

CARBON CREDITS FOR LAKE BASIN MANAGEMENT

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**ILEC-JICA TRAINING COURSE ON
INTEGRATED BASIN MANAGEMENT FOR
LAKE ENVIRONMENT**










Source: GIS Section- IWRM Division, Laguna Lake Development Authority

*March 11, 2008
Otsu City
Shiga Prefecture
JAPAN*

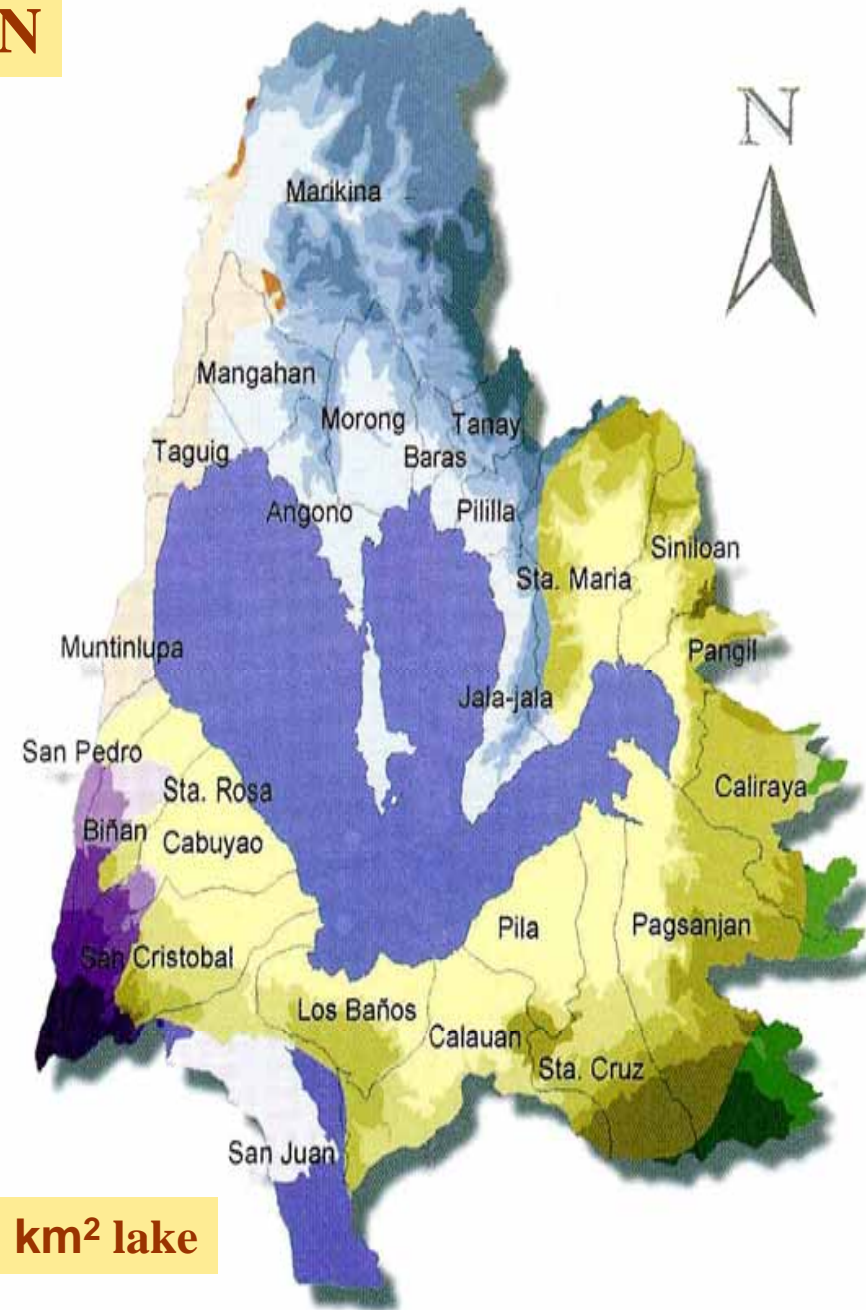
THE LAGUNA DE BAY REGION

PROVINCES

	Rizal	= 13 towns and 1 city
	Metro Manila	= 2 towns and 7 cities
	Cavite	= 3 towns and 1 city
	Batangas	= 2 towns and 1 city
	Laguna	= 27 towns and 3 cities
	Quezon	= 1 town
	Laguna de Bay	

