The study of financial mechanisms to support local actions contributing to climate change mitigation in the Philippines

F I N A L R E P O R T

klima – Climate Change Center
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Abbreviations and Acronyms

ANEC	University of San Carlos-Affiliated Non-Conventional Energy Center
BELCO	Bokiawan Electric Cooperative
BOT	Build Operate Transfer
CaFis	Carbon Finance Solutions
CBRED	Capacity Building to Remove Barriers to Renewable Energy Development in the Philippines
CCP	Cities for Climate Protection
CDM	Clean Development Mechanism
CDM-DNA	Clean Development Mechanism-Designated National Authority
CER	Certified Emission Reduction
CFL	Compact Fluorescent Lamps or Light bulbs
CLF	Countryside Loan Funds
CMP	Community Mortgage Program
CSR	Corporate Social Responsibility
DBP	Development Bank of the Philippines
DENR	Department of Environment and Natural Resources
DNA	Designated National Authority
EMB	Environmental Management Bureau
ESCO	Energy Service Companies
FASPO	Foreign Assisted and Special Project Office
GEF	Global Environmental Facility
GHG	Greenhouse Gases
GK	Gawad Kalinga
GRIPP	Green Renewable Independent Power Producer
IACCC	Interagency Committee on Climate Change
IBRD	International Bank for Reconstruction and Development
ICLEI	International Council for Local Environmental Initiatives
IGES	Institute for Governmental Environmental Strategies
INC	Initial National Communication
IRA	Internal Revenue Allotment
IRR	Internal Rate of Return
JBIC	Japan Bank for International Cooperation
LSC	Low Carbon Society
LGC	Local Government Code
LGF	Loan Guarantee Fund
LGU	Local Government Unit
LGUGC	Local Government Unit Guarantee Corporation
LISCOP	Laguna de Bay Institutional Strengthening and Community Participation Project
LLDA	Laguna Lake Development Authority
LTO	Land Transportation Office
LOA	Letter of Approval
MFF	Micro-Finance Fund
MMDA	Metro Manila Development Authority
MO	Manila Observatory
MRF	Materials Recovery Facility
NGO	Non Government Organization
NHA	National Housing Authority
NHMFC	National Home Mortgage Finance Corporation
NREL	National Renewable Energy Laboratory

ODA	Official Development Assistance
PDD	Project Design Document
PDOE	Philippine Department of Energy
PEI	Preferred Energy Incorporated
PDRC	Philippine-China Development Resource Center
PPF	Project Preparation Fund
PRRM	Philippine Rural Reconstruction Movement
SITMo	Save the Ifugao Terraces Movement
SRDDP	Sustainable Rural District Development Program
SWMB	Solid Waste Management Board
UCDEC	United Clean Development and Energy Consulting
TESDA	Technical Education and Skills Development Authority
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VAT	Value Added Tax
VER	Verified Emission Reduction

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Summary

There is a need to maintain a low carbon society (LCS) not only in developed countries but also in developing countries with growing population and economies in order to avoid the lock-in to the society with large amount of per-capita emissions of carbon dioxide. Local governments in Japan have recognized this need and are making efforts to build partnerships with local governments of developing countries. The Philippines has recognized this need and has started collaborative efforts with Japan.

This study aims to contribute to a larger study of IGES which hopes to foster these collaborative efforts. Specifically, this study aims to identify success factors to promote decentralized and bottom-up financial mechanisms to support local actions contributing to the development of LCS, in particular (a) success factors and constraints for the CDM and voluntary offset projects in relation to the limitations of existing Kyoto Mechanism, and (b) promoting conditions, under which local governments both in developing Asia and Japan could facilitate to promote financial mechanisms for local mitigation projects.

This study for the Philippines aims to answer the following:

1. What are the financial barriers that hinder realization of successful local climate change actions in the Philippines?
2. What are the conditions for financial mechanisms to work?
3. What are the promoting conditions for local governments in the Philippines to facilitate financing of local climate change actions?

Section One of this report explains the general background and rational of this study. This section also outlines the specific objectives of the study for the Philippines and breaks these objectives down into research questions that are relevant to the issues being investigated in the Philippines.

Section Two gives an overview on how far the study has been implemented. It revisits the methodology of the study as carefully outlined in the Work Plan.

Section Three provides an overview of the magnitude of the potential for mitigation projects as well as options and efforts for climate change mitigation on a national scale. This macroeconomic view of the current Philippine scenario provides for a platform where local governments can situate the efforts that are being called from them.

Section Four briefly discusses the existing schemes that are being offered by the different Philippine financial institutions that can be tapped as potential sources of funds for climate change mitigation projects, especially for the local governments.

Section Five explain the results of the initial survey that was undertaken for this study. The survey showed that in terms of the number of mitigation projects implemented in the Philippines, the waste and waste management sector has the highest percentage (60%), followed by the renewable energy sector (30%). Very few mitigation projects are in the transport sector (5.5%) and energy efficiency sector (4.5%). However, more than half of the waste management projects are small scale animal waste management projects generating low volume of emissions reduction. Only large cities are able to register their waste management projects in the CDM

because of the relatively high volume of waste generated by these cities as compared to the other smaller cities and municipalities nationwide.

Seventy-seven (77) of the mitigation projects surveyed availed of private financing, while thirty-three (33) availed of public financing. Three projects (3) are still looking for underlying financing.

The underlying financing were classified as to whether their investment were of domestic or international in origin. The results showed that only twenty-three (23) projects sourced their financing from local (i.e. domestic) funds. Eighty-seven (87) projects meanwhile were realized out of international funding.

Sixty-nine (69) of the projects surveyed are for registration to CDM and will receive carbon financing. Sixty-seven (67) of these projects fall under the private finance for profit category. Two (2) projects fall under the public finance for profit category. Forty-six (46) out of sixty-nine (69) projects under carbon finance are small scale piggery farm waste management projects. There is no market yet for Voluntary Emission Reductions (VERs) in the Philippines.

Forty-one (41) projects have been developed without the consideration of carbon finance or will not qualify for CDM registration because ODA funds were used in the projects.

Thirty-nine (39) projects out of the total of 113 surveyed came from non-profit financing, or those that can be considered social finance.

Twenty-two per cent (22%) of the mitigation projects have active local government and/or community involvement. However, seventy-four per cent (74%) of these projects are implemented by the local government and/or community.

Section Six discusses the nine (9) case studies of mitigation projects with strong LGU/community involvement under the carbon and social finance schemes, which were selected for in-depth discussion for this study.

Lastly, **Section Seven** highlights the findings and conclusions of the study. This section has been divided into three subsections, following the three research questions posed by this study. The first subsection discusses the barriers that hinder facilitation of local level development-oriented mitigation projects which include risks associated with securing the underlying finance, lack, or the absence of specific regulations to address the complex nature of mitigation projects, size of the projects, CDM-specific barriers, among others. It also provides some conclusions on the trends of the surveyed projects. The next subsection summarizes the institutions, and to a certain extent, frameworks, that support successful realization of projects availing of the carbon and social finance based on the nine case studies. It also talks about the promoting factors that local governments can do to promote financing of local climate change mitigation projects.

Section 1: Introduction

This study for the Philippines, commissioned by IGES, was done by the klima-Climate Change Center as part of a broader, multi-country study being conducted in the Asian region. This section provides the general background and rationale of this broader study by IGES, and it also lays down the scope to which this Philippine study will focus on. Lastly, this section outlines the specific objectives of the study for the Philippines and breaks these objectives down into research questions that are relevant to the issues being investigated in the Philippines.

Background

In Asia there is a need to maintain a low carbon society (LCS) in developed and developing countries with growing population and economies in order to avoid the lock-in to the society with large amount of per-capita emissions of carbon dioxide.

There are several local governments in developing Asia which have initiated local actions to mitigate climate change, as shown in ICLEI's Cities for Climate Protection (CCP) programme and a couple of clean development mechanism (CDM) or voluntary offset projects coordinated by local governments. Some of these actions, however, often rely on financial support from international donors to secure initial investments or operation and maintenance costs. Without further financial support, replication of demonstration projects is difficult in these cases. Such need and concern were advocated and shared among cities in developing Asia at 4th Kitakyushu Initiative network meeting, one of the international intercity networks for environmental management, held in June 2007. Although several new initiatives of public finance for mitigation in developing countries have been announced by international donors, the local governments would not be the direct beneficiaries of these financial assistance schemes[1]. Plus, development-oriented small-scale CDM projects at local level have not materialized well compared to supply-side large-scale mitigation projects under the current international policy of Kyoto Mechanism. Securing the underlying finance also remains a major challenge for local-level demand-side mitigation projects.

Local actions and their international collaboration can be effective for decentralized and bottom-up mechanisms to provide global public goods such as stable climate systems. National actions under international regimes tend to require large negotiation and transaction costs and may lack swift and flexible response to the issues. Local governments have hands-on experiences of public management in close partnership with other local stakeholders to solve social problems.

The Republic of the Philippines, an archipelagic country that is more vulnerable to the impacts of climate change, has a few of local government units that engaged in efforts to mitigate climate change. These efforts include participation in international cooperative actions and network groups. Furthermore, the willingness of some of the Philippines' local government units to partner with local government units of developed countries in promoting environmental concerns, has set a good example

[1] World Bank announced the introduction of Climate Investment Fund, which composed of Clean Technology Fund and Climate Strategy Fund, with 5 billion USD for mitigation and adaptation in developing countries. Asian Development Bank introduced Asia-Pacific Carbon Fund with 150 million USD and introduces Future Carbon Fund with 100 million USD for mitigation. Japanese government announced the cool technology partnership with Indonesia to lend 300 million USD.

for other Philippine local governments to emulate, as in the case of Japan, and the cities of Cebu and Mandaue.

These developments were the reasons why the Philippines was considered, along with China and Indonesia, to be part of the IGES study.

Study objectives

The objective of the IGES study is the same among the three countries: to identify success factors to promote decentralized and bottom-up financial mechanisms to support local actions contributing to development of LCS in emerging and developing Asia. More specifically, the objective is to identify (a) success factors and constraints for the CDM and voluntary offset projects in relation to the limitations of the existing Kyoto Mechanism, and (b) promoting conditions under which local governments in developing Asia and Japan can facilitate financial mechanisms for local mitigation projects.

Scope of the Study

1. Financial mechanisms to be studied

   This study focuses on social finance and donation, as well as the carbon market (Table 1) as financial mechanisms to promote local mitigation projects. Public finance and private financial flow are also studied to see how they are mobilized to finance the local mitigation projects that produce carbon credits.

   Table1: Financial mechanisms to finance local mitigation projects in developing countries[2]

Category	Examples
Social finance and donation	Non-profit microfinance Contribution based on CSR and individuals' donation
Carbon market	CDM / Voluntary carbon offset

2. Possible roles of local governments in the Philippines for mitigation projects

   According to ICLEI, Japan's questionnaire survey of 129 Japanese municipal governments' policies and measures to mitigate climate change in FY2006, these are classified into three categories:
   (1) Initiative to reduce greenhouse gas (GHG) emissions in their own businesses and projects,
   (2) Induction of GHG emissions reduction in the local businesses and households through subsidies and ordinances, and
   (3) Knowledge dissemination and awareness raising[3].

   ICLEI found that ordinances that allowed major emitting businesses to plan and report GHG emissions reduction activities, and subsidies for renewable energy such as biomass and solar photovoltaic power, were effective. Cost-effective

[2] IGES Terms of reference for the Study
[3] Utaka, F., 2008, "Altering climate change measures of local governments," *Resources and Environment Measures*, 44(4), pp. 26-31 (in Japanese).

measures, i.e., GHG reductions / cost, were slightly more effective initiatives to reduce GHG emissions in their own businesses, ordinances, and subsidies.

These measures may not be directly replicated by local governments in developing countries due to the current status of non-Annex I countries and severe financial constraint. Classification of roles played by the local government, however, is basically the same in financing the GHG emissions reduction measures. The first role of local governments is to take an initiative to reduce GHG emissions in their own businesses and projects. Examples include energy efficiency projects such as street light retrofitting, and an energy audit of water pumping in water supply works and government-owned buildings. ESCO may fine these measures applicable, too.

The second role of local governments is to create institutional settings under which local stakeholders have incentives to reduce GHG emissions reduction. To promote local mitigation actions, local governments could encourage and facilitate the use of financial mechanisms for their stakeholders.

Therefore, the roles of local governments in developing Asia can be classified as either implementer and facilitator, as shown in Table 2.

Table 2: Roles of local governments in developing countries to promote mitigation projects with financial mechanisms

Role	Description
Implementer	A local government in developing Asia can implement their own energy efficiency projects in water supply and street lighting, waste management projects such as composting of organic waste and transport sector projects, utilizing the above financial mechanism.
Facilitator	A local government in developing Asia can coordinate and facilitate formulation and implementation of remaining types of mitigation projects to mobilize the above financial mechanism. In some cases, a local government can provide the mitigation projects with subsidies, financial coordination services, and necessary land for operation.

3. Classification of projects to be studied

This study examines local level development–oriented climate change mitigation projects in the Philippines. "Development-oriented" mitigation projects serve a two-fold goal: that of mitigating climate change through the reduction of greenhouse gases in the atmosphere while contributing to the sustainable development of the area of implementation. Thus, the scale and size of the project is not a limiting factor for its exclusion or inclusion in the study. "Local level" projects are as those that primarily involve local governments, or Local Government Units (LGUs) as commonly referred to in the Philippines.

However, it has been noted that there are few cases with active participation of the LGUs, either as implementers or facilitators. Projects with local community involvement implemented and/or facilitated by other organizations (i.e. NGOs, private corporations, private entities) are also included in the study. This is to ascertain the possible roles that the LGUs can take by learning the demonstrated roles of these other organizations. This study also does not limit the year of

implementation for these mitigation projects as criterion for inclusion or exclusion in the study.

As earlier mentioned, the study focuses on projects involving social finance and donation and the carbon markets. Financing from the carbon markets involving developing countries such as the Philippines can be derived from the CDM and the voluntary markets. Both demonstrated and attempted projects under these financial mechanisms are included in the study. Since these markets, especially the CDM, have a fairly defined cycle, it is therefore necessary to define what is meant by the "demonstrated" and "attempted" as used in this study.

'Demonstrated' as used here refers to the following:

For CDM projects

1. A project that has been given or has applied for Letters of Approval (LOA), or,
2. Projects that are undergoing the process of validation, or ,
3. A registered CDM project activity in Philippines.

For voluntary carbon offset projects

1. A project that has been publicly announced as a voluntary carbon offset project, with a legitimate buyer or buyers for the credits, or,
2. A VER-generating project registered in some legitimate registry

For social finance

1. A project that is currently being implemented or was implemented in the past.

'Attempted' as used here refers to the following:

For CDM projects

1. A project that has an LOA but has not been registered within two (2) years from issuance of LOA, or,
2. A project whose PDD was posted for validation but has not been registered within two years from the date of the first posting of PDD, or,
3. A project that has initiated PDD development, but has failed to progress into DNA application and/or validation.
4.

For social finance and voluntary carbon offsets

1. A project that was planned but not implemented

Research Questions

What are the financial barriers to realize successful local climate change actions in the Philippines?

Due to limited financial resources, which is a shared characteristic of LGUs in the Philippines, projects with higher profitability, lower gestation periods and higher returns, and low transactions costs have been generally preferred. These leave out projects with considerable sustainable development and GHG reduction benefits but have high transactions cost, low profitability, and high monitoring costs. In some sectors, these projects have generally been possible only because of the CDM. Even so, projects that have taken part in the CDM have so far been only those that are able to efficiently address those barriers and deliver a net positive effect to its

financial viability. Projects that are barely financially viable even with the aid of the CDM or those that cannot be implemented under the CDM regime may be feasible only under the social finance scheme.

Thus it is important to examine any trend on how these barriers actually affect the projects by sector and by methodology of reducing GHGs.

What are the conditions for financial mechanisms to work?

Even with financial barriers present, there still are a number of mitigation projects which are implemented under social finance or carbon finance. Projects under carbon finance are, at the least, undergoing the different stages of CDM development. These positive developments show that for these financial mechanisms to work, institutions are present to support these projects. These institutions can be LGUs, financial institutions, NGOs, private entities, and/or private institutions. The roles of these institutions can range from being a facilitator or coordinator of the funds, in-charge of the monitoring, and facilitator or manager of carbon credits.

Thus this study aims to look at the roles of these institutions in the success of mitigation projects.

What are the promoting conditions for local governments in the Philippines to facilitate financing of local climate change actions?

This study identifies promoting factors to facilitate financial mechanism for local climate change actions such the mandates of LGUs that host mitigation projects, their level of participation in global and national efforts of mitigating climate change, and how they are able to access funds to support these initiatives. The study also aims to find out how other institutions can substitute for the LGUs' role with regards to facilitation, coordination, monitoring and access to financial resources when the latter is not functioning as well as it should.

Section 2: Methodology

This section gives an overview on how the study has been implemented. It revisits the methodology of the study as carefully outlined in the Work Plan for the study which was submitted to IGES on 22 September 2008. The Work Plan provided a footprint for the study to follow, hence the tasks here were organized to follow the tasks specified in the Work Plan.

Thus, this section identifies the work done under each of the four (4) tasks:

Task 1: Identification of local level development-oriented mitigation projects and their finance

Klima collected cases of development-oriented local level mitigation projects in the Philippines by reviewing written literature, carrying out a survey via the internet, and interviewing key personnel. A short survey questionnaire (Questionnaire 1) was formulated to record vital information about the projects and find out if the local government unit and/or community are involved in the implementation of the project. The survey was limited to the following sectors identified by the study: (1) energy efficiency, (2) renewable energy, (3) waste and waste management, and (4) transport. Annex 1 provides a list of mitigation projects that were identified.

All the identified projects were further evaluated in terms of source of finance using Questionnaire 2. The study specified two (2) main sources of financing: (1) ***Social finance*** that seeks social and environmental values as well as economic returns, including non-profit microfinance, donations from foundations and corporations based on corporate social responsibility (CSR) and individual contributions, and (2) ***Carbon finance*** which is derived from the sale of carbon credits generated by projects under the voluntary or regulatory regime.

The projects were classified as to whether the investments are sourced from private funds or public funds (public vs. private). Then, the underlying finance were classified as those investments which clearly seek returns (profit) or those whose investments come from non-profit microfinance, donations based on CSR and individual contributions (non-profit). Lastly, the projects were classified as to whether their investments were of domestic or international origin (domestic vs. international). Results of this classification were presented in a matrix which ca be found in Annex 2.

The list of projects which availed of carbon credits, on the other hand, are presented in Annex 3.

Of the several climate change mitigation projects surveyed, nineteen (19) projects were short listed as having the greatest potential of LGU and/or community involvement. Please refer to Annex 4 for the complete listing of the short listed mitigation projects. The nine case studies were selected from this list.

Questionnaire 3 was formulated to guide the interviewers in soliciting the necessary information for the in-depth study of the nine selected projects.

Upon identification of the nine case studies, klima scheduled site visits and interviews to the key personnel of the projects. Several parties involved in the

projects were interviewed to solicit and validate the information provided. Further researches via the internet and other literatures were done whenever possible. The relevant information gathered were tabulated and evaluated. (Please refer to Table 6 on Section 6 for the list of nine case studies).

Task 2: Barriers to finance local mitigation projects and necessary conditions for alternative financial mechanism to work

For this study, general categories of barriers were identified namely, (1) financial or investment, (2) technological, (3) institutional, (4) social, and (5) prevailing practice. These were included in Questionnaire 1 to help provide some background on the barriers that confront local level development-oriented projects. Financial or investment barriers were stressed, when possible, to aid in arriving at some preliminary findings for the financial barriers. A matrix according to the projects' pre-identified sector availing of carbon finance is presented as Annex 3 of this report. The source of underlying finance of these sectoral projects was looked into for possible trends and commonalities among their financial barriers. These will be discussed in Section 7.

Relevant financial institutions were also reviewed to provide some background on the roles they play to support local-level mitigation initiatives in the Philippines. This is discussed further in Section 4 of the report. These roles will be further validated in the in-depth case studies to be done.

Task 3: Promoting factors for local governments to facilitate alternative financial mechanism for local climate change actions

klima gathered information on the promoting factors to facilitate alternative financial mechanism for local climate change actions such as, (1) given mandate, (2) access to information on economic and development benefits of mitigation projects through international linkages, and (3) access to international financial and technical assistance. Questionnaire 3 guided the interviewers in soliciting the said information. Special attention was given to the roles of the local government units and the local and/or international organizations in implementing and/or facilitating mitigation initiatives.

Task 4: Reports

In consonance with the schedule for this study, the following reports have been submitted:

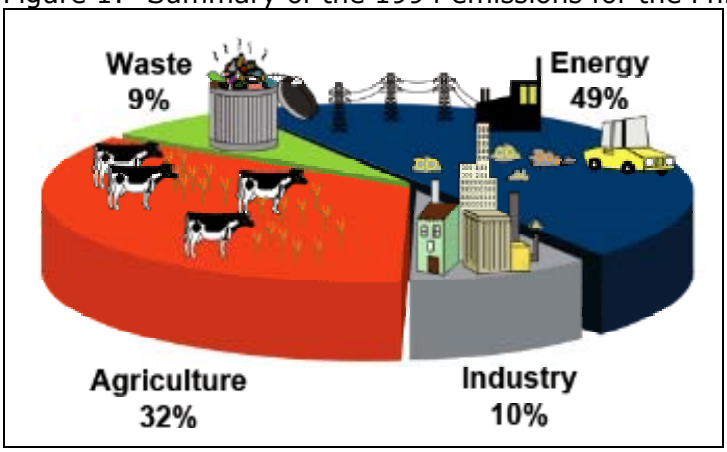
- Work plan – submitted on September 22, 2008
- Interim report – submitted on October 31, 2008
- Final report – submitted on December 17, 2008
- Revised final report – submitted on January 13, 2009

Section 3: Philippine GHG inventory and mitigation action plans and efforts

Stabilizing GHG emissions in the atmosphere has been the main driving force for identifying mitigation options and strategies. Although developing countries such as the Philippines have low per capita emissions, mitigation initiatives still provide great opportunities not just for the issue of climate change but also to address pressing social and development issues.

The Initial National Communications submitted by the Philippines in 2000 to the UNFCCC, with 1994 data, identified four sectors with significant GHG emissions. These are the energy, industry, agriculture and waste sectors (See Figure 1). The energy sector accounted for almost half of the total emissions of the country with 49%. Emissions from this sector are primarily from fuel combustion from power generation and transport. The agriculture sector accounted for 32% where emissions are mainly from decomposition of agricultural wastes. The Industry sector accounted for 10% of the total GHG emissions while the waste sector accounted for 9% of the total GHG emissions.

Figure 1: Summary of the 1994 emissions for the Philippines



(Source: Manila Observatory, Underlying data source: Initial National Communication on Climate Change, 1999)

For the purpose of the study, only the energy sector (highlighting renewable energy, energy efficiency and transport) and the waste sector will be discussed.

Energy Sector

The energy sector plays a crucial role in development. According to the Initial National Communications, the energy sector of the Philippines emitted 50,038 kilotons of CO_2 emissions in 1994 primarily from fuel combustion in the power generation and transport sector.

Table 3: GHG Emissions from the Energy Sector.

Sub Sector	CO2 Emissions (ktons)
Power Generation	15,508
Residential	4,359
Industries	9,497
Agriculture	1,189
Transport	**15,888**
Commercial	3,370
Fugitive Emissions	227
Total	**50,038**

(Source: Philippine Initial National Communication, 1999)

The Philippines continues to rely on fossil fuels. In 2007, the Philippine energy mix continues to rely heavily on imported oil, which accounts for 34% of the total energy mix

Table 4: 2007 Philippine Energy Mix

Type of energy source	% of the Energy mix
Imported oil	34.0%
Geothermal	22.3%
Biomass	14.0%
Imported coal	10.3%
Natural gas	7.7%
Hydropower	5.4%
Local Coal	4.6%
Local Oil	1.6%
CME	0.1%
Ethanol	0.0%
Solar, Wind and Micro-Hydro	0.0%

(Source: Philippine Energy Situation presentation.
Site: http://www.doe.gov.ph/cc/AMR%20Philippine%20Energy%20Situation.pdf)

Options to reduce GHG emissions from the Energy Sector

The Philippines is endowed with vast natural resources. Renewable energy sources are abundant and can be harnessed in order to lessen dependence on fossil fuel and to reduce GHG emissions. The Philippine Department of Energy (PDOE) is identifying measures and opportunities to tap these resources.

Geothermal
The PDOE has set its goals for the Philippines to become the largest geothermal energy producer in the world. Currently, it is the second largest producer of geothermal energy next to the United States. In 2007, geothermal energy accounted for 22% of the energy mix. There is still a total untapped potential geothermal resource of up to 2,600 MW.

Wind
The Philippines also aims to be the leading wind energy producer in Southeast Asia. A study funded by the USAID in 1999 which was led by the US NREL, in collaboration with PEI and MO, identified potential wind sites in the Philippines. It is estimated that the overall wind energy potential installed capacity of the Philippines is around 76,600 MW.

Solar
One of the goals of the PDOE to increase the country's opportunities to tap renewable energy sources, is to be the solar manufacturing export hub in Southeast Asia. In a study conducted by the NREL on the Solar Energy Potential Sites of the Philippines, it is estimated that the country has an annual potential average of 5.1 kWh/m2/day. Solar energy is also seen as a potential source to electrify far-flung areas that are not connected to the power grid.

Biomass
The Philippines has abundant biomass resources which include bagasse, rice hulls, and coconut residues. These biomass resources are used as energy sources, particularly by sugar millers in the Visayas region that is regularly experiencing some electricity shortage because they are at the end of the electricity grid pipeline.

Hydropower
Hydropower resources are often tapped for electricity purposes particularly in the Mindanao region where hydropower resources are vast. A large part of Mindanao's electric grid comes from hydropower sources. Based on the UP Solar Lab's review of the small hydro resource assessment by NREL, there are at least 236 potential small hydro sites with capacities of 5-10 MV. Several Small Grants Projects funded by GEF involve hydropower projects.

Alternative Fuels
With the rising costs of fuel importation and with the goal of achieving energy independence, the use of biofuels and other alternative fuels are being examined. Thus, the Philippine government is focused utilizing alternative fuels such as biodiesel, bioethanol and natural gas. The Biofuels Act includes a provision for the mandatory blending of 5% bioethanol with gasoline within 2 years and the blending of 1% biodiesel with diesel within 3 months after the law took effect in 2006.

Energy Efficiency
Energy efficiency is seen as an effective strategy to reduce energy consumption which translates to energy savings as well as help reduce emissions. The Philippine government has initiated several energy efficiency projects such at the National Energy Efficiency and Conservation Program and the GEF-funded Philippine Efficient Lighting Market Transformation (PELMAT) project of the DOE. Energy efficiency is also being promoted by several LGUs particularly in their offices.

Transport Sector
The transport sector contributes significantly to the increasing levels of GHG emissions. Urban areas and mega cities are plagued by increasing volumes of vehicles that have detrimental impacts on health and the environment. The Philippines has introduced measures involving the promotion of cleaner technologies and the introduction of vehicle emission standards to lessen the environmental impacts from the transport sector. Some LGUs have also initiated strategies to reduce emissions from public transport such as tricycles and jeepneys by switching their current fuel type to a cleaner one.

Waste Sector
According to the Philippines' INC, the waste sector contributed 9% of the total country emissions. The waste sector emitted 7,094 kilotons of in 1994 coming from solid wastes, municipal solid wastes, industrial wastewater and human sewage (Please see table 5).

Table 5: 1994 Emissions from the Waste Sector.

Sub Sector	CO_2 Emissions (ktons)
Solid Wastes	4,253
Municipal Wastewater	966
Industrial Wastewater	920
Human Sewage	954
TOTAL	**7,094**

(Source: Philippine Initial National Communications)

Looking at options and strategies for LGU mitigation activities, the waste sector is seen as the highest potential source that can be tapped for implementing mitigation activities. The Philippine Environment Monitor of 2001 estimated that an average Filipino generates around 0.3 to 0.7 kilograms of garbage daily depending on income levels. Furthermore, a World Bank study shows that the National Capital Region (NCR) or Metro Manila contributes around 23% of the total waste generated by the Philippines. The Garbage Book published by the ADB also stated that in 30 years, Metro Manila alone will generate an estimated 70 million tons of waste. The Local Government Code of 1991 identified that the LGUs have the primary responsibility of planning and implementing solid waste management programs. Furthermore, the Republic Act 9003: Ecological Solid Waste Management Act provides some guidelines and a timeframe for compliance which LGUs have to adhere to for a systematic approach to waste management. One of the important stipulations of RA 9003 is the conversion of disposal sites to sanitary landfills.

Waste management, particularly the smooth transition from having an open dumpsite to sanitary landfill, continues to be one of the challenges faced by local government units particularly cities and municipalities. Compliance rate for RA 9003 is very low among LGUs for a number of factors. These factors include financial constraints, social awareness among its citizens, improper waste disposal, population growth and changing lifestyle. Based on the statistics from the National Solid Waste Management Commission, as of the 2nd Quarter of 2008, there are still 712 open dumpsites and 273 controlled dump facilities. There are only 21 landfills and 214 proposed landfills.

