

# Innovative Financing Methods for Lake Basin Management

## Community Carbon Financing at Laguna de Bay, the Philippines

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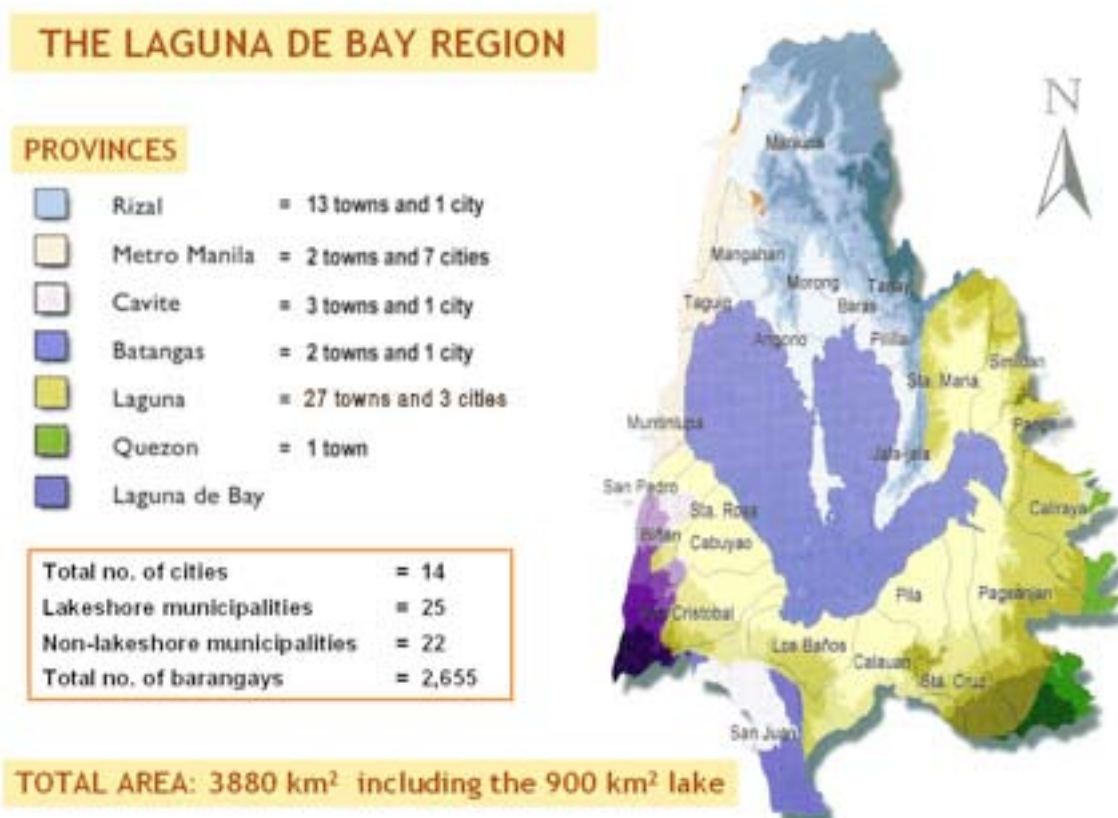
### Abstract

The Laguna de Bay Community Carbon Finance Project or simply Carbonshed Project is a pioneering initiative of the Laguna Lake Development Authority (LLDA) to implement carbon emission reducing interventions that address priority environmental issues in the watershed such as waste management and erosion reduction. Through the Clean Development Mechanism of the Kyoto Protocol, an enabling environment for a Carbon Market for small-scale environmental projects by the Local Government Units and the communities as well as the private sector was developed to reduce greenhouse gas emissions in the lake basin.

The Carbonshed Project, which started in June 2004 and ends in July 2008, is supported by a grant from the Japan Trust Fund - Special Program on Climate Change Initiatives, which the World Bank administers. Projects were identified through a strong participatory process and were bundled into three categories, namely, methane capture, methane avoidance and carbon sequestration. On March 16, 2008 the Laguna de Bay Community Waste Management Project: Avoidance of Methane Production from Methane Decay through Composting-1 was registered by the CDM Executive Board.

