. The likely baseline scenario is the simple discharging of animal effluent to an open lagoon, which leads to the direct release of CH₄, N₂O and CO₂ into the atmosphere as a result of the treatment process that takes place inside the lagoon. For energy efficiency improvement, the project may involve the application of new technologies or measures to existing equipment. The baseline may be the existing fuel consumption or the amount of fuel that would be used by the existing technology that would have been operated in the absence of the project activity. After the discussion on baseline, the concept of additionality was again interjected to more clearly see the relationship of additionality and baseline in a CDM project activity. The different steps involved in the tool for the demonstration and assessment of additionality in CDM projects was discussed and shown to the assembly to illustrate more clearly and systematically how the eligibility of a potential CDM project is determined.

Lastly, since a CDM project activity requires host country approval prior to its registration with the CDM Executive Board, a project activity should be able to

contribute to the host country party's sustainable development goals. In the case of the Philippines, the Sustainable Development criteria are categorized in three dimensions, namely: (a) Economic dimension, (b) Environmental dimension, and (c) Social dimension. *(Please refer to Annex 5 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| <p>Would there be a satellite office from Manila or would they come to the site to do the assessment if a project is CDM eligible? And who foots the bill?</p> <p>Just theoretical. This relates to what has been presented earlier by the previous speaker. Where at the initial project development stage does the assessment come in? There are certain additional steps that would need to be undertaken in order to engage in CDM. Who foots the bill of those initial CDM steps? And would EMB have a focal person in the regions to help in assessing the eligibility and facilitating the preparatory phase?</p> | <p>This can negotiated with the buyer in terms of how and at what cost the preparation phase will be conducted. At what stage is your project exactly?</p> <p>The CDM Helpdesk is presently based at the EMB and we are open to any queries coming from all regions of the Philippines. Logistically, we do not have a focal point in the EMB regions at this time but the EMB plans to give the EMB regional offices more responsibility in the near future toward assisting the DNA in promoting CDM activities. The central office is actively seeking coordination efforts such as this JICA Study to engage the EMB regional offices by providing capacity building or training workshops to orient them on the basics of CDM and capacitate them to answer queries from potential project developers in their respective areas.</p> <p>In addition, the other major component, the CDM website, is intended to assist all CDM stakeholders from all over the Philippines to serve as a vehicle for information sharing and we intend to upload all important updates and information necessary for the promotion of CDM and eventual development of actual projects.</p> <p>CDM professionals or advisers conduct preliminary consultations and they usually offer these initial exploratory talks for free. Once they see the potential, they require certain data sets to firm up the</p> |

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| | development and at this stage, you may enter into agreement to fully develop your project idea into a full blown CDM project. |
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CDM TYPES AND OPPORTUNITIES

*Alberto Dalusung III, Business Development Manager
Preferred Energy Inc.*



Mr. Dalusung started by describing PEI's activities in relation to CDM. As a CDM Adviser, PEI is involved in identifying projects which may be eligible for CDM, involved in capacity building activities to support the Philippine DNA through grants from donor agencies, provide project assistance to obtain DNA approval, help in the preparation of PDD and other documents in support of CDM project validation, registration and verification, and in charge of identifying and selecting buyers of CERs for their CDM clients. In terms of opportunities for CDM projects in the country, the following main project categories contain the respective percentage potentials per sector:

- ✓ **Wind farms (typically more than 20 MW)** – with a national technical potential of >70,000 MW. In Luzon, specifically, two potential wind projects with >25 MW potential each are in the works. First is an embedded generation for an investor-owned distribution utility in Central Luzon. Second is a wind power generation system is being developed in conjunction with an IPP using fossil fuel. In the Visayas, an integrated project for Boracay Island is being developed consisting of a 3 MW wind power component alongside waste-to-energy and transport components
- ✓ **Biomass energy systems (typically 1 MW)** – one good potential in the country is the sugar and rice hull cogeneration sectors. Alongside other 20 sugar mills, the First Farmers Bagasse Cogeneration (with Bronzeoak) is a potential for sugar cogeneration. The La Suerte Rice Hull Cogeneration in Isabela province has an estimated ~25,000 tCO₂ GHG reduction potential. Alongside 20 rice mills in other provinces, rice hull cogeneration poses a good potential for CDM in the country. The decay of biomass, specifically agro-industrial wastes (e.g. bagasse from sugar industry, rice husks, coconut shells/husks), has been recognized as major source of GHG reductions. Biomass decay results in the formation of CH₄ (methane) which has a global warming potential (GWP) 21 times that of CO₂. In the Philippines, however, the sharing system for the sugar industry makes it a much more complicated business which immediately poses a hindrance in terms of participation in a competitive market such as the CDM
- ✓ **Waste-to-energy projects (~ 10k-25k tCO₂/year)** – potential CDM projects for this sector include animal farms, industrial wastewater and municipal solid

waste. PhilBio has over 15 piggery waste to energy projects submitted for registration, each with about 7,000 to 10,000 tCO₂e. Other large farms remain to be converted. PhilBio has completed pilot testing of alcohol slops with a total GHG emission reduction of 54,000 tCO₂e. The 1 MW PNOC Payatas Waste-to-Energy project is projected to reduce 46,859 tCO₂ average annually for the first 7 years.