Options to reduce GHG emissions in the Waste Sector

LGUs have adopted several strategies for waste management which has also enabled them to reduce GHG emissions. Several LGUs have implemented some methane capture facility and used some of it for electricity purposes while some considered composting as a way to mitigate GHG emissions. Other LGUs have also implemented some recycling programs and installed some Materials Recovery Facilities (MRF) for recycled materials. Intensive information awareness campaigns are also being implemented on proper waste disposal.

Recent Efforts of the Philippine Government in Addressing Climate Change Mitigation Particularly the CDM[4]

National Authority for the CDM

The Philippines is signatory to the Kyoto Protocol. It ratified the Protocol in 2003 and signed in June 2004 Executive Order (EO) 320 designating the DENR as the National Authority for the CDM. Some of the powers and functions of the Philippine DNA are the following:

- Formulate and develop a national policy;
- Develop criteria, indicators, standards, systems and procedures and evaluation tools for the review of the CDM projects;
- Undertake the approval and assessment of projects that will be submitted to the UNFCCC and the Kyoto Protocol;
- Monitor the implementation of CDM projects;
- Create Technical Evaluation Committees (TEC)

The DENR Administrative Order No. 2005-17 (DAO 2005-17), and its manual of procedures on the other hand provided for the Rules and Regulations of the DNA. It put in process the system of national approval in the Philippines.

Presidential Task Force on Climate Change

Created in February of 2007, the Task Force is an inter-agency undertaking that is geared to conduct a rapid assessment of the impact of climate change, particularly on the most vulnerable sectors such as agriculture, water, coastal and marine ecosystems. It will also stand guard on compliance with air emissions standards and work against deforestation while promoting environmentally friendly projects on renewable energy, energy efficiency and waste managements. As an inter-agency task force, the member-Departments include the DENR (environment), DOE (energy), DOST (science and technology), DA (agriculture) and DILG (interior and local governments). Representatives from private sectors are also included in the group.

Relevant Laws

On the part of the legislative body, the Biofuels Act of 2006 (otherwise known as RA 9367) was finally signed into law in early January 2007, paving the way for the utilization of indigenous renewable and sustainable energy sources that will reduce the use of imported fuels. This was one of the two priority legislative measures of the administration as stated during the State of the Nation Address (SONA 2006) of President Gloria Macapagal-Arroyo.

The Renewable Energy (RE) Bill has been signed by the President of the Philippines and shall take effect soon. The RE Bill, among others, aims to promote the use of the country's indigenous fuel sources, provides for additional tax incentives and ensures prioritization in the spot market of electricity from renewable energy sources.

Private sector support to these initiatives is worth mentioning as well. The series of information awareness activities and obvious incentives given by the government to climate-friendly investments and businesses have penetrated the consciousness of

[4] Laurente, JS. "Policies, Politic and Climate Change", *Intersect Magazine (Apr-June 2007)* pp. 31-35

the private sector and enable them to look into climate friendly activities and projects that will not only enhance their revenues but also contribute to building their corporate social images. Of particular interest is the influx of investments in the production of ethanol and jathropa for biofuels, waste management projects that capture methane for electricity, and various transportation-related projects that incorporate the use of lesser greenhouse gas-emitting fuel sources. Various projects that utilize renewable energy have also been promoted, most notable of which is the use of solar energy.

Section 4: Existing financial schemes that can be tapped as source of funds for climate change

This section briefly discusses the existing schemes that are being offered by the different Philippine financial institutions that can be tapped as potential sources of funds for climate change mitigation projects, especially for the LGUs. Though most of the funds reviewed here are general funds that target environmental projects in general, some of the funds are beginning to realign their efforts to include climate change initiatives, particularly those that exploit the market for the CDM.

Among the financial schemes highlighted in this section are those of the Development Bank of the Philippines and the Land Bank of the Philippines, both government owned and controlled financial institutions. Being the authorized disbursing arms of the Philippines' Department of Budget and Management, the role of these institutions in national government-led environmental undertakings and that of local government environmental projects cannot be undermined.

There are also other private financial institutions providing financing for CDM projects. Their engagements, however, are on a limited basis, and are not discussed here. However, it is notable to mention them. They are First Metro Bank, Bank of the Philippine Islands and the Banco de Oro Universal Bank.

While the Internal Revenue Allotment or IRA is not an institution in itself but a public fund by nature, it is also reviewed in this section because of the special role it plays in realizing the financial closures of most local government-led and high sustainable development- impact projects. Lastly, a short review of the Build-Operate-Transfer Scheme is included here, being the most common form of financial scheme especially for small-scale CDM waste management projects and one where LGUs stand to benefit.

Development Bank of the Philippines[5]

The Development Bank of the Philippines (DBP) is one of the leading financial institutions in the Philippines actively supporting environmental projects. It has publicized that the Development Bank of the Philippines (DBP) is furthering its support to environmental protection by tapping a 10 billion (PhP4.535 billion) facility from the Japan Bank for International Cooperation (JBIC) that will finance enterprises implementing Clean Development Mechanism (CDM) projects. The said facility will be available in the retail and wholesale lending windows of the DBP.

The following are the environmental lending Programs of DBP:

a) Industrial Pollution Control Loan Project II focusing on small and medium enterprises that will support investment in efficient productions and environmentally sound technologies and will promote environmental protection and occupational health and safety;
b) Environmental Infrastructure Support Credit Program II which aims to support investments in project that will improve the quality of the environment through reduction or prevention of pollution.

[5] (www.devbankphil.com.ph), (www.klima.ph/news/dbp3.htm)

The Program Development Office of DBP provides assistance to project proponents intending to develop CDM projects. The projects being developed for CDM are either new projects or projects already in the loan portfolio of DBP but will require rehabilitation or enhancement. All projects requesting for financial assistance must pass through the regular loan processing of DBP before being endorsed to the Program Development Office for CDM documentation. The assistance provided includes preparation of the Project Design Document, advances for the transaction costs and sale of the CERs. DBP requires that all CER revenues will be used for loan amortization.

Landbank of the Philippines[6]

Landbank is another government financial institution that actively supports environmental initiatives through their three Countryside Loan Funds (CLF) (CLFI, CLFII and CLFIII). These wholesale credit facilities from the World Bank were made available to partner financial institutions for on-lending to private investment enterprises. Landbank also offers the Retail Countryside Fund, a direct credit facility for sub-borrowers that will develop environment friendly projects. The bank also acted as financial agent and co-implementing agency of the US$10.58 million National CFC phase-out Plan funded by the Montreal Multilateral Fund through the World Bank. A total of PhP1.9 billion in loans were also released to help 16 local government units improve water and sewerage systems, solid waste management capabilities and other important public infrastructure. These projects were financed through the World Bank-Water District Development Project, the JBIC-Local Government Unit Support Credit Program and the ADB-Mindanao Basic Urban Service Sector Program.

To support the development of CDM projects in the Philippines, Landbank has organized a group that will assist project proponents in developing potential CDM projects. The assistance includes the development of Project Design Document, advances for the transaction costs and the sale of CERs. The projects to be developed for CDM originate from the loans division of the bank where the project would be evaluated based on existing loan criteria of the bank. These projects maybe included in the loan portfolio of the bank or new projects.

Asian Development Bank (ADB)[7]

ADB has launched various targeted initiatives in the framework of Climate Change Program. Among the key components of the program are:

- The Energy Efficiency Initiative, which aims to expand clean energy portfolio to $1 billion a year by 2008 by supporting capacity building and developing specialized financial services under its Clean Energy Financing Partnership Facility;
- Energy for All, which will increase access by the poor to clean and efficient energy services;
- Sustainable Transport Initiative, which is working on pilot urban transport project in various cities to develop sustainable and integrated transport solutions; and

[6] (www.landbank.com)

[7] http://www.adb.org/Documents/Speeches/2008/ms2008021.asp

- The Carbon Market Initiative, which provides upfront financing and technical support to developers and sponsors of projects with GHG mitigation benefits that can be eligible for the Clean Development Mechanism.

ADB is also pursuing a Future Carbon Fund, which is designed to provide upfront financing for carbon credits that are generated much beyond the 2012 timeframe from ADB-assisted projects. With the existing Carbon Market Initiative and the proposed Future Carbon Fund combined, ADB will be able to provide underlying finance, long-term carbon finance, and grant-supported technical assistance for CDM processing all in one package.

LGU Guarantee Corporation (LGUGC)[8]

LGUGC is a private financial credit guarantee institution owned by the Bankers Association of the Philippines (38%), Development Bank of the Philippines (37%) and the Asian Development Bank (25%). The primary goal of the institution is to make private financial resources available to creditworthy local government units (LGUs) through its credit guarantee. The credit enhancement enables LGUs to access the capital market to develop infrastructure.

The LGUGC guarantees the indebtedness of the LGUs, water districts, electric cooperatives, renewable energy technology providers and state universities and colleges. The guarantee fee depends on the credit risks of the borrower and the project risk. It will range from 1% to 2% per annum. Private financial institutions will normally require an LGUGC guarantee for the loans extended to LGUs

Capacity Building To Remove Barriers To Renewable Energy (CBRED)[9]

CBRED project is funded by the Global Environment Facility (GEF) and the United Nations Development Programme (UNDP) and implemented by the Department of Energy (DOE). CBRED is a capacity building program in support of the renewable energy initiatives being implemented in the Philippines. It has several components including a financial mechanism that will support renewable energy projects to showcase the applicability, viability and sustainability of both the financing and delivery mechanisms. The objectives of this component are: (1) to establish financing mechanism that will support projects that employ innovative renewable energy delivery mechanism; (2) to enhance the capacity of the project developers in meeting the requirements and criteria of financing institutions; and (3) to generate interest and support from potential investors and donor agencies on the financing of pipeline renewable energy projects developed through the Project Funds.

The following funds will be established under this component of CBRED:

a) Project Preparation Fund (PPF) – a partial grant funds intended to support the cost of preliminary activities such as market assessment, technical data gathering, site assessment, engineering design and feasibility study;
b) Loan Guarantee Fund (LGF) – a financing mechanism meant to provide guarantee to a renewable energy project loan that may require a high level of securitization or for small high risk projects where proponents are inadequately capitalized and/or cannot provide sufficient collateral;

[8] (www.lgugc.com)
[9] (cbred.doe.gov.ph)

c) Micro-Finance Fund (MFF) – a loan mechanism intended to finance small-scale, including household level type of projects, in remote, off-grid areas. The loan shall have relaxed terms to expand renewable energy services to a greater number of beneficiaries.

Government Environmental Facility (GEF)[10]

The GEF is a global financial mechanism established in the International Bank for Reconstruction and Development (IBRD) as a program in order to assist in the protection of the global environment and promote environmentally sound and sustainable economic development. The Philippines is a GEF-member recipient country. The World Bank, the United Nations Development Programme (UNDP), and the Department of Energy (DOE) are the main agencies for the GEF in the Philippines. The focal point of the GEF is the Foreign Assisted and Special Project Office (FASPO) of the Department of Environment and Natural Resources (DENR). Project proposals for endorsement to GEF are evaluated by concerned agencies depending on the type of project. Among them are the Protected and Wildlife Bureau (PWB) of the DENR for biodiversity projects and the Environmental Management Bureau (EMB) of DENR for climate change projects. The EMB is assisted by the Interagency Committee on Climate Change (IACCC) in evaluating climate change proposals.

Internal Revenue Allotment (IRA[11])

The Internal Revenue Allotment is a major source of funds for the projects of the LGUs. Financial institutions often use the IRA of the borrowing LGUs as a security for the loan and source of loan repayment.

The share of the LGUs from the national taxes is mandated under Section 6, Article X of the Philippine Constitution which provides that LGUs shall have a just share, as determined by law, in the national taxes which shall be automatically released to them. This is to augment local resources to ensure that the minimum level of basic services is delivered to the LGUs' constituents. Under the Local Government Code (LGC), LGUs are given shares from national tax revenues in the form of Internal Revenue Allotment (IRA) and proceeds from the utilization and development of national wealth. Additionally, revenues from other national taxes are shared with some LGUs under special laws, such as a share from the value added tax (VAT), share from excise taxes on locally-manufactured Virginia type cigarettes and share from the income earned of businesses and enterprises located within the ecozones.

The share of local government units in the internal revenue allotment is allocated in the following manner:

a) Provinces - Twenty-three percent (23%);
b) Cities - Twenty-three percent (23%);
c) Municipalities - Thirty-four percent (34%); and
d) Barangays - Twenty percent (20%)

Local government units shall, in addition to the internal revenue allotment, have a share of forty percent (40%) of the gross collection derived by the national government from the preceding fiscal year from mining taxes, royalties, forestry and

[10] http://www.gefcountrysupport.org/report_detail.cfm?projectId=200
[11] http://www.lawphil.net/statutes/repacts/ra1991/ra_7160_1991.html, http://www.ntrc.gov.ph/NTRC0032.doc

fishery charges, and such other taxes, fees, or charges, including related surcharges, interests, or fines, and from its share in any co-production, joint venture or production sharing agreement in the utilization and development of the national wealth within their territorial jurisdiction.

Section 18 of the Local Government Code provides the local government units the power and authority to establish an organization that shall be responsible for the efficient and effective implementation of their development plans, program objectives and priorities; to create their own sources of revenue and to levy taxes, fees, and charges.

Section 286 of the Local Government Code provides for the Automatic Release of Shares. - (a) The share of each local government unit shall be released, without need of any further action, directly to the provincial, city, municipal or barangay treasurer, as the case may be, on a quarterly basis within five (5) days after the end of each quarter, and which shall not be subject to any lien or holdback that may be imposed by the national government for whatever purpose.

Build-Operate-Transfer Scheme (BOT)

BOT schemes and its variants provide opportunities to reduce risks especially for mitigation projects whose technology poses certain risks. This scheme has proven beneficial to a number of small scale CDM projects[12] in the waste management sector. More often, pig/chicken farm owners are not willing to spend for waste management treatment facilities that are not mandated by law. The perceived benefits from the carbon markets are often not enough to lure these farms into spending for these projects. Thus, other private entities, particularly providers of waste management technologies are taking on the risks by providing BOT schemes to these farm owners, in exchange for a share in credits that can be derived from the project.

The BOT scheme, furthermore, is being promoted by the government of the Philippines, by virtue of Republic Act 7718 (BOT Law Scheme). Under this law, private proponents can enter into contractual agreements with the LGUs to undertake any or a combination of the following: construction, financing, maintenance of infrastructure facilities. After a certain period, and after compensating the private entity- proponent at agreed terms, the ownership is acquired by the LGUs.

[12] Projects by Philbio, CTRADE, SURE and other waste technology providers and private entities that are applying for CDM

Section 5: General survey of local development-oriented mitigation projects and the financial mechanisms that support them

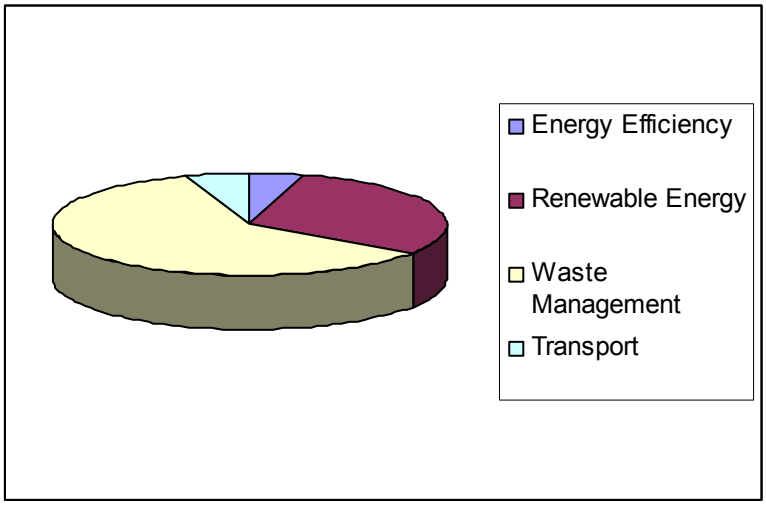
This section discusses the results of the initial survey that was conducted by klima in September until October 2008 using Questionnaires 1 and 2.

Climate Change Mitigation Projects By Sectors

The survey resulted in the identification of one hundred thirteen (113) development-oriented mitigation projects in the Philippines. Mitigation projects that do not fall within the four sectors specified by the study were excluded from the survey list. The sectoral groupings of the identified mitigation projects are as follows:

- Energy Efficiency – 5 projects (4.5%)
- Renewable Energy – 34 projects (30.0%)
- Waste and Waste Management – 68 projects (60.0%)
- Transport – 6 projects (5.5%)

Figure 2: Mitigation projects in the Philippines by Sector



Energy efficiency projects include system loss reduction, efficient lighting and heat recovery power generation implemented by private entities.

Renewable energy projects include hydro projects (micro hydro and pico hydro), solar power generation, geothermal power generation and biogas digesters. Forty-three per cent (43%) of the projects under renewable energy are hydro projects. The projects are implemented by private entities, non-government organizations and local government units.

Waste and waste management projects include animal waste management, and solid waste management with composting and liquid waste management. Sixty-eight per cent (68%) of the identified projects are animal waste management projects for piggery farms. The projects are implemented by private entities, local government units and non-government organizations.

Transport projects include the use of electric jeepneys, retrofitting of tricycles, automated dispatch system for public buses and provision for bikeways. The projects are implemented by private entities, government agency, non-government organization and local government unit.

Financing involved in climate change mitigation projects

Underlying Finance
The underlying finance of the surveyed mitigation projects were classified as either privately or publicly sourced. The result is as follows:

Privately financed	:	77
Publicly financed	:	33
No financing yet	:	3

Private finance includes private investment for equity, loans from commercial banks, and energy service company (ESCO), which is a special financial scheme for energy efficiency improvement projects.

Public finance includes grants from national government, local public finance through taxation and bond issuance, finance from public financial institutions, and official development assistance (ODA), which can either be bilateral or multilateral in form.

Most notable of multilateral ODA is the GEF. Twenty-eight (28) projects are financed through the GEF. The GEF funded projects surveyed vary in terms of scale. Some projects would cost millions of US dollars, like the CEPALCO Distributed Generation 1 MW PV Power Plant. Some projects would be small scale in the range of US$15,000 – US$50,000 like the community based micro hydro projects.

Some GEF funds are channeled through local NGOs who implement and manage the projects, like the Sibol ng Agham at Teknolohiya (SIBAT) and YAMOG. SIBAT partners with Farmers' Organization or Indigenous People's Organization and the local church in the development of the hydro projects. The installed capacity of these hydro power projects range from 2 kW to 40 kW. The number of household beneficiaries would range from 11 to 190.

There are also mitigation projects directly financed by bilateral ODA. An example is the Alliance for Mindanao Off-Grid Renewable Energy (AMORE) projects funded by USAID. The project is in partnership with the Department of Energy, the Autonomous Region in Muslim Mindanao (ARMM) and the private entity Mirant Philippines. The project aims to bring electricity to at least 360 remote rural communities of former rebel combatants in Western and Central Mindanao. The Sorosoro Ibaba Development Cooperative communal digesters implemented in Batangas City was supported by the British Government under their Global Opportunities Fund for Climate Change and Energy Programme and their Renewable Energy and Energy Efficiency Partnership (REEEP). The ODA funding for this biodigester project disqualified them from being registered to CDM.

Projects which are locally-publicly financed from taxation are primarily sourced from the Internal Revenue Allotment (IRA) of the implementing local government units. Examples of these projects are the Integrated Ecological Solid Waste Management Systems of Dolores, Quezon and the establishment of biodigesters in the Municipality of Mogpog, Marinduque. The Mother Earth Foundation (MEF), a local NGO supports the LGUs in implementing better waste management by conducting capacity

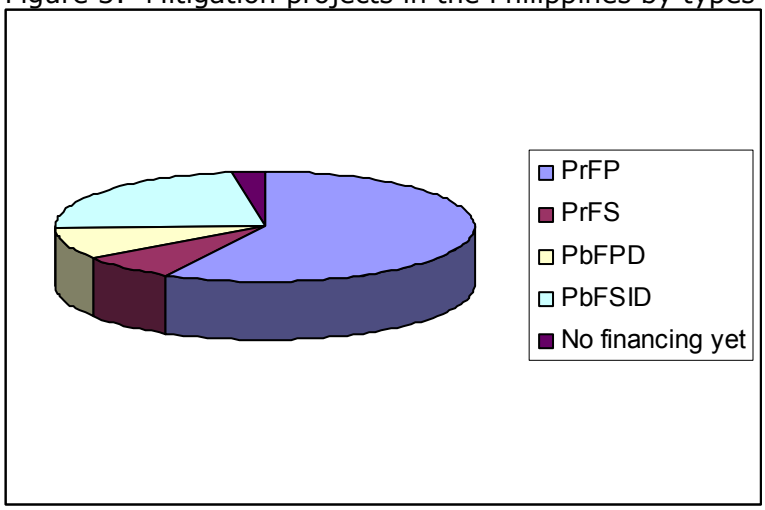
building. MEF promotes recycling and composting of wastes. These projects are are too small for CDM registration.

Some of the projects would involve the combination of public and private financing, as well as international and domestic sources.

Projects were also classified as to whether their investments were of domestic or international in origin. The results showed that only twenty-three (23) projects sourced their financing from local (i.e. domestic) funds. Eighty-seven (87) of these projects meanwhile were realized out of international funding. Three (3) projects did not have financing yet.

Lastly, Investments of projects for the underlying finance were classified as those investments which clearly seek returns (profit) or those whose investments come from non-profit microfinance, donations based on CSR and individual contributions (non-profit). Only thirty-nine (39) projects out of the total 113 surveyed came from non-profit financing, or those that can be considered social finance.

Figure 3: Mitigation projects in the Philippines by types of underlying financing



Legend:

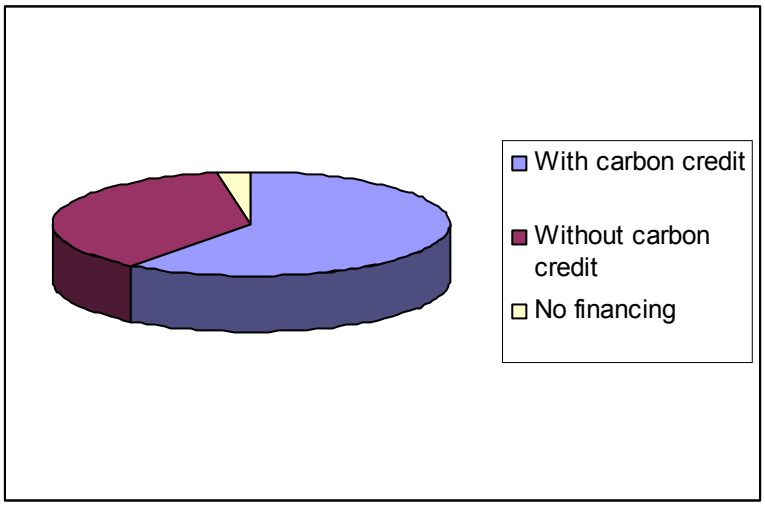
PrFP	-	Private finance for profit
PrFS	-	Private finance for non-profit
PbFPD	-	Public finance for Profit Domestically
PbFSID	-	Public Finance International/domestic non-profit

Carbon Finance

The one hundred and thirteen (113) projects were also evaluated whether the projects will receive carbon finance by generating carbon credits or not. The result is as follows:

- With carbon finance – 69 (61%)
- Without carbon finance – 41 (36%)
- No financing – 3 (3%)

Figure 4: Mitigation projects in the Philippines with and without carbon finance



Sixty-nine (69) of the mitigation projects surveyed are for registration to CDM and will receive carbon financing. Sixty-seven (67) of these projects fall under the private finance for profit category. Two (2) projects fall under the public finance for profit category, while three (3) potential CDM projects are still looking for financing. The projects under carbon finance are in varying stages, like, PDD preparation, proposing new methodology, securing national approval, under validation, requesting registration and CERs issued. Except for some power generation projects and big sanitary landfill projects, the volumes of the expected CERs of the Philippine CDM pipeline are not big. Forty-six (46) out of sixty-nine (69) projects under carbon finance are small scale piggery farm waste management projects. There is no market yet for Voluntary Emission Reductions (VERs) in the Philippines.

Forty-one (41) projects have been developed without the consideration of carbon finance or will not qualify for CDM registration because ODA funds were used in the projects.

The table below shows the distribution of mitigation projects in terms of underlying finance and access to carbon credits:

Table 6: Distribution of projects according to underlying finance and carbon finance

	PrFP	PrFS	PbFPD	PbFSID	No financing yet	Total
With carbon credit	67	0	2	0		69
Without carbon credit	1	9	1	30		41
					3	3
	68	9	3	30	3	113

Legend:

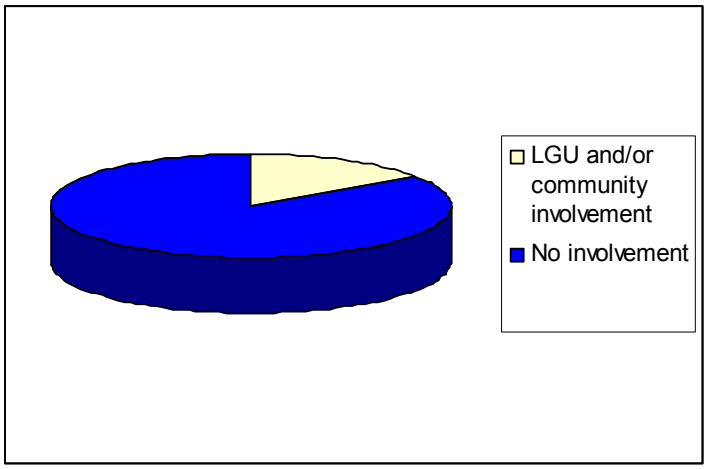
PrFP	-	Private finance for profit
PrFS	-	Private finance for non-profit
PbFPD	-	Public finance for Profit Domestically
PbFSID	-	Public Finance International/domestic non-profit

Climate Change Mitigation Projects by Sources of Financing and Involvement of LGU and/or local communities

The mitigation projects qualified for the study were further evaluated whether there is active local government unit and/or community involvement. The result is as follows:

- Local government and/or community involvement – 19 (22%)
- No local government or community involvement – 66 (78%)

Figure 5: Climate change mitigation projects with LGU/Community involvement



Only nineteen (19) projects or 22% of the projects identified funded by social or carbon finance have local government and/or community involvement. Sixty-six projects or 78% have limited or no local government and/or community involvement.

The role of the LGUs in the 78% which have limited or no local government/ community involvement, including the animal waste management projects is limited to promotions and issuance of the necessary permits and licenses. Thus, these projects will not be considered for the in-depth study. Also, while the local community stands to benefit much from various social and economic and environmental benefits out of these projects, ultimately, the projects are or will be implemented only by the project participants and will not directly involve the local communities. The *ADSW Treatment with On-site Power Project (RP2010) – Hacienda Bio-Eenrgy Corporation/Cecilia Stock Farm* located in Davao City, for example, which is being applied as a CDM project by Philbio and which has gotten great support from the LGUs in terms of promotion, will ultimately be implemented inside the piggery farm and thus, will only directly involve the project participants and the people directly hired for the project.

Section 6: The nine (9) case studies of mitigation projects with strong LGU/community involvement under the carbon and social finance schemes

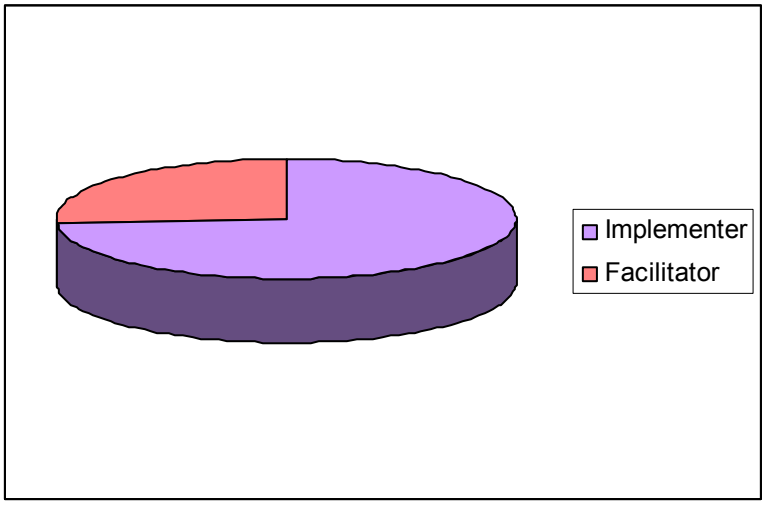
This section discusses the selection process and the profile of the nine (9) projects for the in-depth study.

Of the several climate change mitigation projects identified, nineteen (19) projects were short listed as having the greatest potential of LGU and/or community involvement. Please refer to Annex 4 for the complete listing of the short listed mitigation projects.