Total no. of cities	= 14
Lakeshore municipalities	= 25
Non-lakeshore municipalities	= 22
Total no. of barangays	= 2,655

TOTAL AREA: 3880 km² including the 900 km² lake



Threats: impacts of economic development



Results: Pollution and sedimentation of the lake

PIONEERING INTERVENTIONS

*Laguna de Bay
Institutional Strengthening and
Community Participation Project
(LISCOP)
(2004-2009)*

*Laguna de Bay
Community Carbon Finance Project
(Carbonshed Project)
(2004-2008)*

Component 1: CO-MANAGED INVESTMENTS FOR

NG-LGU Cost-Sharing Policy

Green/Blue Subprojects – Reforestation, Forest Related Activities, Soil Conservation, Mangrove & Watershed Protection, River & Seashore Protection

LGU Income Class	Municipalities and Provinces			Cities		
	Loan	Grant	Equity	Loan	Grant	Equity
1 st & 2 nd	50	30	20	80	0	20
3 rd & 4 th	45	40	15	80	0	20
5 th & 6 th	40	50	10	50	30	20

Brown Subprojects – Solid Waste Management Project, Drainage, Sewage, Sanitary Support Facilities

LGU Income Class	Municipalities and Provinces			Cities		
	Loan	Grant	Equity	Loan	Grant	Equity
1 st & 2 nd	60	20	20	80	0	20
3 rd & 4 th	45	40	15	80	0	20
5 th & 6 th	40	50	10	60	20	20



Laguna de Bay Community Carbon Finance Project (Carbonshed Project)

- Being implemented through a grant from the Japan Trust Fund – Special Program on Climate Change Initiatives which the World Bank administers
- Grant amount: US\$358,450.00
- Duration: June 2004-June 2006, extended to March 2008
- Buyers of Emission Reductions are the Community Development Carbon Fund (CDCF) and the BioCarbon Fund (BioCF) which are managed by the World Bank.

CARBONSHED PROJECT

OBJECTIVES:

- **Build the capacity of LLDA as an intermediary to enable small-scale environmental projects to result in certifiable emission reductions (CERs).**
- **To implement carbon emission reducing interventions, such as waste management and erosion reduction in order to address priority environmental issues: pollution and sedimentation of the lake.**

CARBONSHED PROJECT

OBJECTIVES:

