Support of the Capacity Development on Low Carbon Development Policies at the Sub-national Level Through NAMAs in the Philippines

FINAL REPORT

18 December 2012

Ateneo School of Government
The Graduate School of Leadership and Public Service

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1 LIST OF ACRONYMS

ACEF	Agricultural Competitiveness Enhancement Fund
BAR	Bureau of Agricultural Research
BIAD	Bohol Integrated Development Area
BOCM	Bilateral Offset Credit Mechanism
BSWM	Bureau of Soil and Water Management
CCC	Climate Change Commission
CCD	Climate Change Division
CCPO	Creation of the Climate Change Program office
CDP	Community Development Plan
CEnergy	Climate Change and Clean Energy Project
CFL	Compact Fluorescent Lamp
CHED	Commission on Higher Education
CLUP	Community Land Use Plan
CNG	Compressed Natural Gas
CPEIR	Climate Public Expenditure and Institutional Review
DA	Department of Agriculture
DBM	Department of Budget and Management
DEA	Don Emilio Abello
DENR	Department of Environmental and Natural Resources
DENR-EMB	DENR – Environmental Management Bureau
DepEd	Department of Education
DILG	Department of Interior and Local Government
Dir. ENR	Evelyn N. Reyes (Director-EUMB)
Dir. MCM	Mario C. Marasigan (Director-REMB)
DOE	Department of Energy
DOE-AFETD	DOE – Alternative Fuels and Energy Technology Division
DOE-EECD	DOE – Energy Efficiency and Conservation Division
DOE-EUMB	DOE – Energy Utilization Management Bureau
DOE-OIMB	DOE – Oil Industry Management Bureau
DOST	Department of Science and Technology
DOT	Department of Tourism
DOTC	Department of Transportation and Communications
DOTC-LTFRB	DOTC – Land Transportation Franchising and Regulatory Board
DOTC-LTO	DOTC – Land Transportation Office
DPWH	Department of Public Works and Highways
DSM	Demand Side Management
DTI	Department of Trade and Industry
DTI-BPS	DTI – Bureau of Project Standards
DU	Distribution Utility
EAT	Energy Audit Team
EC-LEDS	Enhancing Capacity for Low Emission Development Strategies
EcoGov	Philippine Environmental Governance Project
EELs	Energy Efficient Lighting System

EnerCon Officer	Energy Conservation Officer
EPWMD	Environment Protection and Waste Management Department
ESWMP	Enhanced Solid Waste Management Program
FiT	Feed-in-Tariff
GEMP	Government Energy Management Program
ICC	Investment Coordinating Committee
IEC	Information and Education Campaign
ISWM	Integrated Solid Waste Management
ITCAF	Information Technology Center for Agriculture and Fisheries
LCCAP	Local Climate Change Action Plan
LED	Light Emitting Diode
LFOE	Liters Fuel Oil Equivalent
LMA	Local Monthly Allocation
LPG	Liquefied Petroleum Gas
LUCF	Land-use Change and Forestry
MECR	Monthly Electricity Consumption Report
MFCR	Monthly Fuel Consumption Report
MLGU	Municipal Local Government Units
MMDA	Metro Manila Development Authority
MRF	Material Recovery Facility
MRV	Monitoring Reporting and Verification
MWCI	Manila Water Company Inc.
NAMA	Nationally Appropriate Mitigation Action
NCCAP	National Climate Change Action Plan
NEECP	National Energy Efficiency and Conservation Program
NESTS	National Environmentally Sustainable Transport Strategies
NFSCC	National Framework Strategy on Climate Change
NGO	Non-Government Organization
NGP	National Greening Program
NGVPPT	Natural Gas Vehicle Program for Public Transport
NIA	National Irrigation Administration
NOL	No Objection Letter
NREP	National Renewable Energy Program
NSWMC	National Solid Waste Management Commission
OAA	Organic Agriculture Act
PDC	Pacific Disaster Center
PEEP	Philippine Energy Efficiency Program
PCEEP	Philippine Chillers Energy Efficiency Project
PGA-ENRO	Provincial Government of Aurora – Environment and Natural Resources Office
PGI	Philippine Geothermal Inc.
PLLENRO	Philippine League of Local Environmental and Natural Resources Officers
PMRF	Provincial Material Recovery Facility
PMU	Project Monitoring Unit
PNOC-EC	Philippine National Oil Company – Exploration Corp
PNOC-EDC	PNOC – Energy Development Corporation

PNRPS	Philippine National REDD-Plus Strategy
PSF	People Survival Fund
PSWMB	Provincial Solid Waste Management Board
PUEMCG	Provincial Urban Environmental Management Core Group
RCA	Residual Containment Areas
REDD	Reducing Emission from Deforestation and Forest Degradation
REMB	Renewable Energy Management Bureau
RPS	Renewable Portfolio Standards
SIDA	Swedish International Development Cooperation Agency
SLF	Sanitary Landfill Facility
SWM	Solid Waste Management
TWG	Technical Working Group
UNCRD	United Nations Centre for Regional Development
Undersecretary LGA	Loreta G. Ayson (USec)
UNDP	United Nation Development Program
USAID	United States Agency for International Development
UVVRP	Unified Vehicular Volume Reduction Program
WESM	Wholesale Electricity Spot Market

2 LIST OF TABLES

3 INTRODUCTION

3.1 Background

The Institute for Global Environmental Strategies (IGES) is conducting the capacity development on Establishing New Market Mechanism through the Development of Methodological and Institutional Framework for MRV in Asian Developing Countries from April 2012 to March 2013. The objective of the activity is capacity development and study of MRV in Asian countries with a view to support the new market mechanisms including Clean Development Mechanism (CDM) and Bilateral Offset Credit Mechanism (BOCM).

Governance and Capacity Group (GC) of IGES is in charge of the capacity development on low carbon development policies at the sub-national level in urban sectors, as well as development of relevant parts of nationally appropriate mitigation actions (NAMAs) guideline in Thailand and the Philippines, as part of the above umbrella activity on MRV. The activity aims to examine how to best utilize appropriate MRV mechanisms of NAMAs to incrementally promote low carbon development policies at the sub-national level.

The Ateneo School of Government (ASOG) was contracted by the GC of IGES to undertake this Study in the Philippines. As a general summary, this Philippine Study intends to document the low carbon development policies and measures at the national and sub-national levels, compile relevant information on potential MRV mechanisms of NAMAs to enhance low carbon development at the sub-national levels and conduct a workshop to present the results of the study.

A work Plan was submitted to IGES on June 2012 which covers the proposed activities to be undertaken for the study in the Philippines from 1 July 2012 to 21 December 2012. The Interim Report was submitted to IGES on September 2012 covering initial findings of the research done on low carbon policies at the national and sub-national level in the Philippines and the result of the case studies. The findings showed that the Philippine national policies are responsive to the needs of its people. It has a progressive set of environmental policies, each intended for specific purposes but also promote low carbon development. However, the level of carbon governance in the Philippines poses a lot of opportunities for improvement. At present, there is minimum carbon governance among sub-national levels in the Philippines. But findings also indicated that some sub-national levels in the Philippines are trying to strengthen their level of carbon governance with some implementation support.

This Final Report summarizes the findings of the Study in so far as the following are concerned:

1. Low carbon development policies and measures at the national level in the Philippines
2. Low carbon development policies and measures at the sub-national level in the Philippines
3. Potential MRV mechanism of NAMAS to enhance low carbon development at the national and sub-national level in the Philippines

Each of these topics is discussed as separate chapters of this Report, with the case studies discussed in light of sub-topic #2 "Low carbon development policies and measures at the sub-national level in the Philippines.

3.2 Scope of Study

3.2.1 General Scope of Work

The GC of IGES provided common scope of works for each of the participating Asian countries in the study to allow for common analysis of issues. The following are the specific scopes of work as provided in the Terms of Reference for the consultants undertaking the study:

(a) Low carbon development policies and measures at the national and sub-national level in the Philippines

ASoG collated the updated the low carbon development policies and measures both planned and implemented for national level as well as for selected advanced sub-national governments in the Philippines. As a continuation to the previous study conducted, the cities of Makati and Quezon in Metro Manila have been investigated. ASoG also investigated the Provinces of Aurora and Bohol. Climate-related programs are not commonly undertaken at the provincial level but on a city or municipal level except in areas like disaster risk reduction and solid waste management. The sectors included in the sub-national study are transport, commercial and residential buildings, waste and wastewater, while other sectors, such as energy supply, forest and agriculture, are also studied for national level policies.

The description of each policy/measure included characteristics of policy/measure, including typology (mechanism to make influences on stakeholders), budget, funding mechanisms/sources, period of implementation, and the department/division in charge. It also detailed the different roles (or no roles) to plan and implement policies and measures for different sectors/sub-sectors among national, provincial and city governments. Also,

data availability of potential emission reductions and developmental co-benefits for each identified policies and measures in the country were assessed and reported.

3.2.2 Potential MRV mechanisms of NAMAs

ASoG collated the updated progress of the national climate change mitigation action plan, focusing on the planning and implementation state at the national and sub-national level, and its monitoring and evaluation mechanism in the Philippines.

ASoG also studied and reported the existing state of monitoring and evaluation mechanisms of policies at national and sub-national level (both province and city levels) in the sectors of energy supply, energy efficiency improvement, transport service and waste management in the Philippines. The indicators used to measure progress and achievement, frequency of reporting, feedback mechanism (linkage with budgeting), the mechanism to disclose information to the public, and the division/department in charge of monitoring and evaluation of administration in general within national and sub-national governments were identified.

ASoG studied and reported the updated state of i) sub-national governments' engagement of GHG emissions inventory development for their jurisdictions and of ii) sub-national governments' engagement in CDM projects for selected advanced sub-national governments in the Philippines.

ASoG also studied and reported the state of difficulties i) to secure initial investment and ii) to conduct monitoring of GHG emission reduction, for selected programmatic CDM projects in the Philippines under validation or registration.

3.2.3 Workshop organization for capacity development

ASoG organized a half-day workshop in Metro Manila to share the study results and enhance the capacity of relevant national/sub-national government officials and other climate policy experts with regard to NAMA development that could enhance low carbon development policies at sub-national level in the Philippines.

During this workshop, IGES made framing presentation and presented study results and proposals for NAMA development while ASoG made a supplemental presentation on findings and issues.

Candidate participants based on the resource persons whom ASoG approached during the course of the IGES study were invited to this workshop. The records of the workshop are reported in Section 7 of this Report. .

3.3 Methodology

Both Primary and Secondary data sources were utilized in the Study. Primary data came from field study and interviews, while secondary data basically came from review of written literature (published and unpublished, as applicable).

A review of related literature and of the work done covering these topics were undertaken throughout the duration of the Study to complement the interviews.

4 LOW CARBON DEVELOPMENT POLICES AND MEASURES AT THE NATIONAL LEVEL

4.1 The Climate Change Commission (CCC)

The CCC was created under the Republic Act 9729 and its tasks is to mainstream climate change, in synergy with disaster risk reduction, into the national, sectoral and local development plans and programs. Other functions of the CCC include:

- Coordinate and synchronize climate change programs of national government agencies;
- Formulate a Framework Strategy on Climate Change to serve as the basis for climate change planning, research and development, extension, and monitoring of activities on climate change;
- Recommend legislation, policies, strategies, programs on and appropriations for climate change adaptation and mitigation and other related activities;
- Create an enabling environment that shall promote broader multi-stakeholder participation and integrate climate change mitigation and adaptation;
- Formulate strategies on mitigating greenhouse gases (GHG) and other anthropogenic causes of climate change;

The CCC already formulated the National Framework Strategy on Climate Change (NFSCC) and the National Climate Change Action Plan (NCCAP). The NFSCC signed last 28 April 2010 in Palawan, provided the policy framework and the guiding principles for the national strategy on climate change. The guiding principle of the national framework strategy on climate change includes adaptation and mitigation with emphasis on adaptation. Mitigation action will be pursued as a function of adaptation whenever possible.