Of the nineteen (19) mitigation projects, the involvement of the LGU and/or community was surveyed as follows:

- Implementer – 14 (74%)
- Facilitator – 5 (26%)

Figure 6: Roles of LGUs/communities in the 19 short listed mitigation projects



Fourteen (14) mitigation projects were implemented by the LGUs with private entity partners and/or local and/or international NGOs. All four big sanitary landfill projects are owned and developed by private entities but being managed by the LGUs. The recycling and composting projects of the LLDA are implemented and monitored by the respective LGUs. The small scale hydro projects are owned and managed by the respective LGUs. Although the initial units of the electric jeepneys are donated by an international NGO, and facilitated by the local NGO, the recipient LGUs are operating the electric jeepneys and conducting studies on the commercial viability of the project.

The LGU and/or community acted as facilitator for the other five (5) mitigation projects since the implementers are local NGOs except for the EDSA Bus Dispatch System project of the Metro Manila Development Authority (MMDA) wherein the said government agency is the implementer. The project will pass through several cities and may need the assistance of the LGUs concerned in terms of terminal space requirement. The Gawad Kalinga Green Villages projects will have the highest community participation since the concept involves personal donations from recipient

communities in terms of monetary contributions or labor for the construction of the houses. The counterpart contribution of the concerned LGU is to facilitate the issuance of the necessary permits and licenses and to provide the site if necessary.

From the nineteen (19) short listed projects, nine (9) projects were chosen for the in-depth study due to the following reasons:

Table 7: Climate change mitigation projects for in-depth study

Financing		Name of Project	Project Description	Reasons for choosing the project
Carbon Finance	1	Envirofit Tricycle Project of Palawan	The purpose of the project activity is to address the high emissions of two-stroke engines by retrofitting up to 6000 carbureted two-stroke engine tricycles with direct in-cylinder fuel injection. Estimated Annual CER: 7,708	▪ Innovative financial scheme; ▪ Data availability; ▪ Strong LGU and community involvement
	2	Cebu Landfill Gas to Energy Project	The purposes of the Project are : (I) to reduce greenhouse gas (GHG) emissions by capturing and flaring the methane (CH4) gas from the existing Inayawan landfill, and (II) to avoid new GHG emissions from the decomposition of additional organic waste that would otherwise be disposed of in the landfill, through a process of anaerobic digestion with biogas collection. Estimated Annual CER: 78,889	▪ Standard practice for financing waste management of LGU; ▪ Data availability; ▪ Strong LGU and community involvement;
	3	Laguna de Bay Community Waste Management Project: Methane Avoidance-Bundle 1	The objective of the Laguna de Bay Community Waste Management Project is to implement a set of small scale waste management projects in the Laguna de Bay watershed. Estimated CER: 6,058	▪ Bundled project (multiple LGUs); ▪ Model scheme for LGUs with small volume of waste;
	4	Bolinao Methane Recovery Project	The Bolinao LGU is planning to install a landfill gas collection system at the existing landfill site. Collected LFG will be flared to mitigate the GHG. **ATTEMPED**	▪ Demonstrative case for unsuccessful CDM registration due to barriers regarding size; ▪ Representative of a typical LGU in the Philippines with small

			Estimated Annual CER: 6,787	volume of waste; ▪ Showed interest in CDM (participated in IGES training but failed to meet minimum volume of waste for economic viability)
	5	PDRC Biogas Digesters for the province of Cebu	PDRC intended to provide household biodigesters for several rural communities in the province of Cebu. **ATTEMPTED**	▪ Demonstrative case for unsuccessful CDM registration due to barriers regarding size; ▪ Strong community involvement;
	6	Sipangpang 1 New Mini Hydropower Plant	The proposed Project activity will be a 1 MW run-of-the-river hydropower facility, which is constructed on the Eyamjo River. Estimated Annual CER: 2,471	▪ Strong LGU and community involvement; ▪ Representative of a typical financing climate change mitigation project of LGU; ▪ Demonstrative case of small scale CDM project; ▪ Rich history of project development;
Social Finance	7	The Electric Jeepney Project in Makati City	Using electric jeepneys for transportation within the designated route.	▪ Strong LGU and community involvement; ▪ Demonstrative case for facing institutional barriers; ▪ Pioneering technology for urban public transport;
	8	Gawad Kalinga Green Villages	Developing green villages by using renewable energy for power and implementing waste management activities.	▪ Strong LGU and community involvement; ▪ Integrated approach to climate change; ▪ Represents a model community showing care for the environment; ▪ Innovative financial scheme to finance climate change

				mitigation projects
	9	Micro Hydro Project in Kiangan, Ifugao	A 15 kw micro-hydro plant. In 2002, 28 out of 150 households were beneficiaries of the plant.	▪ Strong LGU and community involvement; ▪ Shows lead role of NGO in developing climate change mitigation project; ▪ Shows NGO's role in empowering peoples' organization;

Please refer to Annexes 6.1 – 6.9 for the project narrative of the nine case studies.

As prescribed by the study, three (3) of the cases identified for the in-depth study are socially financed and six (6) cases are carbon financed. Due to the limited number of projects available, only two (2) cases under the carbon financed group are considered attempted. Both of these projects failed to meet the minimum volume of emissions reduction to attract project investors and carbon buyers.

All of the nine cases have strong LGU participation, with seven (7) of the projects directly being implemented by the local government. The other two (2) projects have been implemented by local non-government agencies in close coordination with the concerned local government.

The three (3) socially financed projects are really small scale climate change mitigation efforts with very little GHG emissions reduction. Two (2) projects, namely, the Electric Jeepney and the Micro Hydro Project received financial support from an international organization and are being assisted technically by local NGOs. The Gawad Kalinga is an internationally known NGO that gets financial support from Filipinos all over the world. They organize fund raising events locally and internationally. All of these three socially financed projects have access to technical and financial assistance and faced very little barriers in terms of financing. These projects also address local concerns, like, public transportation, access to electricity and home ownership and livelihood. Community participation is very strong in these types of project.

Under the carbon financed projects, five (5) projects are considered small scale and only one (1) project as large scale. Four (4) projects are considered demonstrated and two (2) projects are attempted. Three (3) of the four demonstrated projects received grants from international organizations or ODA. Only the large scale landfill to waste energy was able to implement the project without direct financial assistance. All of these projects have access to information and technical assistance from local and/or international organizations.

All pioneering technologies, such as the e-jeeps, waste to energy biogas and biodigesters face the same barriers of perceived risk and lack of know-how. Local financial institutions are hesitant to invest in these technologies for the same reasons. As such, without financial enhancement, either in terms of carbon credits or grants these projects may not be implemented.

Section 7: Results and conclusion: Barriers and necessary conditions to finance local mitigation project, and promoting factors for local governments to facilitate the financing of these mitigation projects

This section presents the conclusions of the study based on the data gathered. It is composed of three subsections, following the research questions posed at the beginning of this study.

Barriers to finance local mitigation projects in the Philippines

This subsection discusses the financial barriers that mitigation projects go through in the Philippines, based on the survey conducted. Then it provides some generalizations on the financing of local-level development oriented projects by, source of financing, sector and methodology of mitigation.

Barriers to Financing Local Mitigation Projects

Most mitigation projects often go through barriers which prevent them from obtaining adequate financing. These barriers are generalized as follows:

- Risks associated with securing the underlying finance (profitability, first-of-its-kind, transactions costs etc)
- Lack, or the absence, of specific regulations to address the complex nature of mitigation projects (permits and ordinances, franchises, legal i.e.conflicts with existing regulations which limit implementation of the projects etc)
- Size of the projects
- CDM-specific barriers (risks associated with the different stages of the project cycle – GHG estimation, additionality, host country approval, monitoring, validation/verification, registration etc)
- Others (social/cultural/political barriers etc)

Risks associated with securing the underlying finance

Securing the underlying finance for a project has always been a problem especially for pioneering technologies where initial investments are high and returns are perceived to be fluctuating (owing to the perceived nature of intermittent supply of input). Financial institutions are often afraid to invest in non-proven technologies or those projects where they have less experience.

Since most of the technologies being employed for the mitigation projects are new and are unknown to many Filipinos (i.e. lack of awareness), there are always problems of expertise and availability of skilled local personnel to operate and maintain the equipment. This is especially true in far-flung LGUs whose access to resources is severely limited by location, infrastructures and other alienating conditions (political, cultural etc). For example, it is common that small scale hydro projects located in remote rural areas experience the non-availability of technical people to do repairs. This leads to the need for project proponents or the technology providers to conduct workshops to train personnel in the operation of the equipment. Staff training and hiring of experts to train local personnel (as this has recently been the trend with mitigation projects, particularly CDM, in order to transfer technological know-how to local people) will incur cost that can further complicate the estimated expenses to be incurred for the project. Sometimes, project financing is available,

but the strict credit requirements of the funding institutions limit the access of these funds to only few project proponents with good credit standing and can provide collateral for the loan. Such is the case with most of the various financial schemes discussed in Section 4 of this report.

Small-scale mitigation initiatives implemented by the local NGOs and whose capitalization and/or operating funds are expected to be paid back from income from the projects themselves are facing major concerns on how these can be realized. While the feasibility studies indicate that these projects are profitable, the problem often lies on the inability of the beneficiaries of these projects to pay back their dues because most of these beneficiaries are poor communities whose incomes cannot cover for additional expenses related to climate change mitigation. Thus, there are cases where projects of these types are not replicated or discontinued because of the poor repayment performance of the beneficiaries.

The limited financial resources which are common characteristics of LGUs in the Philippines (with only the IRA as the primary source of income, and also collateral for the loans of mitigation projects) also tends to influence their decision on selecting which types of mitigation projects to support. While LGUs are seen as the link between the communities and the right institutions to materialize a sustainable development-laden project, still, those with higher profitability, lower gestation periods and higher returns, and low transactions costs have been generally preferred by the LGUs. This is most obvious from the CDM projects that have been supported by the LGUs so far.

Lack, or the absence, of specific regulations to address the complex nature of mitigation projects

Advances in technology have been fast that the developments in local regulations have been left to trail considerably behind. This is shown in the case of the Makati City Electric Jeepney. The acquisition of the necessary permits to operate and commercially use the electric jeepney is a major barrier encountered by the LGU who implemented the project. All vehicles plying in the public route must be classified and issued the necessary franchise and vehicle plates before they can operate. Since the electric jeepney is a new technology, it has taken a long time for the concerned government agencies to provide classification and issue the necessary papers. It had to take considerable efforts by the concerned LGU working on the permits to operate the electric jeepney in order to find key government officials who are supportive of their projects and to lobby with them in mediating with the government agencies in-charge of issuing the necessary permits and licenses.

Another issue that complicates this project is that the supplier and assembler of the imported technology like the engine of the electric jeepney needs accreditation from the concerned agency like, the Department of Science and Technology. The accreditation agency needs to set guidelines on how to properly evaluate the new technology and the suppliers and/or importers.

Also, the Department of Energy is promoting thermal and natural gas. But the other renewable energy sources, such as wind and solar technologies are not getting the same support and promotions. This also includes the biogas generated from sanitary landfill used in power generation. The Renewable Energy Bill is hoped to provide more incentives to renewable energy technologies, however, its passage is still waited by many.

Land conversion is another major concern that needs to be looked at. Take for example the Green Villages projects of the Gawad Kalinga. Since most of their project sites are not originally classified as residential areas, the issuance of licenses and clearances takes time and needs the utmost cooperation of the concerned government agencies. The project proponents have requested the concerned government agencies in-charge of issuing land conversion permits to work with them and consider the permit issuances as their contribution to the project.

Size of the projects

One of the most pressing concerns of LGUs is waste management. Because of population growth and the changing consumption patterns of Filipino people, some LGUs are usually home to a number of dumpsites. One of the major barriers for small cities and municipalities to develop waste management projects under the carbon finance is the small amount of garbage collected within their area. The volume of waste collected is not enough to make the project economically feasible especially if the project will employ methane collection and power generation. However, it is not easy to convince the local community to accept additional garbage from the nearby cities or municipalities as this has been a major political and social issue between some LGUs in the past. Thus, only large cities and municipalities are able to implement waste management projects, especially for CDM registration.

CDM-Specific Barriers

Over and above the usual financing barriers which all mitigation projects have to go through involving the CDM poses additional barriers that may actually hinder the realization of these kinds of projects, particularly those whose viability relies heavily on projected CERs.

First, transactions costs associated with the CDM may actually be a source of discouragement for some. Table 7 enumerates these costs.

Table 8: CDM Transactions Cost

CDM Project Cycle Transaction Costs	
PDD Costs	Monitoring Costs
National Approval Costs	Verification + Certification Costs
Validation Costs	Adaptation Fee
Registration Costs	Administration Costs

Obtaining actual transactions costs data has been a challenge, and as such, a generalization cannot be possible to reflect average country data. However, for a small-scale project in the Philippines, total CDM transactions cost can range from 2.8 million pesos up to 3.5 million pesos (49peso=US$1), excluding yearly monitoring costs and yearly administrative costs.[13]

Carbon buyers are now offering a variety of schemes which even result to offering underlying finances for qualified CDM projects and various financial assistance to include all the transaction costs of CDM in exchange for the carbon credits to be

[13] Rough estimates: PDD cost = Php. 500,000 to Php. 1,000,000; national approval= Php. 5,600 (fixed rate for small-scale projects; validation/verification = Php. 1,000,000 each; registration = Php. 75,000 (for a project with 15,000 ERs); monitoring equipments/training costs = Php.200,000. Based on costs (actual and projected) given by a project developer of small-scale waste to energy projects

generated by the project. These schemes are beginning to be fully exploited in the Philippines as evidenced by the Cebu landfill gas to energy project and most of the PhilBio initiated anaerobic digestion swine wastewater treatment projects (ADSW).

Others (social/cultural etc)

The Green Villages projects being developed by Gawad Kalinga, a local NGO, works on the concept of "*bayanihan*", a local tradition. The traditional *bayanihan* in the Philippines is best espoused when people in the community are working together to move a house from one place to another. This tradition has been expanded by Gawad Kalinga to include working together to construct a house by providing free labor and materials. Thus, all resources in the development of the Green Village are donated. Some communities need to adjust to this new concept instead of the traditional dole-outs from the national or local governments. The lack of awareness on the part of the community on environmental protection, and why this project chose to address this problem is also a problem to reckon with.

It has been observed, too, that resistance to changes if it means alterations in lifestyles and routines of Filipinos can also pose as barriers to hinder realization of mitigation projects as demonstrated by the EDSA Bus Dispatch System.

The aim of the automated dispatch system being developed by the MMDA is to regulate the number of buses plying a given route by maximizing the capacity of the buses. Thus, there will be some reduction in the number of trips per bus, but not necessarily reducing the amount of fares collected. The bus operators and drivers need to understand and accept this new system and be convinced that there will be no reduction in income.

The higher cost of CFLs, meanwhile, discourages consumers to use them instead of the cheaper traditional lights. Since CFLs are relatively new in the market, the consumers need to be convinced of the savings in electricity by using the CFLs.
There are apprehensions also on the part of the passengers on the safety of riding the electric jeepneys. The drivers and operators of jeepneys need to be convinced that the electric jeep can provide better income and contribute to the betterment of the environment.

The lack of skilled people in the remote rural community who can become officers of the cooperative in-charge of administering the hydro project is a major barrier. This is the case in Micro Hydro Power in Ifugao. The community members feel the added responsibility of becoming officers of the cooperative. There is also lack of interest in learning how to maintain and repair the equipment.

Sources of Underlying Finance for Climate Change Mitigation Projects

Mitigation projects identified in the survey were evaluated according to the sources of underlying financing. A few notable conclusions can be derived from the classifications of the projects:

First, that financial viability and ultimately, the perceived sustainability of the projects matter in whether the project will see implementation or not. Only thirty-five percent (35%) of the projects were realized under social finance, while the rest were implemented because investments for these projects see positive returns for the future.

Second, that all projects which availed of the carbon credits were primarily developed for profit. This goes to prove that an a priori condition for CDM projects is financial viability.

Third, that the private sector is still the main driving force for climate change mitigation projects in the Philippines. Seventy-seven (77) projects being funded from private sector, more participation from public fund sources are needed. This is essential because climate change mitigation is also considered as a public concern.

Fourth, that eighty-seven (87) projects availed of international financing and sixty-six percent (66%) of these considered revenues from carbon credits.

Local Level Development-Oriented Mitigation Projects, Social Finance and Carbon Finance

Mitigation projects identified in the survey were listed in a matrix according to its pre-identified sector with carbon financing. The resulting matrix is provided in Annex 3 of this report. A few interesting conclusions can be derived from the matrix:

First, that the carbon market (particularly CDM because there are no projects yet under the voluntary markets) has been a good instrument in realizing local level development-oriented mitigation projects as much as it addresses environmental concerns of the area to which it is implemented. This proves that financial instruments, which put values on the cost associated with GHG emissions and pollution is an effective tool for the realization of climate change mitigation projects in the Philippines. While social finance and donation are also effective mechanisms, additional incentives in the form of revenues from carbon credits are good movers for pushing for the realization of mitigation projects.

Second, that size really matters whether a project can be eligible for CDM or not. Size, measured in terms of the amount of carbon credits to be generated by the project, is a determining factor for CDM with CDM transactions cost being the benchmark for identifying whether the size for a particular project will matter for CDM. Those that obviously have low CER potential, even if they have higher sustainable development benefits and provide for stronger community participation, may not be implemented as shown by the two (2) attempted potential CDM projects that were discussed in the in-depth study. Closely related to the second conclusion is the fact that most of the climate change mitigation projects being implemented in the Philippines, whether under the carbon markets or social finance, are small-scale, following the definition of the term under CDM rules. While this proves that certain limitations in financing of large scale projects exist, this also proves earlier findings[14] that the Philippines has a lot of potential for small-scale mitigation projects, and thus, stands to benefit largely from it.

Third, that while CDM additionality criterion is an essential factor, it is not the determining factor for a project to be considered for CDM, or conversely, to be considered under the social finance in its absence. Being small-scale, most projects in the Philippines have strong chances of passing the barrier analysis, more so the

[14] " Bundling of Small-scale Projects under the CDM", unpublished report, Klima – Climate Change Center, a study commissioned by the UNEP RISO Centre under the CD4CDM Project, 2005

more detailed additionality test. It cannot be said, therefore, that projects availing of social finance has or may have failed the additionality test for the CDM.

Fourth, that access to information, technical and financial assistance is a clear determinant for participation in the carbon markets and/or availing of social finance, regardless of who initiates them.

Fifth, that some sectors have more potential to utilize social finance rather than engage in the CDM markets. Conversely, that some sectors are better off utilizing the CDM rather than pushing for its realization through social finance. Small scale mitigation efforts like energy efficiency projects implemented by private corporations as CSR, or small scale renewable energy projects implemented by the NGOs, will not merit CDM registration because of the small amount of GHG emissions reduction generated against the high transaction costs of CDM registration. On the other hand, waste management projects initiated by cities with large volume of waste will greatly benefit from CDM registration due to high potential of GHG emissions reduction.

Sixth, that though a limited number of mitigation projects have local and/or community involvement (22% of the total number of projects surveyed), the LGUs play a very active role in the implementation of these projects (LGU acted as implementer in 74% of the projects). With sufficient financial and technical support, the LGUs will be able to develop mitigation efforts that will properly address local concerns.

Conditions for financial mechanisms to work and promoting factors for local governments to facilitate the financing of these mitigation projects

This subsection talks about the institutions, and to a certain extent, frameworks, that support successful realization of projects availing of the carbon and social finance based on the nine case studies. These institutions are the LGUs, financial institutions, NGOs, private entities, private institutions and ESCOs or technology providers. There are also "frameworks", or enabling conditions whose presence provides the necessary environment for financial mechanisms to work. Lastly, this subsection provides some general statements that can be derived from the in depth- study on the roles of the LGUs.

Enabling Roles of Institutions

The nine case studies show that an institution/s committed to facilitating and managing the financial resources for the project can pave the way to the successful implementation of the project. With the longer gestation periods and higher costs of climate change mitigation projects as compared to other business as usual projects, a firm commitment is needed to see these kinds of projects being implemented and become sustainable. Therefore the level of awareness of the institution on the existing financial schemes (as outlined in section4) as well as on the potential role that carbon credits can portray for the project is crucial. The awareness, too and perhaps the commitment to provide solutions to environmental problems in particular climate change mitigation also matter. As the case studies have shown, the level of commitment and facilitation can come in a variety of ways, ranging from active implementer to facilitator.

The nine case studies also showed that any of the following institutions can facilitate and/or manage the financial resources of the project:

- LGUs
- Community officials/ local groups and homeowners (in the case of the Gawad Kalinga project)
- Financial institutions (banks, financing companies, fund management offices created by/for the funding agencies)
- NGOs/ civil society
- Private Entities
- ESCOs/ technology providers
- Carbon finance/ CDM consultants – (the case of AHL Carbono for the Cebu Landfill Project

Each of the nine case studies shows the variety of ways where these institutions play various important roles.

The strongest role that can create a big dent on the problem of financing climate change mitigation projects is perhaps that of providing the funds itself. This is where institutions that are generating income are important. The LGUs (through their IRA) can finance the project, either wholly or partially, and partner with other institutions (eg. a banking institution to handle the carbon credit side of the project) to make the project a reality. They can also use their IRA to provide for collateral or guarantee the loans which will finance the project.

Another challenging role is perhaps that of making the project self-sustaining for the future. In this aspect, private entities, ESCOs and NGOs/ civil society can lead the way in creating income-generating schemes. Local financing institutions look favorably, and are willing to invest at projects that have positive income streams. The carbon credits can come as additional income streams for the projects, though, as pointed in the previous subsection, the size of the project does matter in this aspect.

<u>Frameworks: Enabling Conditions</u>

The nine case studies showed that other than the players who take part in enabling the financing of climate change mitigation projects to happen, There are other conditions which act as fertile grounds to enable financing of climate change projects to prosper:

Presence of a sound monitoring mechanism to monitor the sustainability of the project, and to monitor the emission reductions generated by the project
Seven out of the nine case studies had some form of monitoring scheme in place. Those with strong monitoring mechanisms are those which are under the carbon finance scheme, those which are income-generating and those whose funding institutions require reporting. It is expected for those availing of the CDM to have a sound monitoring plan for the carbon credits. Therefore those who do not have sound monitoring plans may fail to avail of the CDM, as was the case for the two attempted projects, the Bolinao and the PDRC. The weakness of the PDRC, perhaps lies in its failure to intensify its monitoring mechanism, in that it involved a good number of project participants within a large project boundary.

Presence of CDM rules and regulations vs. non-binding rules in the voluntary markets
There is no voluntary market yet in the Philippines[15], though there are attempts to start voluntary credits[16] in recent years. The absence of the rules, and lack of awareness on recent developments in the voluntary markets make it hard for local institutions to exploit the market. Hence, between the two, CDM has been preferred. Among the nine case studies, no project has tried to avail of voluntary markets.

Creative ways of utilizing various financing mechanisms for a project
Social and carbon financing can certainly use an array of existing financial mechanisms available in the market to compliment it. ODA can be used for underlying finance of projects under the CDM, as demonstrated in a few of the case studies. Loans and grants can also be used by a project under the CDM without violating any relevant rules of the CDM. Innovative uses of donations-in-cash and donations in kind can also be used to finance mitigation projects.

Cultural practices such as the "bayanihan", can be put to good use under the social finance in order to jump-start mitigation projects. However, it must be noted that this system is not self-sustaining and relies only on donations to thrive. Perhaps, the example of the Envirofit project which utilizes a grant to start its operations but provides for self-sustaining measures can make projects under this system sustainable.

Enactment of Laws and binding commitments from parties involved
LGUs with legislations/ordinances on climate change mitigation projects are able to exploit existing financial mechanisms because financial institutions are more keen on investing/supporting institutions that have binding commitments, and have enough teeth to implement the projects. Almost all the demonstrated carbon finance projects with LGU participations have had ordinances enacted to support or facilitate entry of such projects in their localities.

The E-jeppney project is worth mentioning also because it paved the way to redefine existing definitions of public transportation vehicles and opened a new set of franchises from the national government.

Access to information technical and financial assistance
Access to information and technical and financial assistance is vital for the successful implementation of the mitigation projects whether initiated by NGOs or local government units. All of the nine case studies had access to technical and/or financial assistance from local and/or international organizations. These findings also validate the recent findings of the Philippine Network on Climate Change (PNCC)[17] on the self assessment of skills of the civil society workers on CDM. While awareness on climate change issues in general faired well, awareness on carbon market mechanism was the lowest.

Survey results showed that that there is still a need for awareness raising among the institutions particularly the LGUs in the Philippines on climate change, and more so on the CDM.

[15] Rey Guarin, Investment Manager, TFS
[16] WWF climate savers program, Philgarp GHG Accounting
[17] PRRM, Maintaining Climate change Initiatives of Civil Society Organizations in the Philippines 2008 pp.130-131

Support from the local government units
Some mitigation projects may be initiated by the NGOs, (e.g Gawad Kalinga, PDRC, PRRM) but will need the implementation support from the local government units. The local government unit has the authority to enforce and impose penalties for non-compliance to any waste management programs implemented in their localities. They can also provide financial and/or technical support as demonstrated by all the case studies.

Roles of the LGUs

Based on the nine case studies presented, the following provides a brief recommendation on how LGUs can promote financing of climate change mitigation projects:

1. *Identify champions in the local scene that can realize desired changes.*
   Philippine local politics has not been spared from personalities and political party biases. Hence, more often than not, the strength or success of a local initiative largely depends on the mayor/ strong political party in the area. Earning the support of these powerful personalities may tip the scale of the LGU in favor of the project.

   The Envirofit Project, the LLDA, and the Cebu Project are just three of those whose secret lie in the strong support of someone who can champion the project's cause.

2. *Participate and strengthen national and International linkages.*
   LGUs in the Philippines often rely on its IRA for its source of income. Depending on the classification of the LGU ("class" – either first-class municipality, or third-class etc), the budget allocation may really be a challenge for the LGUs to reckon with. Grants and foreign assistance, collaboration with other LGUs, or collaboration with a national agency can help ease the budget and push for the realization of climate change mitigation projects.

3. *Include Climate change mitigation initiatives in the Master Plan of the LGUs*
   The national government has formed an inter-agency committee task force on climate change which now included the Department of Interior and Local Government (DILG). While the decisions and plans of each municipality or LGU are left for itself to make, the DILG still has a say on the plans of the LGUs. If the national government is serious in its undertaking to address climate change, then here is a good place to start. As part of the national efforts, the DILG should see to it that climate change mitigation is addressed by the LGUs, and the LGUs must adhere to the mandates set by the DILG.

4. *LGUs should provide for laws and regulations to meet the objectives of climate change mitigation, and impose sanctions if possible.*

5. *Increase capabilities of local staff/ level of involvement in the issue/ raise awareness among the LGUs*
   The awareness raising campaigns of some local NGOs and academic institutions on climate change mitigation have had considerable impacts on the outcome of CDM projects in the Philippines. Most of the nine case studies have gone through the doors of klima in one way or the other, to say the

least. The Ateneo de Manila University School of Government has also started its efforts in reaching the LGUs to understand more on climate change mitigation. Though the conduct of these capacity building activities are financially supported by grants and are therefore area specific, the LGUs can stand to avail of these expertise offered by local NGOs through various ways of partnerships and linkages with funding institutions.

6. *Explore partnerships with other sectors of society, explore partnerships with local governments of other countries*
   Most successful mitigation projects, including the nine case studies have seen LGUs explored partnerships with other sectors of society. These LGUs have taken the risk to enter into partnerships and agreements with private sector, banks, and NGOs to name a few. Other LGUs can learn much from these LGUs who have taken the lead.

   Perhaps, too, much can also be learned by local LGUs from the local governments of other countries, especially the developed ones such as Japan. The Cities of Vigan, Puerto Princesa, Cebu and the municipality of Cantillan to name a few may stand improvement in their commitment to mitigate climate change.