- ✓ **Hydropower projects (~2 MW to 10 MW)** – PEI is currently involved in a Mindoro Mini-Hydro project amounting to 10 and 2.5 MW generation in parallel rivers, estimated to reduce >50,000 tCO₂e. PEI is still negotiating the power purchase agreement with the IPP in the area. The project has been adjudged by World Bank as the top JI project proposal. Another project, the Cabulig Mini-Hydro, is currently being developed by the largest local hydro developers and is estimated to reduce >50,000 tCO₂e.
- ✓ **Energy efficiency (power distribution)** – typical applications for energy efficiency are those entered into with energy service companies (ESCOs) and building energy efficiency. PEI is currently doing proposals on reducing distribution losses on the part of rural electric cooperatives to be implemented as bundled projects of 15GWh each with a good potential for over 10 such projects.
- ✓ **Industrial fuel switching (cement, metal)** – for the cement industry, rice husk can be used as fuel and raw material to displace coal and because of its very high silica content, it makes for a useful raw material in clinker manufacture. An estimated potential of >100,000 tCO₂ is seen for the rice husk. For food industry, the use of biomass by-products as fuel for cogeneration is being looked into. For the metal industry, natural gas is seen as a good alternative to replace coke in melting scrap iron.
- ✓ **Afforestation and reforestation** – the Magat Hydro Power Plant privatization is a good potential project for an affo / refo CDM project activity. The power plant has been commissioned in 1983 and has a 360 MW capacity with 4x90 MW turbines. The plant is scheduled for privatization soon with key components and good potential for watershed management and reforestation. Currently, the power plant runs at 250 MW because of the siltation problem. There are other afforestation and reforestation projects being developed by other private developers. It is important to note, however, that with privatization, the concern is not really on the power plant itself but on the contract enabling the buying parties to sell in the long run. With CDM, incremental benefits are higher.

Wind maps of Regions 7 and 10 were shown to illustrate good wind potential in the country. Actual projects have been cited to show the country's level of interest and participation in the CDM and the benefits of CDM. Among the projects cited were the Northwind Bangui Bay project and the San Carlos Wind Power project.

In summary, there are a lot of potential CDM projects in the Philippines in various categories. Most projects will not be developed promptly due to lack of capital, technology and access to specific information, i.e., amount of biomass resources in their

area. Local investors stand to benefit the most given the confluence of high Philippine energy cost and presence of clean energy alternatives. *(Please refer to Annex 6 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|---|
| As you mentioned earlier, rice husk could be used for CDM project activity. If we replace kerosene with a rice dryer, is that good? | Yes |
| Do you have a figure as to how much rice husk is available in Mindanao? | I can only guess. When we first did the feasibility study for La Suerte, the amount of rice hull needed was included there as well. NFA data on rice mills is underestimated. You practically need to inspect rice mill per rice mill to know the exact volume. If you know how much a certain rice mill produces, you know what the output is for the rice, then find out what rice husk you're using. Some companies import rice for reprocessing. If you import rice, you have no rice hull to account for. It's important to always consider the geographic locations. It's not easy to transport rice hull. If you do, it's going to be expensive. |
| Would you consider sawdust as a CDM project? | Yes we can. I'm assuming it comes from illegal logs? If you use it for power generation, then it's possible. Plywood mills can be sources of sawdust. Sawdust can be for internal use (steam). If the plywood mill is big, then you can always assume that they use sawdust to power the plant. |
| What are the moisture content requirements? | It depends. You need to determine what components to use. If it is biomass, then we need to have a moisture content suited for a boiler – not too dry or too wet. |

CDM APPROVAL PROCESS AND SD CRITERIA

*Joyceline A. Goco, CDM Secretariat and Helpdesk
Environmental Management Bureau (EMB)*

The Philippine Government, through the DNA, works under the basic policy of recognizing that participation in the CDM could potentially provide the Philippines with numerous benefits in terms of foreign investment in CDM project activities, employment and income opportunities, the establishment of ecologically-friendly projects that will contribute to a healthier environment, technology transfer and income from the purchase of certified emission reductions by the developed country Parties to the Kyoto Protocol.



It is, therefore, the DENR's basic policy, as the CDM DNA, to facilitate and promote CDM project activities that would: (1) contribute to the UNFCCC objective of stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate change, (2) lead to the transfer of environmentally safe and sound technology and know-how, (3) contribute to the conservation of biological diversity and sustainable use of natural resources, (4) comply with all other pertinent laws and regulations, and (5) provide measures to alleviate poverty as part of their contribution to sustainable development.

The basic policy mentioned above is guided by the following principles of: (1) States having the right to promote sustainable development through policies and measures appropriate to the conditions of the State, (2) implementing transparent, participatory, credible, efficient and effective processes, and (3) crafting a policy framework responsive to the needs and demands of project proponents, the Government and various stakeholders which undergoes regular updates to meet evolving international CDM guidelines and recent developments in national policies, laws, rules and regulations.

To help the DNA in the CDM approval process, support mechanisms make up the DNA organizational structure.

The CDM Steering Committee is composed of three members from the government coming from the DENR, the Department of Energy (DOE) and the Department of Science and Technology (DOST), a member from the private sector as represented by the Philippine Chamber of Commerce and Industry (PCCI) and a fifth member from the NGO sector as represented by the Philippine Network on Climate Change (PNCC). All the members of the Committee are represented by a Permanent (agency Undersecretary) and Alternate member, both of whom have the same voting rights. An Undersecretary of the DENR has been designated by the DENR Secretary to serve as the Chair of the CDM Steering Committee, together with a named alternate. The Committee is responsible for reviewing the findings of the TECs and for endorsing the project application to the DENR Secretary for appropriate action, as embodied in the Committee's Endorsement Report. The Committee is also responsible for providing advice to the Secretary on the effective implementation and improvement of the Philippine CDM policy and framework.