The Laguna Lake Development Authority, in behalf of the project participants and the World Bank in behalf of the buyers of the Carbon credits, which are the Community

Figure 1. The Laguna de Bay Basin and the different Local Government Units



Development Carbon Fund and the BioCarbon Fund, have signed an Emission Reduction Purchase Agreement. A similar agreement has been signed between the LLDA and the project participant of which one of the salient provisions is the allocation of certain percentage of the carbon credits for environmental and community benefits.

## **1. Introduction**

The Laguna Lake Development Authority is currently implementing two pioneering initiatives in lake basin management through the Laguna de Bay Institutional Strengthening and Community Participation Project or LISCOP and the Laguna de Bay Community Carbon Finance Project or Carbonshed Project. These two projects aim to address the most pressing environmental problems in the basin, which in this paper is used synonymously with the lake's watershed (Figure 1), which are water pollution and soil erosion, by engaging the cooperation and participation of local government officials and communities. The objective is to enhance their capacities in environmental governance and to get benefits from Carbon Finance through sub-projects that help mitigate the emission of greenhouse gases (GHG). This is done under the Clean Development Mechanism (CDM) of the Kyoto Protocol (Article 12). CDM involves mutually beneficial partnership between a developed and a developing country wherein carbon credits generated by projects in a developing country can be bought by a developed country to offset its greenhouse gas emissions and help meet its Kyoto-assigned emission target. The Carbon Emission Reduction Revenues (CERRs) that will go to the developing countries should be used to achieve sustainable development.

### **1.1 The Laguna de Bay Institutional and Community Participation Project (LISCOP)**

This project started in 2004 and will be implemented until 2009 with funds support from the World Bank, the Royal Dutch Government and the Philippine Government. It has two components: Component 1 is on Co-managed Investments for Watershed Development while Component 2 is on Strengthening Institutions and Instruments. This paper deals more on Component 1 since it has a direct relationship to the Carbonshed Project. Through this component, LLDA adopts its co-management approach and provides the necessary mechanism to financially support community-driven subprojects that will help mitigate the environmental problems in their respective sub-watershed. This is done by providing a mixture of loan, grant and equity depending on the income classification of municipalities. A low-income municipality gets more of the grant and has a lower equity requirement. Another incentive for Local Government Units (LGUs) to invest in environmental sub-projects and take a loan for their implementation is a package consisting of capacity building activities, sourcing of 50% of the equity requirement for sub-project financing from the LLDA's Project Development Fund,

and support on construction supervision and monitoring. Subprojects are divided into two categories, the Green/Blue Subprojects, which include reforestation, forest related activities, soil conservation, watershed protection, river-bank protection and the Brown Subprojects, which include solid waste management, drainage, sewerage and sanitary support facilities.

### **1.2 The Laguna de Bay Community Carbon Finance Project (Carbonshed Project)**

The Carbonshed Project is a parallel project to LISCOP, which also started in 2004 and will be completed by July 2008. It is funded through a grant from the Japan Climate Change Initiative being administered by the World Bank. It aims to develop an enabling environment for a carbon market for small-scale environmental interventions in the Laguna de Bay watershed, taking into prime consideration the community-driven sub-projects under LISCOP. Thus, the package becomes more attractive with additional incentives from Carbon Emission Reduction Revenues (CERRs) if the LISCOP funded subprojects are CDM-eligible. The Community Development Carbon Fund (CDCF) and the Bio Carbon Fund (BIOCF), which are managed by the World Bank, buys Carbon credits from carbon emission reduction subprojects and carbon sequestration subprojects, respectively.

The key activities under the Carbonshed Project are programmed to a) build the capacity of the LLDA as an intermediary to enable small-scale environmental projects to result in certifiable emission reductions; b) pilot the implementation of carbon emissions reducing interventions that address priority environmental issues; and c) prepare a set of environmental projects from which emissions reductions credit could be purchased. The main beneficiaries will also be the communities and local governments who will be provided the opportunity to receive emissions reductions credits from their environmental projects. They will also be trained to implement and monitor their CDM-eligible sub-projects to ensure that they are effectively converted into carbon credits.