Annexes

Annex 1: List of surveyed mitigation projects in the Philippines according to sectors

Annex 2: Distribution of projects by sources of financing

Annex 3: List of surveyed mitigation projects in the Philippines with carbon finance

Annex 4: List of mitigation projects in the Philippines per sector and finance with strong LGU and/or community involvement

Annex 5: Mitigation projects with strong LGU/community involvement under the carbon and social finance schemes

Annex 6: Project description of the nine (9) case studies

Annex 7: Questionnaire 1

Annex 8: Questionnaire 2

Annex 9: Questionnaire 3

Annex 1: List of surveyed mitigation projects in the Philippines according to sectors

Sectors		Name of Project
Energy Efficiency	1	Electric Cooperative System Loss Reduction Project
	2	CFL Project in Obando, Bulacan
	3	Efficient Lighting Market Transformation Project
	4	Coca Cola Philippines Energy Efficiency, fuel switch
	5	Sinter Cooler Waste Heat Recovery Power Generation Project
Renewable Energy	6	CEPALCO Distributed Generation PV Power Plant
	7	Leyte-Luzon Geothermal
	8	Palawan New and Renewable Energy and Livelihood Support Project
	9	Sibat hydro projects – develops community-based microhydro power systems ranging from 7-40 kilowatt hydropower capacity
	10	Yamog hydro projects – develops community-based microhydro power systems
	11	Micro-hydropower generation and watershed protection in Mambucano, Philippines
	12	Communicty based Micro-hydropower and Watershed Protection for Rural Electrification and Agricultural Processing, Phlippines
	13	Community-based Biodiversity Conservation and Micro hydropower Generation Towards Sustainable Development (MINDANAO)
	14	Community-based watershed management and Micro hydpower Development Project (LUZON)
	15	Watershed Management and Water Resource Utilization for Micro Hydropower Generation Project (MINDANAO)
	16	Biogas Production and Utiliztion (LUZON)
	17	Community-based Watershed Management and Water Resource Utiliztion for Hydro-power (MINDANAO)
	18	Cateel Mciro Hydropower Rehabilitation Project (MINDANAO)
	19	Water Catchment Management and Water Resource Utilization for Small Agri-Processing and Electrification Project
	20	Community-based Promotion and Development of Non-Conventional Energy (VISAYAS)
	21	Solar-powered Watger Pumping System (VISAYAS)
	22	Dumalaguing Alternatibong Gigikanan sa Sugang Dagitab (Dumalaguing Alternative Source of Energy)
	23	Mitigating Greenhouse Gas Emissions of Rice Mills & Engines Through the use of Renewable Energy Resources.
	24	Kirongdong Twin Waterfalls Protection and wAter Resources Utilization for Micro-hydropower Community-based Electrification and Oepration of an Agri-product Milling Facilities
	25	Water Resources management and Mciro-Hydropower Development for Mitigsalog and Manobo Tribe
	26	Asian Destination Solar Power Project in Palawan

	27	Micro Hydro Project in Kiangan, Ifugao
	28	Micro Hydro Project in Hungduan, Ifugao
	29	Alliance for Mindanao Off-Grid Renewable Energy (AMORE) projects
	30	Northwind Bangui Bay Project
	31	20 MW Nasulo Geothermal Project
	32	Hedcor Sibulan 42.5 MW Hydroelectric Power Plant
	33	Sipangpang 1 MW Mini-Hydropower Plant
	34	Burgos Wind Power Project
	35	Northern Negros Geothermal Power Project
	36	La Suerte Rice Husk Cogeneration Project
	37	San Andres Producers Cooperative Biomass Steam Generation Project
	38	Municipality of Loreto
	39	Biomass Boiler Project in the Philippines, Armadillo Holdings, Inc
Waste and Waste Water Management	40	Unilever Zero Landfill
	41	Philippine Daily Inquirer Newspaper Drive
	42	Honda Cars Philippines Waste Watger Treatment Facility
	43	San Miguel Corporation Waste Management
	44	Nestle Waste Management
	45	Integrated Ecological Solid Waste Management System for the Municipality of Dolores, Quezon
	46	Establishment of Biogas Digester in the Municipality of Mogpog, Marinduque
	47	Mother Earth Foundation – waste management projects
	48	Sorosoro Ibaba Development Cooperative
	49	Gawad Kalinga
	50	Rocky Farm Methane Recovery
	51	D&C Concepcion Farms, Inc. Methane Recovery and Electricity Generation
	52	Superior Farm Methane Recovery
	53	Paramount Integrated 'Corporation' Methane Recovery and Electricity Generation
	54	Lanatan Methane Recovery
	55	Uni-Rich Agro-Industrial Corporation (formerly Unirich Farm Corporation) Methane Recovery and Electricity Generation
	56	Tarlac Everlasting Farms, Inc. and Tarlac Sentra Farms, Inc.Methane Recovery and Electricity Generation
	57	Gold Farm Livestocks Corporation Methane Recovery and Electricity Generation
	58	Goldi Lion Farm Corporation Methane Recovery and Electricity Generation
	59	Red Dragon Farm Corporation Methane Recovery and Electricity Generation
	60	Red Dragon (II) Farm Corporation Methane Recovery and Electricity Generation
	61	Joliza 'Farms, Inc.' Methane Recovery
	62	Bondoc Realty Methane Recovery
	63	Jhon & Jhon Methane Recovery

	64	Gaya Lim 'Farm, Inc.' Methane Recovery
	65	New Santo Domingo Stock Farm Methane Recovery
	66	Pig City Confined Swine Feeding Operations Methane Capture and Combustion from Improved Animal Waste Management System
	67	Wastewater Treatment Using a Thermophilic Anaerobic Digestor at an Ethanol Plant in the Philippines
	68	Cebu Landfill Gas to Energy Project
	69	Excel Farm Methane Recovery and Electricity Generation Project
	70	Amigo Farm Methane Recovery and Electricity Generation Project
	71	Quezon City Controlled Disposal Facility Biogas Emission Reduction Project
	72	Montalban Landfill Methane Recovery and Power Generation Project
	73	Metro Clark Landfill Gas Capture System
	74	Pristine Environment's Organic Waste Composting
	75	Laguna de Bay Community Waste Management Project: Methane Avoidance – Bundle 1
	76	Anaerobic Digestion Swine Wastewater Treatment with On-Site Power Bundled Project (ADSW RP 1001) -
	77	Laguna de Bay Community Waste Management Project: Methane Recovery – Bundle 2
	78	Makati South Sewage Treatment Plant Upgrade with On-Site Power
	79	Anaerobic Digestion Swine Wastewater Treatment with On-Site Power Project (ADSW RP1003) – Sorosoro Ibaba Devt. Cooperative
	80	ADSW RP 1002 – Filbrid Livestock Agricultural Corporation
	81	ADSW RP 1004 – Bonview Farms, Inc.
	82	ADSW Treatment with On-Site Power Project (RP 2002) – Hacienda Bio-Energy Corporation / Empire Farm
	83	ADSW Treatment with On-Site Power Project (RP 1006) – Asian Livestock Corporation
	84	ADSW Treatment with On-Site Power Project (RP 1005) – Cathay Farms
	85	ADSW Treatment with On-Site Power Project (RP 1007) – Enviroprime Corporation / RH Farms
	86	ADSW Treatment with On-Site Power Project (RP 2001) – Hacienda Bio-Energy Corporation / ACME Farms
	87	ADSW Treatment with On-Site Power Project (RP 2003) – Hacienda Bio-Energy Corporation / Coral Farms
	88	ADSW Treatment with On-Site Power Project (RP 2004) – Hacienda Bio-Energy Corporation / Sta. Luisita Farm
	89	PDRC Biogas Porjects in Cebu Province
	90	ADSW Treatment with On-Site Power Project (RP 2005) – Hacienda Bio-Energy Corporation / Grace Farm
	91	ADSW Treatment with On-Site Power Project (RP 2006) – Hacienda Bio-Energy Corporation / Liberty Farm
	92	ADSW Treatment with On-Site Power Project (RP 2007) – Hacienda Bio-Energy Corporation / Unifive Farm

	93	ADSW Treatment with On-Site Power Project (RP 2008) – Hacienda Bio-Energy Corporation / Golden Harvest Farm
	94	ADSW Treatment with On-Site Power Project (RP 2009) – Hacienda Bio-Energy Corporation / Purity Farm
	95	ADSW Treatment with On-Site Power Project (RP 2010) – Hacienda Bio-Energy Corporation / Cecilia Stock Farm
	96	ADSW Treatment with On-Site Power Project (RP 2011) – Hacienda Bio-Energy Corporation / Juliana Farm
	97	FFI Methane Capture and Electricity Generation
	98	ADSW Treatment with On-Site Power Project (RP 1008) – Cathay Ternate Farm
	99	Cebu Ctrade Biogas to Energy Project
	100	ADSW Treatment with On-Site Power Project (RP 2012) – R.Jorgenetics Farm
	101	ADSW Treatment with On-Site Power Project (RP 2013) – Celevy Farm
	102	ADSW Treatment with On-Site Power Project (RP 2014) – Edward Farm
	103	ADSW Treatment with On-Site Power Project (RP 2016) – Purebreed Farm
	104	ADSW Treatment with On-Site Power (200kW) Project (RP 2017) – Cam & Co. Farms
	105	ADSW Treatment with On-Site Power (200kW) Project (RP 2018) – Valldolid Integrated Farms Company
	106	ADSW Treatment with On-Site Power (1.1 MW) Project (RP 2024) – Robina Farm 12, Universal Robina Corporation
	107	Bolinao Municipality Sanitary Landfill
Transport	108	Envirofit Tricycle Taxi Retrofit Program – Palawan
	109	EDSA Bus Dispatch System, Manila, Philipines
	110	Metro manila Urban Transport Integration Project – Marikina Bikeways Project Component
	111	Makati Electric Jeep w/ Greenpeace/GRIPP
	112	Bacolod Electric Jeep / GRIPP
	113	San Fernando La Union 2 stroke to 4 stroke tricycles

Annex 2: Distribution of projects by sources of financing

	Profit	**Non-profit**
Private/Domestic	1-Private/Domestic/Profit	2- Private/Domestic/Non-profit
Private/International	3-Private/International/ Profit	4- Private/International/ Non-profit
Public/Domestic	5-Public/Domestic/Profit	6- Public/Domestic/Non-profit
Public/International	7-Public/International/ Profit	8- PUblic/International/Non-profit
No financing yet	9-No financing	

	With carbon credits	**Without carbon credits**
1	10	1
2	0	9
3	57	0
4	0	0
5	2	1
6	0	0
7	0	0
8	0	30
9	3	

Annex 3: List of surveyed mitigation projects in the Philippines with carbon finance

Sector	Name of Project	
Energy Efficiency	1	Sinter Cooler Waste Heat Recovery Power Generation Project
Renewable Energy	2	Northwind Bangui Bay Project
	3	20 MW Nasulo Geothermal Project
	4	Hedcor Sibulan 42.5 MW Hydroelectric Power Plant
	5	Sipangpang 1 MW Mini-Hydropower Plant
	6	Burgos Wind Power Project
	7	Northern Negros Geothermal Power Project
	8	La Suerte Rice Husk Cogeneration Project
	9	San Andres Producers Cooperative Biomass Steam Generation Project
	10	Biomass Boiler Project in the Philippines, Armadillo Holdings, Inc
	11	Asian Destination Sola Power Project in Palawan
	12	Municipality of Loreto
Waste and Waste Management	13	Rocky Farm Methane Recovery
	14	D&C Concepcion Farms, Inc. Methane Recovery and Electricity Generation
	15	Superior Farm Methane Recovery
	16	Paramount Integrated 'Corporation' Methane Recovery and Electricity Generation
	17	Lanatan Methane Recovery
	18	Uni-Rich Agro-Industrial Corporation (formerly Unirich Farm Corporation) Methane Recovery and Electricity Generation
	19	Tarlac Everlasting Farms, Inc. and Tarlac Sentra Farms, Inc.Methane Recovery and Electricity Generation
	20	Gold Farm Livestocks Corporation Methane Recovery and Electricity Generation
	21	Goldi Lion Farm Corporation Methane Recovery and Electricity Generation
	22	Red Dragon Farm Corporation Methane Recovery and Electricity Generation
	23	Red Dragon (II) Farm Corporation Methane Recovery and Electricity Generation
	24	Joliza 'Farms, Inc.' Methane Recovery
	25	Bondoc Realty Methane Recovery
	26	Jhon & Jhon Methane Recovery
	27	Gaya Lim 'Farm, Inc.' Methane Recovery
	28	New Santo Domingo Stock Farm Methane Recovery
	29	Pig City Confined Swine Feeding Operations Methane Capture and Combustion from Improved Animal Waste Management System
	30	Wastewater Treatment Using a Thermophilic Anaerobic Digestor at an Ethanol Plant in the Philippines
	31	Cebu Landfill Gas to Energy Project
	32	Excel Farm Methane Recovery and Electricity Generation Project

	33	Amigo Farm Methane Recovery and Electricity Generation Project
	34	Quezon City Controlled Disposal Facility Biogas Emission Reduction Project
	35	Montalban Landfill Methane Recovery and Power Generation Project
	36	Metro Clark Landfill Gas Capture System
	37	Pristine Environment's Organic Waste Composting
	38	Laguna de Bay Community Waste Management Project: Methane Avoidance - Bundle 1
	39	Anaerobic Digestion Swine Wastewater Treatment with On-Site Power Bundled Project (ADSW RP 1001)
	40	Laguna de Bay Community Waste Management Project: Methane Recovery - Bundle 2
	41	Makati South Sewage Treatment Plant Upgrade with On-Site Power
	42	Anaerobic Digestion Swine Wastewater Treatment with On-Site Power Project (ADSW RP1003) -Sorosoro Ibaba Devt. Cooperative
	43	ADSW RP 1002 - Filbrid Livestock Agricultural Corporation
	44	ADSW RP 1004 - Bonview Farms, Inc.
	45	ADSW Treatment with On-Site Power Project (RP 2002) - Hacienda Bio-Energy Corporation / Empire Farm
	46	ADSW Treatment with On-Site Power Project (RP 1006) - Asian Livestock Corporation
	47	ADSW Treatment with On-Site Power Project (RP 1005) - Cathay Farms
	48	ADSW Treatment with On-Site Power Project (RP 1007) - Enviroprime Corporation / RH Farms
	49	ADSW Treatment with On-Site Power Project (RP 2001) - Hacienda Bio-Energy Corporation / ACME Farms
	50	ADSW Treatment with On-Site Power Project (RP 2003) - Hacienda Bio-Energy Corporation / Coral Farms
	51	ADSW Treatment with On-Site Power Project (RP 2004) - Hacienda Bio-Energy Corporation / Sta. Luisita Farm
	52	ADSW Treatment with On-Site Power Project (RP 2005) - Hacienda Bio-Energy Corporation / Grace Farm
	53	ADSW Treatment with On-Site Power Project (RP 2006) - Hacienda Bio-Energy Corporation / Liberty Farm
	54	ADSW Treatment with On-Site Power Project (RP 2007) - Hacienda Bio-Energy Corporation / Unifive Farm
	55	ADSW Treatment with On-Site Power Project (RP 2008) - Hacienda Bio-Energy Corporation / Golden Harvest Farm
	56	ADSW Treatment with On-Site Power Project (RP 2009) - Hacienda Bio-Energy Corporation / Purity Farm
	57	ADSW Treatment with On-Site Power Project (RP 2010) - Hacienda Bio-Energy Corporation / Cecilia Stock Farm
	58	ADSW Treatment with On-Site Power Project (RP 2011) - Hacienda Bio-Energy Corporation / Juliana Farm

	59	FFI Methane Capture and Electricity Generation
	60	ADSW Treatment with On-Site Power Project (RP 1008) - Cathay Ternate Farm
	61	Cebu Ctrade Biogas to Energy Project
	62	ADSW Treatment with On-Site Power Project (RP 2012) - R.Jorgenetics Farm
	63	ADSW Treatment with On-Site Power Project (RP 2013) - Celevy Farm
	64	ADSW Treatment with On-Site Power Project (RP 2014) - Edward Farm
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	66	ADSW Treatment with On-Site Power (200kW) Project (RP 2017) - Cam & Co. Farms
	67	ADSW Treatment with On-Site Power (200kW) Project (RP 2018) - Valldolid Integrated Farms Company
	68	ADSW Treatment with On-Site Power (1.1 MW) Project (RP 2024) - Robina Farm 12, Universal Robina Corporation
	69	Bolinao Municipality Sanitary Landfill
	70	PDRC Biogas Porjects in Cebu Province
Transport	71	Envirofit Tricycle Taxi Retrofit Program - Palawan
	72	EDSA Bus Dispatch System, Manila, Philipines

Note: Project Nos. 6, 69 and 70 are included in the list of projects considering carbon finance but were classified as having not financing yet under table 6

Annex 4: List of mitigation projects in the Philippines per sector and finance with strong LGU and/or community involvement

Sector		Social Finance and Donation	With Carbon Finance
Energy efficiency	1	CFL Project in Obando, Bulacan	
Renewable energy	2	Micro Hydro Project in Kiangan, Ifugao	
	3	Micro Hydro Project in Hungduan, Ifugao	
	4		Sipangpang 1 MW Mini Hydro power Plant
	5		Hinubasan Mini Hydro Power
Waste and waste water management	6	Green Villages of Gawad Kalinga	
	7	Recycling of Old Newspapers by Philippine Daily Inquirer	
	8		Laguna de Bay Community Waste Management Project 1
	9		Laguan de Bay Community Waste Management Project 2
	10		Cebu Gas to Energy Project
	11		Quezon City Controlled Disposal Facility Biogas Emission Reduction Project
	12		Montalban Landfill Methane Recovery and Power Generation
	13		Pristine Environment's Organic Waste Composting Project
	14		Bolinao Methane Recovery Project
	15		Biogas Project in Cebu Province
Transport	16	Makati City Electric Jeepney	
	17	Bacolod City Electric Jeepny	
	18		EDSA Bus Dispatch System, Manila, Philippines
	19		Envirofit Philippines Foundation, Inc.

Annex 5: Mitigation projects with strong LGU/community involvement under the carbon and social finance schemes

Financing Involved		Name of Project	Annual CER	Brief Description of Project
Carbon Finance	1	Sipangpang 1 New Mini Hydropower Plant	2,471	The proposed Project activity will be a 1 MW run-of-the-river hydropower facility, which is constructed on the Eyamjo River.
	2	Hinubasan Mini Hydro Power of the Municipality of Loreto	Not available	The proposed Project activity will be a .5 MW hydropower facility in Dinagat Island
	3	Cebu Landfill Gas to Energy Project	78,889	The purpose of the Project) are : (I) to reduce greenhouse gas (GHG) emissions by capturing and flaring the methane (CH4) gas from the existing Inayawan landfill, and (II) to avoid new GHG emissions from the decomposition of additional organic waste that would otherwise be disposed of in the landfill, through a process of anaerobic digestion with biogas collection.
	4	Quezon City Controlled Disposal Facility Biogas Emission Reduction Project	116,339	The Project activity involves the extraction, collection, processing and flaring, including the conversion of the biogas emissions at the Quezon City Controlled Disposal Facility located in Area 2, Barangay Payatas, Quezon City, Philippines into electricity
	5	Montalban Landfill Methane Recovery and Power Generation	582,269	The Project activity is to collect methane in landfill gas to generate clean electricity by installing an onsite LFG collection system, power generation and flaring system.
	6	Pristine Environment's Organic Waste Composting Project	53,356	Pristine Environment Corporation has applied for a contract to operate the City of Manila's solid waste disposal facility. PEC proposes to establish an organic waste recovery and composting facility in compliance with Republic Act 9003.
	7	Laguna de Bay Community Waste Management Project: Methane Avoidance- Bundle 1	6,058	The objective of the Laguna de Bay Community Waste Management Project is to implement a set of small scale waste management projects in the Laguna de Bay watershed.
	8	Laguna de Bay Community Waste Management Project - Methane	241	The objective of the Laguna de Bay Community Waste Management Project is to implement a set of small scale waste management projects in the

		Avoidance- Bundle 2		Laguna de Bay watersheds.
	9	PDRC Biogas Digesters for the province of Cebu	Not available	PDRC intended to provide household biodigesters for several rural communities in the province of Cebu.
	10	Bolinao Methane Recovery Project	6,787	The Bolinao LGU is planning to install a landfill gas collection system at the existing landfill site. Collected LFG will be flared to mitigate the GHG.
	11	Envirofit Tricycle Project of Palawan	7,708	The purpose of the project activity is to address the high emissions of two-stroke engines by retrofitting up to 6000 carbureted two-stroke engine tricycles with direct in-cylinder fuel injection.
	12	EDSA Bus Dispatch System, Manila, Philippines	26,935	The Metro Manila Development Authority (MMDA), a government agency, is responsible for installing and operating the system and will manage the bus dispatch. Buses are however owned and operated by private companies which run specific routes based on a given franchise.
Social Finance	13	CFL Project in Obando, Bulacan	Not available	120 households using CFL in Ubando, Bulacan
	14	Micro Hydro Project in Kiangan, Ifugao	Not available	A 15 kw micro-hydro plant. In 2002, 28 out of 150 households were beneficiaries of the plant.
	15	Micro Hydro Project in Hungduan, Ifugao	Not available	This 15 kw micro-hydro plant provides electricity to 64 out of the 103 households in Maggok.
	16	Gawad Kalinga Green Villages	Not available	Developing green villages by using renewable energy for power and implementing waste management activities.
	17	The Electric Jeepney Project in Makati City	Not available	Using electric jeepneys for transportation within the designated route.
	18	The Electric Jeepney Project in Bacolod City	Not available	Using electric jeepneys for transportation within the designated route.
	19	Newspaper Drive of the Philippine Daily Inquirer	Not available	Since 2001, Inquirer has been purchasing old newspapers and tabloids to recycle them into reusable newsprint, or new paper. The annual drive runs from June to October and promotes solid waste management in the Philippines. To date, more than 300,000 kilos of old newspapers and tabloids have been recycled, saving over 10,000 trees.

Annex 6: Project description of the nine (9) case studies

Annex 6.1: Envirofit tricycle-taxi project

Annex 6.2: Cebu landfill gas to energy project

Annex 6.3: LLDA waste management project

Annex 6.4: Bolinao methane recovery project

Annex 6.5: PDRC biogas for sustainable development project

Annex 6.6: Sipangpang hydro power project

Annex 6.7: Makati electric jeepney project

Annex 6.8: Selecta Gawag Kalinga Green Village

Annex 6.9: PRRM micro hydro project

Annex 6.1: Envirofit tricycle-taxi retrofit project

Background of the Project

A. Project Description

Tricycle taxis are the primary means of public transportation in the two pilot cities of Vigan, Ilocos Sur and Puerto Prinsesa, Palawan. As with most places in the Philippines, tricycles are the vehicle of choice in these cities because of their schedule flexibility, simple construction, high power-to-weight ratio, and their relatively low cost. Unfortunately, the tricycles currently in use are carbureted two-stroke engines which emit high levels of unburned hydrocarbons, carbon monoxide, carbon dioxide, and particulates.

The project activity thus addresses the high emissions of conventional two-stroke engines by retrofitting up to 6,000 carbureted two-stroke engine tricycle taxis with direct in-cylinder fuel injection (direct injection or DI) technology. Called the *"Envirokits"*, this DI technology addresses the specific sources of particulates, HC, CO, and CO_2 emissions as well as fuel and oil losses in a conventional carbureted two-stroke tricycle unit. In the retrofit process, the carburetor is removed. This thus allows exhaust products to be eliminated ("scavenging") using fresh air only. Also, since fuel is injected directly into the combustion chamber, loss of unburned fuel during scavenging is avoided. This allows for stable combustions and, in turn, avoids using oil for unnecessary lubrication.

Field trial tests (conducted by the project proponents from May to December 2005) show that the retrofitted units contributed significant reductions in air pollution. Concretely, the results show 89% reduction in hydrocarbons (HCs), 76% reduction in carbon monoxide (CO) and 35% reduction in carbon dioxide (CO_2).

The project activity is expected to reduce 7,708.2 tonnes of CO_2equivalent each year (using AMS-III.C - emission reduction by low-greenhouse gas emitting vehicles).

B. Profile of the Project Proponent

Envirofit Philippines Foundation Inc. is a non-stock, not profit corporation existing under the Philippine laws. Its primary purpose is to develop and dessiminate products and services that address major environmental problems in the developing world, including, but not limited to: a) developing and commercializing cost-effective technological solutions reducing emissions from two-stroke gasoline engines; b) developing installation centers for such technological solutions throughout the Philippines; and c) enlist commitment from local government units with the end goal of making development and commercialization efforts self-sufficient.

Envirofit Philippines Foundation Inc. was incorporated only last February 27, 2007 and is a relatively young corporation. However, its parent company, Envirofit International which is based in the United States of America, and is also a nonprofit organization, has been engaged in such noteworthy purposes of developing and commercializing cost-effective technological solutions that reduce emissions from two-stroke gasoline engines since October 2003. Envirofit has earned several notable awards for their work, including 2007 World Clean Energy

Award, 2007 World Bank Development Marketplace (finalist), "Top 10 Most Innovative Technologies for Creating Social Change" by Stanford Social Innovation Review in 2006, and the 2005 Tech Museum Environment Laureate.

C. Financial Mechanism/s Used in the Project

The project activity is a pilot project in the Philippines. The following are the financial mechanisms used for this project:

1) Grants (private donations) - Research and development (i.e. creation of envirokits) grants given to Envirofit International which started as a research center under the auspices of the Colorado State University in the USA. The goal of Envirofit International is to use the grant to perfect the technology, and commercialize the technology to be self-sufficient after 2 years.

2) CDM (carbon credits) – revenues from CDM will be used to offset the per unit cost of the envirokits, so that the end-user cost (i.e. selling price of the kit) will be much lower. Carbon credits will go to Envirofit Philippines Foundation Inc.

3) Suppliers' Credit Scheme – applicable only in Vigan City.
   a. A financing company was commissioned to handle the collection of payments for the envirokits. Collection can either be daily, weekly and monthly, depending on the contract entered into between the tricycle driver and Envirofit. The financing company charges a small percentage as collection management fee.
   b. In-house Financing Scheme – Payment options of 6, 12 or 18 months can directly be negotiated and paid in the local Envirofit office. Envirofit charges a small interest to cover collection management and also for the risk of loaning a tricycle owner the kit which she/he will pay for a period of time.

4) Grant from Multilateral Organization (ADB) – To offset financing for the per-unit cost of envirokit, applicable only in Puerto Princesa.
   a. The grant is from the 'Air and Noise Pollution Reduction Project' of the Poverty and Environment Program of the ADB, totaling $240,000.00 for the LGU of Puerto Prinsesa. Half of this grant will go to the Tricycle Multi-Purpose Fund (Tryke Fund) where operators can upgrade their engines from two-stroke to four-stroke or avail of other means of livelihood. This fund is the source of the money which will be used by the LGU to subsidize 50% of the cost of the 200 initial tricycles to be retrofitted. To date, the LGU already paid Envirofit for 50% of the selling price of all 200 envirokits.
   b. The other 50% of the cost will be paid by the drivers under an LGU in-house financing scheme, also managed by the Tryke Fund Office, wherein the drivers can pay for the envirokits via a 12-month, 0 percent interest rate offer.

D. Chronological Events/ Milestones of the Project

Project kickoff – introduction of concept in the Philippines and the LGUs – 2003

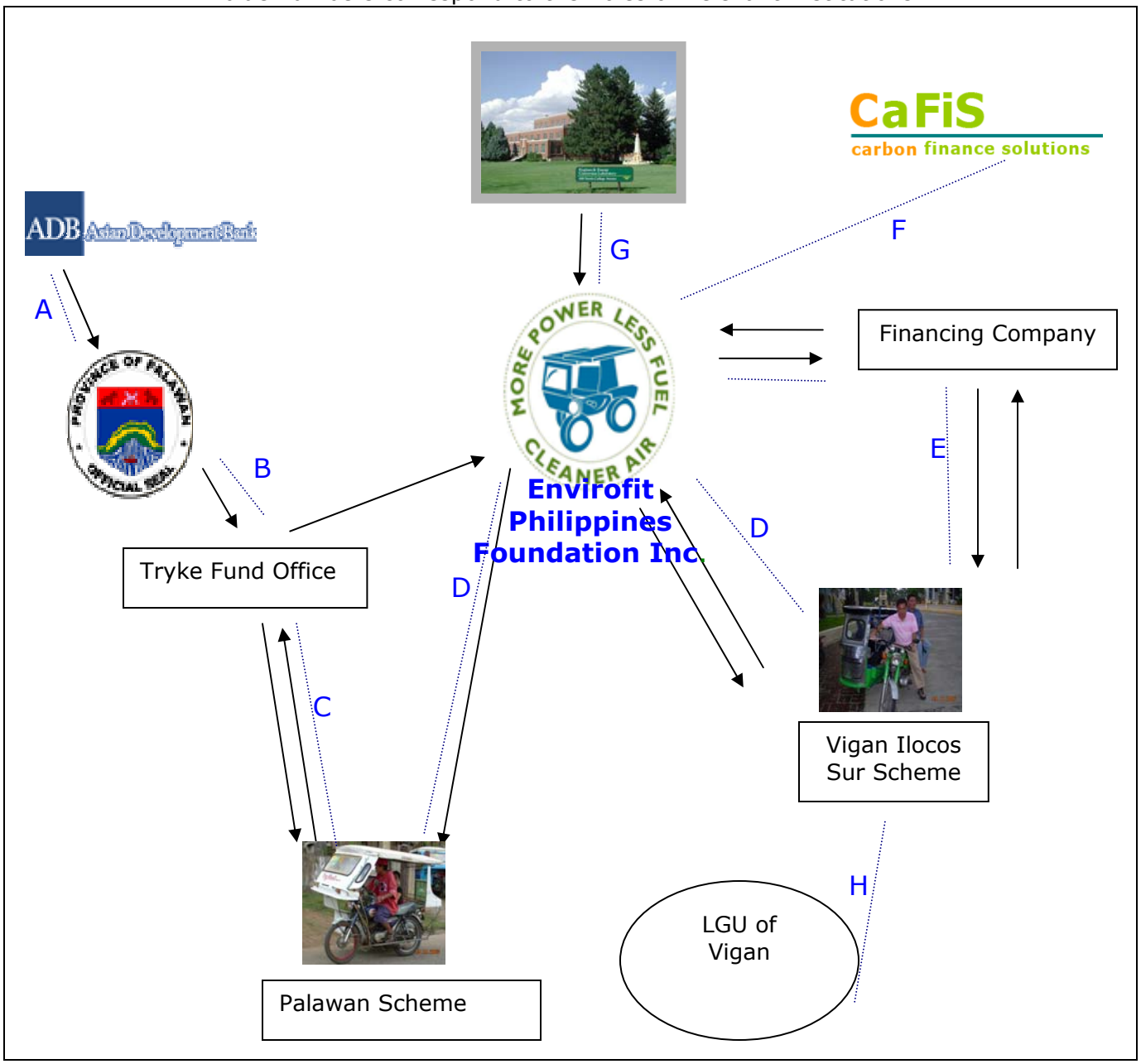
CDM Training - Predecessors of Envirofit Philippines Foundation Inc. attended CD4CDM training to see if project can use CDM - 2003

Phase 1: Single demonstration vehicle in Quezon City – Nov 2003

Phase 2: Field trials using 18 vehicles – 2005
CDM PDD-making contracts entered into – early 2006
CDM Stakeholder consultations Vigan – late 2006
Phase 3: start of project implementation in Vigan and Puerto Prinsesa (pilot running of a few units for testing) – late 2006
CDM stakeholder consultations Puerto Princesa – 2007
CDM validation – late 2007

E. Institutions Involved in Financing of the Project / Diagram of Roles of Relevant Institutions

Note: → black full arrows signify flow of finances
⋯ blue dashed lines signify relationship of the institution
blue numbers correspond to the Roles of Relevant Institutions



Roles of Relevant Institutions in this Project

A. ADB
Financed the Puerto Prinsesa Project

B. The Puerto Prinsesa City Government
Facilitated the implementation of the project. It negotiated with the ADB for the grant. It also created and finances for the operating cost of the Tryke Fund Office. Took the lead role in designing the payment scheme which will benefit the tricycle drivers

C. Tryke Fund Office
Facilitates the collection of the payment for Puerto Prinsesa Project

D. Envirofit Philippines Foundation Inc.
Implements the project, provides all technical support, in some instances, collects the payments for the kits in Vigan.