The TECs have been established to review whether a proposed CDM project activity meets the national approval criteria. At present, there are three TECs designated to review project activities belonging to eligible sectors under the CDM – energy (Philippine Department of Energy), waste management (Environmental Management Bureau) and forestry, specifically reforestation/afforestation (Forest Management Bureau).

An office within the EMB Central Office is designated as the CDM Secretariat, which is supervised by the EMB Director. The CDM Secretariat is primarily responsible for facilitating the smooth implementation of the national approval process for proposed CDM project activities. In the process of performing their functions, said Secretariat is responsible for verifying the completeness of application documents, identifying the appropriate TEC(s) and referring a proposed CDM project activity to the appropriate TEC(s), forwarding the Evaluation Report of the appropriate TEC to the CDM Steering Committee, providing administrative and technical support to the CDM Steering Committee and facilitating the transmission of the Endorsement Report and supporting documents to the DENR Secretary, and serving as the focal point for information on the status of proposed CDM project activities that have been submitted for DNA approval, including advising the Philippine project proponents of the Secretary's decision relating to their application for a Letter of Approval. It is important to note that unless and until a final decision has been made by the Secretary, the CDM Secretariat is prohibited to release any information on the decision made by the TEC(s) or the CDM Steering Committee regarding a particular application. Moreover, the CDM Secretariat is responsible for facilitating the dissemination of international and national requirements relating to the CDM among stakeholders and such other functions as are necessary for the implementation of the DAO 2005-17.

The entire application and approval process can be summarized into four steps namely:

Preparation of the Project Design Document/Project Application Document (PDD/PAD). The proponent of a proposed CDM project activity can choose between submitting a PAD or a PDD for host country approval. The duly accomplished document will then be submitted to the CDM Secretariat for verification of completeness. The PAD is a simplified form of the PDD. Should the proponent choose to submit a PDD instead of a PAD, the PDD has to be supplemented with the Sustainable Development Benefits Description (SDBD), the supporting documents relating to the Stakeholders' Consultation and the Proof of Legal Capacity - all of which are integral to the PAD. No matter which format the proponent chooses – whether it is a PAD or PDD – the project document must be supported by a valid Environmental Compliance Certificate (ECC) or Certificate of Non-Coverage (CNC), whichever is applicable. This will give assurance that the environmental dimension of the sustainable development criteria has been addressed. Furthermore, the project document, whether a PAD or a PDD, should also be notarized when submitting a formal application for Philippine DNA approval. For small-scale project activities, the minimum content of the SDBD should follow Section III of DAO 2005-17. For project activities not considered small-scale, necessary measures to mitigate significant negative impacts of the proposed CDM project activity should be identified. In addition, methods to monitor the major sustainable development impacts of the project should also be described.

In filling up the SDBD, proponents should satisfy the national approval criteria, with great emphasis on the sustainable development criteria categorized in three dimensions as provisioned in the DAO – social, economic and environmental dimensions. Proponents must identify appropriate project-level indicators for each criterion to give the TECs a better approximation of the sustainable development contributions of the project activity to the host community(ies).

Submission of project documents to the CDM Secretariat. After the proponent has put together the project document and all necessary attachments, along with an electronic copy inclusive of charts, tables, photos, maps, scanned documents and others, the documents are brought to the EMB Central Office for submission to the CDM Secretariat. The Secretariat, guided by its Documentary Requirements Checklist, verifies the completeness of the documents. After the documents have been verified to be complete, the Secretariat gives the proponent an Order of Payment form for payment of dues to the EMB Cashier. A filing fee of Php600.00 plus a processing fee of Php5,000.00 (for small-scale project activities) or Php10,000.00 (for project activities not considered small-scale) is paid. Documentation of Payment and an Official Receipt (OR) will be issued by the EMB Cashier. After which, the proponent goes back to the CDM Secretariat for final documentation and filing of formal application. In the event that the application documents were found to be incomplete, the CDM Secretariat shall return the said documents and advise the proponents to fulfill those requirements that were found to be deficient.

Project Evaluation. After the CDM Secretariat has checked for and verified the completeness of all documents submitted, it endorses the project documents to the relevant TEC. Energy-related project activities go to the CDM Secretariat of the DOE, Waste Management project activities go to the EMB-DENR and Reforestation/Afforestation project activities go to the FMB-DENR. Should the project activity be covered by two relevant sectors (e.g. energy and waste management for waste-to-energy technologies), the project document may be endorsed to the two relevant TECs responsible for the sectors stipulated in the project activity. Small-scale project activities are evaluated under a time frame of 5 days while project activities not considered small-scale take 9 days for evaluation.

TEC evaluation will give emphasis on the contents of the SDBD to ensure that the project activity significantly contributes to the sustainable development goals of the country, particularly of the host community. A similarly significant emphasis will also be given to the documentation of stakeholders' consultation to ensure that public participation was complied with. The ECC, for this purpose, will serve as a good indication that the project activity is in compliance with Philippine environmental policies and standards, a vital component of the sustainable development criteria.

After the TEC has finished evaluating the project activity, an Evaluation Report is drafted and submitted to the CDM Steering Committee through the CDM Secretariat. The Evaluation Report will contain the written conclusions of the TEC and its recommendations to the CDM Steering Committee, stating the grounds for each recommendation. The Report will also assess how the project proponent addressed the

concerns raised in the Documentation of Stakeholders' Consultation. Upon receipt of the Evaluation Report, the CDM Secretariat compiles the reports, submits the documents to and convenes the CDM Steering Committee.