The CCC coordinates with the different funding and government agencies to ensure cohesiveness and convergence of the different programs of the national government for better planning and more effective investments to address climate change. They also collate climate-related programs being implemented in the Philippines. In coordination with the Department of Budget and Management (DBM) and with assistance from the World Bank, they are developing a screening tool to assess these climate-related programs using the Climate Public Expenditure and Institutional Review (CPEIR) as reference. The CPEIR is a methodology that reviews how climate change-related expenditures are integrated into the national budgetary processes. The three components of the CPEIR are: (1) assessment of current policy priorities and strategies in relation to climate change, (2) review of institutional arrangements in promoting the integration of climate change policy priorities into budgeting and expenditure management, and (3) review of the integration of climate change objectives within the budgeting process, including as part of budget planning, implementation, expenditure management and financing[1].

[1] http://www.odi.org.uk/resources/details.asp?id=6191&title=cpeir-methodology-climate-finance-national

The CCC and the United Nation Development Program (UNDP) chair the technical working group of the Philippine Development Forum on climate change. The Forum is a mechanism for the national government to facilitate policy dialogue among the international and local funding agencies, government and non- government organizations, and other stakeholders to discuss the development agenda of the country.

4.2 The National Climate Change Action Plan (NCCAP)

The NCCAP signed last 23 November 2011 outlined the country's agenda for adaptation and mitigation for 2011 to 2028. Seven strategic priorities were identified to address the impacts of climate change in the country: (1) food security, (2) water sufficiency, (3) ecosystem and environmental stability, (4) human security, (5) climate-smart industries and services, (6) sustainable energy, and (7) knowledge and capacity development.

The Philippines sees the opportunities of reducing greenhouse gas emissions by promoting green growth in partnership with the private sector by creating green-jobs and sustainable livelihood in rural areas and most vulnerable communities. More efficient utilization of resources and development of renewable energy will be supported to achieve eco-efficient production. Ecological waste management will also be fully implemented.

The NCCAP aims to develop strategic action towards sustainable energy by giving priority to the following:

- Promotion of energy efficiency and conservation;
- Expansion in the development of sustainable and renewable energy;
- Promotion of environmentally sustainable transport; and
- Climate-proofing and rehabilitation of energy systems infrastructures.

The NCCAP recognizes two very important aspects of implementation, the national and local level implementation and financing. At the national level, strong coordination among national agencies and sectoral groups is crucial since strategic priorities are defined along thematic rather than sectoral outcomes.

At the local level, the implementation will be anchored on the concept of ecologically stable and economically resilient towns or ecotowns. "An ecotown is a planning unit composed of municipalities or a group of municipalities located within and in the boundaries of critical key biodiversity areas, highly vulnerable to climate change risks due to geography, geographic location and poverty situation."[2] These ecotowns will receive financial and technical support to achieve climate change resilient communities. The CCC has initially identified the first batch of ecotowns. These ecotowns will be assisted on the following;

- Natural resource assessment;
- Vulnerability assessment;
- Environment and Natural Resource Accounting
- Application of climate change adaptation and mitigation technologies

[2] National Climate Change Action Plan, page 50

- Application of adaptation and mitigation support services
- Designing Financing Scheme
- Development of local action plan

The CCC is looking at the following innovative sources of climate financing: (a) settlement of climate debt, (b) Disaster Management Assistance Fund, (c) public finance mechanism, and (d) payments for environmental services. The carbon market and REDD-Plus Projects also present opportunities for financing adaptation and mitigation measures. The CCC is also exploring the use of the People Survival Fund (PSF) as a source for climate-related activities. "The PSF is a P1-billion special fund in the National Treasury that will be appropriated annually under the General Appropriations Act for the financing of adaptation programs and projects based on the National Strategic Framework on Climate Change. The fund may also be augmented by donations, endowments, grants and contributions".[3]

4.3 Low carbon development policies at the national level

The country has numerous environment laws and policies that are intended for specific purposes, but also promote low carbon development. The study looks at the low carbon development policies and measures of the following sectors:

4.3.1 Energy supply

The energy sector contributed 55% of the non-LUCF sectors in the 2000 GHG emissions of the country. As of 2010, 41.8% of the total GHG emissions of the energy sector came from power generation[4]. In the data comparison of 2009 and 2010 total GHG emission, there was an increase of 7.3% caused by an increase in fossil fuel consumption in the economic sectors, primarily involving the transport and industry sectors.

The Renewable Energy Act aims to shift the energy mix from heavy dependence on fuel oil to increased share of new and renewable energy sources. The Philippine Energy Plan of 2009-2030 describes a total of 206 signed contracts for renewable energy production. The plan is to double the 2008 level of 5,300 MW of renewable energy-based power production. For the evaluated energy mix of 2010, the share of renewable energy was 46.6%. Other plans and programs include the updating of the DOE's renewable energy database as well as the continual promotional projects for renewable energy. More focus is given to geothermal energy since this represents a major source of renewable energy in the country. Other development plans for geothermal energy is its non-power application as well as procuring its low enthalpy resources. These low enthalpy geothermal resources are more efficient in producing geothermal energy as they require less energy or heat input than high enthalpy sources.

[3] http://positivenewsmedia.com/blog/2012/06/congress-okays-peoples-survival-fund-bill/
[4] 2010 Key Energy Statistics – Philippines, page 12

The other renewable energy sources include biofuels, compressed natural gas (CNG) and auto-LPG for the transport sector. The next target blend for bioethanol is to raise it from the 10% blend (E10) to 20%. Current development measures for biofuel include partnering with academic and research institutions for the synthesis and testing of biofuels. For CNG, the use of commercially operating buses is still being expanded in the Southern Tagalog Region and Manila. The projected use of CNG buses by 2030 is estimated to be at 10,000 buses. Lastly, the formulation of safety standard as well as conversion of engines for auto-LPG usage is being done by DOE.

4.3.2 Energy Efficiency Improvement

As energy consumption increases by using non-renewable resources, GHG emission also increases. For the residential sector, decline in the usage of biomass in the household set-up has been observed. In spite of the decline, biomass consumption still accounts for 58.4% of the total energy consumption. Other components include electricity and LPG usage with the former being a primary source of GHG emissions.

Another factor which contributes to GHG emission is the misuse of energy. Energy efficiency programs have been developed by the DOE to alleviate the excessive use of energy. In the National Energy Efficiency and Conservation Program of the Philippines (NEECP 2004), goals, as well as policies, have been set to enhance energy efficiency and conservation. However, albeit mandatory policies, these have implementation problems due to the lack of penalty clauses and the voluntary nature of the data procurement. Please refer to Annex 1 for the list of activities of NEECP.

Current steps being undertaken under the NEECP's medium term plan (2010-2015) is the completion and implementation of the Energy Conservation Bill; implementation of Philippine Energy Efficiency Project (PEEP); and sustaining the information and education campaign (IEC).

4.3.3 Transport Service

The transport sector is the second highest contributor of GHG emissions in the energy sector. It contributed 35% of the GHG emissions of the energy sector as of the evaluation released in 2010[5]. Most of the GHG emissions from the transport sector are related to road transportation.[6] In view of this, measures to mitigate vehicular emissions are continuously being implemented by the national government. The use of auto-LPG is currently being promoted by the DOE in coordination with major jeepney and transport organizations. The "Adopt an Eco-Jeepney" program has been formulated which aims to introduce the transport sector to the use of auto-LPG. As of 2011, 19,052 units of auto-LPG taxis have been converted nationwide along with the development of standards and licensing shops monitored by DOE.

[5] 2010 Key Energy Statistics – Philippines, page 12

[6] Transport CDM, NAMAS and MRV: Assessing the readiness of Asian countries and cities, Draft Final 28 February 2012

Another on-going program is the use of electric tricycles (e-trike). The E-trike Project aims to reduce CO_2 emissions by 260,000 tons replacing 100,000 gasoline-fed tricycle units with e-trikes[7]. However, one of the major challenges faced by the project is the disposal of the existing tricycle units.

The Philippine National Oil Co.-Exploration Corp. (PNOC-EC) is taking the lead role in the implementation of the government's Natural Gas Vehicle Program for Public Transport (NGVPPT). PNOC-EC plans to build a daughter station at the Philippine Ports Authority in Batangas to provide compressed natural gas (CNG) to 200 CNG buses.[8]

Promotional activities for Natural Gas Vehicles (NGV) have taken the form of south-bound bus lines. Six (6) bus lines have taken 41 out of 61 present NGV's in the country. The focus on south-bound buses is due to the mother and daughter stations being situated in Batangas and Laguna respectively. Other issues concerning the operation of NGV's are the pipe-laying schemes and the franchise for the bus lines which would adopt the converted units. The 20 units are not yet operating.

4.3.4 Waste Management

The waste sector contributed 11,600 Giga gram $CO2_e$ or 9% of the total 2000 non-LUCF GHG emissions of the country. Approximately 47% of the GHG emissions came from solid waste disposal to land and 53% from waste water handling including industrial and human wastes. The Ecological Solid Waste Management Act (RA 9003) provides the legal framework to systematically address the waste management program of the country. The Law provides the closing of all open and controlled dumpsites by 2004. However, according to the status report of the National Solid Waste Management Commission (NSWMC) as of the third quarter of 2011, there are still 643 and 384 open and controlled dumpsites respectively nationwide[9].

The NSWMC secretariat is in-charge of monitoring the implementation of RA9003. However, enforcement of RA 9003 is with the Ombudsman[10] where civil cases are filed against the chief executive officer of the LGU for non-compliance to RA 9003. The NSWMC sends final notice to the non-complying LGU and copy furnished the Ombudsman. The Ombudsman orders the LGU to comply and/or provide explanation for non-compliance

Included in RA 9003 is the establishment of the Material Recovery Facility (MRF) and composting facility in all clusters of Barangay. The minimum requirement at the Barangay level is waste segregation into biodegradable and non-biodegradable.

[7] http://www.doe.gov.ph/news/PressReleases.asp?attach=661
[8] http://businessmirror.com.ph/home/economy/25687-pnoc-ec-takes-lead-in-natural-gas-vehicle-program-for-public-transport
[9] http://emb.gov.ph/nswmc/pdf/facilities/summary.PDF
[10] The Office of the Ombudsman acts on cases filed against officers and employees of the Government. http://www.ombudsman.gov.ph/index.php?home=1&navId=MQ==&subNavId=Nzk=

The Manila Water Company Inc., (MWCI) is one of the major water utility concessionaires in the Philippines. It provides water and wastewater services to over 6.1 million people from 23 cities and municipalities of eastern Metro Manila and Rizal Provinces. It has 811,753 water service connections and 51,000 sewer service connections. MWCI recently launched the project "*Toka, Toka*" (*Toka* means share in Filipino language) which aims to:

- Educate stakeholders on Used Water and its effects on the rivers and waterways;
- Influence stakeholders to initiate their own simple and practical share on managing Used Water;
- Engage stakeholders with concrete actions on specific, targeted and sustainable projects.

4.3.5 Commercial and Residential Buildings

Electricity and fuel consumptions in the commercial and residential building sectors pose great potential for demand-side management in the country. Air conditioning, lighting and the overall system balance of the buildings are the energy-intensive measures that pose great potential for energy efficiency improvements as well as energy conservation.

At present, there are no mandatory rules complying building owners to implement energy efficiency measures. At best, measures are being undertaken because of perceived energy savings and reduced operating costs.

The Philippine Government's National Energy Efficiency and Conservation Program or the "EC Way of Life" aims to fast track the implementation of demand-side energy efficiency measures in the country.

The objectives of the "EC Way of Life" are:

- Increase participation of companies/ institutions in the commercial, industrial, transport and government sectors to effectively manage their energy consumption;
- Strengthen consumer understanding of energy use;
- Encourage ESCOs to accelerate implementation of energy efficiency programs in the commercial and industrial sectors; and
- Reduce GHG emissions as a result of improved energy consumption performance.

Furthermore, the energy efficiency standards that are currently available in the Philippines are implemented on a voluntary basis. The most prominent of these are adhering to The Philippines National Building Code - although mandatory in itself contains voluntary standards on energy efficiency measures. There is also a Guideline on Energy Efficient Design for Buildings, but this is not mandatory albeit voluntary to building owners and contractors.

Realizing the potential of this sector towards energy efficiency improvements, so-called green building ratings have also been of interest in the past years. Largely propelled by private sector, the DOE is now starting to look into its incorporation into the policies of the country. DOE, though the PEEP, is currently supporting a rating system by the Philippine Green Building Council called the "Building for Ecologically Responsive Design Excellence" or BERDE. It also provides subsidy to some 135 government buildings to retrofit lighting fixtures.