E. Financing Company
Commissioned by Envirofit to collect payments for the Vigan Project

F. CaFiS Inc.
CDM Consultant. Commissioned by Envirofit to handle carbon credit requirements of the project

G. Envirofit International/ Univ of Colorado
Provided seed money for Envirofit, provided the technology, provides technical support for Envirofit Philippines.

H. The Vigan City Government
The City of Vigan has a comprehensive City Master Plan that incorporates the city's agenda and actions on traffic management, air and noise pollution, among others. It signed a Memorandum of Understanding (MOU) with Envirofit last December 17, 2005 that provides an outline on how to reform the tricycle situation in Vigan. The MOU states that the City of Vigan will issue a legislation/ordinance that will require all two-stroke tricycle taxi owners to shift to a cleaner technology, and one of their options is to retrofit their engines with the Envirokit.

Soon after, an ordinance requiring all tricycle franchise holders to shift to cleaner technology was enacted. In a nutshell, the ordinance requires that all those wishing their franchises to be renewed in the next year will have to show that they are using a cleaner technology. Otherwise, their franchises will be revoked and stiff sanctions will be imposed.

Barriers Encountered in Financing the Project

A. Risks associated with securing underlying finance
   - Risks related to being first-of-its kind. The technology is a newly developed technology, and the Philippines is a pilot area for its commercial implementation.

- Even if cost per unit are highly subsidized and big savings in the long term are expected from the project, still the cost is relatively high for tricycle drivers in the Philippines to afford. The end-user selling price was pegged by Envirofit at Php. 18,500.00 (including installation and 1year warranty). Also, average daily savings per tricycle unit is Php 80- 150, translated to monthly savings of Php 1,920 – 2,880 which totals to a yearly savings of Php23,040 – 34,560. But even so, these rates are not convincing enough for the drivers to make long term investment plans (1 year) who try to make ends meet as they go on with their day to day operations.
- The table below shows the sources of and estimated savings that the tricycle drivers and operators can gain from the DI technology against the standard carbureted two-stroke units:

Technology	*Fuel Consumption per day*	*Oil Consumption per day*	*Total Cost per day*
Carbureted two-stroke	4.5 L	200 milliliters (mL)	200 Php
Direct injection two-stroke	3.0 L	100 mL	130 Php
	Fuel Savings per day	*Oil Savings per day*	*Total Savings per day*
	1.5 L	100 mL	70 Php

B. Lack or the absence of specific regulations to address the complex nature of the project
   - Project activity is outside the purview of the EIA system, as such no assessment is needed, however for CDM purposes, a Cetificate of Non Coverage (CNC) has to be applied for. In the application for the CNC, minor confusions as to who the issuing agency is were encountered.
   - Noise and air pollution were traditionally relegated in the sidelines of LGU planning. However, with increased awareness, mainly brought by ADB initiatives, LGUs slowly appreciated the need to address the issue. But then again, a good amount of lobbying for the project, and a lot of promotions were needed to be able to penetrate the concerned LGUs.

C. CDM- specific barriers
   - CDM methodological issues: The project used AMS III-C. However, the CDM methodological panel ruled that the applicability conditions of the methodology is not applicable for the project, hence an application for a new methodology was made. It is still pending in the EB for deliberations.
   - Gold Standard Rules: The project is aiming for a gold standard accreditation, however, because of the unforeseen delays and the then unclear rules of the Gold standard, a few issues still need to be addressed by the project to meet the qualifications set by the Gold Standard team.
   - Additionality: certain issues were faced by the project, but were eventually clarified in favor of the project. These include:
     - Type E+ policies under the CDM rules – the two LGUs issued ordinances encouraging the use of cleaner technology using retrofitted kits as among the solutions. Without the CDM ruling on these policies, the project's additionality stands to be compromised. But it was eventually pointed out/made clear to the validators that the

ordinances do not single out the Envirofit kits as the only alternative, hence, the reasons used to prove the project as additional has not been negated.

- Seemingly high IRR, and the most feasible among the outlined solutions – the project seemed to have the highest IRR among the solutions stipulated by the LGUs in the ordinances. However, if one computes for all costs associated with the project, the IRR is very low considering that it is a pilot project, and initial investments are really high. Therefore, economic barriers can be used to further prove the project's additionality
- Monitoring issues: Because the tricycles are mobile, monitoring also became an issue. A complex monitoring devise has to be included in the kit, the price of which is included in the contract price for the kit.

D. Socio-cultural and political barriers

- Acceptance of new technology – the sound of the retrofitted engines is similar to the sound of malfunctioning conventional engines. Tricycle drivers, and the commuting public, have been accustomed to the sound of the latter, hence, there was resistance to accept the new technology simply because of the sound.
- Entry of these types of projects highly dependent on political will of the LGUs – The project was able to find in the two LGUs 'champions' who believed in the idea, and were willing to sponsor the project in the LGU meetings. For Vigan, one of the councilors (who also sits as the transport committee chairman) was key in pushing for the project and getting the ordinance enacted. For Puerto Prinsesa, the Mayor himself believes in the project, and was willing to go the extra mile to provide the kits to the local tricycle drivers at the least cost possible.

Annex 6.2: Cebu landfill gas to energy project

Background of the Project

A. Project Description

The purpose of the Cebu City Landfill Gas and Waste to Energy Project (the Project) is twofold: (a) to reduce greenhouse gas (GHG) emissions by capturing and flaring the methane (CH4) gas from the existing Inayawan landfill, and (b) to avoid new GHG emissions from the decomposition of additional organic waste that would otherwise be disposed of in the landfill, through a process of anaerobic digestion with biogas collection. The methane captured in the latter activity will be combusted to generate electricity to be used as an alternative source of cheap, indigenous, stable and renewable source of electricity that will reduce dependence on grid power, and thus, displace fossil fuel-based electricity generation that would have emitted CO2.

The Inayawan landfill started operating in 1998 and is not expected to be closed before 2015, with a possible lifetime extension until 2025. Currently, the landfill is receiving 450 tons of municipal waste daily. An additional 500 tons per day of other organic waste streams, such as night soil, market waste, commercial food waste and agro-processing wastes, such as fruit peelings will be received at the landfill once the Project is operative.

The total emission reductions to be achieved by the Project during the first crediting period from 2008 to 2014 is 552,225 tCO2e. The result was obtained using the Approved Consolidated Baseline Methodology for Landfill Gas Project Activities, ACM0001, and the Approved Baseline Methodology for Avoided Emissions from Organic Waste Through Alternative Waste Treatment Processes, AM0025, and based on the approved global warming potential value of methane which is 21 tCO2e per metric ton of methane.

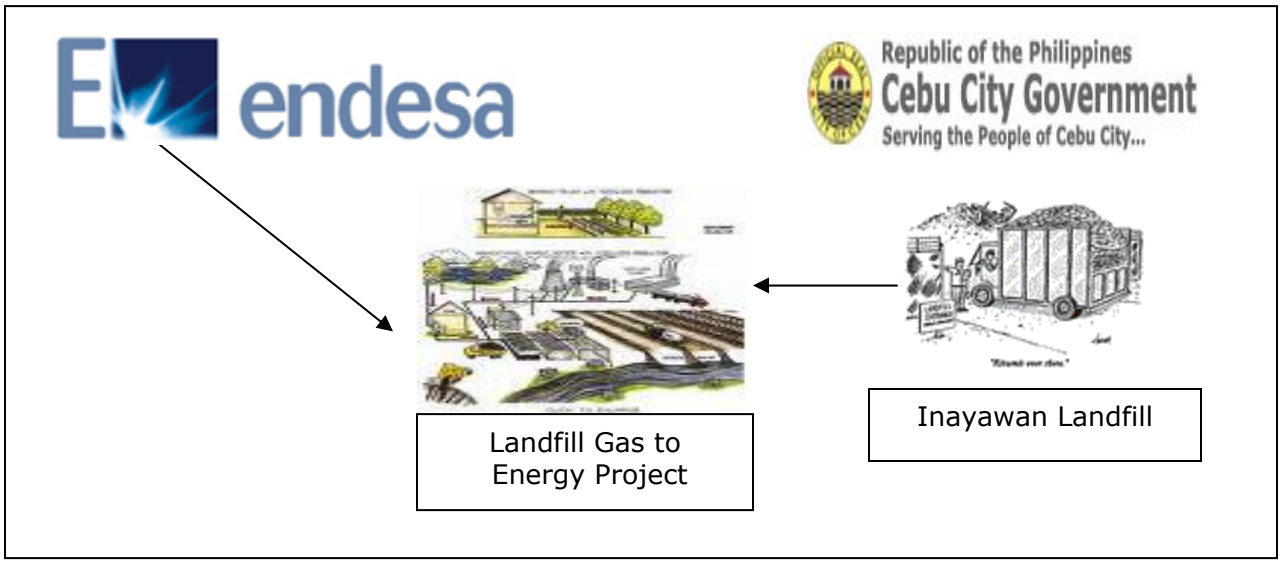
B. Profile of the Project Proponent

Empresa Nacional de Electricidad, S.A. is the largest electric utility in Spain and the third largest compliance buyer of CERs in Europe. It has an installed capacity of 23.667 MW in Spain, Portugal and the rest of Europe. It has an output of 85,849 GWh as of 2007. It has a good credit rating by known financial platforms, A- (Standard & Poor's), A3 (Moody's) and A (Fitch).

Ahlcarbono & Endesa teamed up in mid-September 2008. They have contracted 32 CDM projects, 17 are registered with diversity in technology and location. Their projects will generate 90 million tons of CO2 for the first commitment period. 9.12 million tons have been delivered with 2.5 million tons using carbon funds.

C. Financial Mechanism/s Used in the Project
The Project will be wholly financed by Endesa.

Financial Mechanism Diagram of the Project



D. Chronological Events/ Milestones of the Project
September 2005 – The Sangguniang Panlunsod of Cebu City approved the proposal of PhilBio the Construction of a Waste to Energy Facility Demonstration Project at the Inayawan Controlled Landfill.

January 2006 –PhilBIO was awarded a contract by the City of Cebu to rehabilitate and upgrade its Inayawan Waste Disposal Facility. The contract enables PhilBIO to develop the Inayawan WDF into a viable full-scale biogas waste to energy (WTE) facility. The project envisioned two phases; namely, 1) a Demonstration Phase consisting of a 100 kW pilot power plant and 2) a Main Phase: a 6 to 10 MW ReSTORE biogas facility.

2006 - Construction of the Demonstration Phase Project started. However, due to some technical problems, the demonstration project failed to operate.

2006 – The Project requested for national approval from the Philippine DNA

6 December 07 – 4 January 08 – the PDD of the project was posted for validation at the UNFCCC website.

Present - The Project is still not registered with the CDM Executive Board; The Cebu City Government is preparing to bid out the technology for the construction of the Project.

Barriers Encountered in Financing the Project

A. Risks associated with securing underlying finance
LFG systems have a difficult time securing financing for their implementation. Most local banks are typically not interested in these projects primarily because of lack of knowledge and experience with the technology. Therefore, LFG

projects are perceived to be high risk. This investment barrier is also accentuated by the relatively high cost of capital, high financial risks, and an unsophisticated capital market in the Philippines. Coupled with relatively limited access to international capital markets, which are in any case more attracted to investment in natural gas projects, it is difficult for alternative plants in the Philippines to attract adequate capital.

B. Prevailing Practice
The current open dumpsite waste disposal method for mixed municipal waste is considered standard operating practice in the Philippines and the region for MWS treatment. The current system represents the lowest cost option, with the only cost being the opportunity cost for alternative land use. The highest priority for most municipalities in the sector is the management of a variety of elements, input of organic material, humidity, pH etc. In general, they are perceived as a risky solution.

Role of LGUs and other players to facilitate/support the project

A. The Cebu City Government
In October 6, 2004, the City of Cebu passed Ordinance No. 2017 Creating the Cebu City Solid Waste Management Board (SWMB) and Appropriating Funds Therefore. The purpose and objectives of the Ordinance are:
- To supplement and enforce the provision of existing laws and ordinances pertaining to solid waste management;
- To plan, guide and monitor the generation, storage, collection, transportation and disposal of solid wastes within the city through well-defined systems;

The Sangguniang Panlunsod of Cebu City approved the proposal of PhilBio the Construction of a Waste to Energy Facility Demonstration Project at the Inayawan Controlled Landfill last September 2005.

B. The Philippine Bio Sciences Company, Inc.
Philippine Bio-Sciences Co. Inc. "PhilBio" designs, constructs, finances and operates proven, advanced waste-to-energy-systems to recover methane gas and reuse organic waste materials. Organic wastes are converted into fuels, energy and value-added by products to provide significant profits.

PhilBio market its engineering products and services as an "integrated solutions provider". They adopt anaerobic digestion techniques to advance specific business and waste management goals for the clients. PhilBio promotes Clean Energy Technologies such as micro turbines. All operations employ technologies that mitigate greenhouse gas emissions (GHG). Some projects qualify for carbon offsets as per the Kyoto Protocol of the United Nations.

PhilBio operates as a design and consulting engineer. They deliver complete ' Greenfield ' or 'turnkey' facilities; or operate anaerobic digestion facilities under B.O.O. (Build-Own-Operate) or B.O.T. (Build-Own-Transfer) arrangements.

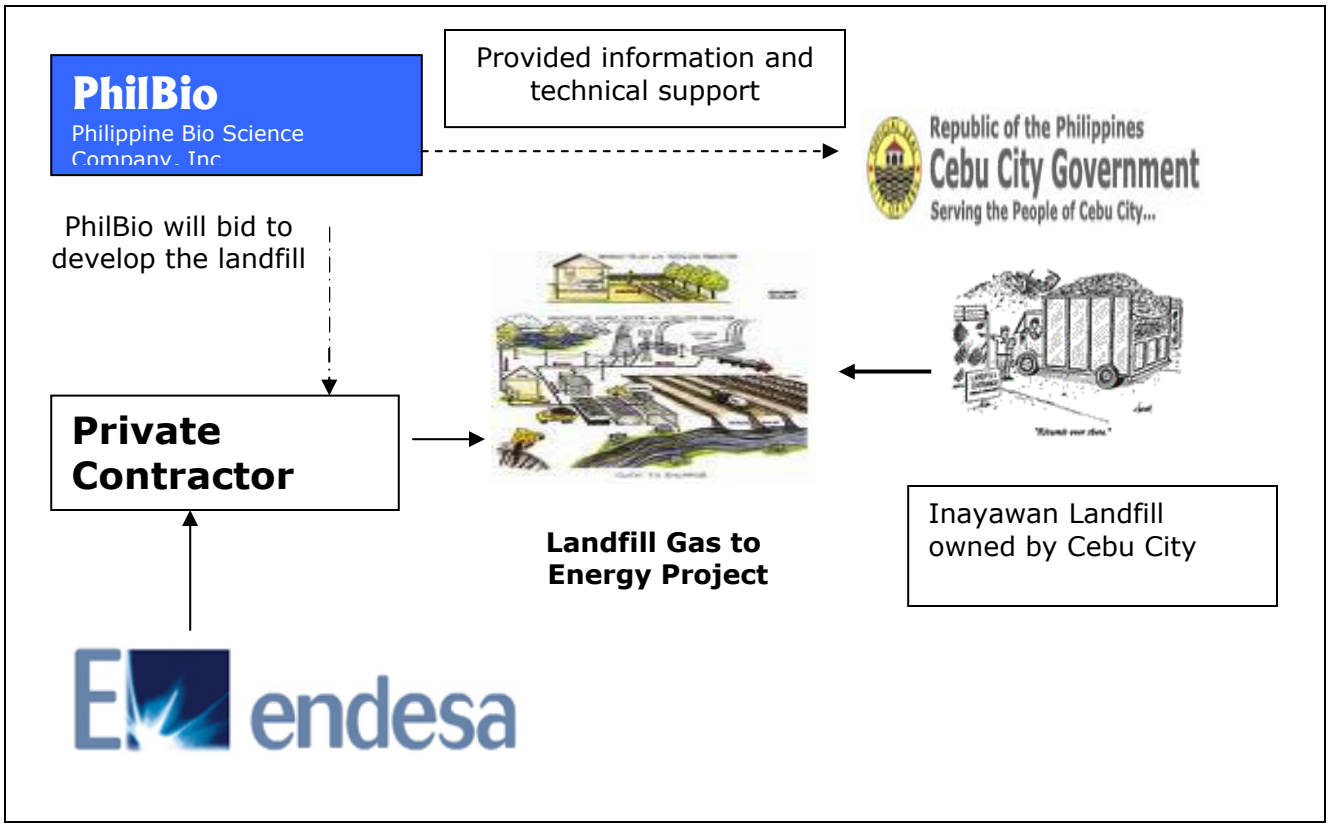
PhilBio introduced the concept of waste to energy project to the city government of Cebu in early 2005 and prepared the feasibility study for the Cebu City Landfill Gas and Waste to Energy Project. They planned to construct a demonstration project to convince the city government of the benefits of the proposed project. However the demonstration project did not prosper due to some technical

problems. PhilBio prepared the Project Design Document for the Inayawan Project which is presently under validation in the UNFCCC website. They will also participate in the bidding to develop the project.

C. AHL Carbono
AHL Carbono is a local CDM consultant in the Philippines and a partner of Endesa. They are presently coordinating the activities of the project in behalf of Endesa Generacion S.A.

D. Private Contractor
Private contractor will be hired to develop the project. The city government will conduct the bidding to identify the private contractor.

Role of LGUs and other players to facilitate/support the project



Annex 6.3: LLDA waste management project

Introduction

The Laguna de Bay Community Carbon Finance Project is an initiative parallel to and complementary with the Laguna de Bay Institutional Strengthening and Community Participation Project (LISCOP). The LISCOP Project was initially funded by the Japan Trust Fund for Climate Change Initiatives which aims to reduce carbon emissions. The grant amounting to USD 358,450.00 from the Japanese Trust Fund-Special Program for Climate Change Initiatives was signed between the World Bank and the Laguna Lake Development Authority (LLDA) in 2004. Later on, LISCOP was able to secure a loan from the World Bank amounting to USD5.0 million, a grant from the Netherlands Government amounting to USD5.0 million and USD2.0 million from the Philippine Government and LLDA counterpart to fully implement its programs including the CDM component.

One aspect of the LISCOP project was for the community to identify priority projects in their respective communities. Most of the priority projects identified were on waste management and reforestation. LLDA negotiated with the Community Development Carbon Fund and Bio Fund of the World Bank for the purchase of the carbon credits and possible assistance in developing the CDM projects.

Background of the Project

A. Project Description

The objective of the Laguna de Bay Community Waste Management Project is to implement a set of small scale waste management projects in the Laguna de Bay watershed. The continued degradation of the watershed has resulted in increasing greenhouse gas emission from waste, and through the waste management intervention under the project, both environmental degradation and greenhouse gas emissions will be reduced.

The Laguna de Bay Community Waste Management Project is made up of two different CDM projects, consisting of two separate PDDs: methane recovery by wastewater and methane avoidance by composting. The solid waste composting project includes seven (7) small municipalities with populations ranging from 23,000 to 145,000. The project will reduce methane emissions by establishing and operating composting facilities in the participating municipalities to treat organic matter produced from municipal waste. Through this, the anaerobic decay of organic matter in disposal sites will be avoided and allow decomposition to take place under aerobic conditions producing carbon dioxide. Composting will thereby avoid the production of methane emission that would otherwise occur if organic wastes were left to degrade in disposal sites.

The LLDA will have performance contracts with these municipalities to produce a quantity of compost necessary to meet emissions reduction targets and to undertake associated monitoring. Payment to the municipalities will be based on the achieved CERs.

B. Profile of the Project Proponents

a. The Laguna Lake Development Authority
The Laguna Lake Development Authority was transferred from the Office of the President to the Department of Environment and Natural Resources by virtue of Executive Order 149 signed by the President on 28 December 1993. In 1996, LLDA became a quasi government agency that leads, promotes and accelerates sustainable development in the Laguna de Bay region. It has three (3) key functions namely: (a) policy and planning, (b) regulatory, and (c) infrastructure and resources development.

b. The Municipality of Teresa, Rizal
The Municipality of Teresa, Rizal is one of the seven municipalities participating in the LLDA project. Teresa is a 3rd class municipality in the province of Rizal with an internal revenue allotment of P11.0M annually. Based on 2000 census, Teresa has a population of 29,475 with 6,374 households. It has nine (9) barangays.

c. Financial Mechanism/s Used in the Project
Financial Mechanism/s Used in the Project The LISCOP Project funded by the Japan Trust Fund for Climate Change Initiatives provided the financial support for the feasibility study, technical assistance and the equipments of the CDM project. Additional funds came from a loan from World Bank amounting to USD5.0 million, a grant from the Netherlands Government amounting to USD5.0 million and USD2.0 million from the Philippine Government and LLDA counterpart

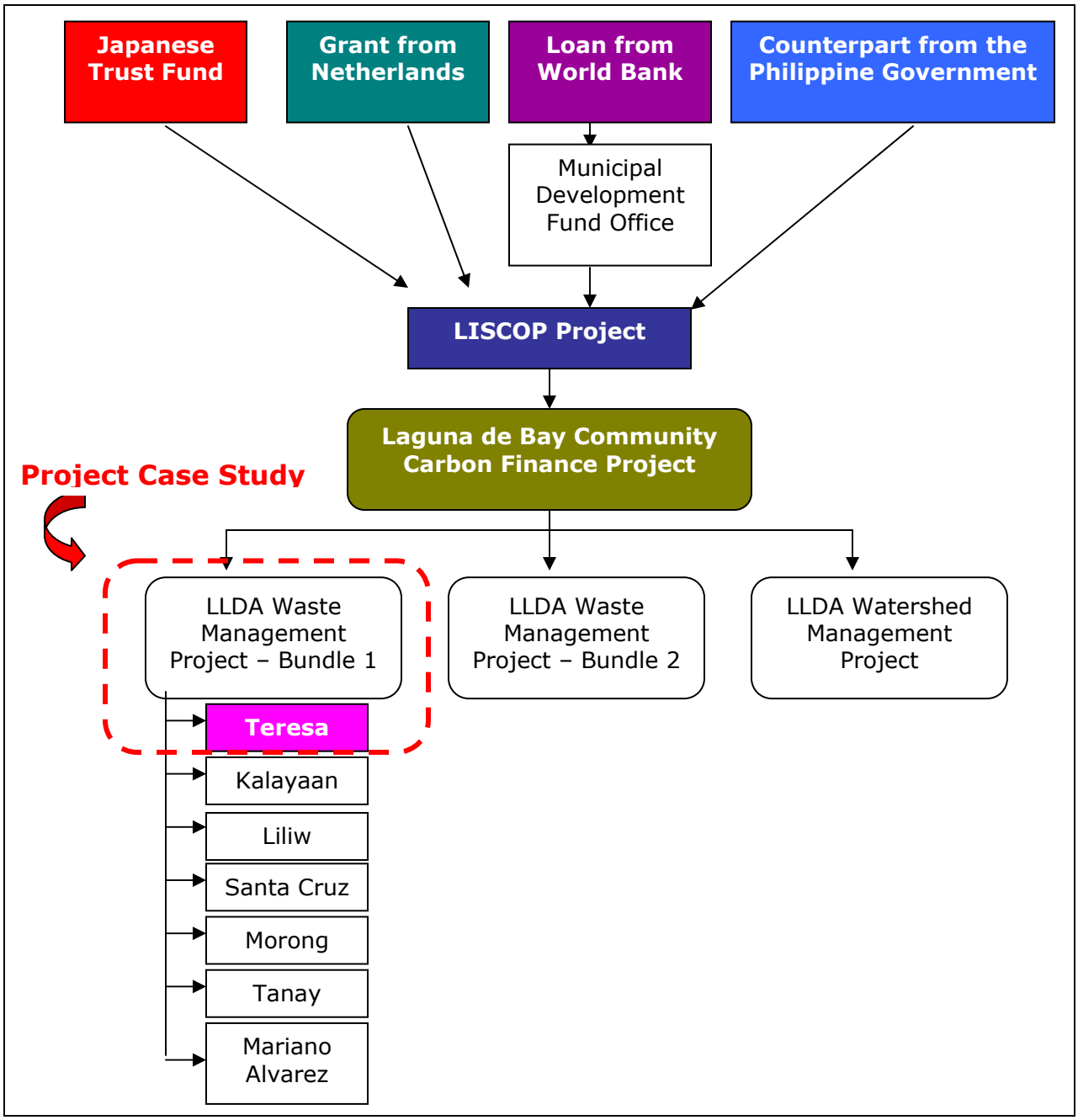
LISCOP provided the funds necessary to develop the CDM project depending on the need of the municipality. The participating municipalities would have different project costs. For the Municipality of Teresa, the total cost of the composting facility was PhP8.2 Million broken down as follows:

- Loans = P 3.435 M (45%)
- Grants = P 3.053 M (40%)
- Equity Requirement: = From LLDA = P.572 (7.5%)
  From LGU = P.572 (7.5%)

However, the Municipality of Teresa added P1.6 M to complete the electricity infrastructure of the project. They will amortize the loan in 15 years at 12.00% interest per annum. It has a 3-year grace period on the principal payment.

The revenue stream includes sales from compost and concrete products from the residual waste. Total revenue for 3 years is P1.0 million. 30% came from the sale of compost. Annual operating cost is PhP300,000.00

Financial Mechanism Diagram of the Carbon Financed Project of the LLDA:



Barriers Encountered in Financing the Project

Financing for this composting project was not very difficult to secure because of the existing LISCOP project which provided most of the funds for project development including the CDM transaction costs. LLDA was also able to sign an Emissions Purchase Agreement (ERPA) with the Community Development Carbon Fund and Bio Fund of the World Bank for the purchase of the carbon credits.

However, in the case of the municipality of Teresa, an additional investment of Php1.6 Million was necessary to complete the project.

Role of LGUs and other players to facilitate/support the project

A. The Municipality of Teresa
The Municipality of Teresa, especially the commitment of the Mayor made the project possible. The Office of the Sanggunian Bayan issued the following ordinances on waste management:

Municipal Ordinance No 13-2003 – prohibiting throwing, dumping of any waste matter in public places such as, roads, sidewalks, canals, esteros, rivers, parks and public premises within the municipality. This was adopted in 28 July 2003

Sangguniang Panlunsod Ordinance No. 09 – an ordinance prescribing environmental inspection fees for all industrial, commercial establishments, and private entities whose activities are potential sources of land, air and water pollution and for other purposes. This was approved in 19 March 2003

Municipal Ordinance No. 01-2006 – An ordinance adopting and creating guidelines and procedures of consolidated municipal ecological sold waste management program. Ten (10) year municipal sold waste management plan, and municipal sold waste section, respectively for other purposes and appropriating funds thereof. This was approved in 9 January 2006.

B. The Laguna Lake Development Authority
The Laguna Lake Development Authority through the LISCOP Program initiated and coordinated the implementation of the CDM project. Ms. Lennie Borja of the LLD has also attended various conferences locally and internationally regarding climate change mitigation and CDM. Ms. Borja has been sharing the LLDA experience to various fora as a model for small scale climate change mitigation initiative.

C. The Japanese Trust Fund-Special Program for Climate Change Initiatives
The Japanese Trust Fund-Special Program for Climate Change Initiatives that provided the initial funds to LISCOP to undertake the feasibility study of the CDM project.