Should the TEC require revision, clarification or additional information on any of the documents submitted by the project proponent, the TEC drafts, in writing, a request for revision before the lapse of the evaluation period (5 working days for SSc and 9 working days for non-SSc). The CDM Secretariat is furnished with a copy of the Letter of Request for Revision by the TEC. The project proponent, in this case, should respond within 15 working days upon receipt of the TEC's request for revision. Proponent's failure to respond will be considered an abandonment of the application. In the alternative, a project proponent may, within 5 working days from receipt of the request of the TEC, submit a written undertaking indicating that it will submit the revised documents to the TEC within a period indicated in the said undertaking, acknowledging that its application will not be processed until said revised documents are submitted, and agreeing that its application will be considered abandoned upon failure to submit said documents within the period indicated in the undertaking. Upon submission by the proponent of the requested revision, clarification or additional information to the TEC, the TEC shall then re-evaluate the application based on the new submission of supporting documents within 5 working days, after which the TEC submits its Evaluation Report to the CDM Steering Committee through the CDM Secretariat.

Project Endorsement. Upon receipt of the Evaluation Report, the CDM Steering Committee assesses and deliberates the Report submitted by the TEC. This is done through en banc or ad referendum review, where and when applicable. Within 5 working days from its deliberations, the CDM Steering Committee submits its Endorsement Report to the DENR Secretary through the CDM Secretariat. Should the CDM Steering Committee decide not to adopt the TEC's recommendation, it shall state its grounds for doing so in writing. Should the project activity been referred to more than one TEC with Evaluation Reports containing different courses of action, the CDM Steering Committee shall decide which recommendation to adopt and will state its reasons for supporting such recommendation.

Project Approval/Non-Approval/Motion for Reconsideration. Upon receipt of the Endorsement Report, the DENR Secretary, as Head of the DNA, immediately acts on and reviews the CDM Steering Committee's Report and decides either to approve or disapprove the application, as will be contained in the form of a Letter of Approval or Letter of Non-Approval. It is worthy to note that the issuance of a Letter of Approval does not exempt the proponents from complying with the applicable laws, rules and regulations of the Philippines. The Letter of Approval/Non-Approval will be issued to the project proponent through the CDM Secretariat. The CDM Secretariat will formally transmit the said letter to the project proponent by registered mail.

Should a project proponent wish to seek reconsideration of a Letter of Non-Approval, a Motion for Reconsideration should be filed with the Office of the Secretary within 15 days from receipt of the Letter of Non-Approval.

As of June 2006, a total of 21 projects have already been submitted to the DNA for host country approval amounting to an estimated total of 311,560 tCO₂e/yr. Of the 21, 17 are methane recovery and electricity generation small scale project activities (from piggeries), 2 are renewable energy activities not considered small scale (wind and geothermal), 1 is a landfill gas to energy small scale project activity and 1 is a wastewater treatment not considered small scale project activity. Of the 21 projects, 8 projects have been issued Letters of Approval as of June 2006 – the first of which was issued last December 2005 for the 33 MW Northwind Bangui Bay Project and the next seven were issued LoAs last June 30, 2006 – five from the 17 methane recovery from piggeries projects, the 20 MW Nasulo Geothermal Power Plant project, and the Wastewater Treatment Using Thermophilic Anaerobic Digester at an Ethanol Plant in the Philippines.

In closing, potential for CDM in the Philippines has yet to be fully tapped, its potential to support national development programs has not yet been fully explored, particularly for the Visayas and Mindanao regions. With the country's vast natural resources, sizeable rural population representing a large trade and investment potential and with the nature of small scale project activities providing huge potential for benefiting the poor sectors of society, the prospects for developing small-scale CDM project activities across the country are high. Lastly, CDM is essential in providing assistance to potential Philippine project proponents and developers in addressing proportionately higher business costs, limited access to information and skills and bigger risks, particularly for small scale CDM project activities. *(Please refer to Annex 7 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|---|
| On the TEC timeframe, since it's at the national level timeframe, responses from the regions might take more than the designated time to respond to comments by the TECs. How will this be addressed? | You can communicate with us by email. This is why we also request for electronic copies of your project application. We do this with PDOE since they are also far from the EMB office and we do not have messengerial services to bring the project documents to the PDOE office. |
| In your slide, you mentioned that the CDM Secretariat is in charge of monitoring CDM projects as well. What type of monitoring? | That's the monitoring of applications that have been submitted. We are looking forward to supplementary guidelines in the future for monitoring for the SD of the projects. |
| On the stakeholder consultation, we have 4 plants. So does that mean we have to have 4 separate consultations? | It is just important that the consultations should be held near or in the project site. It should not take the form of an all-in-one consultation. |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|---|
| <p>We conducted a similar activity in 2003 when we applied for ECC for usage of alternative fuel. Do we conduct another consultation?</p> <p>We're scheduled to have our consultation on October 27</p> | <p>Yes. It depends on the time lapse of the consultation. If it was done in 2003, then it is important to do it again.</p> <p>That's good to hear</p> |

WRAP-UP FOR DAY 1:

*Joyceline A. Goco, CDM Secretariat and Helpdesk
Environmental Management Bureau*

Ms. Goco thanked everyone for their time and encouraged the participants to come back the next day at 9:00 am so there will be more time for consultations.

DAY 2: 15 SEPTEMBER 2006

RECAP OF DAY 1

*Hitomi Homma, Mitsubishi UFJ Securities
JICA Study Team*

Ms. Homma thanked everyone for coming back to the workshop. She encouraged everyone to ask more questions as well. Without further ado, the presentations for day 2 followed suit.

CASE STUDY 1: NORTHWIND BANGUI BAY WIND PROJECT

*Alberto Dalusung III, Business Development Manager
Preferred Energy Inc. (PEI)*

Mr. Dalusung discussed relevant issues to keep in mind as far as developing and implementing CDM projects in the Philippines since not too many know that Philippine grids are still fragile, even Luzon. The grid, ideally, should be able to run even if it loses its largest unit. However, based on experience, losing just the next biggest unit caused frequent blackouts as well.