4.3.6 Agriculture

The agriculture sector contributed 29% to the total GHG emissions of the non-LUCF sectors of the country in 2000. This is a 12% increase from the 1994 GHG emissions. 44% of these GHG emissions came from rice paddy cultivation. Specifically, the wet-season irrigated cultivation contributed 62% of the total GHG emissions of rice cultivation.

The framework strategy of the Department of Agriculture (DA) to address climate change is based on the fundamental principle of sustainable development and treats mitigation as a function of adaptation. Adaptation and food security are the priority areas of DA.

4.3.7 Forestry

The Land-use Change and Forestry (LUCF) sector reported a net uptake of 82,525.74 Giga gram of $CO2_e$ for the year 2000. This was attributed to the lower deforestation rate from 1990-2000 and slight increase in the sequestration of the various terrestrial ecosystems in the country[11].

The National Greening Program (NGP) is one of the priority programs of the national government. The Program aims to plant 1.5 billion trees for a period of 6 years in public domain lands covering 1.5 million hectares. As of December 2011, the NGP reports the following developments[12]:

Table 1: National Greening Program Status, 2011

	Hectares Planted	Seedling Planted	No. of Volunteers
DENR Government	71,258	37,347,875	483,261
Private Sector	15,859	5,985,466	19,370
Total	87,117	43,333,341	502,631

The Philippines also actively participates in the international negotiations on REDD.

The next table summarizes the national policies and measures and its characteristics to influence stakeholders' behavior and change government agencies' activities. Annex 2 provides detailed information on the national policies and measures including detailed

[11] Second National Communication of the Philippines
[12] http://ngp.denr.gov.ph/

provisions on mechanisms to influence stakeholders, budget and/or funding sources, period of implementation and the agencies/departments in-charge of implementation.

Table 2: Typology of Policies and Measures, National Government

Sector	Policies/Measure	Typology of policies and measure							
		To influence stakeholders behavior						To change national government activities	
		Target setting	Cap and trade	Subsidies and/or Incentives	Levies	Standards (penalties) & labeling	IEC	Infrastructure construction	Public Procurement
Energy supply	Renewable Energy Act	√		√			√	√	√
	Biofuel Act	√		√			√		√
Energy Efficiency	Government Energy Management Program	√		√		√	√		√
Transport	Clean Air Act					√	√		
	Natural Gas Vehicle Program for Public Transport	√		√			√	√	√
	Unified Vehicular Volume Reduction Program (UVRP) under the MMDA Regulation 96-005, as amended					√	√		
	National Environmentally Sustainable Transport Strategies (NESTS) Example: electric tricycle and auto-LPG Program			√		√	√	√	
Commercial and Residential Buildings	An Act to create the Green Building Code Commission to draft the National Building Code					√	√		
Waste and wastewater	Ecological Solid Waste Management Act	√		√		√	√	√	
	Environmental Impact Assessment								
Agriculture	Organic Agriculture Act (OAA) of 2010			√			√		√
	Memorandum from the Secretary (8 Feb 2011)								
	Department of Agriculture Climate Change Policy								
Forestry	Moratorium on the cutting and harvesting of timber			√		√	√		
	National Greening Program (NGP)			√			√		
	Philippine National REDD-Plus Strategy (PNRPS)			√			√		

The next table summarizes the roles of the national and the sub-national level to plan and implement the national low carbon policies and measures.

Table 3: Typology of Policies and Measures, Sub-national Governments

Level Sector	Policies and measures	National government	Provincial government	City/Municipal government
Energy supply	Renewable Energy Act	Yes	Yes	Yes
	Biofuel Act	Yes		
Energy Efficiency	Government Energy Management Program	Yes	Yes	Yes
Transport	Clean Air Act	Yes		
	Natural Gas Vehicle Program for Public Transport	Yes		
	Unified Vehicular Volume Reduction Program (UVRP) under the MMDA Regulation 96-005, as amended		Yes (within Metro Manila and selected areas)	Yes
	National Environmentally Sustainable Transport Strategies (NESTS) E.g. e-trike and auto-LPG	Yes		Yes
Commercial and Residential Buildings	An Act to create the Green Building Code Commission to draft the National Building Code			Yes
Waste and wastewater	Ecological Solid Waste Management Act	Yes	Yes	Yes
	Environmental Impact Assessment	Yes		
Agriculture	Organic Agriculture Act (OAA) of 2010	Yes		Yes
	Memorandum from the Secretary (8 Feb 2011)	Yes		
	Department of Agriculture Climate Change Policy	Yes		
Forestry	Moratorium on the cutting and harvesting of timber	Yes		
	National Greening Program (NGP)	Yes	Yes	Yes
	Philippine National REDD-Plus Strategy (PNRPS)	Yes		

The table below summarizes the availability or non-availability of data on the potential emission reductions of the different national policies and measures. The national government has no mandatory requirement at the moment to reduce GHG emissions and quantify emission reductions of identified policies and measures. However, CDM projects implemented in the country have estimated emission reduction on the project level.

Table 4: Status of Emission Reduction Data Availability, National Policies and Measures

Level Sector	Policies and measures	Data on potential emission reduction	Potential co-benefits
Energy supply	Renewable Energy Act	Yes[13]	Less dependence on imported fuel; cleaner air, utilization of indigenous resources
	Biofuel Act	No	
Energy Efficiency	Government Energy Management Program	No	Increased awareness on energy conservation measures; lifestyle change
Transport	Clean Air Act	No	Promotes better air quality
	Natural Gas Vehicle Program for Public Transport	No	Less dependence on imported fuel; cleaner air, utilization of indigenous

[13] Renewable energy projects registered with the CDM have estimates of potential emission reduction

			resources
	Unified Vehicular Volume Reduction Program (UVRP) under the MMDA Regulation 96-005, as amended	No	Less vehicular traffic, less air pollutants
	National Environmentally Sustainable Transport Strategies (NESTS) E.g. e-trike	yes[14]	Less dependence on imported fuel; cleaner air; economically beneficial for tricycle operators; less noise pollution
Commercial and Residential Buildings	An Act to create the Green Building Code Commission to draft the National Building Code	No	Use of more environmental-friendly technologies and construction materials; less air pollution; savings in water consumption;
Waste and wastewater	Ecological Solid Waste Management Act	No	Less volume of waste resulting to increased life-span of disposal sites; better air and water quality; greater stakeholder participation; women empowerment;
	Environmental Impact Assessment	No	Greater awareness on environmental stewardship
Agriculture	Organic Agriculture Act (OAA) of 2010	No	Better soil quality; healthier life style; less GHG emissions
	Department of Agriculture Climate Change Policy	No	Increased environmental awareness
Forestry	Moratorium on the cutting and harvesting of timber	No	Cleaner air; preserves biodiversity; prevents soil erosion; preserves watershed and water supply
	National Greening Program (NGP**)**	No	
	Philippine National REDD-Plus Strategy (PNRPS)	No	

[14] E-trike project under the ADB program has estimation of GHG emission reductions

5 LOW CARBON DEVELOPMENT POLICES AND MEASURES AT THE SUB-NATIONAL LEVEL

5.1 Low carbon development at the provincial level

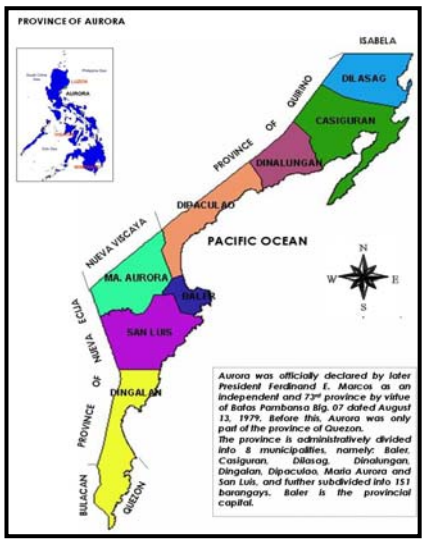
Provinces are the primary political and administrative divisions in the Philippines. Each province is further subdivided into cities and municipalities. The provincial governor is the chief executive officer and the head of the province. The *Sanggunian Panlalawigan* (Provincial Board) is the legislative body in the province with the Vice-governor acting as the President of the Board. Cities and municipalities classified as "highly urbanized" or "independent component" are independent from the province. The local government units considered as component are under the jurisdiction of the province.

Most of the climate change initiatives in the Philippines are implemented by the city or the municipal government. Very few provincial governments are actively engaged in climate-related programs, except on disaster risk management and the implementation of RA 9003 or the Solid Waste Management Act. RA 9003 stipulates that Provincial Government, through the Provincial Solid Waste Management Board, will provide the necessary logistical and operational support to its component cities and municipalities. The Provincial Government is also task to review and integrate the plans of its LGUs to ensure that they complement each other and have the requisite components. The Provincial Solid Waste Management Plan should reflect its general program to support the implementation and initiatives of the LGUs.

This Study looks into the role of the provincial government in promoting low carbon development through better waste management.

5.1.1 Case Study: Aurora Province

Aurora Province is located on the mid-eastern coast of the Luzon Island. The province has a total land area of 323,954 hectares, with 8 municipalities and 151 barangays. The topography is mountainous with 30% coastal flatlands. Except for one municipality, the major settlements are located near the coastal areas. It has a total population of 201,233 as of the 2010 Census and considered as a 3rd class province and 2nd class in income classification.



Aurora is basically an agricultural area with copra and rice as the principal products. Weaving hats is an important cottage industry in the province. Other small and medium enterprises include woodcraft, handmade paper, basketry and food processing.

The Provincial Government of Aurora – Environment and Natural Resources Office (PGA-ENRO) is task to coordinate the activities pertaining to the implementation of RA 9003 in the Province of Aurora. PGA-ENRO collaborated with the USAID-funded Philippine Environmental Governance Project (EcoGov) and the Department of Environment and Natural Resources (DENR) to provide assistance to its component municipalities to improve solid waste management. Specifically, the provincial government supports the SWM in the following manner:

- Provides technical assistance and incentives - The Provincial Government of Aurora (PGA) focuses on IEC, and the establishment of SWM facilities and Sanitary Landfill Facility (SLF). It continuously monitors the performance of the component LGUS to ensure that activities are sustained. The PUEMCG serves as the main technical assistance provider for the LGUs. The group underwent necessary SWM training to become effective service providers to the LGUs.

  To encourage more participation from stakeholders, the governor of Aurora launched the "*Gawad Punong Lalawigan para sa Kapaligiran*" which is a search for the cleanest and greenest municipality, barangay, school, institution, church and establishment. Winners are awarded with cash prizes, plaques and a set of trash receptacles.

- Enhanced Solid Waste Management Program (ESWMP) in Provincial Capitol – The Provincial Governor signed Executive Order No. 01, Series of 2007, providing for an ESWMP in the Provincial Capitol Compound and other offices within the jurisdiction of the PGA. It also created the ESWMP Committee which oversees the implementation of ESWMP.

  Under this program, the Provincial Material Recovery Facility (MRF) was established at the ENRO, ATC Compound in Baler with 3 components: (a) composting facility, (b) storage facility for recyclables, and (c) ecological garden.

- PGA SWM Organization – The SWM Programs/activities of Aurora are currently under the supervision of the Environment Division of the PGA-ENRO. The

Environment Division has 2 staff but can request assistance from the other LGUs. The Provincial Governor chairs the Provincial SWM Board. The Board is mandated to adopt systematic and comprehensive SWM Program for the Province of Aurora.

The 10-year Provincial SWM Plan for 2009-2018 is the integration of the plans of the 8 component LGUs of Aurora and that of the PGA. The Plan has the following two sets of objectives:

1) For the individual LGUs
    a. Fully implement the legitimized 10-year LGU plans;
    b. Establish long-term linkages and partnerships with schools, non-government/business/private sector and community group in socially uplifting, environmentally enhancing ad potentially income generating SWM investments and activities;
    c. Institutionalize the SWM program within the LGU system.

2) For the Provincial Government of Aurora
    a. Facilitate the achievement of Municipal local government units (MLGU) objectives by providing the necessary technical, policy, institutional and financial support;
    b. Institutionalize SWM support mechanisms within the PGA system;
    c. Implement a SWM program within the Provincial Capitol to signify its serious intent to make environmental governance a priority of the PGA.