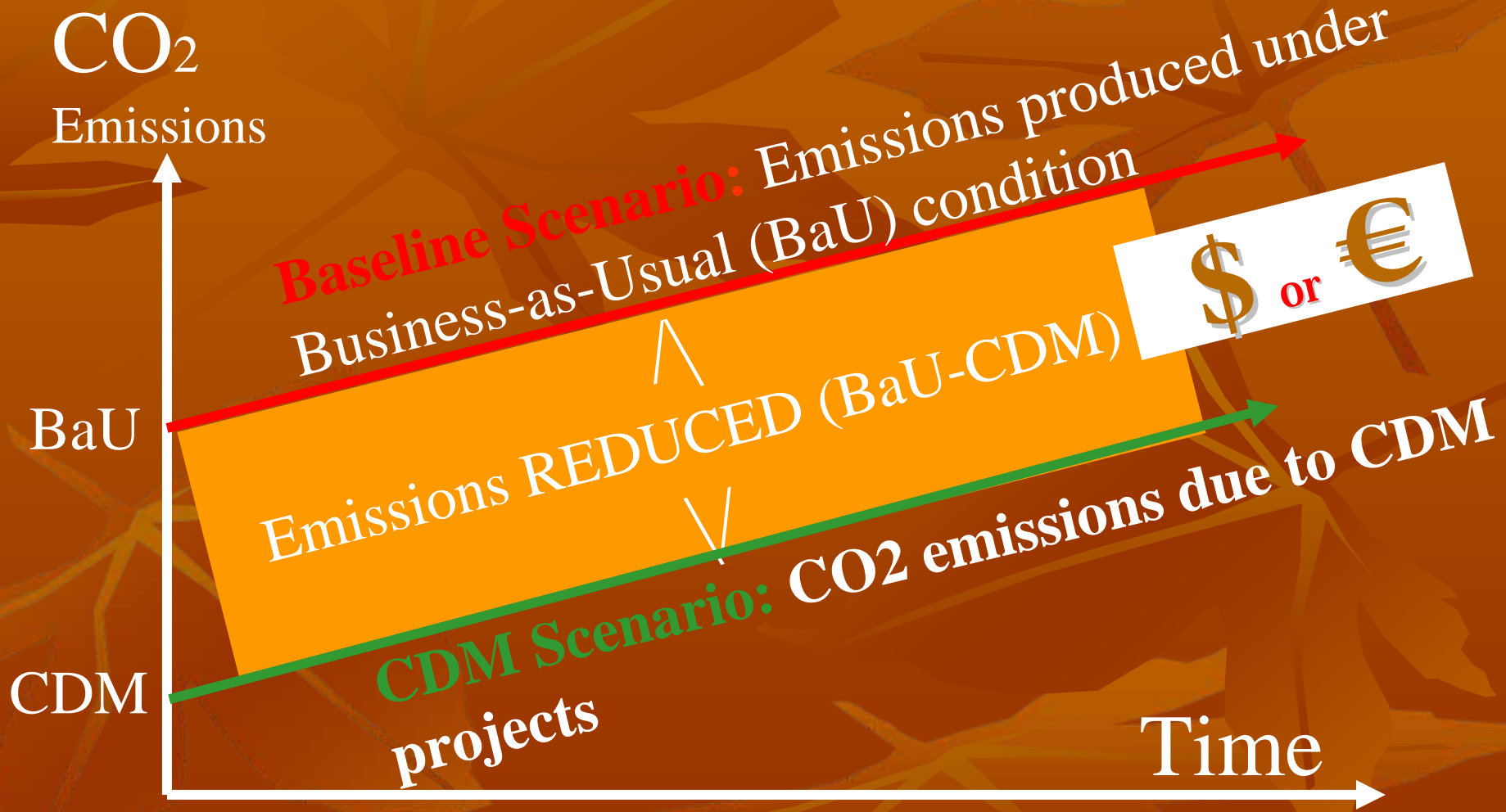
- to mitigate the emission of greenhouse gases by engaging the cooperation and participation of local government officials and communities with the purpose of enhancing their capacities in environmental governance and in getting benefits from Carbon Finance, through the Clean Development Mechanism (CDM) of the Kyoto Protocol.

Clean Development Mechanism (CDM)

- **Article 12 of the Kyoto Protocol**
- **Assist developing countries to achieve sustainable development**
- **Assist developed countries to meet commitments *through projects in developing countries***