He then proceeded to discuss the advantages of wind power. Since wind is modular, it can be implemented in phases easily unlike coal. More so, money stays locally since

turbines have to be maintained on a regular basis and local labor is tapped so that there would be servicemen to climb the turbines. Next, he then referred to one frequently asked question regarding wind technology and its capacity to withstand typhoons – can the turbines withstand them? The answer is YES. Wind turbines possess a mechanism of automatically stopping should the turbines reach a certain maximum level of wind velocity to prevent the machine from over speeding. This is its own way of protecting itself and prolonging its machine life as well. Other power plants' life cycle cost is dominated by fuel cost. For wind, however, the fuel cost is zero. Wind has no water requirements for cooling as well. Hence, wind offers more advantages than disadvantages.

For the Northwind project, the turbines face the sea. This is a good location and design for the technology since this way, there is less turbulence and the wind follows a laminar flow (pertaining to fluid mechanics) ensuring a smoother passage of the wind through the turbines. Bangui Bay is not the best site as far as the wind regime is concerned. Pagudpud and other sides more westward are better. But Bangui provided the ideal mix of conditions, in terms of land leasing conditions and other elements.



In the Energy Supply Agreement (ESA) that the Northwind project entered into with the Ilocos Norte Electric Cooperative (INEC), Northwind is primarily responsible for delivering approx 74,482 MWh on the average annually for 20 yrs, sells power at discount from NPC + Transco effective price. Usually, power generated from RE is more expensive but in this case, a discount is given which is a good sustainable development benefit. The Northwind project connects and constructs transmission lines which supplies Laoag City match-point which is 50 kms away from the wind power site (transmission lines were part of the project cost). This makes the end-of-the-grid power more stable.

In relation to EO 462, Northwind does not pay production sharing (where for every kWh of power generated, you pay the government proceeds because the wind is supposed to be the property of the state. This is a good precedent for succeeding projects.

One sustainable development benefit SD not highlighted in the PDD was that the Project encouraged local tourism and allied activities. More tourists have come to visit the wind farm since the wind mills were inviting to look at. The project has also helped enhance the grid – where power was already weak (Laoag being the end of the transmission line) the establishment of a power source feeding into Laoag has helped the power become more stable in the Laoag area of responsibility. The installation of a wind farm in Bangui Bay has also helped spur the development of Philippine wind energy – which is a bigger deal than what has been described in the PDD.

Mr. Dalusung provided the participants with a table containing ERPA calculations for the project. The World Bank was the one who shouldered the development of the PDD and other transactions included in the CDM. Such were already factored into the price. The table also illustrated that not all the CERs to be generated by the Project will be bought by the World Bank, that only about 70% of the total CERs will be purchased by World

Bank, enabling Northwind to sell the excess CERs to other potential and interested buyers. With regard to the concern as to whether the prices will fluctuate or not, the answer was that it will since prices will put into consideration factors like NPC+TRANSCO and WESM+TRANSCO.

Northwind's baseline methodology used ACM0002 or Electricity Generation from Renewable Energy. The project used the Luzon-Visayas grid as baseline. For data monitoring, fuel consumption and generation of last 5 power plants were calculated to come up with the Operating Margin (OM) and Build Margin (BM).