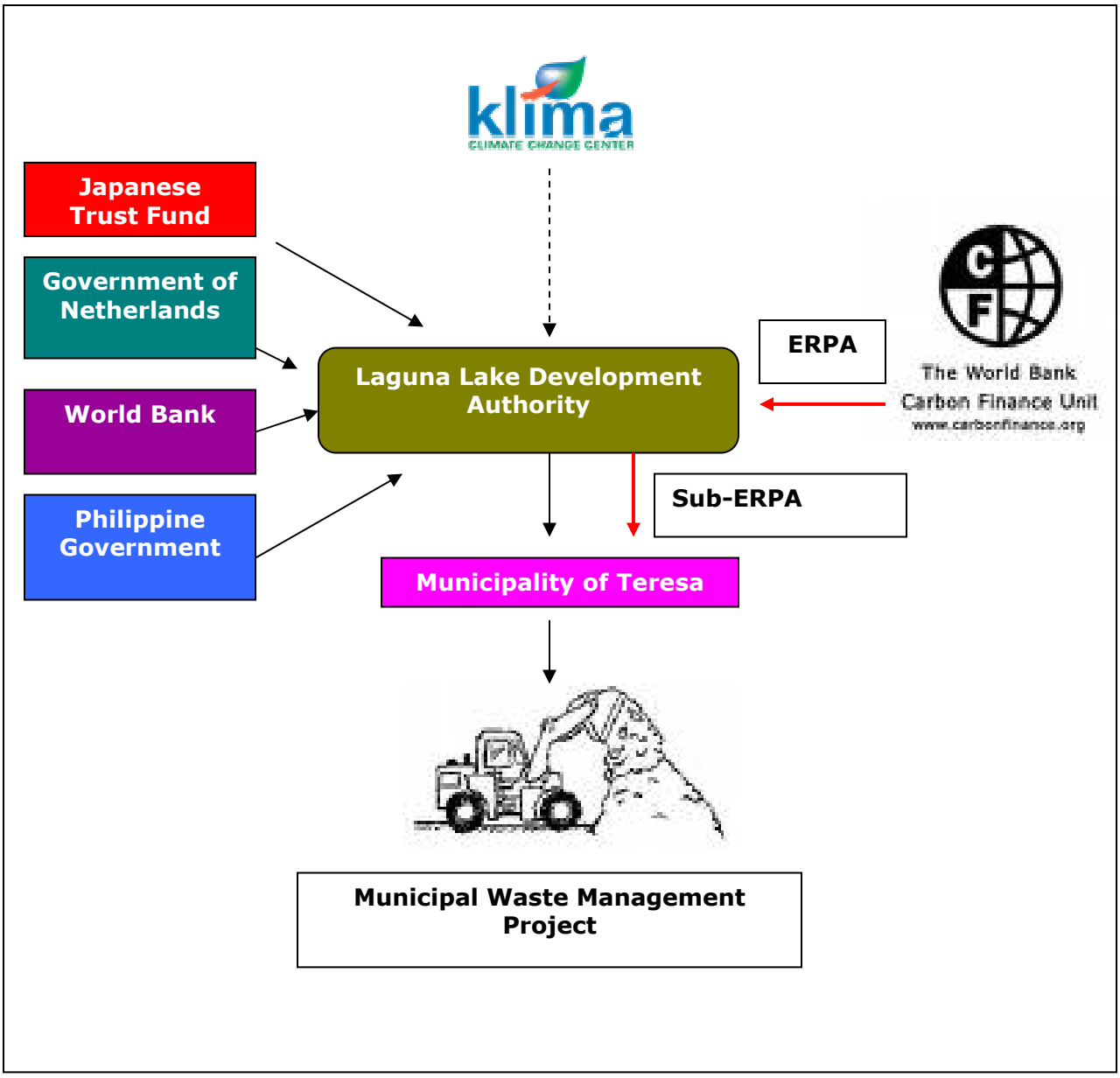
D. Government of Netherlands
Government of Netherlands that provided the grant for the implementation of the CDM project.

E. The World Bank
The World Bank that provided the loan through the Municipal Development Fund Office for the CDM Project. They also provided the CDM consultants who helped developed the CDM documents and conducted the training for the project proponents.

F. Community Development Carbon Fund and Bio Fund
Community Development Carbon Fund and Bio Fund who executed an Emission Purchase Agreement with LLDA for the purchase of the carbon credits.

G. Klima Climate Change Center
Klima Climate Change Center who provided information on climate change and CDM. Klima conducted a CDM training workshop for the LLDA personnel.

Role of LGUs and other players to facilitate/support the project



Annex 6.4: Bolinao methane recovery project

The project is located in the western part of Pangasinan, Luzon Island of the Philippines

Background of the Project

A. Project description

Bolinao municipality started implementing a solid waste management plan anchored on a municipal landfill that was established by the community in 2005. With the conditions of RA 9003, open dumpsites have become illegal since February 2006; cities and municipalities are encouraged to use landfills instead of open and even controlled dumpsites. Solid waste disposal remains to be a major environmental problem in urban as well as rural areas that may have no facilities available for the proper disposal of MSW. Pangasinan province has a population of 2,650,312 and Bolinao, one of its municipalities has a population of 67,671 based on the latest survey of NSO. A build up of MSW is expected from neighboring towns like Anda which has a population of 34,000.

The project activity shall minimize the usual problems arising with closed dumpsites and landfills which include uncontrolled emissions of greenhouse gas emissions (GHG) and volatile organic compounds (VOC) into the atmosphere, undesirable odours, and fires due to instantaneous combustion, among others.

The Bolinao Local Government Unit (LGU) is planning to install a landfill gas (LFG) collection system at the Bolinao Landfill site. Collected LFG will be flared in order to mitigate the above-mentioned environmental and social problems that GHG emissions usually bring about. Over the 10-year crediting period, it will reduce GHG emissions by approximately 68,000 tCO2e by combusting collected methane gas in an efficient high temperature flare.

When implemented, the Project will be the first in the province of Pangasinan to mitigate landfill gas (LFG), a GHG and potentially claim credits for the GHG reduction. As a pioneering effort by the Bolinao LGU, the Project will serve as a model to similar sized municipalities and contribute significantly to the sustainable development of the Philippines. The following environmental, economic, and social benefits can be attributed directly to the Project:

1. Environmental benefits - assist in mitigating uncontrolled GHG emission from the landfill, help to prevent on-site fires, control the release of volatile organic compounds.
2. Economical benefits – technology transfer and training in the operation of a gas collection and flaring system that will generate foreign revenue through the sale of CERs.
3. Social benefits – improved health conditions due to mitigation of gaseous emissions; improved safety around the site due to stabilizing the waste pile; jobs for locals and staff training to improve skills of locals.

It is hoped that the Project will become a model in the Philippines for other dumpsite/landfill owners and operators of other cities and municipalities.[18]

[18] Bolinao methane recovery project PDD

B. Profile of the project proponent

Municipality of Bolinao is a third class municipality which depends on the tourism and fishing as their main sources of income. In the northern part of Bolinao, most lands are converted to beach resorts where tourists can relax and enjoy the beach. In the inner part of the municipality, most people depend on fishing. They built fish pens to grow "Bolinao Bangus" which they sell to surrounding municipalities and to Manila.

In addition, the municipality of Bolinao also receives Php58.5M internal revenue allotment. This money is for the projects that will sustain the municipality's growth.

C. Financial scheme to be used by the project proponent

Since the methane recovery project does not have any revenue stream, the municipality of Bolinao together with their CDM consultant (United Clean Development and Energy Consulting) are having difficulties in finding a local or international financial institutions that will give them a grant to finance the methane recovery project.

Another reason for the methane recovery project's struggle to secure project financing is current volume of waste of the Bolinao Landfill. The current waste volume is too low and generating very little amount of methane emission to be flared and sold as CER.

D. Chronological events of the project

2006	Municipality of Bolinao attended a CDM workshop sponsored by IGES – CDM programme
2006	IGES-CDM programme and United Clean Development and Energy Consulting (UCDEC) developed the PDD for the municipality of Bolinao methane recovery project.
2008	The muncipality of Bolinao and IGES - CDM programme presented the CDM project - methane recovery project to the stakeholders in Bolinao

Financial Barriers Encountered by the Project

A. Risk associated with securing underlying finance

Being the first of its kind in the province of Pangasinan, the municipality of Bolinao is having difficulties in finding local financial institutions to finance the methane recovery project because the methane recovery project does not have any revenue stream, except for the CERs it will generate.

For foreign financial institutions, they want a high volume of emission reduction project which the municipality of Bolinao cannot deliver due to its current volume of waste. With that, most foreign financial institutions reject the Bolinao's methane recovery project.

B. Lack or the absence of specific regulations to address the complex nature of the project

There are no specific regulations in place that require local government units (LGUs) in capturing the methane for landfill sites. However, LGUs based on RA 9003 are required to convert their open dumpsite into landfill.

C. CDM- specific barriers
The municipality of Bolinao with the assistance of klima and IGES-CDM programme was able to partner with UCDEC for the PDD development. In the PDD, the CDM consultant used AMS.III.G. under the approved methodology for small scale project activity. The methodology is suited for the project because the methodology is for landfill methane recovery.

For the methane recovery project, the landfill is already in place but the methane recovery facility is not initiated due to insufficient waste. To get more waste, the municipality of Bolinao must haul waste from surrounding municipality. The municipality of Bolinao must invest in vehicles that will haul the waste from other municipalities to their landfill. Without these vehicles, the Bolinao landfill will not be able to generate sufficient emission reduction to compensate the methane recovery facility and CDM transaction costs of the project.

D. Socio-cultural and political barriers
By converting the open dumpsite to landfill, communities surrounding the site are affected since most of them are dependent on the waste for their livelihood.

To generate more methane emission, the municipality of Bolinao has to accept waste from other municipalities in Pangasinan. However some communities surrounding the landfill are hesitating due to the foul odor of waste and the disease it could bring.

Roles of athe LGUs and other Players to facilitate/support the project

A. Municipality of Bolinao
With the municipality of Bolinao handling the waste collection and landfill site, they will be the facilitator and implementer of the project.

Climate change initiatives of the Municiplaity of Bolinao
The municipality of Bolinao passed an ordinance in 2004 to ensure waste is properly handled. In Ordinance No.2004-02 also known as "The comprehensive solid waste management ordinance", the objectives are:

- To ensure round the clock cleanliness through orderly waste management
- To cease and desist from utilization of open garbage dumps which serve as breeding places of insects causing disease, foul odors and harmful fumes; emit "greenhouse gases" which contribute to global warming and thinning of the ozone layer; generate pollution in soil and water resources; and creates unhealthy scavenging activities in the vicinity
- To eradicate unsightly, uncovered and overflowing waste containers in streets, public places, and open spaces
- To maximize and optimize sanitary resource recovery for feeds, fuel, materials, energy, etc. and
- To minimize pollution arising from harmful gases, smoke, particulate products by needless burning/dumping, polluted runoffs into water sources/supply, and hazardous substances.

The municipality of Bolinao also complied with RA 9003 also known as "Ecological solid waste management". This republic act requires local government units (LGUs) like municipality of Bolinao to convert their open dumpsite into landfill for

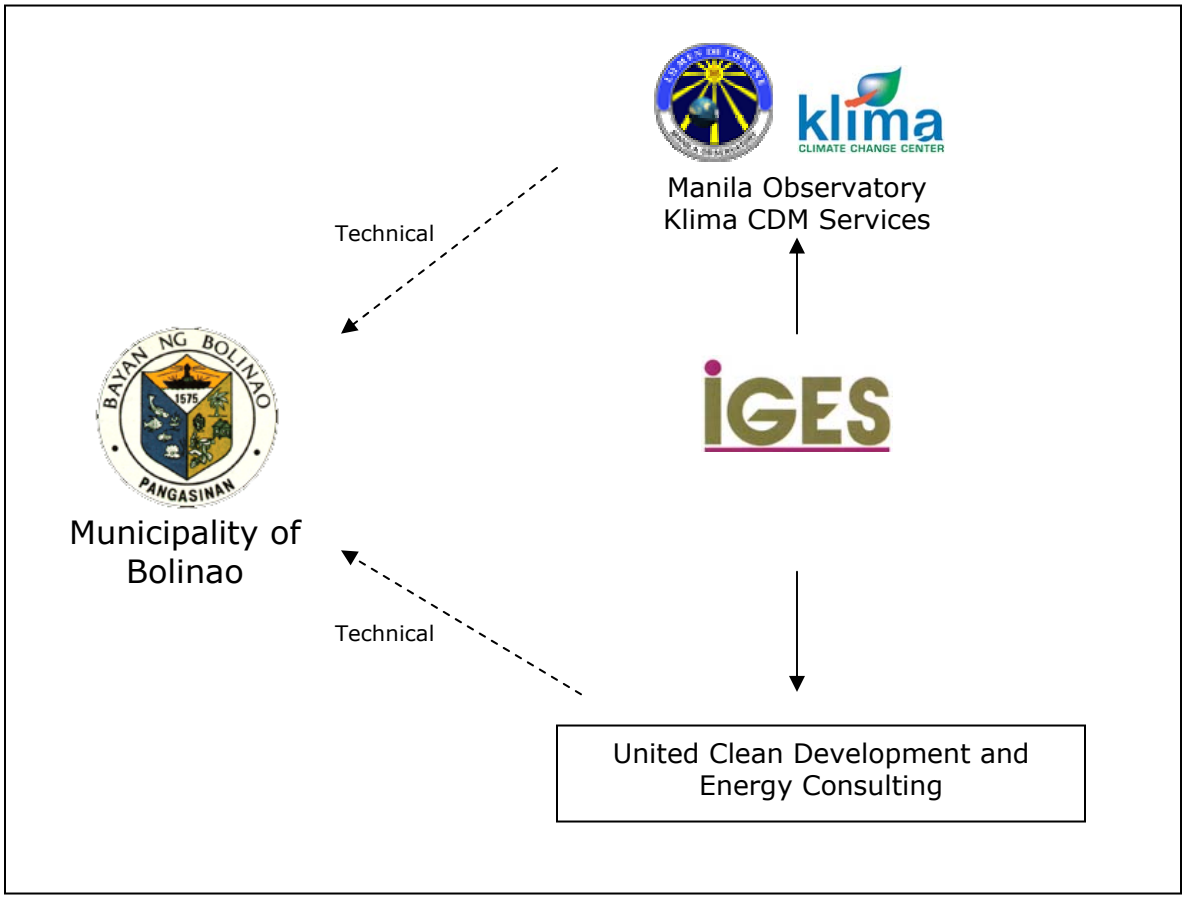
better waste management. However, methane recovery is not a component of RA 9003.

B. Klima Cliamte Change Center
MO-klima is one of the organizations that gave technical assistance to the municipality of Bolinao. They helped in identifying the project and was able to assist the municipality of Bolinao in drafting the project idea note (PIN).

C. United Clean Development and Energy Consulting (UCDEC)
UCDEC is a CDM consultant that developed the municipality of Bolinao methane recovery project PDD. They calculated and estimated emission reduction of the project by analyzing the waste characteristics of the Bolinao landfill.

D. Institute for Global Environmental Strategies (IGES)-CDM Programme
IGES-CDM programme is the organization the funded the technical assistance given to the municipality of Bolinao. IGES-CDM programme partnered with MO-klima to give assistance to proponents like municipality of Bolinao in creating their PIN. IGES-CDM programme also partnered with UCDEC in developing a complete PDD for proponents that have potential projects which can be applied for CDM.

Role of LGUs and other players to facilitate/support the project



Annex 6.5: PDRC biogas for sustainable development project

Background of the Project

A. Project Description

The CDM: Biogas for Sustainable Development Project is a community-based project that promotes the use of the biogas digester by hog, cattle and poultry raisers for their livelihood activities. The short- and medium-term objective of the project is to enhance the profitability and sustainability of farm enterprises in less advantaged rural communities through the use of an environment-friendly technology, the biogas digester, which taps renewable energy sources, specifically animal and farm wastes. The long-term objective is to promote the sustainable development of rural communities, lessen the country's dependence on imported fossil fuels, and contribute to the worldwide effort in mitigating global warming.

To be established in Cebu province, the project targets the construction of 728 units of biogas digesters with a combined capacity of 13,000 cubic meters to service approximately 60,600 head of combined hogs and cattle stock (poultry will be on a case-to-case basis). Intended beneficiary-participants are primarily small- and medium-scale hog, cattle and poultry farmers who will be organized and trained to own, use and maintain the biogas digesters. Farmers with large stock (1000 head) will also be mobilized on a case-to-case basis.

Project activities include organizing the project team, establishing the project office in Cebu, organizing the beneficiaries, training the construction teams, constructing the biogas digesters, capability building of owner-beneficiaries to use and maintain the biogas system, organizational and values formation training, and other farm development training related to the by-products of the biogas digester. With a time frame of 27 months, the project is envisioned to be a pilot activity which may be replicated in other parts of Cebu and other provinces in the Philippines.

Due to the non-implementation of the Biogas Project in Cebu Province, the operation of PDRC has been temporarily suspended until such time that a new project funder can be identified.

B. Profile of the Project Proponent

Founding: 1990
Start of Activities: 1991

The Philippine-China Development Resource Center (PDRC) is a private non-profit organization that was established to foster closer relations and mutual understanding between the peoples of the Philippines and China. Through its programs – Exchange Visits, Technology Training, Asian Traditional Medicine, Research and Conferences, and Publications and Databank – PDRC has promoted technology and information exchanges among Filipino and Chinese development organizations.

Under the Technology Training Program, special training activities on renewable energy (i.e., micro-hydro energy and biogas) were conducted for Filipino participants. National and international conferences, seminars and roundtable

discussions were conducted among Filipino and Chinese participants on poverty alleviation, food security, environmental protection and renewable energy, and other social development issues. These activities helped in forging enduring ties and partnerships, both local and international.

PDRC has adopted the use of biogas as its main development advocacy in the Philippines. In the late 1990s, it sent two batches, consisting of ten Filipinos, to learn the technology at the Biogas Training Center in Chengdu, Sichuan in China. It has helped construct biogas digesters at the PRRM Center in San Leonardo, Nueva Ecija, Management and Organizational Development for Empowerment (MODE) farm in Carcar, Cebu, and Southern Christian College in Midsayap, Cotabato.

Also, PDRC staff members participated in several training programs on CDM in the Philippines in 2005 organized by Klima, a capacity-building project for CDM based at the Manila Observatory of the Ateneo de Manila University.

In undertaking the project, PDRC will own the Certificates of Emission Reduction (CERs). It will undertake the process of accreditation to obtain the CERs**.** PDRC will then use the funds from selling the CERs to build more biogas digesters and assist rural communities in undertaking more sustainable development activities.

C. Financial mechanism to be used in the Project
PDRC assumed that Mitsubishi UFJ Securities will provide assistance in securing project financing and will get the carbon credits. However, there is no formal agreement regarding this matter.

The project cost is Php 110,641,964.00. It has a projected annual savings (in terms of fuel reduction, sale of Certificates of Emission Reduction, non-use of wood for fuel, use as septic tank, labor from gathering of firewood, and non-use of chemical fertilizer) of Php 251,324,209.00. It has an annual net benefit of Php 140,682.245.

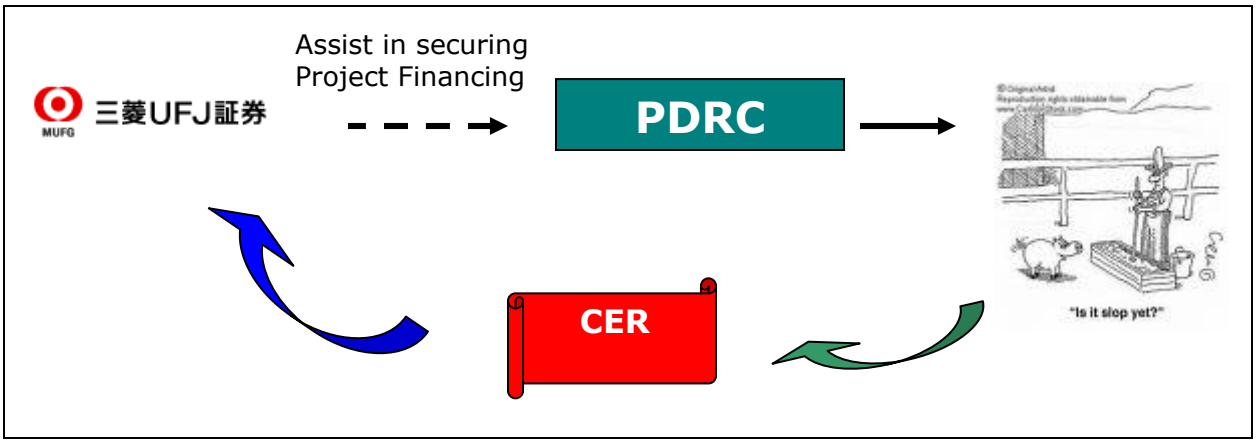
Computation of biogas production annually is based on the given assumptions:

Hogs:	135,000,000 kgs x .065 m3 biogas/kg	=	8,775,000 m3
Cows:	4,428,000 kgs x .04 m3 biogas/kg	=	177,120 m3
		Total . . .	8,952,120 m3

The 728-biogas digesters of various sizes and volumes involving the wastes of 60,000 hogs and 600 cows will provide annually about 8,952,120m^3 of methane gas. When divided by 21 tons, this volume of methane gas equals 426,291 tons of CO^2 for the Clean Development Mechanism. This carbon credit when converted to cash, at a conservative rate of $ 3/ton $C0^2$, is equivalent to $1,278,874/year, or Php 62,025,402 (at the exchange rate of $1:Php 48.50).

With this carbon credit of Php 62,025,402 and the Php 31,200,000 fuel savings, the project in a year's period will provide a cash benefit value of Php 93,225,402.

Financial Mechanism Diagram



Barriers Encountered in Financing the Project

A. Risks associated with securing underlying finance
Small swine farms will have difficulty securing financing for the implementation of the biogas wastewater management project because local banks would hesitate to finance these projects because of lack of knowledge and experience with the technology.

B. CDM- specific barriers
- Funders and carbon buyers are normally looking for projects that deliver high volume of emissions reduction. Small-scale projects find it difficult to source financing for project development and CDM transaction costs.
- Bundling concerns – To make the project economically feasible in terms of CDM registration, several project owners must be bundled. This will require coordination and commitment of all the participating project owners.
- CDM transactions costs- The high CDM transaction cost will make it very difficult for this type of project to be registered unless financial assistance is provided.
- Monitoring of emissions reduction – Considering the number of project owners participating in the project and the new technology being used, it is important to conduct training in the proper handling of the biogas and the monitoring requirement prescribed in the Project Design Document to ensure that emissions reductions are properly recorded.

C. Prevailing Practice
- Current Practice – The current pond-based treatment is considered standard operating practice in the Philippines. For the project owners, the current pond system is extremely financially attractive, given that it works to required specification and requires little management or investment .
- Lowest cost – The current system represents the lowest cost option.
- General culture – The project requires investment capital into a business that may not be the main focus of the farmer.

Role of LGUs and other players to facilitate/support this project

A. PDRC
PDRC will be the project implementer assisted by technical consultants. They will also oversee and validate the monitoring reports prepared by the designated personnel.

B. University of San Carlos-Affiliated Non-Conventional Energy Center (ANEC)
University of San Carlos-Affiliated Non-Conventional Energy Center (ANEC) will provide technical assistance in the implementation of the biogas project.

C. Provincial Board Member Atty. Victor Maambong, Chairperson of the Cebu Provincial Committee on Environment
Provincial Board Member Atty. Victor Maambong, Chairperson of the Cebu Provincial Committee on Environment and other provincial officers, town and city mayors will be tapped for the identification of local beneficiaries and to help solicit local support and resources for the project.

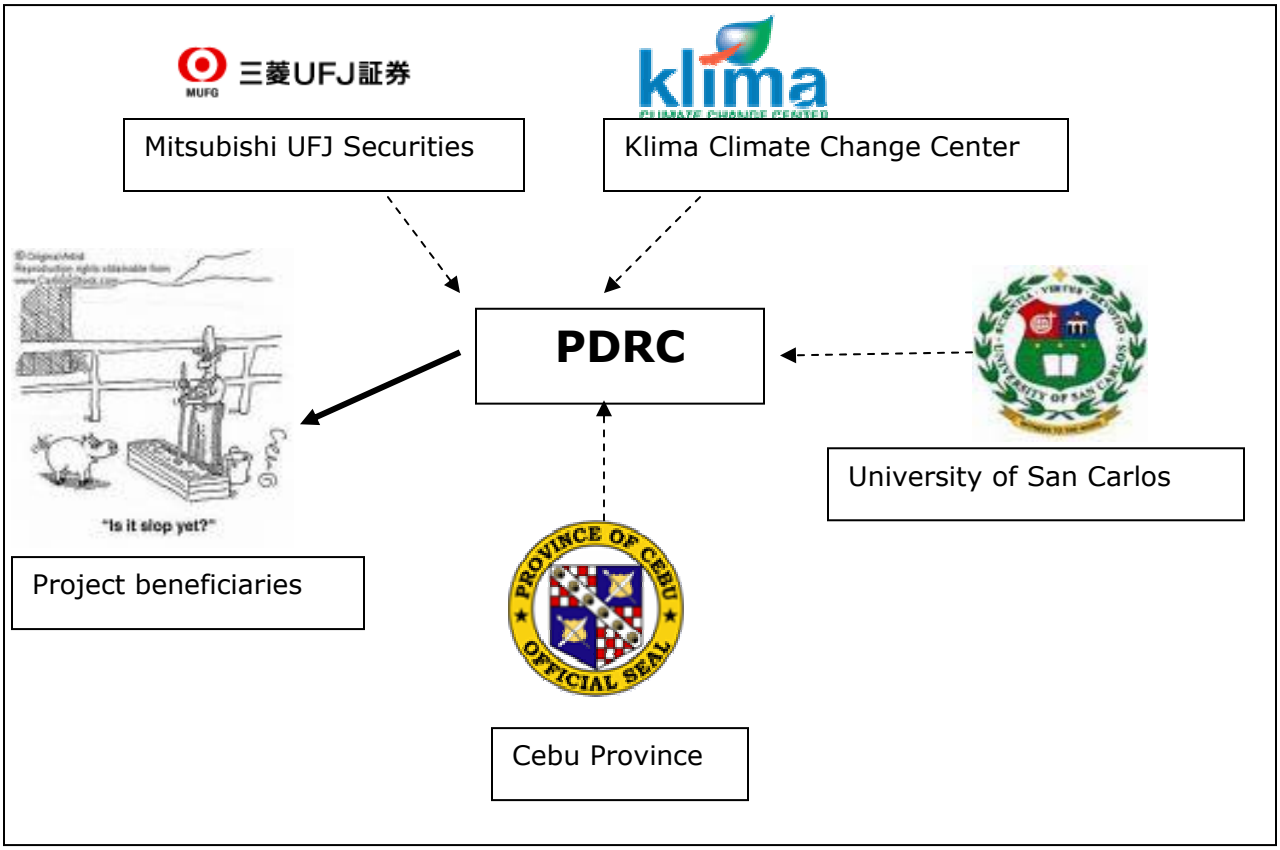
D. Related Provincial Line Agencies
Related Provincial Line Agencies (PLAs), NGOs, POs, media, schools and civic organizations will be tapped to widen the delivery of support services to client beneficiaries.

E. Mitsubishi UFJ Securities
Mitsubishi UFJ Securities provided technical expertise in evaluating the CDM potential of the project and a possible source or conduit for project financing.

F. Klima Climate Change Center
Klima Climate Change Center provided capacity building seminars on climate change and CDM

G. Project beneficiaries
Project beneficiaries are primarily small- and medium-scale hog, cattle and poultry farmers who will be organized and trained to own, use and maintain the biogas digesters. Farmers with large stock will also be mobilized on a case-to-case basis

Role of LGUs and other players to facilitate/support the project



Annex 6.6: Sipangpang hydro power project

The project is located along the Eyamjo River within the Municipality of Cantilan, Surigao Del Sur in Mindanao, Philippines.

BACKGROUND OF THE PROJECT

A. Project description

The proposed Project activity will be a 1 MW run-of-the-river hydropower facility, which is to be constructed on the Eyamjo river. The facility is expected to generate an estimated 6,132 MWh of electricity per year for export to the Mindanao grid. It will achieve CO2 emission reductions of approximately 2,471 tCO2/yr by displacing electricity that would otherwise be generated by fossil fuel fired power plants.

As part of the Project, a small rubble masonry type dam will be built approximately three hundred (300) meters from the top of the Sipangpang Falls. This offers additional head to generate power while taking advantage of the minimal cost of aggregates that can be sourced from the nearby river bed. The water from the dam will go straight to the powerhouse through a six hundred (600) meter pipeline and then be brought back to the Eyamjo River. Power will be supplied to the Cantilan Municipality which presently has a 400 kW power demand and to two other neighboring towns.

In addition to power generation and greenhouse gas (GHG) emission reduction, the Project will contribute to sustainable development by:

- Generating significant income for the Municipality of Cantilan;
- Providing jobs and training for semi-skilled and skilled workers during and after construction;
- Providing assistance and a livelihood to the host Barangay and Indegenous People (IP) in the area;
- Preserving the areas watershed through continuous tree planting with funds coming from a percentage of the power plant's annual gross revenues;
- Improving access to the surrounding Barangays; encourage investors to the Municipality, especially small and medium-scale enterprises (SMEs);
- Providing assistance in the development of potential tourist attractions;
- The incorporation of other productive water use projects such as water supply, irrigation, tourism and recreation.