How Carbon Credits are Formed



Methane Avoidance

**From an open dumpsite
(Business as Usual)**



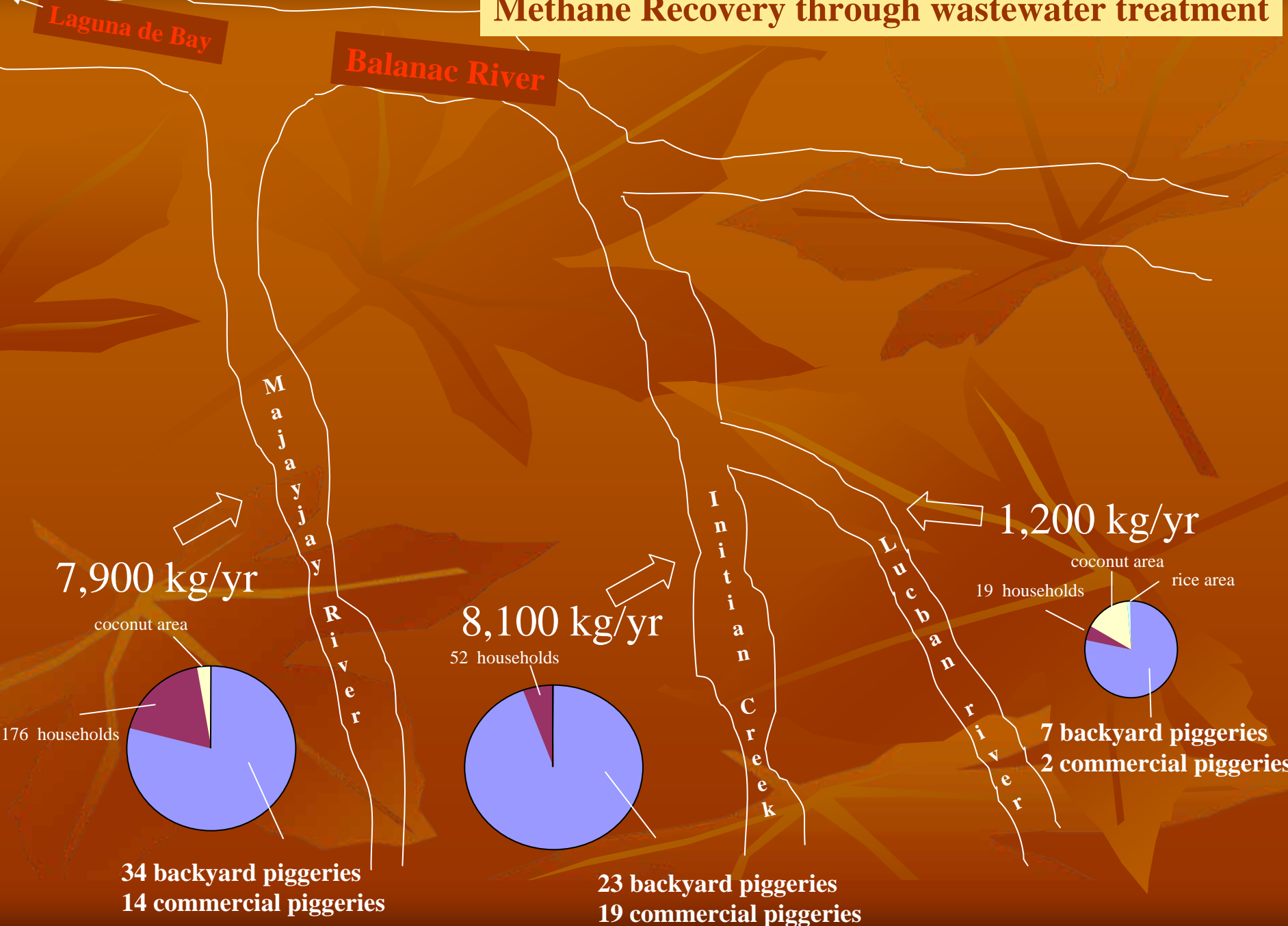
**To a Materials Recovery Facility with
Composting (CDM project)**



Methane Recovery through wastewater treatment

Laguna de Bay

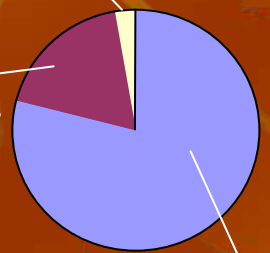
Balanac River



7,900 kg/yr

coconut area

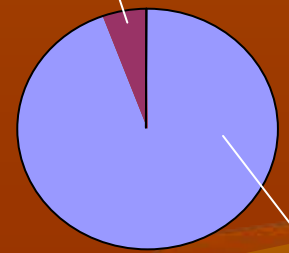
176 households



34 backyard piggeries
14 commercial piggeries

8,100 kg/yr

52 households



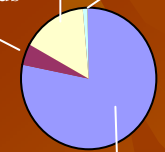
23 backyard piggeries
19 commercial piggeries