As an observation, Mr. Dalusung suggested some adjustments in the calculations of grid data. First, is the need to adjust Luzon statistics to include Tongonan geothermal power plants' generation exported to Luzon and to exclude SPUG power plants (since they are not connected to the grid) and generation of power plants not physically connected to the Luzon grid (especially that of MIMAROPA). GRID means there is physical connection. Mindanao is not connected physically to the Tongonan grid. Should these not be adjusted, PDD writers are limiting themselves in Visayas as a geothermal generation dominant grid, which implies that CDM in Visayas will be difficult to implement because of the lower CER potential. Second, in the calculation of OMs and BMs, World Bank calculated OM as 0.7549 tCO₂-e/MWhr and BM as 0.355 tCO₂-e/MWhr, using the 75-25 ratio of OM to BM due to the "intermittent nature of wind regime." We should, however, take into consideration that wind is not intermittent, it is variable. *(Please refer to Annex 8 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|---|
| Usually Mindanao is not given any notice. Even multinationals like the JICA ignore Mindanao in their studies. | We know that Mindanao is 60% dependent on hydro. In other words, the fossil fuel part is only 40%. If you include Mindanao, numbers (in terms of emissions) are going down because bulk of Mindanao is hydro. But the real reason is that Mindanao is not physically connected. In fact, there are parts of Luzon not physically connected to the Luzon grid. |
| Is that assumption value applicable to all the Philippines? | This is applicable only to Visayas. When you displace the grid, you displace the grid applicable to your project activity |
| My point exactly. If you make a study, it should be applicable for all. | There is no specific calculation for the whole of the Philippines. |
| Why not come up with a map of the | That map has been presented yesterday |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|---|--|
| <p>Philippines suitable for wind production? So that any prospective company to build it will have an idea as to how to build the wind technology and how it will work</p> <p>But does it deal with matters on the computation of the CERs?</p> | <p>and that is available through the PEI</p> <p>The calculation of grid changes is on a case-to-case basis. Considering the grid setup of the Philippines, this is quite complex. For example, in Angeles province, Angeles Electric has a contract with the grid. But if there are other IPPs with good quality power (e.g. Mirant coal-fire powered plant) then the calculations change. What is my grid amount? 75% coal from the Luzon-Visayas grid. Under EPIRA, Angeles Electric has the responsibility to get supply for their own electricity service area. It used to be NPC's responsibility but with unbundling, power responsibilities have also been decentralized as well.</p> |
| <p>What would be the basis of computation if I were to do a project in Batanes island? Would the computation rely only on grid?</p> <p>So it's possible to install a wind power in Batanes then?</p> | <p>It's not connected to Luzon grid even if it is located in Luzon. Batanes power is quite costly compared to Metro Manila. Since it is connected to the Visayas grid, there are higher CERs projected.</p> <p>They already have</p> |
| <p>You mentioned about decaying matters. In our business, we have mortality rates to consider. Can that be applied for biogas?</p> | <p>We are looking at a similar project like that. In short, the simple answer is yes. Because of the number of animals you have, when they die but you can't burn them (emissions so other pigs will smell the odor) nor bury them (groundwater will be affected). If the volume becomes significant, you can put them in an anaerobic digester. We are aware that this is a significant concern but we are also still trying to figure out exactly how this can be done.</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|--|---|
| <p>Is there a comparison between wind and hydro? In reality, the most probable future of wind is better than hydro. Theory is that motors tend to dry. Since forests are becoming bald, there is possible increasing wind.</p> <p>Is there a possibility of adjusting propellers so that with any typhoon, you can minimize repair required?</p> | <p>Wind is site specific. The northwestern and eastern part of Luzon have strong wind areas. Hydro is a very common RE resource. So anywhere, you can have wind and hydro. Typically, hydro is cheaper. As regards the advantage of wind over hydro, using a hog farm as example, if the farm owners put a 200 KW wind technology thinking that the wind is strong; if such a capacity is not reached, then the owner can easily bring down the turbine and the parts can still be used. This is not the same case for hydro. Hydro systems cannot be disassembled. However, hydro is cheaper. On the other hand, wind is developing good potential as well. It is getting more improved posing a lot of technical potential in the Philippines.</p> |
| <p>From the point of view of a financier, I am still confused about the concept of additionality. Despite the risks involved, the project seems viable.</p> <p>In the same context, how about hydro?</p> <p>Maybe we can. As long as the IRR is higher than the interest we give.</p> | <p>Let's say it's viable. This is the first wind farm in the Philippines. This is the first of its kind meaning that there is yet no local experience on this. Banks have not funded this. Looking at the two test analysis – investment and barrier – say you cannot use investment analysis, you can do the barrier analysis. If it is the first of its kind, then you can argue on the basis of barrier analysis.</p> <p>Should be that IRR is not below 18% Would you fund, as DBP, a project that is 10% IRR?</p> <p>Of course because you're a development bank. If a proponent enters into a hydro project, then there is low IRR investment. Renewable energy has low IRR. Commonly, they would spend on their core business rather than try a new technology.</p> <p>In the course of project development, we found some projects where it was hard to</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
|--|---|
| | <p>prove their additionality because of their high IRR. For Absolut, the IRR is 15-16%. For sensitivity analysis, the IRR is higher than bond rate. So we made use of the barrier analysis (technology, investment and common practice) and it passed. As a consultant, we believe that sometimes IRR calculation is not always credible since it can be manipulated. Now, the DOEs ask for documentation to prove that such documentary evidences are correct. If you think that it's difficult to come up with low IRR, then proceed to step 3 as has been presented yesterday (<i>Hitomi Homma</i>)</p> <p>If we do rice husk in ASEAN, the highest IRR would be in the Philippines because of our higher power rates. But why is it that Thailand has more installations than us? Because of barriers, it's hard for the businesses to avail of opportunities. It is difficult for them to make a decision because of barriers. Sometimes, engagement in CDM is more expensive than core business equipment. (<i>Bert Dalusung</i>)</p> |
| <p>Regarding the mortalities, if you include them. Would that not create an imbalance? Would it augment?</p> | <p>What we have in mind is you get the dead animal, chop it up, apply certain bacteria, decompose and then mix. So basically it will augment the bigoas. But the greater concern in this case is to solve the problem instead of augmenting the biogas. We are actually looking at a similar project which produces 1.6 metric tons of dead pigs per day – but which is not located in the Philippines.</p> |

CASE STUDY 2: JAROENSOMPONG CORPORATION RACHATHEWA LFG TO ENERGY PROJECT

*Hitomi Homma, Mitsubishi UFJ Securities
JICA Study Team*



Ms. Homma presented a project their company did in Thailand involving the use of landfill gas to energy. As a backgrounder, solid waste management is one of the most pressing environmental concerns in Thailand today. In Bangkok alone, waste disposal sites are responsible for 36.5% of the methane released into the atmosphere. Waste volume for Bangkok is at 8,500 tons per day wherein waste composition is highly organic in nature. There are currently no regulatory or contractual requirement for LFG

collection/combustion in Thailand to date thereby causing a 100% methane emission from the landfill gases directly into the atmosphere. There is heavy dependence on natural gas resources in Thailand and the methane gas that will be coming from the landfill will potentially become a new renewable energy source.

The Project will install a LFG collection system, flare excess LFG and install an electricity generator of 1 MW. Emission reductions sources will be from the burning of collected methane to generate electricity, flaring of collected excess methane not used by the engine and displacing fossil-fuel based electricity generation from the grid. The project developer is Jaroensompong Corporation, which is a Thai company, and the project will be the first in Thailand to utilize LFG for electricity generation on a commercial basis.