Below are the implementation strategies of the Provincial Government of Aurora for its Solid Waste Management.

Table 5: Typology of Policies and Measures, Province of Aurora

Policies/Measure	Typology of policies and measure							
	To influence stakeholders behavior						To change local government activities	
	Regional planning & target setting	Cap and trade	Subsidies or Incentives	Levies	Standards (Penalties) & labeling	IEC	Infrastructure construction	Public Procurement
Support activities of MLGU particularly in areas which will have significant impacts on the Province's tourism, industrial development and fisheries sectors			√		√	√		
Adoption of the cluster scheme for SLF development. The PGA will provide technical assistance from site identification to engineering design to the establishment of suitable clustering arrangements. Financing will be considered as incentive for clustering.			√				√	
Programs like "*Gawad Punong Lalawigan para sa Kalikasan"*			√		√	√		

Strengthen the Provincial SWM policy-making and technical support structures and systems through the participation of more stakeholders and the allocation of regular budget for the M and E and various support programs of the province.						√		
Support the IEC Programs of the LGUs by providing training on IEC and communications, development of SWM information materials and establish linkages with relevant organizations and institutions whose sphere of influence or service area is beyond one municipality (e.g. Department of Education, media groups, civic and business organizations)	√					√		
Provide assistance in the development of enforcement plans as soon as local ordinances are enacted.					√			
Conduct market study of recyclable wastes in coordination with the DENR-EMB.								
Facilitate partnership between LGUs and local junk shop traders or buyers.								
Assess the possibility of establishing small scale recycling enterprises in the province in coordination with the Department of Science and Technology (DOST), Department of Trade (DTI) and other relevant government agencies.								
Support the Provincial Agriculturist's Office on how to improve the quality of compost materials.								
Promote the development of common sanitary landfill.			√				√	

5.1.1.1 Monitoring and reporting

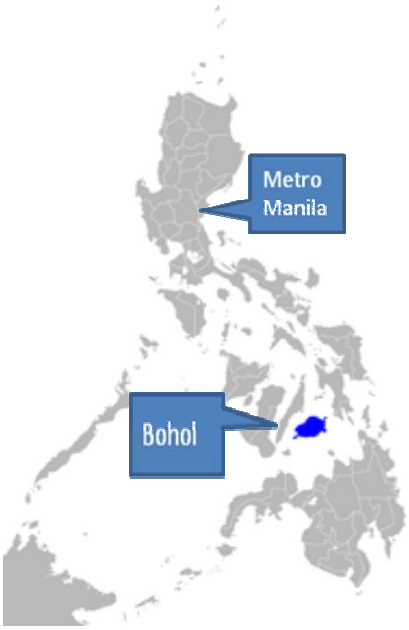
The PGA-ENRO will use the "*Gawad Punong Lalawigan para sa Kalikasan"* as an avenue for assessment and monitoring compliance to RA 9003. A provincial search committee will conduct two assessments per municipality/institution/establishment before awards and prizes are given. The PGA-ENRO will supplement this type of monitoring with periodic reporting and meetings (quarterly or semi-annual) with the SWM staff of MLGUs and the one in-charge of the provincial MRF and cluster SLFs. Some field inspections will also be undertaken.

The Provincial Urban Environmental Management Core Group (PUEMCG) will serve as the PGA's Monitoring and Evaluation team who will document and report to the Provincial Solid Waste Management Board (PSWMB), Sangguniang Panlalawigan, and other concern LGUs and parties. The status of the SWM will also be included in the annual State of the Province

address of the Governor and in the annual reports and statistics of the PGA. The PGA-ENRO and PUEMCG will conduct review and updating of the SWM every three or five years.[15]

5.1.2 Case Study: Bohol Province

The Province of Bohol is located in Central Visayas, Southeast of the island of Cebu. It is the tenth largest island in the archipelago with the total land area of 482,095 hectares. The provinces houses 1 city, 47 municipalities, and 1,109 barangays. With a total population of 1.2 Million as of 2010, it is the second most populous province in the region and has been classified as a 1st class province.[16]



Bohol is estimated to produce a daily garbage average of 60 metric tons or 180 metric tons a month, according to DENR estimates.[17] Based on sample assessments in 19 out of 47 municipalities made in 2007, the aggregate annual total waste production of the province amounts to more than 250,000 metric tons which translates to annual per capita share of 0.33 metric tons.[18]

In 1998, the Province of Bohol enacted Provincial Ordinance No. 98-01 entitled "An Ordinance Enacting the Environment Code of the Province of Bohol", also known as the Bohol Environmental Code (BEC). The Ordinance created the Bohol Environmental Management Office (BEMO) mandated to safeguard and conserve coastal, forestry, and mineral resources and manage ecological solid waste to fulfill the principle of ecologically sustainable development.

Among the offices under the BEMO corresponding to the different resource sectors, the Environmental Solid Waste Management Division, created in 1999, has been designated by the provincial government to coordinate programs, projects, and activities to ensure the implementation of RA 9003.[19]

The Province of Bohol recognizes that most of its constituent local governments are in the starting phase of formulating local plans, and still some on various stages of waste characterization. To date, only 16[20] out of 47 municipalities and 1 city have been assessed to be satisfactorily compliant with R.A. 9003.[21]

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[15] Provincial 10-Year Integrated Solid Waste Management Plan of Aurora for 2009-2018

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[16] Bohol.gov.ph, Bohol Geography (2012).http://www.bohol.gov.ph/index.php??=boholGeography

[17] PIA.gov.ph (2012),http://www.pia.gov.ph/news/index.php?article=1051325915306.

[18] Estimates are from the working waste assessment documents of the ESWM Division of the Bohol Environmental Management Office

[19] Bohol Environmental Code (1998).

[20] The Municipality of Jagna is noted to not have followed the process that was recommended by BEMO.

[21] Taken from the interview with incumbent BEMO-ESWM Division Chair Myra Trinidad

Following the prescribed actions by R.A. 9003, the following strategic interventions have been implemented by the Province of Bohol:[22]

- Establishment of a Functional SWM Organization - The BEMO-ESWM Division prescribes the municipal government units to form SWM organizations that are represented by focal persons who is knowledgeable of the local situation and can sit in the dialogue and planning sessions of the provincial government. The municipal governments are also mandated to bring the enforcement down to the barangay level, thus, barangays are required to make their respective SWM committees that follow the initiatives of the higher authorities and work on their local efforts. As of 2010 implementation, most of the LGUs have designated their focal persons although very few of the SWM groups have private sector members sitting in the Board.

- Legitimized 10-year Integrated Solid Waste Management (ISWM) Plan - A General ISWM Strategy as recommended by the DENR comprises of four stages: (1) reduction-at-source, (2) collection and transport, (3) material recovery and transfer sections, and (4) disposal management. [23] Although various municipalities in Bohol have already formulated their respective plans, as of 2012, the Province of Bohol is still working on a province-wide 10-year ISWM plan although 15 LGUs have legitimized plans that are now being adopted by their municipal development councils and Sangguniang Bayan.

- Ordinance and Enforcement System - The BEMO-ESWM prescribes the establishment of City/Municipal ISWM Ordinances or codes that support the enforcement of R.A. 9003. The enforcement design should also include trained and deputized ESWM enforcers and systems for reporting violator and imposition of penalties. As of date, the Province reports that ordinances enacted by some LGUs are "piece meals" and very few of them are aligned with the 10-year plan of the LGU. Also, very few of the LGUs have deputized ESWM Enforcers.

- Establishment of a solid waste management recovery system - To promote sustainability, it has been recommended by the SWM commission for LGUs to come up with the collection of garbage fee from all generators and create a special account for waste management. So far in Bohol, most of the municipalities have imposed the scheme through commercial collection from businesses and establishments in their locality, and only rarely down to the household level. The province of Jagna, however, has incorporated the collection into the water bill and is the only LGU that has successfully entered into the early phase of keeping the special account for waste management. The Municipality of Cortes, on the other hand, is cited to be the only LGU that collects garbage fee at

[22]Taken from the assessment criteria items of the "Ecological Solid Waste Management Best Practices – Monitoring and Evaluation Consolidation Report for the Year 2010 Implementation" from the ESWM Division of the Bohol Environmental Management Office.

[23] The 10-Year ISWM Plan (2004) of Tagbilaran City serves as primary example for the Province of Bohol.

the barangay level and shares the collection to the municipal level. Cortes is also known for having trained barangay garbage collectors.

- Waste Management Diversion - Several components are involved in Waste Management Diversion. Information and Education Campaigns (IEC) and social marketing are integral across the implementation. Ideally, IECs and marketing efforts should extend down to the barangay levels where all the households can be reached. In fact, the Province has crafted a localized capacity-building scheme by training municipalities from the LGU level. The training of trainers is set to form a speakers bureau is formed to serve as the primary arms for information dissemination down the barangay. As of date, most of the municipalities have complied with this, although some have only extended the campaigns to the urban areas and LGU levels only.

  Along with the IEC and social marketing efforts, LGUs are required to implement localized SWM programs in all barangays. Recycling and composting are two choice projects in many of the LGUs. In terms of compliance with waste segregation, BEMO has standardized garbage bin color schemes throughout the province: blue for recyclables, green for biodegradable, yellow for residuals, and red for special wastes. Not all sources in the barangay levels have complied with scheme.

  To manage the wastes collected, operational composting facilities and Materials Recovery Facilities (MRF) are required the barangays. Many of the LGUs have already complied with these although most of them have only established municipal-level waste management facilities. The biggest vermi composting site, on the other hand, can be found in the Municipality of Bilar. Junk buyers are also being better regulated by the LGUs.

  Only 5 municipalities have come up with their localized incentives and rewards system as of 2010. The Provincial Government of Bohol continues to improve its incentives system by giving out annual awards since 2007. The municipalities of Cortes, Jagna, and Duero have been awarded as the top LGUs in terms of ESWM best practices. The cleanest barangay then was found in Talibon; while Jagna has been recognized for their innovative young Eco Saver Club. Winners are awarded with cash prizes.

  The Province is set to implement proper management of toxic and hazardous wastes from health care services by requiring septic vaults in each municipality. However, given that relatively low THW waste production in the localities, most of LGUs have temporarily assigned isolated dump areas in their municipal for these special wastes.

- Efficiency of waste collection and transport - The Province of Bohol has implemented strict implementation of segregated collection in some of its LGUs.

That is, the city/municipality is reserved the right to refuse collection from households if their garbage is not segregated according to the standardized garbage scheme (recyclables, biodegradables, residuals, special wastes). So far, very few strictly enforce waste segregation at source and segregated collection

The BEMO reports that LGUs have been increasingly investing (with the budget approval from the DBM) on truck and compactors reserved for the garbage collections and disposal (as opposed to previous practices of multi-purpose trucks that serve other LGU operations).

- Waste disposal and disposal site compliant to R.A. 9003 - The ESWM Act prescribes the closure of open dump sites and the operation of control dumpsites while sanitary landfill (SLF) sites are being identified with the assistance of the MGB. When SLFs are ready, they must be operational and able to replace dumpsites. For residual wastes, operational residual containment areas (RCAs) must be established while functional septic vaults are needed of the disposal of toxic and hazardous wastes. FS and detailed engineering design (DED) must be conducted when SWM Facilities are being established. LGUs must secure ECC and other working permits.

  The LGUS are still generally operating open dumpsites though more and more are operating RCAs and transfer stations. In terms of improvements, the Province of Bohol has identified 5 clustered Bohol Integrated Area Development (BIAD) areas eyed to become the sites for the sanitary landfills. As of late, 11 clustered LGUs are set to build the first landfill in Municipality of Albuquerque. The LGU is currently facing problems in social acceptability of SLFs.

The Government of Bohol has been primarily assisted by the USAID-funded Philippine Governance (EcoGov) Project. EcoGov was implemented with the DENR and other partners, assisting 82 LGUs – covering 67 municipalities, 15 cities, and 16 provinces - in forests and forest land, coastal resources, and urban environment management (UEM). Forty-eight (48) LGUs have been assisted under the UEM component which largely focused on ISWM planning and implementation.[24]

[24] USAID,The Philippine Environmental Governance Project (2005).