1,200 kg/yr

coconut area

19 households

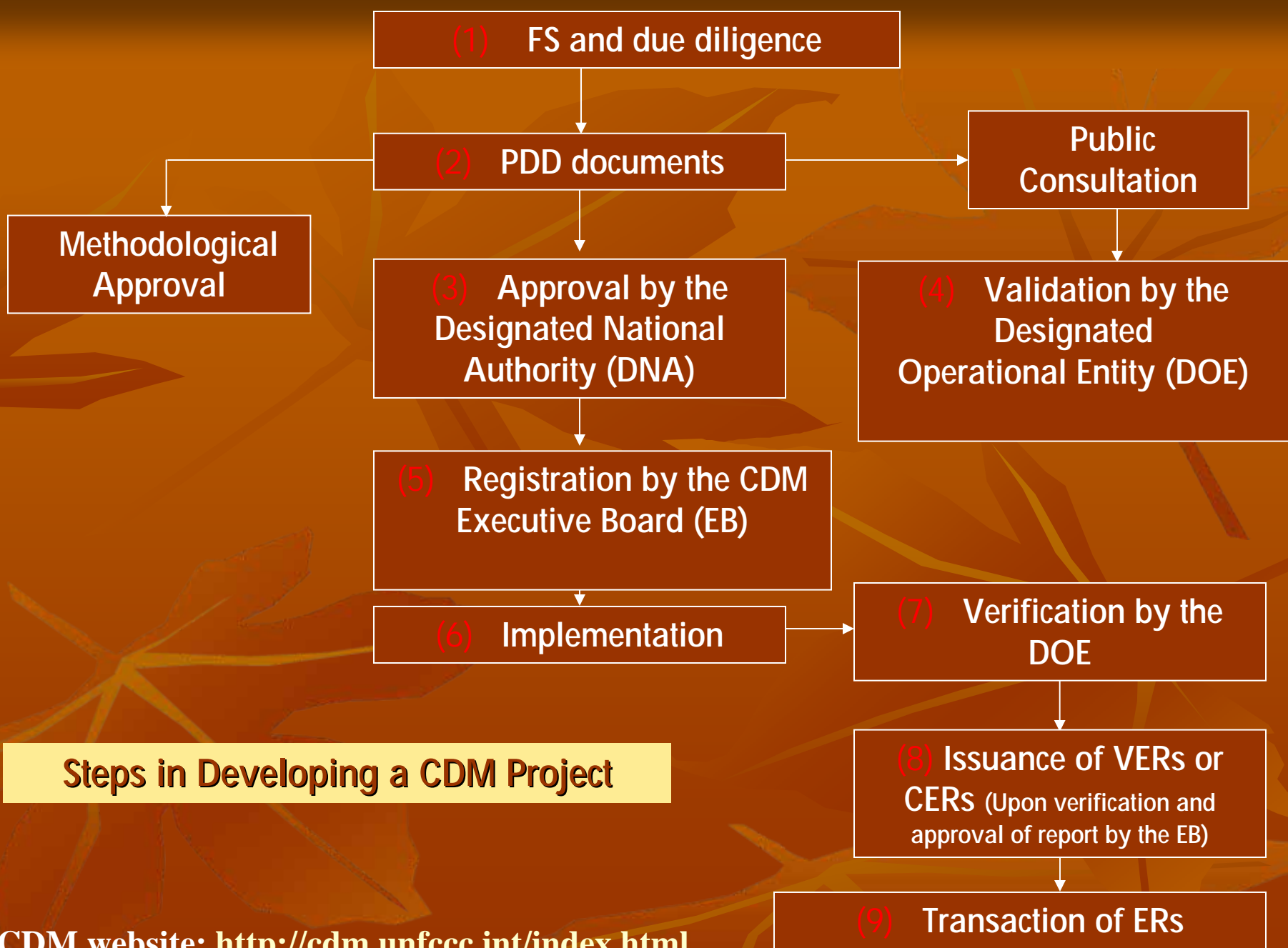
rice area



7 backyard piggeries
2 commercial piggeries



Carbon Sequestration through reforestation of denuded areas in the lake's watershed



Steps in Developing a CDM Project

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

SMALL-SCALE CDM PROJECTS IN LAGUNA DE BAY

BUNDLE 1: Avoidance of Methane Production from Biomass Decay Through Composting-1 (CDM-SSC-PDD, Version 03 - in effect as of: 22 December 2006).