The technology for the project will be composed mainly of three systems, namely the (1) LFG collection system (involving horizontal gas collectors), (2) LFG utilization system (involving two diesel engines modified for gas) and (3) flaring system (open flare system). Two site disposal areas will be used wherein site 1 disposal area commenced operation in December 1999 and capped and closed in November 2001. Site 2 disposal area commenced operation in December 2001 and will be opened until December 2006.

Approved consolidated methodology 0001 (ACM0001) which is the Consolidated Methodology for Landfill Gas Project Activities is being applied where applicability conditions are that (1) the captured gas is flared, (2) the captured gas is used to produce energy, but no emission reductions are claimed for displacing or avoiding energy from other sources; or that (3) the captured gas is used to produce energy, and emission reductions are claimed for displacing or avoiding energy generation from other sources.

For the additionality testing, 5 alternatives have been identified as part of identifying alternatives to the Project: (1) continuation of current practices of not collecting or utilizing LFG, (2) the proposed project, (3) collect and flare most of the LFG without installing an electricity generator (collection and utilization of LFG from commercial

landfill is not required by Thai regulations), (4) install and operate composting facilities at the site (not financially viable since market for the product is limited) and (5) construct and operate a waste incineration facility at the site (incineration system requires high capital cost and current economic environment is not conducive for the construction of such). After identifying alternatives, only the first two have been found to be more viable due to reasons given in the identification of alternatives. The project made use of an investment analysis and common practice analysis since the project requires a high capital investment of \$1.12 million, has a small revenue base and an internal rate of return (IRR) of only 7.2%. It is also the first project to utilize LFG for electricity generation on a commercial basis and no other similar activities have been carried out in Thailand at present. Step 5, which is the impact of CDM registration, gives justification to the implementation of the project due to its very low IRR, justifies the need for the developer to look for assistance to improve the IRR and reduce investment risk, and that the project is likely to be sustainable for CDM assistance.

Under Thai regulations, EIA is not required for landfill site development and LFG projects with less than 10 MW capacity. There are no significant negative environmental impacts expected to result from the project. Plus, the project will help to prevent on-site fires and reduce odors, emissions of volatile organic compounds (VOCs) and other air pollutants. The project developers conducted a public consultation meeting last April 2, 2004 which was represented by 23 leaders from 15 organizations representing local administrative officials, neighboring villages, manufacturing plants, a school and scavengers participated. No negative comments were voiced out and all participants were satisfied that there would be no adverse environmental or social impacts generated by the Project.

Looking at the sustainable development contributions of the project, on the economic aspect, the development of new energy source replacing natural gas resources provide a good opportunity for supplemental revenue by CERs. On the environment aspect, waste disposal measures are addressed and GHG emissions from the landfill is reduced. On the technology side, the utilization of advanced foreign technology for electricity generation can help promote practical experience in LFG collection and utilization. *(Please refer to Annex 9 for details)*

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| In the Philippines, the LGU should collect 10,000/day to be qualified as a landfill. But if not, it is sub-categorized into levels 1-4. In your case, how many tons per day makes up a landfill? | 8,500 tons/day for Bangkok but not for the particular project site. I will have to look at the PDD and give the number later |
| What is volume of waste in terms of tons | This would depend more on the quality of |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| per day? | garbage. If there are no bio-degradable waste in the landfill, then there is no methane generated at all. It is, therefore, important to characterize the garbage being dumped |
| Per IRR of RA 9003, dump closure is this year. We're asking because concerned with closure of the dumpsite. We'd like to utilize and maximize the abandoned landfill site and see how much per day has been accumulated. | The problem here would be that in the course of abandonment, methane might have evaporated already. Since it is abandoned, there might be no decomposition occurring so no methane is emitted anymore. Comparing it to CDM transaction costs, the proponent might only have break-even income and no profit whatsoever in the long run. |
| Why does Thailand not have a DNA? | They were fine some years ago but ownership and land issues came to fore. They questioned the need to be responsible for the negative environmental impacts brought about by the rich Annex 1 polluters. According to latest news, however, the Prime Minister is quite keen to promote CDM before elections in October. The Philippine DNA is quite advanced as compared to other ASEAN countries in this matter. |
| On applicability in the Philippines, Thailand doesn't even require EIA. In the Philippines, it does. At the same time, the Philippines requires waste segregation at source. So if we establish a certain landfill, would it be viable to have it in the Philippines as well? | There is good potential for Philippines to implement LFG. Payatas LFG to energy project is currently being developed. However, issues on project ownership are the major hindrances to its continuance towards CDM. I can give you a tCO2 calculation from the PDD after the lunch break. |
| Was there a relocation plan for Payatas? | No. I don't think there was any. |
| Were the proponents able to get the CERs from the Thai project? | Yes. In order to claim credit from project that has already been implemented, it has to apply for retroactive credits as long as it meets its validation requirement from last year and registration requirement for this |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| | year. |
| How about for hog farms? | In your case, it's different because operations have not started yet so no retroactive credits can be claimed. For the Thai project, they have already started collecting biogas so they applied for retroactive credits. |
| If you start the project now, will the CERs generated at this point be claimed as retroactive credits? | The one condition is to demonstrate via documentation that you have been considering CDM from the very start – if you start now. |
| DOST is promoting technology on bio-reactors. Instead of utilizing garbage into energy, we transform matter into compost or soil enhancer. Can this qualify as CDM project? | Yes There is a methodology available for composting as CDM project |
| You mentioned something about AR. What if the land is there and converted into mangrove plantation, will it qualify for CDM? | This will depend on a number of conditions. The benchmark date should be 1990. You have to meet land eligibility requirements first. DNA is host country approval only. For the determination of forest, this can be coordinated with the FMB |
| In areas where there are bio-lands but considered as subject to the NCIP (National Commission on Indigenous People), is that qualified as CDM project? | The issue of participation of IPs (indigenous people) is that you should consult them for AR. For SSc AR, this will be implemented by low-income communities and IPs. FMB is currently coming up with definition of low-income communities and individuals |

PIN AND EMISSIONS REDUCTION CALCULATION

*Hitomi Homma, Mitsubishi UFJ Securities
JICA Study Team*

In her presentation, Ms. Homma discussed the concept of the project idea note, how to prepare an effective PIN, explained the concept of emission reduction, calculation using applicable methodologies to one's chosen project activity, enumerated commonly used



methodologies for biomass projects, and presented case studies on the choice of methodologies and the calculation methodologies that go with the methodologies of choice.