Another output from the project is a greenhouse gas (GHG) inventory in the entire basin that will serve as a tool for better mitigation measures and in planning appropriate climate change adaptation strategies.

## **2. Sub-project identification in LISCOP and Carbonshed Project**

### **2.1 The LEAP Process**

The Laguna de Bay Environmental Action Planning Process or LEAP was developed and implemented by the LLDA to ensure meaningful community involvement in identifying subprojects. It is a participative and demand-driven planning tool that involves a step-wise approach to enhance the

capability of stakeholders in each sub-watershed to actively and effectively pursue an environmental agenda in their respective area. Among the vital components are:

a.) the conduct of participatory micro-watershed characterization to identify environmental issues and various causes and sources of environmental degradation; b.) the development of micro-watershed vision and the formulation of objectives to attain the vision; c.) the identification of measures to attain the vision through sub-projects that would mitigate the environmental problems in the micro-watershed and; d.) the prioritization and identification of a sub-project that will contribute most to the attainment of objectives.

## 2.2 Carbon Finance benefits

The introduction of Carbonshed Project in the LEAP process comes after the Local Government officials and the communities have short-listed at least three sub-projects to mitigate the most pressing environmental problem in their municipality. This is done to ensure that sub-project prioritization is not due to the CERRs that they can get during implementation. The LLDA Carbonshed Project Team conducts initial assessment if a subproject is CMD-eligible and does a quick estimate of the CERRs, if it falls within any of the following two categories:

*Emissions reductions:*

- renewable energy
- fuel switching to reduce emissions
- wastewater treatment (biogas and aerobic systems)
- composting or other systems that treat organic waste