ER Threshold: Not more than 60 kilo tonnes tCO₂-e

BUNDLE 2: Methane Recovery in Wastewater Treatment-1
(CDM-SSC-PDD, Version 02)

ER Threshold: Not more than 60 kilo tonnes tCO₂-e

BUNDLE 3: Watershed Rehabilitation Project –1 (CDM-SSC-AR-PDD, Version 02)

ER Threshold: Not more than 8 kilo tonnes tCO₂-e

Registered CDM Projects in the Laguna de Bay Basin

Morong-Teresa Micro-watershed

- *Morong* Materials Recovery Facility with Composting
- *Teresa* Materials Recovery Facility with Composting

Tanay Micro-watershed

- *Tanay* Micro-watershed Enhancement (Composting)

Biñan-San Pedro Micro-Watershed

- *General Mariano Alvarez (GMA)* Materials Recovery Facility with Composting



Pagsanjan-Lumban Micro-watershed

- *Kalayaan* Integrated Solid Waste Management

Sta. Cruz Micro-watershed

- *Sta. Cruz* Materials Recovery Facility with Composting
- *Liliw* Community-Based Materials Recovery Facility with Composting

- Registered

This interface provides information on the last 15 CDM project activities that have been registered by the CDM Executive Board. CDM project activities registered earlier are accessible through the [Project Search](#) interface.

Registered	Title	Host Parties	Other Parties	Methodology *	Reductions **	Ref
17 Mar 08	Baotou Iron & Steel Blast Furnace Gas Combined Cycle Power Plant Project	China	United Kingdom of Great Britain and Northern Ireland	ACM0004 ver. 2	1871138	1416
17 Mar 08	La Virgen Hydroelectric Plant	Peru		ACM0002 ver. 6	220218	1445
17 Mar 08	AWMS Methane Recovery Project BR06-S-30, Mato Grosso and Mato Grosso do Sul, Brazil	Brazil		AMS-III.D. ver. 11	10342	1529
16 Mar 08	Energy efficiency improvement in power generation at Sajjan India Limited, Ankhleshwar, Gujarat	India		AMS-II.D. ver. 8	24947	1454
16 Mar 08	Laguna de Bay Community Waste Management Project: Avoidance of methane production from biomass decay through composting -1	Philippines	Netherlands	AMS-III.F. ver. 3	6058	1547
14 Mar 08	Tianji Group Line 2 N2O Abatement Project	China	Switzerland United Kingdom of Great Britain and Northern Ireland	AM0034 ver. 2	659071	1437



Required Legal Agreements

1. Memorandum of Agreement between the Project Participant and the LLDA for the Intent to Sell and Purchase Verified Emission Reductions



Signing of the Memorandum of Agreement (cMoA) between the LLDA and Municipal Mayors as witnessed by Dr. John Morton-World Bank (5th from left) and Cong. Baculio, Vice Chairman, Committee on Ecology, Philippine House of Representatives (7th from left).

2. Emission Reduction Purchase Agreement (ERPA): Conditions To Sell and Purchase Verified Emission Reductions between the LLDA and the World Bank.