On the PIN concept, the document consists of 4-5 pages providing indicative information on the project in terms of project objective, project description and technology, project developer and sponsors, environmental and social impacts/benefits, expected GHG emission reduction and finance. The PIN may be produced by many project developers to facilitate discussions with potential equity investors or other project participants and search for potential buyers for CERs generated from the project.

On the formulation of an effective PIN, clear statements with regard to the project activity's GHG emission reduction, additionality, sustainable development impacts to the host country, and project activity viability are needed. Guidelines for PIN formulation have been provided for in the presentation.

A brief review of the baseline emission reduction was provided and how this can be calculated was explained by saying that the proponent needs to use an approved baseline methodology which dictates how the baseline scenario is set and how baseline emission are calculated, and what other factors should be included and calculated in project emissions and leakage.

A brief look at CDM statistics from the UNFCCC website shows that as of June 2006, there have been 834 biomass projects submitted to the UNFCCC where estimated CERs from biomass projects range from of 2,400tCO₂ to 318,000 tCO₂/year. She then proceeded to discuss how different methodologies change the perception of risks by giving examples of EB decisions in their different meetings. An enumeration of biomass-related methodologies followed suit where similarities between and among methodologies were also pointed out. ***(Please refer to Annex 10 for details)***

The floor was opened for comments, queries and suggestions by the participants.

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| In relation to the Tanduay Distillery project, is there any computation for any methane gas produced for a farm for a certain sow population? So we have an idea how long it will take and what to do. | If you're interested, you can take a look at the PDD in the UNFCCC website. The most common in the Philippines are animal waste management. They are available over the UNFCCC website. |
| With all those detailed presentations, I would like to find out if we could have some details as to: if we want to follow what is in there, with so much waste being thrown out, such will be the amount for | Unfortunately the person involved in the production of the PDD for 16 piggery farms already left. Although the PDD for these are online through the UNFCCC website. In the PDDs, the IRR is mentioned and other |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| <p>investment, how we are going to finance it and what we are going to do about it</p> | <p>financial details of the investment portion of such projects as well. These piggery projects have been conducted by PhilBio and the PEI, our local partner, who is also into the development of such projects for animal wastes.</p> <p>We understand that there are a lot of local project developers who want to enter into the CDM but no upfront cash to pay up. If you have, at least, a PDD written, if you can reach that stage by your own, then a lot of project investors such as corporations will be willing to invest in your projects. For PDD preparations, investors can listen to you as project owners. But there is a lot of risk in this case. So our advice is for you to write a PDD, and consultants will assist you in the validation process. There are many investors willing to invest and finance your projects</p> |
| <p>On CDM qualification, social dimension item 3, we're in the sugar industry and we have put up our wastewater pollution abatement and we have passed the necessary parameters. The DA advises us not to use effluent to irrigate the farms. But in your presentation, from the distillery effluent, it seems to be approved by the DA for use as liquid fertilization</p> <p>We have been seeking for approval from the DA on this.</p> <p>If this has been approved by DA then we use this as example</p> | <p>They have DAR certification to use liquid fertilization for small farmers. This was issued just a year ago and renewable on a yearly basis based on the quality of wastewater.</p> <p>The FPA has certain standards to qualify wastewater for irrigation. The distillery passed this and they have certification for such.</p> <p>Part of the constraint in this case is to commercialize the product. For you to do this, it has to pass FPA standards. There has to be a research accredited by FTA – three trials to establish efficacy of fertilizer before selling it for commercial purposes. Otherwise, if only for personal consumption, the owner is free to use it</p> |

| COMMENTS / QUESTIONS FROM THE PARTICIPANTS | RESPONSES BY RESOURCE PERSON |
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| | <p>any way he wants to. For rice, it has to pass through such research before establishing efficacy then classify if the product is good or not. The FPA then gives you the license to sell. It's not under the DA, it's under the FPA. <i>(DOST)</i></p> |
| <p>If I use my own pig waste, then I don't have to undergo any permitting procedure</p> | |
| <p>We in the sugar industry use a large volume of waste water. Once we're covered by the agency, we'll be penalized because it might contaminate the water aquifer in the area. Because we use a large volume, we use the wastewater for our air pollution facilities. DA does not give action to approve the sugar industry to use effluent as fertilizer. We're not commercializing it since we have our own brewers for the factory.</p> | <p>The liquid fertilizer from this project is given for free to the farmers. The FPA accredited the quality of the liquid fertilizer as we have been shown in their documentation.</p> |
| <p>Could you please elaborate on flare expense amount of biogas under project description?</p> <p>Is that not in conflict with CAA?</p> | <p>There is an in-house use of biogas wherein any excess amount of biogas is collected from the digester and flared</p> <p>Flaring reduces the potency of methane. It, therefore, reduces GHG concentration into the atmosphere so there is no conflict whatsoever.</p> |

Certificates of Completion were then given to the participants at the end of the workshop.