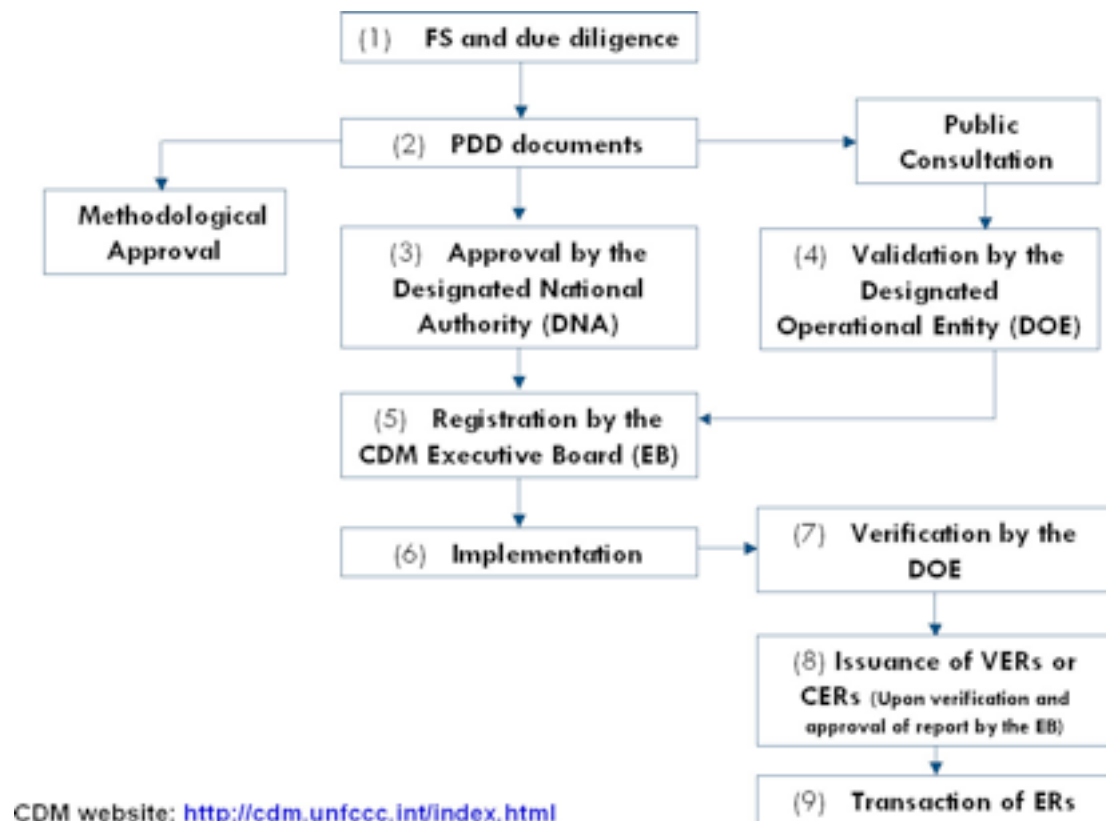
*Sinks:*

- Community agroforestry
- Afforestation and reforestation

Feasibility studies of the chosen subprojects are funded through LISCOP from which a more detailed assessment will be made in terms of the requirements of CDM. Information regarding CDM are found in the website of the United Nations Framework Convention on Climate Change (UNFCCC).

Private sector participation in the Carbonshed Project is also encouraged and qualified project proponents get to enjoy the benefits of the grant in the same way as the LISCOP-funded subprojects.

**Figure 2. Steps in Developing a CDM Project**



### 2.3 Small-scale CDM subprojects in the Laguna de Bay

Under the CDM rules, small-scale sub-projects can be bundled if they are on the same category, are not within 1 km of the project boundary of another proposed small-scale

Activity and don't exceed the threshold for greenhouse gas emission reduction. The bundling of several small-scale subprojects takes advantage of the economies of scale and reduces transaction cost.

In the Laguna de Bay basin, the sub-projects from the LGUs and private sector were bundled into the following categories:

Bundle 1 - Avoidance of Methane Production from Biomass Decay through Composting

Bundle 2 - Methane Recovery in Wastewater Treatment

Bundle 3 - Watershed Rehabilitation Project

The emission reduction should not exceed 60 kilo tonnes of CO<sub>2</sub>-e/yr for the first two bundles and 8 kilo tonnes of CO<sub>2</sub>-e/yr for the third bundle.

The first batch of CDM-eligible subprojects the LLDA Carbon Team, the World Bank's Task Team Leader and the Carbon Finance Unit jointly worked consists of one sub-project for the Carbon Sequestration bundle, 2 subprojects under the Methane Recovery bundle, and 7 subprojects for the Methane Avoidance bundle. A new milestone in the Carbonshed Project is the registration of the Methane Avoidance bundle (Figure 2) which is specifically titled the *Laguna de Bay Community Waste Management: Avoidance of*

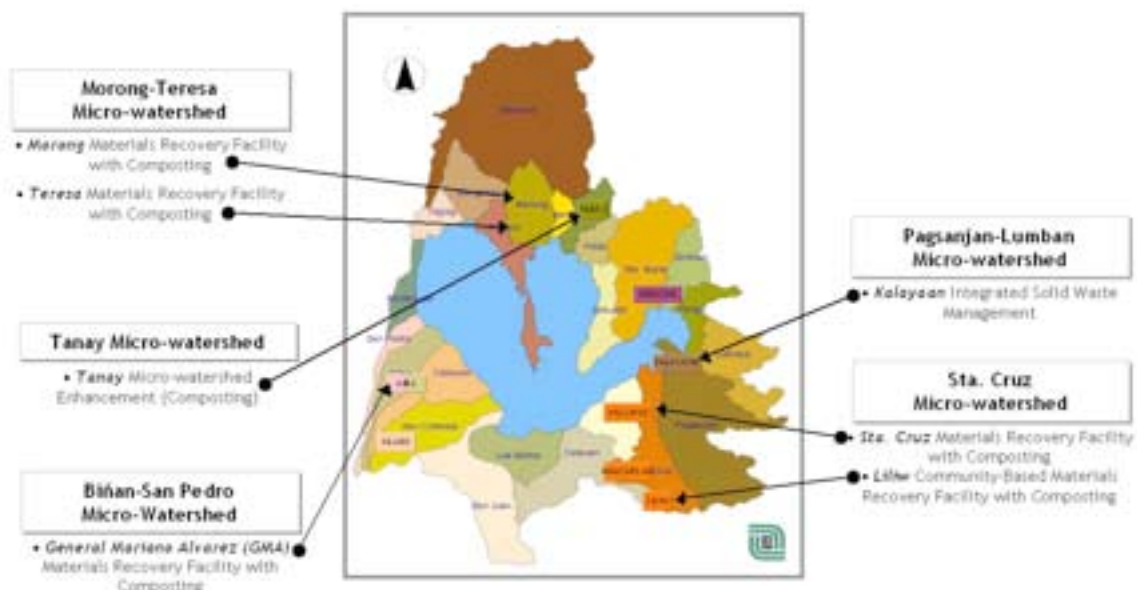
*Methane Production from Biomass Decay through Composting-1*, by the CDM Executive Board on March 16, 2008 and is already posted in the UNFCCC website. The emission reduction (ER) is at 6,058 tCO<sub>2</sub>-e/yr at a crediting period of 7 years. This is the first registered small-scale bundled project in the Philippines and one of the 17 registered CDM projects in the country.