B. Profile of the project proponent

a. Municipality of Cantilan

The Municipality of Cantilan is located in the province of Surigao del Sur in Mindanao. The municipality has an approximate 30,000 inhabitants which mostly rely on fishing, agriculture, and logging as their main livelihood.

The municipality of Cantilan is also a fourth class municipality and is the last municipality that get electricity from the Mindanao grid.

Based on 2007 data, the municipality of Cantilan has an estimated Php5.0M income from fishing, agriculture, and logging. The municipality also received a Php40.1M in 2007 as their annual internal revenue allotment.

b. Carbon Finance Solutions (Cafis)
Carbon Finance Solutions (Cafis) is the CDM consultant based in the Philippines. They help project proponent in identifying projects that can be applied for CDM. In addition, Cafis also assists proponents in developing required documents like Project Design Document (PDD) for Clean Development Mechanism (CDM).

c. Mitsubihsi-UFJ
Mitsubihsi-UFJ is a part of a business group that assists project proponents in developing CDM projects. They compute for the emission factor of the grid, estimate emission reduction of the project, and evaluate if the project is feasible or not.

d. UPP Associates
UPP Associates is a hydro electric power consultant. They develop feasibility study for proponents that are interested in developing hydro electric power plant. They can estimate the electricity production of a hydro site and evaluate if the project is financially viable or not.

e. Land Bank of the Philippines
The Land Bank of the Philippines is a government financial institution that strikes a balance in fulfilling its social mandate of promoting countryside development while remaining financially viable.

f. Czech Republic
The Czech Republic is located in Central Europe and is part of European Union (EU). Based on World Bank information. the Czech Republic is a developed country due to its high-income economy.

C. Financial scheme to be used by the project proponent
Grant
The Sipangpang hydro power project initially received a grant amounting to USD250,000 of electro-mechanical equipment from the Czech Republic. This equipment will be used in generating the required hydro power of Cantilan. The grant is part of an official development assistance (ODA) of the Czech Republic. Czech Republic will not get any CERs from the project.

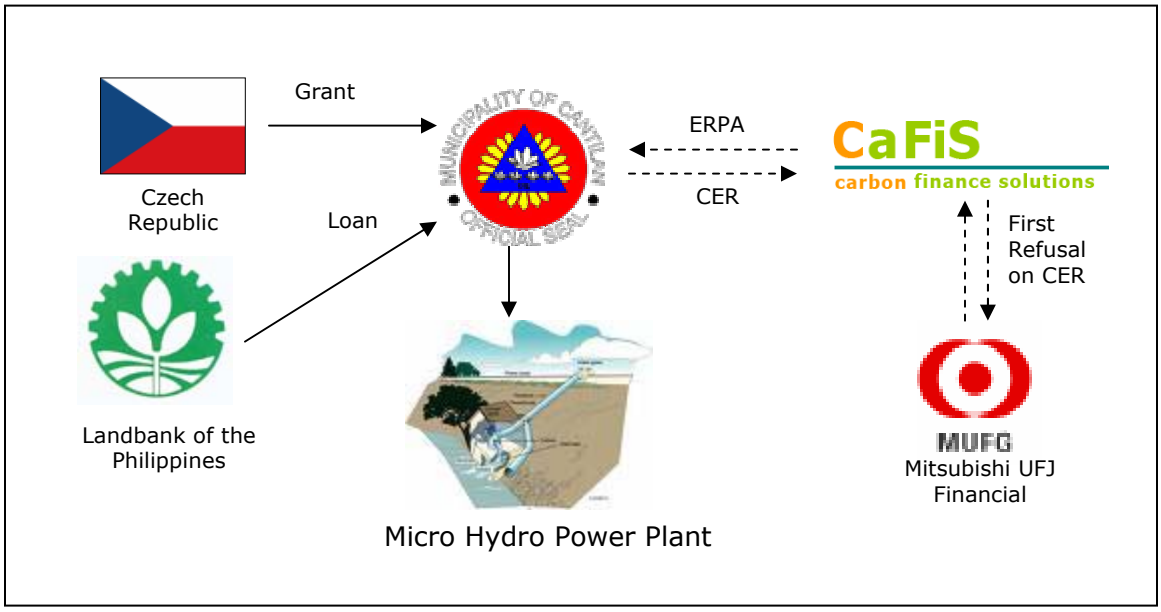
LGU counterpart
The municipality of Cantian will construct the roads, build the temporary facilities, pay interest of the loan during construction, get all the necessary permits, service vehicle during construction, prepare a feasibility study, and develop engineering design.

Loan
The municipality of Cantilan applied for a Php60.0M loan from Landbank of the Philippines. The loan will have an interest rate of 10-11% for 15 years and will have a grace period on principal for 3 years.

Emission Reduction Purchase Agreement (ERPA)
If the project is implemented, the municipality of Cantilan will sell the generated emission reduction to Cafis.

Right of First Refusal
If the project successfully generates emission reduction, Mitsubishi-UFJ will have the right of first refusal of the project's CERs.

Financial Mechanism Diagram of the project



D. Chronological events of the project

2005	The municipality of Cantilan commissioned UPP Associates to prepare the feasibility study of Sipangpang hydro power project
2005	UPP Associates attended a training workshop of klima Climate Change Center regarding Clean Development Mechanism (CDM)
2006	UPP Associates partnered with Cafis for Project Design Document (PDD) development
2006	UPP Associates partnered with Mitsubishi for validating the Sipangpang hydro power project
2007	Designated National Authority (DNA) issued a Letter of Approval (LOA) for Sipangpang hydro power project
2007	The municipality of Cantilan applied for a loan in Landbank for financing the hydro power project
2008	The Lanbank loan got approved

FINANCIAL BARRIERS ENCOUNTERED BY THE PROJECT

A. Risk associated with securing underlying finance
Based on the computation of UPP Associates, the total cost of the hydro power plant in Cantilan is Php86.3M. This includes the equipment and construction materials needed to build the hydro power plant.

Despite having a grant of USD250,000 of electro-mechanical equipment, the municipality of Cantilan encountered difficulties in finding an investor or securing a loan for the Sipangang hydro power project. The reason for this is the 13% IRR of the project. Similar hydro power project should have an IRR of more than 20%.

B. Lack or the absence of specific regulations to address the complex nature of the project
Thru the initiative of Department of Energy (DOE), a memorandum of agreement (MOA) was signed with the Department of Natural Resources and Environment (DENR) to simplify the requirements needed to implement hydro projects that have a capacity of 1,000kW.

In the Memorandum of Agreement (MOA), it exempts mini hydro projects like Sipangpang in getting an Environmental Compliance Certificate (ECC) however a Certificate of Non-Coverage (CNC) is still needed.

C. CDM- specific barriers
At first, the Municipality of Cantilan and UPP Associates did not have any knowledge about CDM. MO-klima, a non government organization focusing on climate change provided them training on Clean Development Mechanism (CDM).

With the assistance of MO-klima, the municipality of Cantilan and UPP Associates were able to partner with CaFis as the CDM consultant.

CaFis used AMS.I.D under the approved methodologies for small scale project activity. The methodology is suitable for the project because it is under 15MW and the electricity generated will be given to the Mindanao grid.

D. Socio-cultural and political barriers
In the beginning, there are no socio-cultural and political barriers in the project. But when the project was about to get the loan approval, the municipality beside Cantilan argued that they too should have a part in the project.

This incident prompted the local financial institution suspended the processing of the loan and let the municipalities settle the problem first before approving the loan.

ROLES OF LGUs AND OTHER PLAYERS TO FACILITATE/SUPPORT THE PROJECT

A. Municipality of Cantilan
The municipality of Cantilan will be the facilitator and implementer of the Sipangpang hydro power project because they are the ones that will sell the generated electricity and they will also be responsible in paying the Php60.0M loan.

B. Czech Republic
The Czech Republic gave a grant worth USD250,000 to the Municipality of Cantilan. The grant was for the electro-mechanical equipment needed to generate power for the river. Without the grant, the Municipality of Cantilan would not be able to implement the project.

C. Landbank of the Philippines
Landbank is a financial institution based in the Philippines. They gave the Municipality of Cantilan a loan amounting to Php60.0M. The loan will be used to construct the main power plant facility.

D. Carbon Finance Solutions (Cafis)
Cafis is the CDM consultant for the Sipangpang hydro power project. They developed the PDD for the CDM application. The PDD development is free of charge but Cafis has an Emission Reduction Purchase Agreement (ERPA) with the Municipality of Cantilan.

E. Mitsubishi-UFJ
Mitsubishi-UFJ is also a CDM consultant that helped Cafis in developing the Sipangpang hydro power project PDD. They assisted in calculating the emission factor and estimated the potential emission reduction of the project.

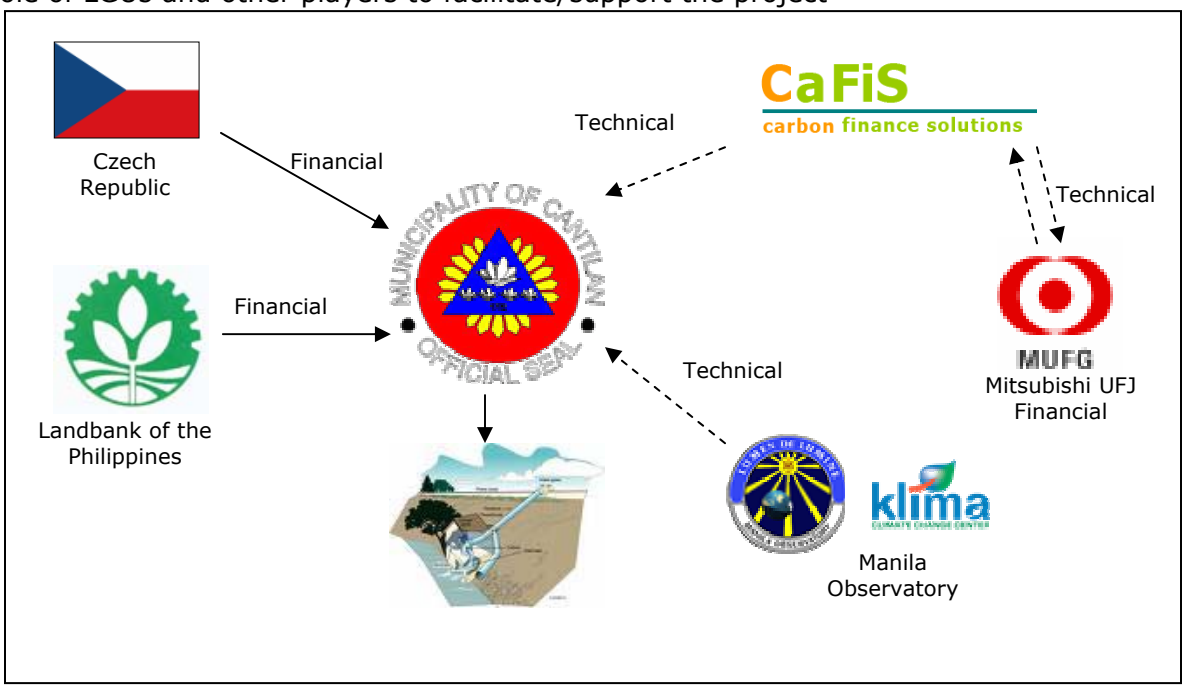
Mitsubishi-UFJ will also shoulder the CDM validation cost of the Sipangpang hydro power project. In return, Mitsubishi will have the right of first refusal for the CERs.

F. Klima Climate Change Center
MO-klima is a non government organization funded by international organization to conduct CDM capacity building activities for the project proponents in the Philippines

G. National Government
The municipality of Cantilan took advantage of the Republic Act No. 7156 – "An act granting incentives to mini hydroelectric power developers and other purposes". This act was made to give proponents incentives on developing hydro power project in the Philippines. Below are the following incentives available to proponents:

- Special privilege tax
- Tax and duty-free importation
- Tax credit on domestic capital equipment
- Special realty tax rates
- Value added tax exemption
- Income tax holiday

Role of LGUs and other players to facilitate/support the project

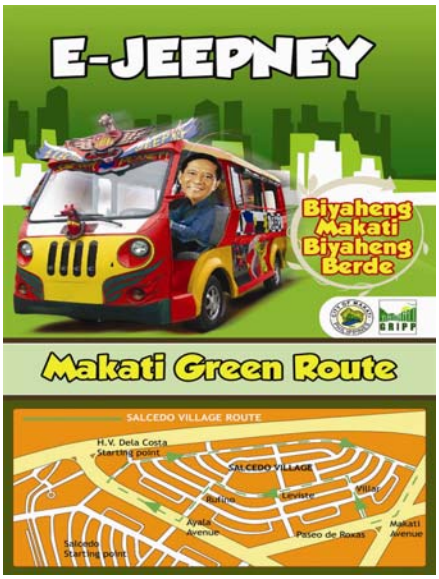


Annex 6.7: Makati electric jeepney project

Background of the Project

A. Project Description

The E-jeep Project is part of the Climate Friendly Cities Program of the Green Renewable Independent Power Producer (GRIPP). This program promotes the utilization of electric engine jeepneys (e-jeeps) as a climate-friendly means of public transportation. GRIPP tapped an international NGO, the DOEN Foundation based in the Netherlands to fund the project. Although GRIPP owns the e-jeep units, they have partnered with selected LGUs that would be responsible for the implementation and maintenance of the units.



The three LGUs selected were: (1) Makati City, (2) Puerto Princesa, and (3) Bacolod City.

The project study will focus on the operation of the e-jeeps in Makati City.

With the full support of the community where the e-jeep would be operating, the Belair Village in Makati City became the pilot testing area of the project. Two (2) units were deployed in the village and are running on a defined route. Patrons of the e-jeep rode for free as they are not yet operating commercially due to the licensing requirements needed from the different government agencies. Many residents preferred to use the e-jeep as a means of transportation. Because of the satisfaction of the residents, they purchased the two (2) e-jeep units from the Makati City Government.

Source: E-jeep powerpoint of Makati City

The City Government has identified two (2) more routes for the e-jeep. These routes are not being serviced by the existing public jeepneys.

The detailed specifications of the project are as follows:

Number of passengers	14
Dimensions (LxWxH)	4,324 x 1,524 x 1,929
Wheelbase	2,548 mm
Front Track	1,200 mm

Minimum Ground Clearance	150 mm
Net Wt.	1,360 mm
Gross Wt. (w/ Passenger)	2,340 mm
Top speed	30 km/hr
Max gradeability (full load)	20 kg
Parking ability (empty load)	15 kg
Breaking distance	≤ 9m
Mini Turing Diameter	≤ 14 m
Rated Power	5 kw
Voltage/ Batteries	72V (6V x 12)
Consumption time (per one full charge)	8-10 hours
Max. continuous mileage of recharging one time batteries (full load plain road condition)	110 (12 units

At present, only one (1) e-jeep is being operated by the LGU and is servicing the Salcedo Village route. According to the man in-charge of the e-jeep, an 8-hour charged battery can be used for 5 hours. There is a gauge that will indicate if charging is needed. The e-jeep can make 10 round trips per day with 12 passengers per one-way trip. Each round trip is about 4 kilometers. Two (2) more e-jeep units are scheduled for registration. GRIPP plans to provide 7-8 units more.

Since the electric jeepney is a new technology, the Land Transportation Office (LTO) needed to provide classification type for this vehicle prior to registration. LTO classified the e-jeep as a Low Speed Vehicle (LSV) for private or public use, for commercial or non-commercial purposes or to be hired to transport goods and passengers subject to all applicable rules and regulations for transport vehicles. It is restricted to a limited speed of up to 40 kph and should be operated only in Central Business Districts, provincial roads, municipal/city roads and barangay/subdivision roads. It is prohibited along main thoroughfares, highways and national roads except to cross roads. Main thoroughfares, highways, or national roads may be designated and posted as open for travel for Electric Jeepney by concerned government agencies.
(Source: e-jeep powerpoint of Makati City)

B. Profile of the Project Proponents
   a. Green Renewable Independent Power Producer (GRIPP)
      Green Renewable Independent Power Producer (GRIPP) initially grew out of cooperation between the International Institute for Energy Conservation (IIEC) and Greenpeace-Southeast Asia aimed at initiating a multi-stakeholder input to develop Greenery. This is a package of lower cost energy efficiency resources and higher cost renewable energy resources delivered to the grid that can compete with traditional fossil-fuel power resource options, as a power sector solution for developing countries. GRIPP eventually became a collaborative undertaking of various local and international stakeholders like the GERMANWATCH, Preferred Energy Incorporated, Greenpeace-Southeast Asia Energy Campaign, Philippine Rural Reconstruction Movement and Solar Electric Company, Inc. (Philippines)

b. The City Government of Makati
The City Government of Makati is the Business and Financial Capital of the Philippines which houses 50% of the Top 10 highest earning, most profitable and largest corporations. It has around 60,551 registered business establishments, 86 embassies and consulates as well as 12 international organizations. It has been recognized as a political entity since 1670 and has been a city since 1995.

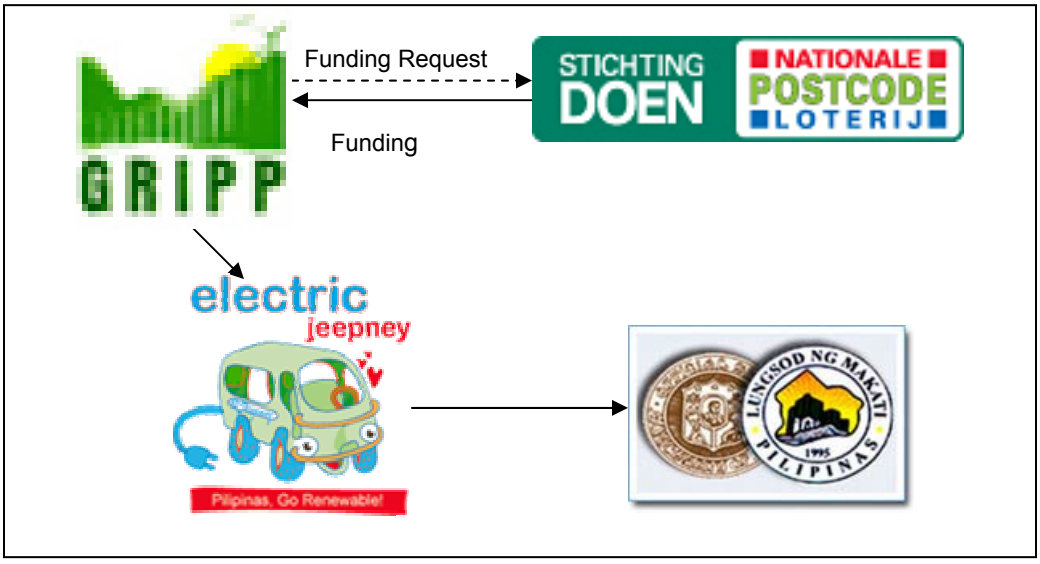
C. Financial mechanism to be used in the Project
GRIPP sourced the grant used for the acquisition of the e-jeep from the DOEN Foundation. Three (3) cities were selected to implement the project including Makati City. As this is grant, the city governments did not pay anything for the e-jeep. However, as counterpart, the city governments need to provide for the cost of operation, like the driver of the e-jeep, maintenance and charging of the batteries.

The electric jeepney costs around Php550,000 (without transmission) per unit or Php 595,000 (with transmission) per unit. Based on the results of the pilot testing, the e-jeep can run up to 75 km on a non-stop operation, with a single full charge. The e-jeep power consumption is around Php 107 (10.7 kwh at Php 10 per kwh Meralco rate) or Php 1.42 per km. (Php 107 divided by 75 kms) as compared to Php 5.00 for a conventional jeepney powered by diesel.

A typical public utility jeepney's estimated fuel mileage is at 8km per liter. At Php40 per liter price, it will consume around Php375 or about Php 5 per km.

The e-jeepney battery costs around Php 60,000 and has a 2 year lifetime, therefore, it has an additional cost of Php 96.00 per day if it operates for 26 days per month. With these computations, the total cost per km is Php2.70 (Php 107.00 + Php 96.00 = Php 235 divided y 75 km). There is a need to update the study of the costs and savings if the e-jeep is implemented because of the changing prices of electricity and fuel.

Financial Mechanism Diagram



Barriers Encountered in Financing the Project

A. Risks associated with securing underlying finance
Each e-jeep unit would cost Php 550,000 – 595,000, which is almost double the price of a diesel engine jeepney. There is therefore a need to source funding for the purchase of the units. Considering that the technology is new in the country, the project proponents may find it difficult to secure financing from the traditional sources, like, local banks.

B. Institutional barriers
Since the electric jeepney is a new technology, the Land Transportation Office (LTO) needed to provide classification type for this vehicle prior to registration. Makati City experienced several challenges in the issuance/securing of necessary permits before the units can be used commercially.

The technology is presently imported from China. Local accreditation of the suppliers and assemblers also presented some barriers.

C. Prevailing Practice
The e-jeep is not commonly used in the Philippines. Some passengers are still hesitant to patronize the e-jeep due to perceived risk.

Role of LGUs and other players to facilitate/support this project

There are three (3) main parties involved in the project:

a. DOEN Foundation provides funding to organizations and projects in the fields of Sustainable Development, Culture, Welfare and Social Cohesion. DOEN Foundation achieves its objective through the revenues it receives from the Dutch Postcode Lottery, the Sponsor Bingo Lottery and the BankGiro Lottery.

   DOEN Foundation supported GRIPP Foundation and its Jeepney project in order to provide a sustainable solution for transportation. Providing environmentally friendly Jeepneys shows that it is possible to be mobile and still reduce the amount of air pollution caused by traffic, including greenhouse gas emissions.[19]

b. GRIPP – a local NGO who started the Climate Friendly-Cities Program through which the e-jeep project is part of. GRIPP was responsible for identifying recipient LGUs to implement the project. It facilitated the training of personnel who would be operating the e-jeep courtesy of the technology provider.

c. Makati City Government (LGU) – the LGU is responsible for the implementation and maintenance of the project. The LGU is currently doing a feasibility study for the project as it is plans to continue this project.

   Climate change initiatives of Makati City Government
   The Makati City government is very active in implementing climate change initiatives. It is part of the International Council for Local Environmental Initiatives (ICLEI) under its Cities for Climate Protection Campaign in March 2004. It has created special environmental bodies such as the Makati City

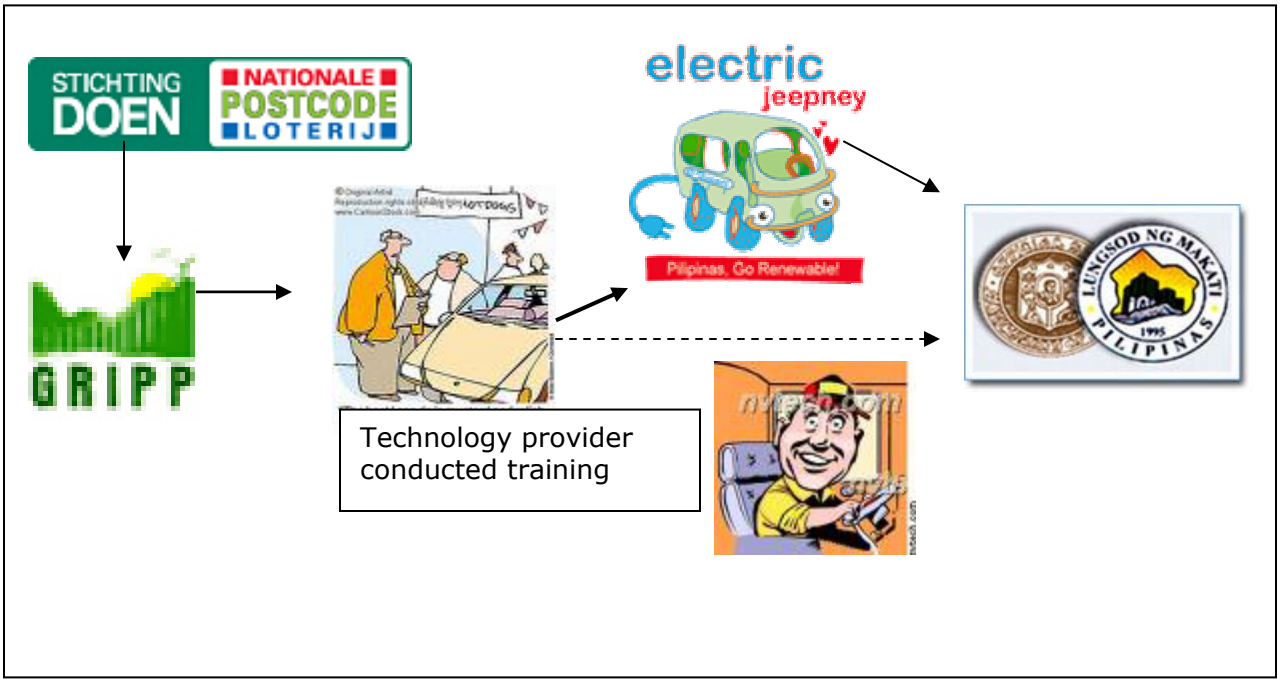
[19] www.doen.nl

Environmental Protection Council, Makati Solid Waste Management Board, Clean and Green Committee, and the Clean Cities Makati Coalition.
Makati has set a target to reduce the emissions of the city of up to 20% from 2003-2010. Measures to achieve this target include the following:

1. Proper solid waste management
   Makati has set waste reduction targets for the following years
   - 2002: base year
   - 2003: 5%
   - 2004: 10%
   - 2005: 15%
   - 2006: 20%
   - 2007: 25%
   - 2008: 30%

   a. Programs and IEC activities targeting different relevant sectors are initiated by the city for proper waste management
   b. Enforcement of City Ordinance 2003-095: City Solid Waste Management Code
2. Reduced electricity consumption
   a. City lighting projects
   b. Conservation measures in City-owned buildings
3. Urban Greening
   a. City-wide tree planting
4. IEC activities on climate change adaptation and mitigation
   a. Module writing of teachers on climate change mitigation and adaptation
   b. Orientation seminar for City Government personnel
5. Transportation
   a. E-jeep
   b. Bus Rapid Transit
   c. Anti-Smoke Belching Campaign via City Ordinance no. 2004-32

Role of LGUs and other players to facilitate/support the project



Annex 6.8: Selecta Gawad Kalinga Green Village

Background of the Project

A. Project Description

The housing project is sitting on a 3,000 square meters area with 94 household beneficiaries. Some 17 households purchased their land from the Diocese of Antipolo for P18,000.00. The remaining land is still being negotiated through the Community Mortgage Program (CMP) between Gawad Kalinga (GK), the Municipality of Cainta, National Housing Authority (NHA) and the GK Kapitbahayan Neighborhood Association. Part of the remaining lot is covered by the usufruct agreement between the local government unit of Cainta, Rizal and GK. Under this agreement, the property is used for free for a minimum of 25 years. The average land area per household is 25 square meters.

The (CMP) is a mortgage financing program of the National Home Mortgage Finance Corporation (NHMFC) which assists legally organized associations of underprivileged and homeless citizens to purchase and develop a tract of land under the concept of community ownership. The primary objective of the program is to assist residents of blighted areas to own the lots they occupy, or where they choose to relocate to and eventually improve their neighborhood and homes to the extent of their affordability.

The sources of livelihood of the people are farming, sewing, construction working, driving and doing laundry.

On the other hand, the urban farm which is adjacent to the housing project is a 3,500 square meter lot on lease for free from the Diocese of Antipolo for 5 years renewable. The MOA was signed on March 2007 between GK, the Diocese of Antipolo and the neighborhood association. Selecta, which is located just 10 meters away from the village donated P 1 million pesos worth of farm input/farm implements during the start up of the project as part of their corporate social responsibility to help the poor people of the village to have livelihood and to promote sustainable urban farming.

B. Profile of the Project Proponents

a. Gawad Kalinga (GK)

Gawad Kalinga (GK) translated in English means to "to give care", is an alternative solution to the blatant problem of poverty not just in the Philippines but in the world. GK's vision for the Philippines is a slum-free, squatter-free nation through a simple strategy of providing land for the landless, homes for the homeless, food for the hungry and as a result providing dignity and peace for every Filipino.

What started in 1995 as a daring initiative by the Couples for Christ to rehabilitate juvenile gang members and help out-of-school youth in Bagong Silang, Caloocan City, then the biggest squatters' relocation area in the Philippines, has now evolved into a movement for nation-building. Together with its partners, Gawad Kalinga is now in the process of transforming poverty stricken areas with the goal of building 700,000 homes in 7,000 islands in 7 years (2003-2010). To date Gawad Kalinga is in over 900 communities all over the Philippines and in other developing countries.