Table 6: Typology of Policies and Measures, Province of Bohol

Policies/Measure[25]	Typology of policies and measure of Bohol Province							
	To influence stakeholders behavior						To change local government activities	
	Regional planning & target setting	Cap and trade	Subsidies or Incentives	Levies	Standards (Penalties) &labeling	IEC	Infrastructure construction	Public Procurement
Establishment of a Functional SWM Organization, with: a.) with focal person b.) created board with private sector c.) conduct of regular meetings d.) approved budget e.) performance reports submissions f.) functional barangay SWM committees	✓				✓	✓		
Legitimization of a 10-year ISWM Plan	✓		✓	✓	✓	✓	✓	✓
Establishment of Ordinance and enforcement system that includes: a.) approved ISWM Ordinance/code.) Trained and deputized ESWM enforcers.) systems for reporting violators and imposition of penalties	✓				✓	✓		
Establishment of a solid waste management recovery system that includes the: a.) collection of garbage fee from all generators b.) creation of special account for waste management			✓	✓	✓			
Enforcement of waste diversion management that: a.) conducts IEC and social marketing b.) implements SWM programs c.) complies with waste segregation d.) has an operational composting facility e.) has operational MRF f.) regulates junk buyers g.) implements incentives and rewards systems h.) implements proper management of toxic and hazardous wastes and health services	✓		✓			✓	✓	✓
Efficient enforcement of waste collection and transport that strictly implements segregated collection					✓		✓	✓
Enforcement of waste disposal and establishment of disposal site that is	✓				✓		✓	✓

[25]Taken from the assessment criteria items of the "Ecological Solid Waste Management Best Practices – Monitoring and Evaluation Consolidation Report for the Year 2010 Implementation" from the ESWM Division of the Bohol Environmental Management Office.

compliant to RA 9003 that see to the: a.) actual closure of open dump sites b.) operation of control dumpsites c.) establishment of operational residual containment area (RCA) d.) SLF site identification with MGB investigation e.) Conduct of FS and detailed engineering design (DED) f.) securing of ECC and other permits g.) actual development and operation of the SLF h.) signing of contracts/agreements among cluster LGUs, and i.) establishment of functional septic vault for disposal of THW								

Monitoring and Reporting

The BEMO-ESWM Division, working under the Office of the Governor, acts as the regulatory body for ESWM whereas the Provincial Environment and Natural Resources of Bohol (PENRO-Bohol) acts as the enforcement agency. The two offices work closely together in all environmental programs, projects, and activities. PENRO is reserved with the right to cite violations in the environmental code but the BEMO may refer cases to PENRO for policing powers.

Performance reports submitted by the LGUs and evaluation by the BEMO and other government agencies serve as the primary monitoring tool to monitor and evaluate the ESWM Best Practices of the province. The multi-disciplinary assessment is done annually with the cooperation of the DENR, DILG, and DepEd. It is consolidated into a *Monitoring and Evaluation Consolidation Report* that reflects observations and findings for the implementation year. This M & E methodology has been practiced since 2007.

5.2 Low carbon development at the city level

The NCCAP identifies the local government units as the frontline agencies in the formulation, planning and implementation of climate change action plans in their respective areas. The LGUs are mandated to formulate a Local Climate Change Action Plan (LCCAP) to be integrated in their Community Development Plan (CDP) and the Community Land Use Plan (CLUP). The CDP and CLUP are current requirements of the Department of Interior and Local Government (DILG) and the Housing Land Use and Regulatory Board (HLURB) respectively. CCC is coordinating with DILG and HLURB in drafting the guidelines for the integration of the LCCAP in the CDP and CLUP.

Many local government officials still have difficulties in differentiating climate change mitigation and disaster risk reduction. Being one of the most vulnerable countries to climate change, many local government units are exposed to climate change-related disasters. Thus, the LGUs often use their limited resources for adaptation and disaster risk

reduction programs. There is also a need to educate the LGUs on the different developmental co-benefits associated with GHG emission reductions to promote mitigation at local level.

However, there are some LGUs, especially in the urban areas who are already implementing programs to reduce their GHG emissions and move towards low carbon development. This Study looks at the activities and updates of two Metro Manila cities on low carbon development.

5.2.1 Case Study: Quezon City

5.2.1.1 Profile

Quezon City is an urban centre with a land area of 160 square kilometers and the largest city in Metro Manila in terms of population and land area. It is bounded on the north by Caloocan City and San Jose del Monte; on the south by Pasig, Mandaluyong and San Juan; on the west by Manila, Caloocan and Valenzuela; and on the east by Rodriguez, San Mateo and Marikina.

The City has a total population of 2.86 million as of 2008, the biggest among all the cities in the National Capital Region (NCR) and the third biggest LGU in the Philippines. It has four (4) congressional districts, composed of 142 Barangays. The total households are 635,798.

The present Mayor of Quezon City gives high priority to the environmental programs of the City. He also actively participates in international forum relating to climate change and has been elected as the Regional Committee Head of ICLEI Southeast Asia. The City recently became a member of the CityNet. Citynet is an organization of local authorities in the Asia-pacific Region committed to improve the sustainability of human settlement[26]

To better coordinate the climate change initiatives of the City, a draft ordinance creating the Climate Change Division (CCD) has been prepared. Said division will be under the Environment Protection and Waste Management Department (EPWMD) who is presently in-charge of the climate change programs of the City. The ordinance needs to get approval from the City Council, budget allocation from the Department of Budget Management and personnel approval from the Civil Service Commission.

[26] http://www.citynet-ap.org/about/who-we-are/

5.2.1.2 Programs and projects

Listed below are some of the programs and projects of the Quezon City government towards low carbon development:

Table 7: Summary of Projects and Programs towards Low Carbon Development at a sub-national level, (Quezon City)

Sector	Projects/Programs	Potential Co-benefits
Energy Efficiency	Installation of Light Emitting Diodes (LEDs) for streetlights along major roads in Quezon City. 5,000 LEDs will be installed initially. 22,000 LEDs are expected to be installed until 2014. The procurement of the LEDs is already with the Bids and Awards Committee. The project was previously intended for CDM registration under the Programme of Activities. However, present plans include coordination with the CCC for possible local carbon trading.	Reduced electricity cost;
	Energy Audit of buildings to reduce electricity consumption. EPWMD will secure budget to finance the energy audit of the identified buildings	
	Turning of lights during lunch time	
Renewable Energy	Use of Photovoltaic Cell in lighting the walkway in City Hall and 3 big schools. Pangea, a project developer is conducting the study.	Reduced electricity cost;
Transport	Information dissemination on the use of alternative fuel such as Compressed Natural Gas (CNG), Liquefied Petroleum Gas (LPG) and bio-ethanol blended fuel. Education campaigns to 8 transport groups have been conducted to promote voluntary participation. The primary objective of this program is to reduce air pollution.	Reduced air pollution
	Continuous technical training on the proper maintenance of vehicles.	Reduced fuel consumption; less vehicular accident
	Sidewalk development is being implemented to promote walking and biking.	Reduced vehicular traffic; promotes good health
Commercial and Residential Building	Implementation of the "Green Building Ordinance of 2009" or "An Ordinance Requiring the Design, Construction or Retrofitting of Buildings, Other Structures and Movable Properties to Meet Minimum Standards of a Green Infrastructure, Providing Incentives thereof and for Other Purposes" The ordinance mandates minimum energy efficiency for lighting (and other environmental issues) of the buildings, both for new construction and reconstruction. Tax credits incentives are provided depending on the "green points" of the buildings after project proponent's compliance is confirmed though obtaining baseline data and actual data within the first three years. The Implementing Rules and Regulations of the Code was released on June 2011. Compliance to the Green Building Code is mandatory within 5 years.	Reduced electricity consumption; promotes better waste management
Waste and waste water	Implementation of RA9003. Continuous campaign on waste segregation and the 3Rs (reuse, recycle and reduce). The waste	Good quality of life due to better air and water

	reduction target is 50% by 2012. The City has achieved 40% reduction already as of the first quarter of 2012. Waste segregation is at 80%. Specific measures on waste segregation and recycling include: • Bio-degradable and non-biodegradable wastes are collected on separate days of the week; • Non-segregated wastes are not collected; • Kitchen wastes are collected from the waste stations in the community by hog raisers and are used as feedstock; • Recyclable wastes are collected by an NGO cooperative and sold to accredited junk shops; • Private garbage haulers are required to conduct information awareness on waste segregation and recycling in their assigned areas as part of their contract with the City; • Subdivision developers are required to provide space for composting and recycling facilities; The City also provides side car for Homeowners Association to be used in waste collection; DENR will provide pilot MRF.	quality; less space needed for waste disposal Less operating cost for the hog raiser
	Environmental education in school. Students are encouraged to bring recyclables to school wherein they are given equivalent credits posted on their own passbooks. Accumulated credits can be exchanged for school supplies during scheduled redemption dates. The junk shop owners in partnership with civil society groups purchase the recyclables brought by the students.	Children learn the value of taking care of the environment;
	The City launched the "Bangon Kalikasan" sponsored by big NGOs wherein women in the communities are being tapped to spearhead waste segregation and recycling. They will also be requested to monitor compliance.	Women are given important roles in the community;
	Strict implementation of plastic and Styrofoam ban by August 1, 2012 in the City Hall premises and government owned hospitals. Said restriction applies to all visitors, deliveries and suppliers	Less non-biodegradable wastes; lessen the possibility of drainage clogging causing flash floods in the City
	City establishments are required to post the advertisement containing the message, "Save the environment, use reusable bag" by August 1, 2012. This specifically applies to shopping malls and markets.	Promotes environmental awareness among the community members.
Urban greening	Continuous development and improvement of parks within the City. Barangays are encouraged to develop parks in their area; Easements along rivers and waterways are being reclaimed and the illegal settlers are transferred to relocation areas. Trees will be planted in the center islands of highways as part of the greening program	Better air quality; improved environment for the people

5.2.1.3 Characteristics of the climate-related policies and measures

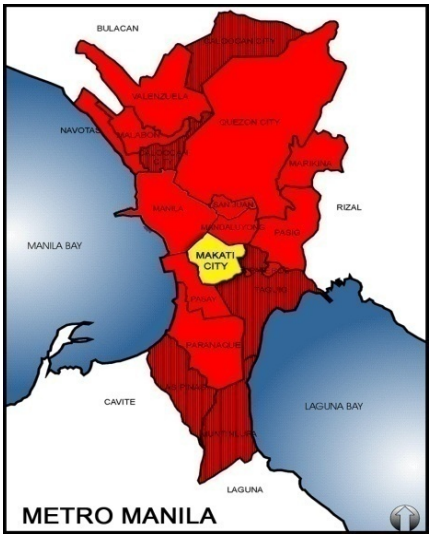
The next table summarizes the characteristics of the climate-related policies and measures of Quezon City to influence stakeholders' behavior and change government agencies' activities.

Table 8: Typology of Policies and Measures, Quezon City

Sector	Policies/Measure	Typology of policies and measure							
		To influence stakeholders behavior						To change local government activities	
		Regional planning & target setting	Cap and trade	Subsidies or Incentives	Levies	Standards (Penalties) & labeling	IEC	Infrastructure construction	Public Procurement
Energy Efficiency	Light emitting diodes for streetlights	√		√				√	
	Energy audit for building					√	√		
	Turning off lights during lunch						√		
Renewable Energy	Use of Photovoltaic Cell in lighting the walkway in City Hall and 3 big schools. Pangea, a project developer is conducting the study.								
Transport	Promoting compressed natural gas, biofuel and liquid petroleum gas						√		
Buildings	Solar energy lighting at schools and city hall						√	√	
	Green building code with tax incentives			√			√		
Waste and wastewater	Provision of information to household on recycling						√		
	School education on recycling and waste segregation						√		
	Promoting separation of organic wastes and recyclables						√		
	Strict implementation of plastic and Styrofoam ban by August 1, 2012					√	√		
	City establishments are required to post the advertisement, "Save the environment, use reusable bag" by August 1, 2012. This specifically applies to shopping malls and markets.						√		
	Landfill gas destruction	√						√	√
Urban Greening	Continuous development and improvement of parks within the City. Barangays are encouraged to develop parks in their area;								

5.2.2 Case Study: Makati City

5.2.2.1 Profile



Makati is a highly urbanized, first class city and is known as the "Premier Financial and Commercial Center of the Philippines".
Located at the center of the National Capital Region (NCR), Makati is bounded on the north by Pasig River facing Mandaluyong City, on the east by the Municipality of Pateros, on the northwest by the City of Manila, on the south and southwest by Pasay City, and on the southeast by Taguig City. Makati has a land area of 27.36 square kilometers; it constitutes 4.3% of Metro Manila's total land area.