### 3. CDM project development and carbon credits

The development of CDM-eligible subprojects up to its registration by the CDM-Executive Board with the UNFCCC requires a tedious process and requires a lot of technical inputs. Figure 3 outlines the steps in the development of a CDM project (either through LISCOP or from the private sector) until the purchase of Verified Emission Reductions (VERs) by the World Bank and the disbursement of the CERRs to the project participants through the LLDA and is briefly explained below:

1. The project proposal and later, the feasibility study are reviewed by the Carbonshed Project Team of the LLDA vis a vis the basic CDM-eligibility requirements.
2. If the project is deemed CDM-eligible, the project participant is required to sign a Memorandum of Agreement with the LLDA expressing his intent to participate in the Carbonshed Project.
3. The LLDA Carbon Team, with assistance from consultants, prepares the Project Design Document (PDD) in accordance with the CDM requirements including the use of methodologies approved by the CDM board.

**Figure 3. Registered CDM Projects in the Laguna de Bay Basin**



4. The PDD is submitted to the Philippine's Designated National Authority or DNA (each country that ratified the Kyoto Protocol) is required to have a DNA) together with the other requirements set by the DNA such as the Sustainable Development Benefits description. If the PDD and subprojects therein satisfied the National Approval Criteria, the DNA issues a Letter of Approval (LOA), which is a requirement for registration in the UNFCCC.
5. The PDD is also submitted to the Designated Operational Entity (DOE) to validate if the project is CDM-eligible. Together with the PDDs are other documentary requirements such as the record of different stakeholders consultation to ensure that the communities in the project areas are well informed of the CDM sub-project and that they are not negatively affected economically, socially and culturally. Legal documents like land ownership and environmental permits are also required by the DOE as well as the DNA's LOA.
6. Upon favorable validation by the DOE, a validation report is submitted to the CDM Executive Board wherein the bundle of small-scale projects to be registered is posted for global stakeholders comments in the UNFCCC website.
7. The project participant is obliged to implement the project and diligently and accurately record important monitoring details in accordance with the PDD and the monitoring rules and requirements.
8. Based on the agreed period between validation and verification, the DOE again visits the project sites and verify the monitoring records and other details about the project.
9. A verification report is issued by the DOE, which will be submitted by the LLDA to the World Bank. The World Bank pays in accordance with the verified emission reduction (VERs) at an agreed price between the LLDA and the World Bank.
10. The LLDA will pay the project participants corresponding to their respective VER. A minimal service fee is charged and a certain portion of the revenue will be set aside as Project Development Fund that will be administered by the LLDA and will be used to encourage development of further projects that reduce greenhouse gas emissions

## 4. Legal Requirements

### 4.1 The Emission Reduction Purchase Agreement (ERPA)

The ERPA is an agreement between the World Bank and the LLDA on the conditions to sell and purchase Verified

Emission Reductions (VERs) from the subprojects including the price per ton of carbon dioxide equivalent (tCO<sub>2</sub>-e). Two ERPA's were signed in June 2006, one for the Community Development Fund and another for the BioCarbon Fund which are both represented by the World Bank. In general, the ERPA sets the conditions for the payment of the VERs, the provision for community benefits, penalty provisions in case of non-delivery of the VERs by the LLDA and the remedies to enable both parties to meet their respective obligations.