30 June 2006



**3. sub-Emission Reduction Purchase Agreement:
Conditions To Sell and Purchase Verified Emission
Reductions between the LLDA and the project participant**

Mayors of the town of Tanay and Pililla in the Province of Rizal



25 June 2007



Capacity Building Activities

Marketing of Carbonshed Project



Carbon Team's Workshop on the Operations Manual Seven Suites Hotel-Observatory, Antipolo City, February 7, 2006

Dr. John Morton, Task Team Leader from the
World Bank discussing the Operations Manual

The Carbon Finance Team



Proponent Workshop



Participants from fifteen (15) LGUs at
Vivere Suites, Alabang, Muntinlupa City,
February 9-10, 2006

Training on CDM Project Monitoring



22 June 2007

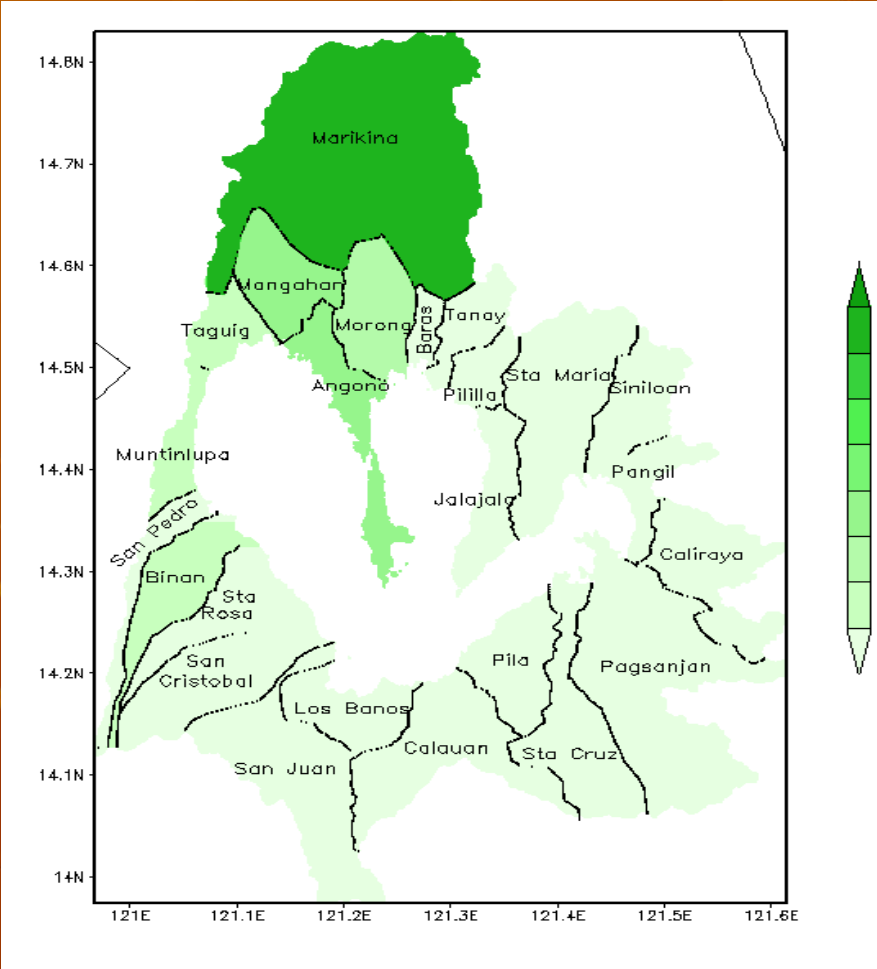
Alumni Center, UP Diliman Campus



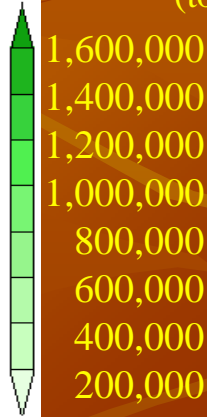


Greenhouse Emission Inventory

TOTAL GHG EMISSIONS



TOTAL
CO₂e
(tons)



Continuing and Next Steps:

- **Signing of a sub-ERPA between the LGU and the individual project participants**
- **Application for approval of the Designated National Authority**
- **Validation by the Designated Operational Entity**
- **Registration of the bundled sub-projects by the CDM-Executive Board**
- **Training of Project Participants and LLDA staff on monitoring Carbon Emission Reduction**
- **Emission Reduction delivery and payment of corresponding revenue**

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