Makati City has a population of 510,383 residents but during daytime, the City's population goes up to about 3.7 million as people from other parts of Metro Manila and nearby provinces flock to the City to work, do business or shop.

Apart from its economic, financial and commercial prominence, Makati City is also known as one of the most progressive and pioneering LGUs in local governance. Particularly in the field of environment, the City has been at the forefront of environmental management and governance with enactment and strict enforcement of comprehensive policies such as the Solid Waste Management Code and Traffic Management Code as far back as 2003. For 2012, the local government is eyeing new programs and projects that aim to promote a healthy, clean, and green Makati City.

The overall environmental policy planning is undertaken by the City's Environmental Protection Council created in 2006 through an executive order. It is an interagency council composed of representatives from national government agencies, Sangguniang Panlusod (City Legislative Council), and Liga ng mga Barangay (League of Communities).

In an effort to better coordinate the climate change initiatives of the City, the Department of Environmental Services (DES) has been task to spearhead the City's initiatives.

5.2.2.2 Programs and Projects

Listed below are some of the programs and projects of the Makati City government towards low carbon development:

Table 9: Summary of Projects and Programs towards Low Carbon Development at a sub-national level (Makati City)

Sector	Projects/Programs	Potential Co-benefits
Energy Efficiency including those for Commercial and Residential Building Sectors	Makati City's energy efficiency initiatives are tied with its initiatives for the building and residential sectors through the following major projects: • Adoption of green building practices. In 2007, the City Legislative Council passed a resolution (CR 2007-044) allowing the City Mayor to enter into an agreement with the PhilGBC in promoting green building practices. Negotiations with PhilGBC are on-going for the development of a green building program proposal. The city government plans to bolster these efforts with the enactment of a Green Building Ordinance. • The City Hall building is currently undergoing LEED certification, making it one the first few buildings in the country aiming for an energy efficiency certification • Use of High Pressure Sodium lights and traffic signal coordination to reduce traffic congestions; eventually, these HPS will be changed to LED • PALIT-ILAW program which aimed to replace all inefficient lights in government-owned buildings with CFLs/ fluorescent lights	Reduced electricity cost;
Transport	• Use of High Pressure Sodium lights and traffic signal coordination to reduce traffic congestions; eventually, these HPS will be changed to LED • E- Jeepneys – launched in 2009, the project now has 3 routes, one going to the major residential villages, the other going around the central business district and the most recent (launched on July 2, 2012) goes around Makati's 'heritage sites'. • Pedestrianization project – Expansion of the 4 km covered pedestrian walkway system which interconnects major buildings and transport hubs. The aim is to increase the walkway system to 34 km (timeframe still being finalized). • Park and Bike system –a bike system connected by walkways is being planned within the area • Bus rapid transit – articulated high occupancy buses running on dedicated lanes around Makati • City Zoning Ordinance Section 28-2 - Bonus Incentives for provision of transport based environmental initiatives o In all commercial zones, a building or structure that is within a 200 meter walking distance from an existing Light Rail Transit or commuter rail station will be allowed to build one floor area ratio higher than the maximum ratio for the zone or subzone where the building or structure is located, provided that the building owner or developer builds and maintains a direct, sheltered pedestrian link from his building to the transit station. This link must be of sufficient dimension to accommodate public pedestrian volumes and must be kept open,	Reduced air pollution; Reduced fuel consumption; less vehicular accident; Reduced vehicular traffic; promotes tourism and good health

	safe, and well-lighted for the use of the general public at least during a period that extends before and after regular working hours. Note: these measures will compose the Makati Transport Development Strategy to be published soon. GHG emission reduction equivalents are planned to be published in this Strategy as well.	
Waste and waste water	• Solid Waste Management - Implementation of RA9003. Continuous campaign on waste segregation and the 3Rs (reuse, recycle and reduce). Waste diversion programs and Material waste recovery facilities around the city (currently stands at 96 mobile and 53 on-site facilities) • Storm water management – rainwater harvesting and use of pavers in pathways and sidewalks • Wastewater management pursuant to the Mandamus order of the Supreme Court of the country – Current activity involves inspection of all households, and commercial establishments within the 15-meter easement (for major waterways) and 8-meter easement (for minor waterways) for presence of hygienic septic tanks and/or waste water and requiring them to manage these wastes	Good quality of life due to better air and water quality; less space needed for waste disposal; Less non-biodegradable wastes; lessen the possibility of drainage clogging causing flash floods in the City; Promotes environmental awareness among the community members.
Urban greening/ Land use planning	• Creation of the Makati Development Agenda for the 21st Century which outlines the upgrading of infrastructure and physical environment • Comprehensive land use plan which provides the spatial framework of the City • City Zoning Ordinance Section 82-3 - Bonus Incentives for provision of a network of green and open spaces, including roof gardens, employing land readjustment schemes and public art/heritage facilities • Makati Green Urban Design Center - Established to provide LGU officials with training on green building, urban design and governance to be able to propose projects that are ecologically sustainable.	Better air quality; improved environment for the people
Governance (all encompassing)	Green procurement Policy - Green Procurement Policy is adopted by the City's General Services Department (GSD) for city government purchases, conforming to the standards set by national and environmental laws.	Efficient governance

5.2.2.3 Characteristics of the climate-related policies and measures

The next table summarizes the characteristics of the climate-related policies and measures of Makati City to influence stakeholders' behavior and change government agencies' activities:

Table 10: Typology of Policies and Measures, Makati City

Sector	Policies/Measure	Typology of policies and measure							
		To influence stakeholders behavior						To change local government activities	
		Regional planning & target setting	Cap and trade	Subsidies or Incentives	Levies	Standards (Penalties) & labeling	IEC	Infrastructure construction	Public Procurement
Energy Efficiency	Adoption of green building practices	√				√	√		
	LEED certification					√	√		
	Use of High Pressure Sodium (HPS) lights and traffic signal coordination								√
	PALIT-ILAW program			√			√		√
Transport	HPS to LED						√		√
	E- Jeepneys								√
	Pedestrianization project						√	√	
	Park and Bike system						√	√	
	Bus rapid transit							√	
	City Zoning Ordinance Section 82-2	√		√					
Waste and wastewater	Solid Waste Management					√	√		
	Storm Water collection						√		√
	Waste Water Management pursuant to Mandamus						√		
Urban Greening	Makati Development Agenda for the 21st Century	√				√	√		
	CLUP	√							
	City Zoning Ordinance Section 82-3	√				√	√		
	Makati Green Urban Design Center						√		

6 POTENTIAL MRV MECHANISM OF NAMAS TO ENHANCE LOW CARBON DEVELOPMENT AT NATIONAL AND SUB-NATIONAL LEVEL IN THE PHILIPPINES

The CCC has yet to finalize and make public the country's Nationally Appropriate Mitigation Actions (NAMAs). The CCC is presently engaged in various programs to strengthen the national capacities on greenhouse gas inventories, formulation of NAMAs and/or low carbon development strategies and designing of measurable, reportable and verifiable (MRV) systems in selected sectors. Below are some of the projects being implemented by the CCC.

Low-emission Capacity Building project
The Project is supported by the European Union and the Governments of Germany and Australia through the United Nations Development Programme (UNDP). The Projects aims to (a) establish a national system for the preparation of the greenhouse gas inventories, (b) formulate the National Mitigation Actions and Low Emission Development Strategies, and (c) develop Monitoring Reporting Verification (MRV) systems to support the implementation and evaluation of these mitigation actions. This project will focus on transport, industry, agriculture and waste sector and will be implemented from 2012-2014.

Enhancing Capacity for Low Emission Development Strategy (EC-LEDS)
"EC-LEDS is a US Government program that supports developing countries such as the Philippines in pursuing long-term transformative development, and accelerate sustainable climate-resilient economic growth by reducing GHG emissions."[1] The project will provide support in the preparation of the national GHG systems, development of analytical tools for decision making on climate change mitigation co-benefits, and monitoring tools to track the progress of programs that support low emissions development in energy and forest. It also supports workshops to develop the capacity of the local government in identified ecotowns in preparing their Community-level GHG inventories. The project will be implemented from 2012-2014.

Southeast Asia Greenhouse Gas Inventory Capacity Building Phase II (SEA GHG) Phase II
This is a project of the UNFCCC to strengthen the capacity of the Southeast Asian countries to improve the quality of their national greenhouse gas inventories for the development of sustainable inventory management system. Countries participating in the first phase of the project includes, Cambodia, Indonesia, Lao, Malaysia, Philippines, Singapore, Thailand, and in 2010, Papua New Guinea. The project focuses on the agriculture and forestry sectors. The first phase ended in 2010. The second phase of the project will end in 2013.

The Low- emission Capacity Building Project supported by the UNDP will integrate all the other capacity building projects of the CCC to develop the road map on the Philippine NAMAs by 2014. The CCC has also started to mainstream the development of the national

inventory to concerned government agencies in preparation for the Third National Communication. Series of training workshops on GHG inventory are being scheduled to build the capacities of these government agencies.

6.1 Monitoring and reporting procedures of selected national programs/ projects

6.1.1 Role of the NEDA in monitoring national programs and projects

NEDA is primarily be responsible for formulating a continuing, coordinated and fully integrated social and economic policies, plans and programs for the Philippine government.

As such, it is its role to do the following:

- formulate annual and medium-term public investment programs
- programming of official development assistance in the form of grants and concessional loans from foreign governments and multilateral agencies and organizations, and
- monitoring and evaluation of plan implementation

Thus, all national government agencies are required to submit and seek approval from NEDA, through the Investment Coordinating Committee (ICC), of all planned programs and projects that involve investments from the Philippine government, including those funded from government funds, grants from local and foreign donors, as well as loans.

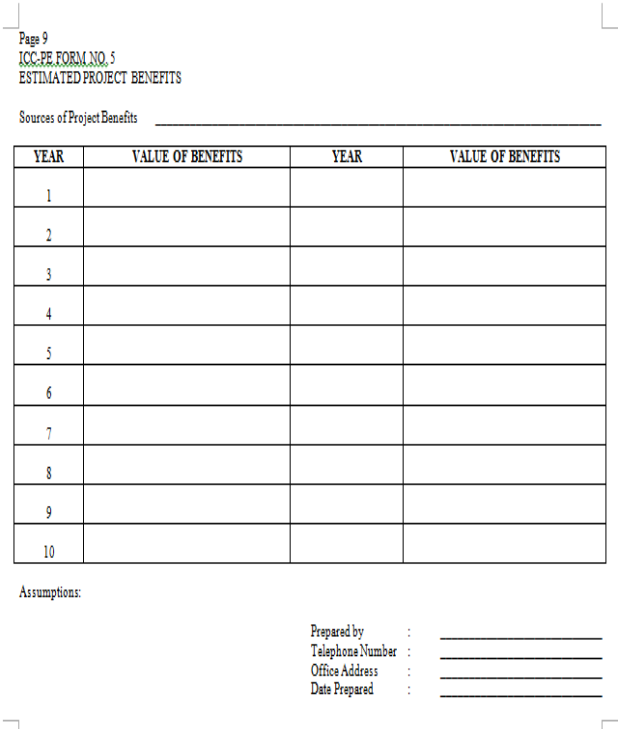
Specifically, the following are required to seek approval from the ICC:

- Any independent undertaking of the public sector with total projects cost of 300 million Philippine Pesos and above, resulting in new capital formation in the economy, irrespective of financing (i.e. whether for local funding or though loans/grants for foreign funding);
- Public sector project with foreign borrowing of at least 5 million US Dollars;
- Projects of the private sector seeking concessional ODA financing under on-lending arrangements and/or National Government financing guarantees. This shall include infrastructure projects to be implemented under the BOT/BOO/BT schemes;
- Other projects/programs not defined above shall be considered on a case to case basis (e.g., projects/programs not endorsed by the ICC Secretariat due to resolution of certain policy issues);

Note that projects funded entirely from LGU (sub-national governments) as well as those for technical assistance (e.g. training, expert services) and projects of the private sectors under special credit facilities are excluded from seeking approval.