### 4.2 The sub-Emission Purchase Agreement (sub-ERPA)

The sub-ERPA or the **Subsidiary Agreement on the transfer of the rights to Emission Reductions, is signed** between the LLDA and the Project Participant. It outlines the rights and obligation of the LLDA and the project participant in regards to the generation of VERs that will be purchased by the World Bank. Likewise, it specifies the mode of payment of VERs as well as the remedies available to the LLDA in the event of default of the project participant. The sub-ERPA comes into force when the sub-project belonging to a certain bundle is registered by the CDM Executive Board.

## 5. Other components of the Carbonshed Project

### 5.1 Capacity Building Program

As a pioneering initiative not only in the Laguna de Bay basin but in the entire country as well, the LLDA Carbonshed Project Team are initially trained by the World Bank Task Team Leader and the Carbon Finance Unit of the World Bank to prepare PDD's which are very technical documents that should be in compliance with the CDM rules. Certain degree of expertise is needed for each type of PDD. The CDM rules and methodologies are very dynamic and the Team must always be updated on these changes.

The generation of Carbon Credits depends on good sub-project implementation and monitoring. An operations manual was prepared for this purpose and is deemed as a living document that can be revised and improved as experience built up and as lessons are learned. The LLDA team and the project participants, with technical assistance from local consultants, have jointly undergone trainings related to PDD preparation and in subproject supervision, monitoring and maintenance in accordance to the requirements of the specific bundle, re: methane avoidance, methane recovery and carbon sequestration. These trainings are necessary to equip both the LLDA in meeting its obligations to the World Bank as buyers of the VERs in behalf of the CDCF and the BioCF; and the project participants to meet its obligations to the LLDA and to the communities within the project site. In the process, goodwill and strong

collaboration are established among the key players in implementing the CDM project.

## **5.2 Greenhouse gas emission inventory in the Laguna de Bay Basin**

Another interesting component of the Carbonshed Project is the inventory of GHG emission in the Laguna de Bay basin, specifically from the different towns and cities in the entire basin. Consultants were hired to provide the necessary skills to the LLDA team to do the inventory and assessment, which includes the use of modeling tools. Particularly for carbon-sequestration subprojects, knowledge on the use of Remote Sensing and GIS in the generation of land-eligibility maps are crucial in meeting the CDM requirements for this type of subproject. The LLDA will use the results of the GHG inventory in coming out with policies to reduce GHG in the basin and to contribute further to the national and international strategies for climate change adaptation.

## **6. Mainstreaming of Carbon Finance in the LLDA**

It is expected that when the Carbonshed Project ends in July 2008, Carbon Finance is already mainstreamed in the LLDA organization. The challenge is to ensure that the CDM-eligible subprojects are being implemented and monitored properly so that VERs are produced to meet the commitments by the project proponents in the subERPA and by the LLDA in the ERPA. Otherwise, the penalties and sanctions stipulated in the agreements will take effect. But the bigger challenge for LLDA is to operationalize a Carbonshed Program on its own without the benefit of a grant.

There were several opportunities that were opened to LLDA for piloting Carbon Finance projects under the CDM. It has opened many doors in meeting and interacting with people from different parts of the globe that are into the Carbon Market and are on watch insofar as compliance to the Kyoto Protocol is concerned. Parallel with the special skills on CDM project development and the on the ground learning experience during project validation and registration are the challenges and lessons learned during project implementation. By the end of July 2008 and until the delivery of VERs by the project participants, the LLDA will be in a better position to share with the international community the "experience and lessons learned in implementing the Carbonshed Project."

## **7. References**

CDM website: <http://cdm.unfccc.int/index.html>

Laguna Lake Development Authority. 2007. Project Design Document - Laguna de Bay Watershed Rehabilitation Project-1.

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