Gawad Kalinga is more than about building houses for the poorest of the poor. Providing a decent home is just the beginning of the transformation of the people and the community. It has also evolved to a more integrated community building to include environmental concerns such as climate change mitigation due to increased/heightened awareness on the issue of climate change.

b. Selecta
Selecta is a joint venture between two Philippine Corporations, namely the RFM Corporation and Unilever. It manufactures ice cream, milk and chocolate products.

c. Archdiocese of Antipolo
Archdiocese of Antipolo - The Diocese of Antipolo was created on January 24, 1983 and was canonically erected on June 25, 1983 at the Shrine Parish of the Immaculate Conception in Antipolo, Rizal. It was carved out of the Archdiocese of Manila, taking mostly the eastern part of Rizal. It includes under its jurisdiction 16 municipalities, among them Antipolo, Angono, Baras, Marikina, Montalban. It is a suffragan of the Archdiocese of Manila. The Diocese of Antipolo has a land area of 1,859 square kilometers. In 1983, upon its creation, the estimated population of the area was about 900,000 of which 83 per cent were Catholics. The diocese then had 21 parishes. Today, over the same land area, the population has grown to over 2,000,000 of which 85 per cent are Catholics.

d. Municipality of Cainta
Municipality of Cainta, Rizal - The Municipality of Cainta *(*Filipino*: Bayan ng Cainta)* is a first-class urban municipality in the province of Rizal, Philippines. It is the province's most prosperous town, one of the oldest (originally founded in August, 1571), and the town with the smallest land area (43.00 km²). Cainta serves as a gateway to the rest of Rizal province from Metro Manila. It is one of Rizal's most urbanized towns because of its proximity to Manila.

e. National Housing Authority (NHA)
National Housing Authority (NHA) – NHA is a Government-owned and -controlled corporation under the administrative supervision of the Housing and Urban Development Coordinating Council and classified under the Infrastructure Utilities Group.

NHA Charter Presidential Decree No. 757 dated 31 July 1975

Mandates Under PD 757dated 31 July 1975. NHA was tasked to develop and implement a comprehensive and integrated housing program which shall embrace, among others, housing development and resettlement, sources and schemes of financing, and delineation of government and private sector participation. Under EO 90 dated 17 December 1986. NHA was mandated as the sole national government agency to engage in shelter production focusing on the housing needs of the lowest 30% of the urban population.

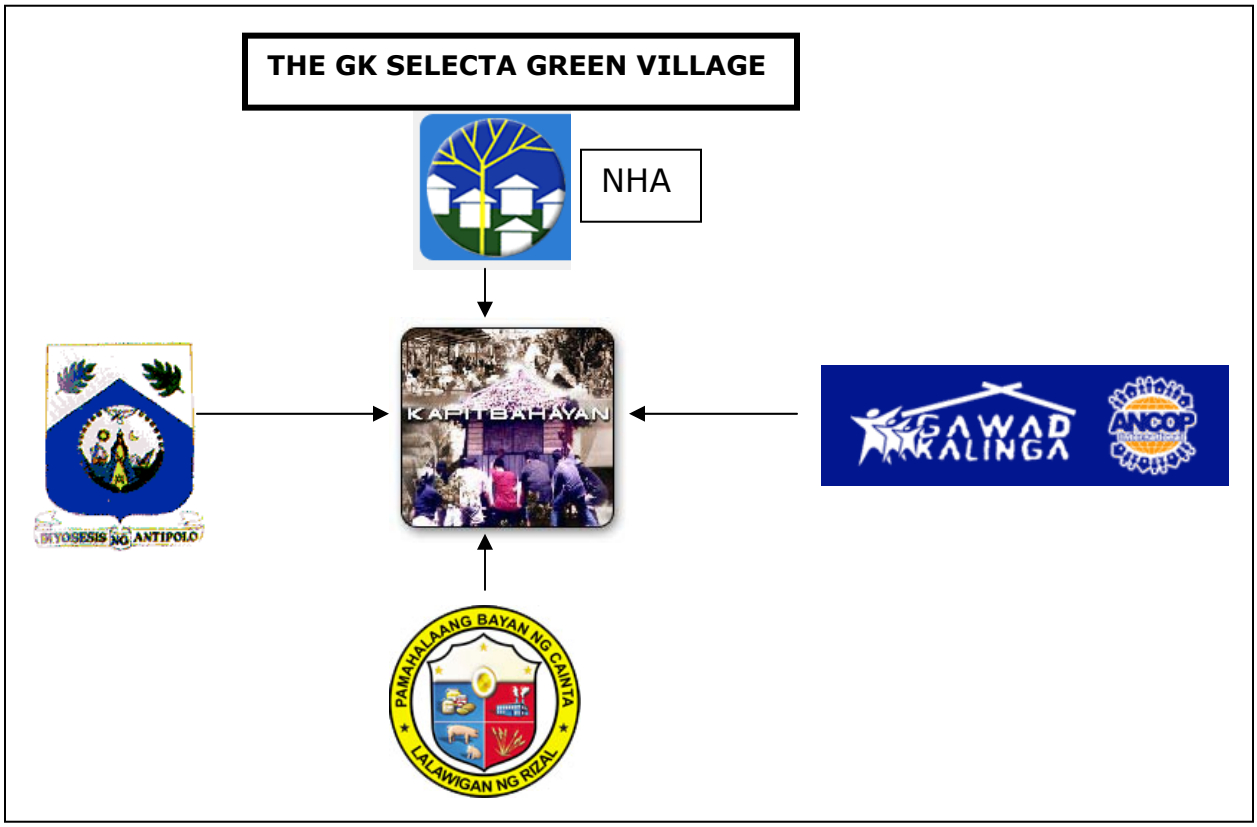
Under RA 7279 (UDHA) dated 24 March 1992. NHA was tasked to provide technical and other forms of assistance to local government units (LGUs) in

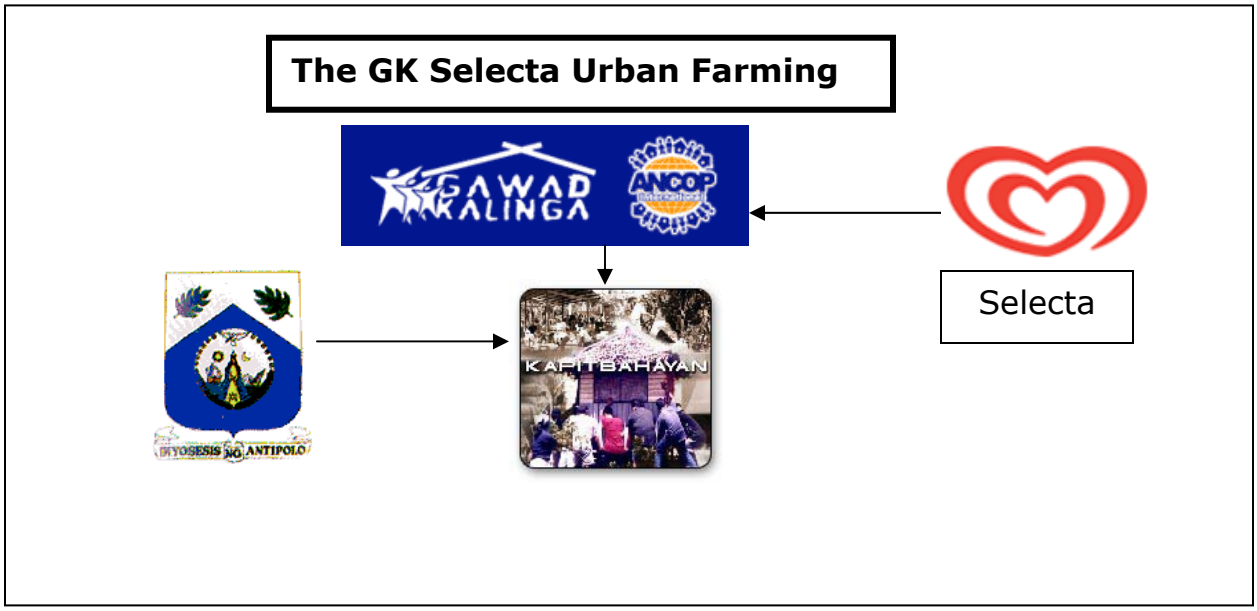
the implementation of their housing programs; to undertake identification, acquisition and disposition of lands for socialized housing; and to undertake relocation and resettlement of families with local government units.

Under RA 7835 (CISFA) dated 08 December 1994. NHA was tasked with the implementation of the following components of the National Shelter Program - the Resettlement Program, Medium Rise Public and Private Housing, Cost Recoverable Programs and the Local Housing Program.

Under EO 195 dated 31 December 1999. NHA was mandated to focus on sociliazed housing through the development and implementation of a comprehensive and integrated housing development and resettlement; fasttracking the determination and development of government lands suitable for housing; and ensuring the sustainability of socialized housing funds by improving its collection efficiency, among others.

C. Financial Mechanism/s Used in the Project (e.g. grants, loans, etc.)





Gawad Kalinga has always promoted the "bayanihan" concept of building houses. "Bayanihan" means physically moving one house from another with the help of local folks. All money used in the project were donations or "padugo" as coined by Gawad Kalinga itself. No loans were involved in this project.

D. Chronological Events/ Milestones of the Project (history)
2003 – negotiation for the CMP and usufruct agreement between the Municipality of Cainta and Gawad Kalinga started.
2004 – usufruct agreement was finalized while CMP negotiation is still on going
1st quarter of 2004 – start of construction of houses
2006 – completion of construction of houses
March 2007 – start of urban farming operation
The village is just one of the many villages of Gawad Kalinga.

Barriers Encountered in Financing the Project

No financial barriers were identified since project financing was available.

Risks associated with securing underlying finance

Since the project involves only donations or "padugo, there was no risk identified with securing finances for this type of project.

A. Socio-cultural and political barriers (acceptance, political will)
At first, the people of the village were reluctant to do urban farming because they were not sure if their produce would be marketable. Only a few of the villagers dared venture into farming. But because their produce are organic, many people within and outside the area started patronizing their product. Because of this development, more people from the village are now helping in the urban farm.

Institutions Involved in Financing of the Project

A. Gawad Kalinga
Gawad Kalinga provided the financing from donations to the green village.

B. Selecta
Selecta donated the amount of P1 million pesos for farm inputs/implements and construction of infrastructures to start up the urban farming where the compost facility is located.

C. The National Housing Authority
The National Housing Authority through its CMP is facilitating the acquisition of the land.

Role of LGUs and other players to facilitate/support to this project

A. The Municipality of Cainta
The Municipality of Cainta, Rizal provided the lot for the village through the community mortgage program or CMP and usufruct agreement. Building permit fee was waived to support this program. The local government through its municipal health office also extends medical services to the people living in the village.

Climate Change initiatives of the municipality of Cainta, Rizal
An interview with Atty. Blardoni C. Mallari, the Secretary to the Sangguniang Bayan, the municipality of Cainta is "in the process of addressing various environmental issues including the issue of climate change", and that they are "open to possible partnership" with other organizations in this regard.

Below are some of the environmental ordinances of the municipality:
Ordinance No. 2000-09 – An ordinance prohibiting spitting, urinating, defacating, and/or littering of paper and other rubbish in public buildings, streets, plazas and other public places in Cainta, Rizal, and providing penalties for violation thereof.

Ordinance No. 2008-018 – An ordinance regulating and monitoring garbage collection within the territorial jurisdiction of Cainta, Rizal and prescribing penalties thereof.

Ordinance No. 2008-003 – An ordinance prohibiting scavenging of garbage (waste) open up or scatter stored waste in any waste bag or container for any purpose whatsoever and prescribing penalties for violation thereof.

B. The National Housing Authority
The National Housing Authority facilitated and has been facilitating the CMP between the neighborhood association and the municipality of Cainta, Rizal.

C. Gawad Kalinga
Gawad Kalinga monitors the status and maintenance of its housing project under its shelter program and also monitors the sustainability of its urban farming project under its productivity program. A volunteer from GK also donated the shredder for use in the urban farm.

D. Selecta
Selecta supervised the construction of the facilities in the urban farm and also provided the farm inputs.

E. The Diocese of Antipolo
The Diocese of Antipolo provided the land for urban farming for free for a period of 5 years which is renewable.

Annex 6.9: PRRM micro hydro project

Background of the Project

A. Project Description

Access to electricity is a problem for the people in the province of Ifugao because some of its barangays including Bokiawan are very far from the electric grid. This, plus the presence of sufficient water supply to generate electricity encouraged the construction of this micro hydro project.

This 15 KW micro-hydro plant is located in Barangay Bokiawan, Kiangan, Ifugao. The plant which was inaugurated in September 2002 is a joint project of a local people's organization in the area, Save the Ifugao Terraces Movement (SITMo), the Philippine Rural Reconstruction Movement (PRRM), a non-governmental organization and the municipality of Kiangan, Ifugao. In 2002, 28 out of 150 households were beneficiaries of the micro hydro power plant. This went down to 16 households in 2004 when another electric company provided a more reliable although more expensive electricity. It is estimated that this micro hydro plant can power one (1) bulb, a refrigerator and a television set per household.

B. Profile of the Project Proponents

a. The Philippine Rural Reconstruction Movement

The Philippine Rural Reconstruction Movement (PRRM), is the oldest Philippine NGO. It was founded in 1952. PRRM labors to show a different way of doing development and have it adopted into government policy and practice. Its community-based programmes cover agriculture, fisheries, energy, health, environment and entails a great deal of community organizing and capability building to enable the rural poor and local citizens find their way out of poverty and get government to do its part and deliver. It operates on the principle that the key to sustainable development is the effective participation by, and cooperation among, the local people, the local government unit, and the local business sector, in local development.

b. The Save the Ifugao Terraces Movement (SITMo)

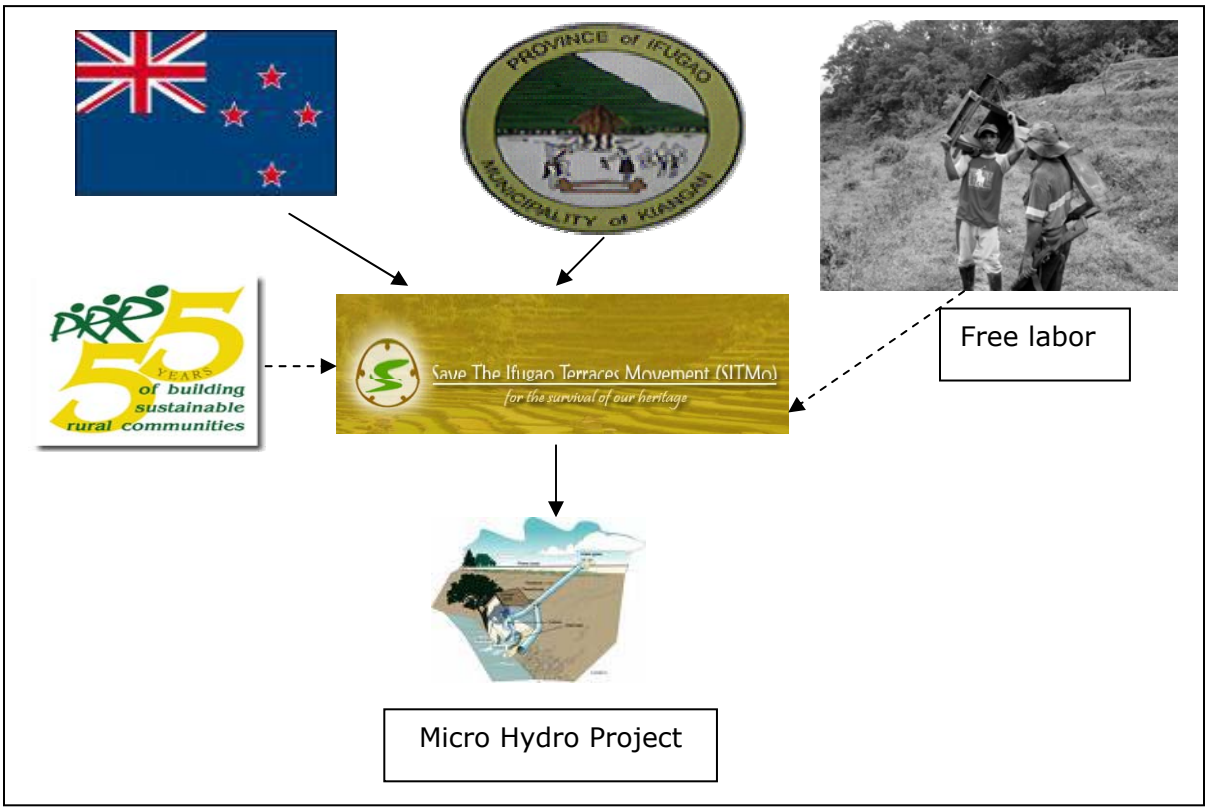
The Save the Ifugao Terraces Movement (SITMo) was launched in March 2000 under the auspices of the Sustainable Rural District Development Program (SRDDP) undertaken by PRRM. The renewable energy program of SITMo was an offshoot of PRRM's pioneer works on sustainable energy development.

SITMo aims to increase access of rural people to basic energy services. Its objectives are to tap local resources especially micro-hydro for electrification, milling, the promotion of income generating projects and encourage the local adoption of clean energy and demonstrate viable alternatives to large energy projects (large hydro and geothermal) that threaten some Ifugao villages. This is done by using local resources to pilot renewable energy projects in remote villages and advocate for more of these developments across the province.

C. Financial Mechanism/s Used in the Project (e.g. grants, loans, etc.)
The project was funded by the New Zealand Embassy for P450,000.00 through the efforts of then U.S. Peace Corps volunteer Jordan Ermilio, who was assigned to the Municipality of Kiangan. The Municipality of Kiangan, provided as counterpart P250,000.00 to initiate the project. SITMo member Teddy Baguilat was the municipal mayor of Kiangan at that time, and he was fully supportive of this endeavor.

The residents of the barangay provided free labor for the project.

Financial Mechanism Diagram



D. Chronological Events/ Milestones of the Project (history)
1988 – PRRM opened branch in Ifugao with a Sustainable Rural District Development Program (SRDDP)
1992 – Renewable energy was integrated into PRRM's program
2000 – SITMo was launched
June 2001 - start of construction of the plant
2002 – Inauguration of the plant

Since 2002, the plant has been managed and maintained by the local cooperative in the barangay, the Bokiawan Electricity Cooperative (BELCO).

Barriers Encountered in Financing the Project

No financial barriers were identified since the project has financing even at the beginning.

A. Socio-cultural and political barriers (acceptance, political will)
Some of the barriers encountered in the course of running this project were: 1. The lack of skilled people in the community to become officers of the cooperative. 2. Officers felt burdened with too much responsibility. 3. Location of the plant is not favorable for transport, requires time and effort to reach. 4. Maintenance of the plant is too costly. 5. Lack of interest to learn how to handle mechanical problems.

SITMo, PRRM and the local government worked and has been working hand in hand to address these problems. They adopted the following measures: 1. Officers now have fixed positions. 2. Rotate the operation of the plant per household per week. 4. They are considering raising the fee. 5. The provincial government encourages people to enroll in Technical Education and Skills Development Authority (TESDA) under a subsidized education program.

Role of LGUs and other players to facilitate/support to this project

A. Municipality of Kiangan
Aside from the financial counterpart given by the Municipality of Kiangan in 2001 in the amount of P250,000.00, the provincial government also encourages people to enroll in the government's Technical Education and Skills Development Authority (TESDA) under a subsidized education program. TESDA was established through the enactment of Republic Act No. 7796 otherwise known as the "Technical Education and Skills Development Act of 1994", which was signed into law by President Fidel V. Ramos on August 25, 1994. This Act aims to encourage the full participation of and mobilize the industry, labor, local government units and technical-vocational institutions in the skills development of the country's human resources.

Climate Change Initiatives of the province of Ifugao
The Sangguniang Panlalawigan of the province recently passed a resolution creating the Provincial Technical Working Group (PTWG) to assist in the production of a Provincial Environment Code.

Authored by Board Member Samson Atluna, Chairman of the Committee on Environment, Agriculture and Natural Resources, the said resolution was amended in consonance with the Philippine Agenda 21, or the so-called Rio Declaration on Environment and Development, as adopted by several governments of the United Nations.

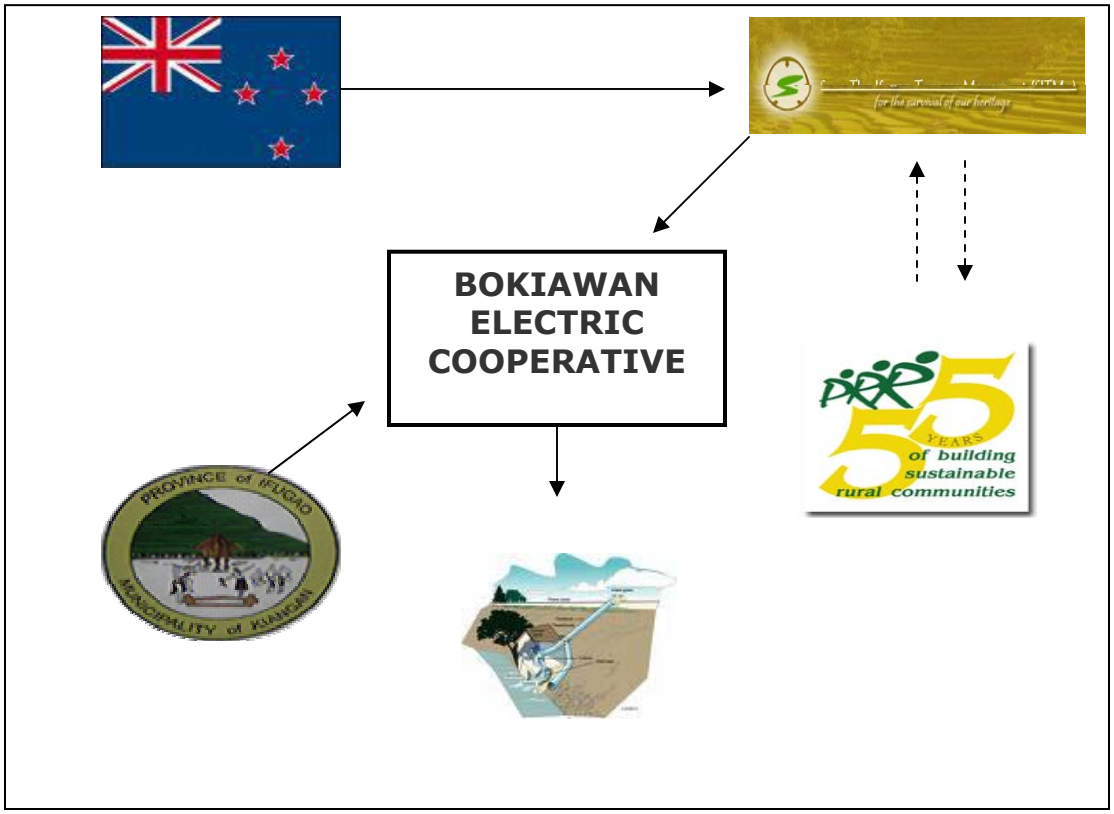
The Environment Code will operationalize the powers and responsibilities of the Provincial Local Government Units in Ifugao in the attainment of sustainable development goals by instituting legislative measures and reforms that will facilitate the effective implementation of local environmental management programs.

B. SITMo
SITMo organized the community and formed the Bokiawan Electric Cooperative (BELCO). It took SITMo 3 months to organize the community which included social preparation, workshops and trainings on community organizing, basic electricity matters and housewiring, as well as specific knowhow on the operation of the plant. SITMo's Renewable Energy Center solves technical problems which could not be addressed by BELCO.

C. PRRM
PRRM is the partner NGO of SITMo in carrying out the integrated area development program in Ifugao.

D. The New Zealand Embassy
The New Zealand Embassy released P450,000.00 for the construction of this plant in 2001.

Role of LGUs and other players to facilitate/support to the project



Annex 7: Questionnaire 1

Survey Questionnaire

Climate change, more commonly referred to as global warming, is one of the most pressing issues that we need to deal with. Recent reports prepared by scientists confirm that the increasing concentration of greenhouse gases in the atmosphere is the cause of global warming.

Both public and private sectors are already adopting programs and projects to address this global problem and mitigate climate change. Of particular interest are the local level **mitigation projects**[20], whose implementation can certainly provide lessons we can learn from. It is for this reason that the *klima*- climate change center is doing a study which aims to identify these local-level development-oriented mitigation initiatives and the mechanisms for financing such projects.

We hope that you can take a few minutes of your time to fill out the following survey questionnaire and return to us on or before October 11, 2008 so that we can include your project/s in our study.

Thank you very much!

Name of Organization/Company: _____
Category of the organization:

Private Company	NGO	Others (Pls. Specify)
LGU	Foundation	_____
Government Agency		

Address: _____
Telephone No: _____ email address: _____
Contact Person: _____
Position/Designation: _____

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(Please only include projects that have been implemented in year 2000 and onwards)

Name of project: _____
Year of implementation: _____
Location: _____

LGU Involvement?	Yes	Community Involvement:	Yes
	No		No

Sector

Energy Efficiency	Waste & Waste Management
Renewable Energy	Transport

Brief Project Description:

[20] Mitigation projects are project activities that lessen, or contributes to a reduction of, greenhouse gas emissions in the atmosphere

Annex 8: Questionnaire 2

Survey Questionnaire

Climate change, more commonly referred to as global warming, is one of the most pressing issues that we need to deal with. Recent reports prepared by scientists confirm that the increasing concentration of greenhouse gases in the atmosphere is the cause of global warming.

Both public and private sectors are already adopting programs and projects to address this global problem and mitigate climate change. Of particular interest are the local level **mitigation projects**[21], whose implementation can certainly provide lessons we can learn from. It is for this reason that the *klima*- climate change center is doing a study which aims to identify these local-level development-oriented mitigation initiatives and the mechanisms for financing such projects.

We hope that you can take a few minutes of your time to fill out the following survey questionnaire so that we can include your project/s in our study.

Thank you very much!

Name of Organization/Company: _____

Category of the organization:

⁵ Private Company	⁵ NGO	⁵ Others (Pls. Specify)
⁵ Local Government Unit	⁵ Foundation	_____
⁵ Government Agency		

Address: _____

Telephone No: _____ email address: _____

Contact Person: _____

Position/Designation: _____

==========

(Please only include projects that have been implemented in year 2000 onwards)

Name of project: _____
Year of implementation: _____
Location: _____

Sector:

□ Energy Efficiency	□ Waste and Waste Water Management
□ Renewable Energy	□ Transport

Source of Financing: _____

[21] Mitigation projects are project activities that lessen, or contributes to a reduction of, greenhouse gas emissions in the atmosphere

Terms of Financing:

LGU Involvement? Yes
No

Role of the LGU

Community Involvement: Yes
No

Role of the Community

Barriers/ Challenges:
Financial (specify)

Technological (specify)

Institutional (specify)

Social (specify)

Others (specify)

Solution to barriers when your organization solved or tried to solve the above barriers

Annex 9: Questionnaire 3

Name of Project: _____

Name of Person interviewed: _____ Position: _____

H1. What are the financial barriers to realize successful local climate change actions in developing countries?

A. Availability and accessibility of local financing
   1. Are there available local financing for this type of project? What are the requirements in terms of collateral and equity? Have you tried to avail of local financing for this project? Were you able to avail of the local financing?

B. Profitability
   1. What is the Internal Rate of Return (IRR) of the project?
   2. Is there a revenue stream? Give estimate of how much is the expected revenue?
   3. How much is the operating cost?

C. Transaction Cost
   1. What are the transaction costs involved
      - Feasibility study
      - Consultants
      - Permits and licenses
      - Securing the funding
      - Organizing the LGUs (for LLDA)
      - PDD development

D. Monitoring Cost
   1. Do you need to buy equipments for the monitoring of the project? Monitoring for GHG emissions reduction?
   2. How much is the cost?

E. Additionality
   1. Was there a problem in establishing the additionality of the project in CDM?

H2. What are the conditions for financial mechanisms to work?

A. How was the project financed?
   - Loans from local FI and/or WB/ADB
   - Grants from international NGO/WB

B. What are the terms of the loan/grant?
   - What is the repayment period for the loan
   - What is the interest rate?
   - How much is the amortization?
   - Is CER delivery part of the loan requirement?

H2.2 What is the monitoring mechanism for the project?
   A. Is there a monitoring requirement? From the financial institution who provided financing? From the concerned government agency like EMB or LLDA?
   B. Who monitors the project?

C. What is the schedule of monitoring report? Monthly? Quarterly? Yearly?
D. To whom is the report submitted?

H2.3 For CDM projects?
A. Did you use and approve methodology?
B. Are you a bundled project?
C. Why is there a need for bundling? Did you encounter problems in bundling?

H3. What are the promoting factors for LGUs in developing countries to facilitate financing of local climate change actions?

Promoting factors like:
a) given mandate;
b) access to information on economic and development benefits of mitigation projects through international linkages;
c) access to international financial and technical assistance.

A. Is there a local mandate on climate change mitigation?
B. Are there local NGOs and/or international NGOs providing information on the benefits of climate change mitigation? (klima)
C. Do you have access to international and technical assistance? Are there NGOs (local or international) helping you source funds for the project?
D. Can a local or international NGO take the place of the LGUs with regards to implementing climate change mitigation projects?
E. To what extent NGOs could replace local government in terms of (1) access to financial resources, (2) facilitation and coordination of the project, (3) monitoring

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