For all these projects and programs that are required to seek approval from NEDA, ICC-Project Evaluation standard forms and documents must be accomplished for evaluation. These forms include, among others, the project description, sources of funding, estimated project costs, and estimated project benefits and revenues.

The pictures below presents a sample ICC – project Evaluation form 5 template on project benefits and revenues, as well as the guideline on how it should be accomplished.



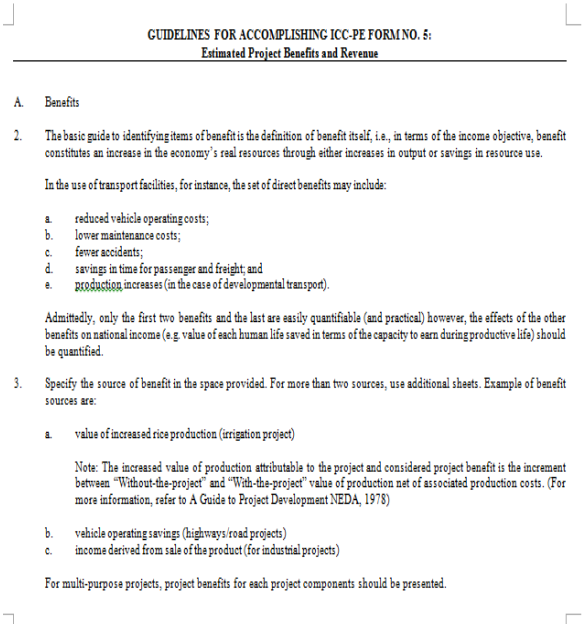
Page 9
ICC-PE FORM NO. 5
ESTIMATED PROJECT BENEFITS

Sources of Project Benefits _____

YEAR	VALUE OF BENEFITS	YEAR	VALUE OF BENEFITS
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Assumptions:

Prepared by : _____
Telephone Number : _____
Office Address : _____
Date Prepared : _____



GUIDELINES FOR ACCOMPLISHING ICC-PE FORM NO. 5:
Estimated Project Benefits and Revenue

A. Benefits

2. The basic guide to identifying items of benefit is the definition of benefit itself, i.e., in terms of the income objective, benefit constitutes an increase in the economy's real resources through either increases in output or savings in resource use.

In the use of transport facilities, for instance, the set of direct benefits may include:

a. reduced vehicle operating costs;
b. lower maintenance costs;
c. fewer accidents;
d. savings in time for passenger and freight; and
e. production increases (in the case of developmental transport).

Admittedly, only the first two benefits and the last are easily quantifiable (and practical) however, the effects of the other benefits on national income (e.g. value of each human life saved in terms of the capacity to earn during productive life) should be quantified.

3. Specify the source of benefit in the space provided. For more than two sources, use additional sheets. Example of benefit sources are:

a. value of increased rice production (irrigation project)

Note: The increased value of production attributable to the project and considered project benefit is the increment between "Without-the-project" and "With-the-project" value of production net of associated production costs. (For more information, refer to A Guide to Project Development NEDA, 1978)

b. vehicle operating savings (highways/road projects)
c. income derived from sale of the product (for industrial projects)

For multi-purpose projects, project benefits for each project components should be presented.

It is thus the role of the implementing national government agency to provide quantitative and qualitative indicators as well as document how these indicators are arrived at (including assumptions, projections and sources of data).

NEDA also monitors implementation of these projects and its monitoring report on the project's implementation forms the basis for budget releases, as well as approvals for reallocation of funds, if necessary.

As such, all climate change projects implemented by the national agencies funded from loans, grants and will have to pass through NEDA for approval and are subject to monitoring policies by it.

Monitoring, though, is often through desk reviews. Implementing agencies, as well as the government's Commission on Audit are responsible for the monitoring of actual qualities and quantities as specified in their reports, using indicators and criteria set in the ICC-Project Evaluation documents.

6.1.2 Summary of Monitoring and Reporting Procedures of Selected national programs/ projects

Table 11: Summary of Monitoring and Reporting Procedures of Selected Philippine National Programs and Projects

Programs		Internal Reporting Procedure	External Reporting Procedure	Performance Indicators
PEEP Projects – EUMB/DOE				
Palit-Ilaw Program		Directed to the Project Management Unit (PMU) headed by Undersecretary Loreta G. Ayson. The project is required to submit weekly updates to the PMU. Reporting these updates to the secretary is optional but project reports and accomplishment reports are required to be submitted to the secretary. This is also through Undersecretary Ayson. All the activities of PEEP are carried out through a No Objection Letter (NOL) with ADB. The NOL will be issued by ADB and the contents will be from the PEEP-PMU.	There are two phases for this project. The Phase 1 distribution is directly set for household through distribution utilities and a hired distributor. The DUs and hired distributor submitted reports on IBs collected to the PEEP-PMU. For Phase 2, it is done through congressional districts and DSWD (current status: MOA with congressional districts and DSWD in preparation for the distribution).	For *Palit-Ilaw*, there were three (3) proposed Lots to be put into action. Initially, the total IBs to be replaced is 13million units. Hence, the three lots were allocated as follows: Lot 1 would replace 5 million units, Lot 2 and Lot 3 would replace 4 million units. However, after the distribution of Lot 1, it was found out that there were no more IBs to be replaced. Therefore, the plans for Lots 2 and 3 were scrapped and replaced with only Lot 2 wherein 3.6 million units CFLs will be distributed without IB replacement.
Government Building Retrofit			The government agencies involved are required to submit monthly fuel and electricity consumption reports to EECD through the Dir. ENR. This is prepared by the designated EnerCon Officer (head of the agency).	The actual target for retrofit is 35 government buildings in Luzon. Since other components did not push through, the funds allocated for those were used to retrofit another 100 government-owned buildings nation-wide. This includes hospitals, school and offices. This second retrofit scheme should be finished by the 1st quarter of 2013.
LED	Traffic intersection		MMDA submits a report on energy savings to the PEEP-PMU.	There are a total of 261 traffic lights to be installed by October 2012. About half of this number will be installed by mid-August 2012 and the other half completed on October.
	Streetlights		Still under bidding. This	The installation of 1,484

			project will be launched in the city government of Paranaque and Pasay. The reporting for this will be through the Road Board.	units of LED streetlight is targeted to be finished by the first quarter of 2013. This is for the area around NAIA terminal.
Energy-efficiency Projects on buildings– EUMB/DOE				
Energy efficient buildings	These reports (CU-1 and CU-2) are submitted to the EECD through Director Evelyn N. Reyes (EUMB) and are then routed to Division Chief Artemio Habitan (EECD). The report is then evaluated by the Technology Promotion and Assessment Staff. These reports are not submitted to the DOE secretary. But the reports from the evaluation are submitted to the secretary through Dir. ENR and USec. LGA. Accomplishment reports and budget proposals submitted to the budget hearing (Lower and Upper House) are through the office of the secretary.		There is a quarterly consumption report submitted by all industrial, commercial and transport industries to the Energy Efficiency and Conservation Division (EECD). This is for establishments whose annual consumption reaches 1 million LFOE or 4MWh in electricity consumption. They submit it in the format specified by form CU-1. Another report is submitted on an annual basis for consumers reaching 2 million LFOE. This report uses the format prescribed by form CU-2. This report is to be prepared by any capable personnel but is most suited to the Energy Conservation Officer (EnerCon Officer).	
Don Emilio Abello Awards				
Benchmarking Activities				
Alternative Fuels– EUMB/DOE				
Auto-LPG	The data for LPG supply, consumption records and the number of refilling stations are procured from the DOE Oil Industry Management Bureau (OIMB). However, the accredited stations data are from DTI-BPS. This is an internal initiative.			
CNG buses	The reports are submitted to the focal person in AFETD. These reports can be submitted to the secretary on request.		The station manager of the supplier submits gas sales to AFETD. The bus franchises reconfirm this report if needed.	There is a specified target to attain for CNG buses from 2012-2030. For 2012, the target is 200 buses which would culminate by the end of 2012. Currently, 61 buses have been procured. For the years 2015, 2020 and 2030, the targets are 1,000; 3,000 and 15,000 buses respectively.
E-trike	The monitoring of the E-trike runs and initiatives are done and reported by AFETD.			The e-trike target by 2017 is to achieve 100,000 units. This is

			divided into a 5-year program running from 2013-2017. For the years 2013-2017, the amount of tricycles attained should be 5,000; 15,000; 30,000; 30,000 and 20,000 respectively. Pilot runs in Mandaluyong City and Boracay are being done presently.
Biofuels – REMB/DOE			
	The quarterly reports are submitted to REMB and OIMB via Directors Mario C. Marasigan and Zenaida Y. Monsada respectively.	Monitoring for biofuels is done via joint-monitoring with DOE-OIMB. The roles of OIMB and REMB are to get reports from the oil companies and biofuel producers respectively. The quarterly reports submitted by biofuel producers are done by qualified officials from the agency. The report contains the local monthly allocation (LMA) of ethanol used, which projects the available, local products used and the imported products if there are any. This is submitted to a committee which meets over this on a monthly basis.	Implementation of 1% biodiesel and 5% bioethanol – June 2007 Implementation of 2% biodiesel and 10% bioethanol – 2009 and 2011 respectively
Solar Energy Projects– REMB/DOE			
Household Electrification Project (Solar Home System)	The quarterly reports are submitted to REMB via Dir. MCM. Accomplishments reports are then submitted to the Planning Division of the DOE who then collates the data for the budget hearing.	This is launched by field offices and the beneficiaries are given training to operate their solar home systems. After the training, reports are given to local officials regarding any complaints on the equipments installed. These reports are then submitted to REMB. Currently, no reports have been encountered.	
Private initiated		The reports for private initiated solar projects are given by service contractors. They are required to give a quarterly report to REMB.	
Implementation of Solid Waste Management-NSWMC/DENR			
RA 9003	The NSWMC secretariat submits a quarterly report to the Planning Division of the	The NSWMC coordinator in every region monitors the status of the	The NSWMC secretariat only monitors the implementation of RA

	Environment Management Bureau on the status of their work plan and budget. The EMB director reports to the NSWMC composed of the different national government agencies.	implementation of RA9003, in terms of closing of open dumpsites and establishment of MRF and composting facilities. The coordinator submits a monthly status report to the NSWMC secretariat which is then regularly uploaded in the website of the NSWMC for public consumption.	9003. The performance indicators for the NSWMC secretariat include: -Provisions for technical assistance; -Capacity building conducted; -Organization of provincial summit to build regional, provincial and local capacities on solid waste management; -Prepared, submitted and approved Solid Waste Management Plan by the LGUs.

6.2 Monitoring and reporting of programs and projects at the local level: Makati City

The Constitution provides “local autonomy” to LGUs, but the national government provides “supervision”. Thus the Local Government Code of 1991 was enacted to define the extent of this autonomy as well the level of supervision of the national government.

This section discusses in brief Makati City’s internal monitoring and evaluation mechanisms.

Makati City administration is comprised of the following departments and offices, each with its specific functions and responsibilities in providing specialized services:

- Office of the Mayor
- Office of the Vice Mayor
- City Councils
- City Administrator
- City Law Office
- Office of the City Secretary
- General Services Department
- Human Resources and Development Office
- Department of Engineering and Public Works
- Makati Health Department
- Accounting Department
- City Treasury
- Budget Department
- Business Permits Office
- Urban Development Department
- Department of Environmental Services
- International Relations Department
- Makati Action Center
- Internal and Community Relations Department
- Economic Enterprise and Management Office
- Makati Cooperative Development Office
- Assessment Department
- Liga ng mga Barangay Affairs Office
- SK Federation Office
- Civil Registry Office,
- DILG-Makati
- Public Employment Service Office
- Makati Social Welfare Department
- Office of the Senior Citizens Affairs

- Makati Disaster Risk Reduction and Management Office
- Command, Control and Communication Center

Guided by the City's Development Agenda, each department/ office has performance indicators to monitor and evaluate their works. Indicators in turn are defined by each department/ office through a consultative process, sometimes requiring multi-stakeholder consultations before an indicator and target is set. The progress of implementation of these indicators is updated twice a year to the Mayor.

The Environmental Services Department, for example, is tasked to oversee waste collection, and implement waste management activities for the City government. Indicators include amount of solid waste generation, collection and diversion (to composting, materials recovery facilities etc). The Mayor reports the performance annually to the public, in his State of the City Address. These activities are also reported in the City's annual accomplishment report, and form the bases for each department's budget allocation in the following year.

Performance indicators are also set for individual officials, staff and employees. Incentives are provided for top performing individuals to encourage dedication and commitment. These include opportunity or training abroad, and promotions for deserving employees.

The Environmental Service Department has received numerous achievements and awards for its good performance. ESD is also certified for ISO14001 for its environmental management.

Makati City, like other LGUs in the country, nurtures a multi stakeholder participatory approach in implementing its projects and programs. Thus, conduct of a multi-stakeholder for a before finalization of each major plan/ measure is a common practice. Multi-partite organizations are also formed to monitor and evaluate programs of the city government.

The GHG team of Makati for example, which is responsible for developing the City's GHG management plan, is composed of representatives from major emitters from each targeted sectors (i.e. electricity, energy, waste). These private sector representatives include the distribution utilities, water concessionaires, transport groups, gasoline station owners and building association's representatives. Every so often, the City government requests data from them and/or provides them information/education campaigns to facilitate the creation of the plan.

6.3 Sub-national level's engagement in GHG Inventory

In August 2010, the Climate Change and Clean Energy Project (CEnergy) of the United States Agency for International Development (USAID), in partnership with the Philippine League of Local Environmental and Natural Resources Officers (PLLENRO) and the Greenhouse Gas Management Institute (GHGMI), launched the training series called, "Responding to Climate

Change through Greenhouse Gas Accounting and Management." The training aimed to capacitate local government units in developing, implementing and/or supporting climate change mitigation policies, plans, and programs through Greenhouse Gas accounting and management[27].

Around 37 LGUs participated in the pilot training program. Of these LGUs, more than 10 were able to finish their entity-level inventory reports, and were able to proceed to community level reporting. The LGUs discussed below are participants of the CEnergy project.

6.3.1 Province of Aurora: Greenhouse Gas Inventory

The PGA-ENRO also spearheaded the preparation of the first provincial greenhouse gas inventory in the Philippines. The province of Aurora is one of the participants in the Climate Change and Clean Energy Project (CEnergy) of the United States Agency for International Development (USAID). The project is being implemented in partnership with the Philippine League of Local Environmental and Natural Resources Officers (PLLENRO) and the Greenhouse Gas Management Institute (GHGMI). The Project aims to build the capacity of local government units in developing and /or supporting climate change mitigation policies, plans and programs through greenhouse gas accounting and management. The Project also includes the preparation of the Greenhouse Gas Management Plan.

The provincial greenhouse gas inventory of Aurora is presently undergoing third-party review by international experts and will be finalized by the end of 2012.

6.3.2 Quezon City: Greenhouse Gas Inventory

The Plans and Program Division of the EPWMD spearheaded the preparation of the City's Entity-level GHG inventory and is presently finalizing their Community-level GHG inventory in connection with their participation in the Clean Energy Project of the USAID. The sectors included in their community-level inventory are energy (stationary, mobile and electricity consumption), waste and forestry. Lack of available data poses the biggest challenge in the preparation of a more comprehensive GHG inventory. To address these data gaps, they plan to institutionalize data collection and improve data archiving for future GHG inventory. The community-level inventory will serve as guide in the preparation of their GHG Management Plan. They also hope to quantify the potential emission reductions of the various climate change mitigation programs they are implementing and set emission reduction targets.

[27] http://www.cenergy.ph/Task3.php

6.3.3 Makati City: Greenhouse Gas Inventory

The DES spearheaded the preparation of the City's entity-level GHG inventory and is presently finalizing their Community-level GHG inventory in connection with their participation in the Clean Energy Project of the USAID. The sectors included in their community-level inventory are energy (stationary, mobile and electricity consumption) and waste. They have also recently held a multi-stakeholder consultation in order to draft their GHG Management Plan.

6.4 Sub-national governments' engagement in CDM projects

Since the signing of the Executive Order 320, which designates the Department of Environment and Natural Resources (DENR) as the Designated National Authority for the CDM in the Philippines in 2005, a total of 131 projects have applied for approval from the DNA; 110 projects have been given a letter of approval by the DNA; 58 projects have been registered; and 5 projects have successfully been issued CERs as of June 2012 representing 551,281 emissions reduction credits. Seventy percent (70%) of the projects issued LoA are small scale. The CERs issued compared to the annual expected CERs of the CDM projects ranges from 52% to more than 100%. Currently, the Philippine's PoA statistics stands at: 13 being validated, 2 cancelled and 0 registered[28].

Of the 58 registered projects, only two projects have clear sub-national government participation: Quezon City Controlled Disposal Facility Biogas Emission Reduction Project, and Laguna de Bay Community Waste Management Project: Avoidance of methane production from biomass decay through composting -1.

Of the 13 PoAs, 6 have national government participation (3 from LandBank of the Philippines, 2 from the Department of Energy, 1 from the DENR). Of the 6, one PoA --the DOE's E-trike Project – involves participation of sub-national governments as conduit in the financing scheme for the project.

The next sub-sections discuss the Quezon City project (to illustrate a CDM single project) and the E-Trike Project (to illustrate the participation of subnational government in the PoA).

6.4.1 Case Study 1: LGU as project participants : Payatas

The project is a CDM registered project which aims to showcase Quezon City's compliance to RA 9003. It involves the extraction, collection, processing, flaring and utilization of biogas

[28] As of June 30, 2012

generated at the controlled dumpsite facility. The project is located at Area 2, Barangay Payatas spanning over 22 hectares of land.

The project is also the first of its kind in the Philippines in the area of waste management. Under the Philippine rules and regulations, controlled dumpsites such as this project do not require the management of the biogas emission, so the Quezon City LGU does not need to undertake this type of project.

However, because of the City's commitment and the availability of private support, the project came to be implemented. Thus, apart from being a showcase project, it also is a concrete example of success in public-private partnerships.

The disposal facility processes 1,100 tons of wastes daily (other biodegradable wastes are diverted to nearby composting facility within the area). 411 dump trucks are hired everyday to collect and bring these wastes from various parts of the city to the dumpsite. 54% of the total wastes are biodegradable, 23% residuals and 16% recyclables.

Pangea was given the right to extract, collect and process the biogas produced by the facility for a minimum of 10 years in order to mitigate the pollution caused by the biogas emissions. Obligations of Pangea under the MOA include the planning, building, management, operation and maintenance of the biogas extraction, collection and processing plant. Pangea will provide the necessary investment to accomplish its obligations.

The Quezon City LGU is the owner and operator of the disposal facility. As such, the LGU will be responsible for the overall management of the disposal facility according to the Philippine laws, rules and regulations, and ensure Pangea's uninterrupted implementation of the CDM Project. Under this arrangement, CERs generated by the project will be shared by Pangea and the local government of Quezon City.

The project was registered in Feb 2008 as a CDM project. The biogas plant was commissioned in March 2008, and first CERs were issued for reductions generated starting 1 Feb until 31 Aug 2008. The table below summarizes the CER issuances for the project.

Table 12: CER Issuances, Quezon City Controlled Disposal Facility

PROJECT	Date Registered	Period Covered		Issued CERs	Annual Expected CERs	Annual Ave CER issued	%	Deviation
Quezon City Controlled Disposal Facility	25-Jun-09	1-Feb-08	31-Aug-08	30,860				
		1-Jan-10	1-Mar-10	27,576				
		1-Sep-08	8-Mar-09	75,376				
		1-Apr-10	30-Sep-10	59,972				
		1-Jul-09	31-Dec-09	47,958				
		1-Oct-10	31-Mar-11	55,274				
	Total			297,016	116,339	93,794.53	80.62	19.38

6.4.2 Case Study 2: LGU as conduits to PoA: e-trike

The PoA is created as an undertaking by the Philippine Department of Energy. Through this PoA, it is intended that electric vehicles will be distributed throughout the Philippines as a means to replace conventional fuel vehicles currently being used as a common means of public transportation. The Department of Energy will distribute these electric vehicles (e-Vehicles) to various local government units who will then sell the vehicles to vehicle operators and drivers at a subsidized rate.

A loan from the ADB will be used to finance this undertaking, and will be loaned out to the LGUs through Land Bank of the Philippines. The LGUs can use their Internal Revenue Allotment as collateral to Land Bank in availing of the loan. They can then institute mechanisms to re-loan the funds to the tricycle drivers and collect payments for these.

As an initial undertaking the project will involve the distribution and operation of 2,000 units of electric tricycles (E-Trikes) in Quezon City. The CPA implementer is the local government of Quezon City, which will maintain a list of E-Trike recipients as well as other pertinent records (date of receipt, operating contract etc.)

6.5 Barriers to CDM PoA

This subsection briefly looks into the barriers encountered by the two cancelled PoA projects: the Philippine Chillers Energy Efficiency Project and the CFL distribution of the Philippine Energy Efficiency Project, the first large scale attempt to utilize the PoA concept to promote EE projects in the Philippines by the national government.

6.5.1 CFL distribution of the Philippine Energy Efficiency Project

The PEEP CFL Project was conceived as CDM PoA with the intention of using the carbon revenues to offset the costs of the CFL program to the extent possible.

The PoA originally involve the distribution of 13 Million high quality CFLs to the country's residential customers in exchange for less energy efficient incandescent bulbs. The PoA will be coordinated and managed by Department of Energy.

The Department of Energy intended to implement the initial small-scale CDM programme activity (SSC-CPAs) across the Philippines in collaboration with 17 private Distribution Utilities (DUs), 119 Electric Cooperatives (ECs) (which are under the jurisdiction of the National Electrification Administration or NEA) and other authorized distributors.

Up to six CFLs were supposed to be distributed free of charge to each participating household in exchange for an equivalent number of IBs. The exchange will be conducted at designated distribution points by authorized distributors, according to procedures laid out in the Philippine CFL Distribution Manual maintained by the, DOE, the PoA's managing entity.

The goal of the PoA is to improve the energy efficiency of residential lighting stock by distributing CFLs to households. By doing so, the program will reduce greenhouse gas emissions through avoided electricity usage, significantly reduce national electricity demand and stress on energy infrastructure, and save individual households' money (almost 400 Philippine Pesos for each bulb) on their electricity bills.

Moreover, the program aimed to increase the awareness and the use of CFLs as a replacement to IBs. But this PoA was eventually cancelled, and CFLs to be distributed were eventually reduced.

The following are the reasons why CDM component was not pursued:

Insufficient IBs - There are less IBs than targeted to be exchanged with CFLs under the project. This reduction will have an impact in the net carbon emission reduction (CER) revenues if the project will be implemented under the CDM as it entails some fixed transactions costs (i.e. CDM registration and validation fees, verification, average life testing, CDM training, monitoring surveys etc) regardless of the number of CFLs exchanged under the project.

Complex Implementation/Monitoring Procedures - Implementation of the CDM requires strict adherence to approved methodologies, which includes specific program design requirements and implementation/monitoring procedures throughout the life[29] of the CFLs. These logistical complexities outlined below are practical issues that DOE has to deal with.

- Average life testing of the CFLs -Monitoring and Reporting Procedures
- Average life testing of the CFLs by an independent testing laboratory using relevant national or international standards
- Ex-post monitoring surveys in each CPA in accordance with the approved sampling and survey design of the project. Surveys with a minimum sample of 100 CFLs per CPA will be conducted in years 1, 4 and 7 of project implementation.
- Maintenance of the Project's database throughout the crediting period.

[29] The CFLs being procured will have 10,000 burning hours. At 3.5 hours of use per day, the expected average life of each CFL is around 7 years.

- Annual computations of and reporting to CDM accredited verifier of the GHG emissions reductions that accrue to the project

- Proper disposal of incandescent bulbs and proper documentation to enable verification

- Additional Costs - The stringent technical monitoring and reporting procedures under the CDM will entail additional manpower requirement and therefore additional costs for the DOE. Furthermore, the CDM fixed transactions costs will have to be shouldered by the DOE throughout the duration of the life of the CFLs and of the project.

6.5.2 Philippine Chillers Energy Efficiency Project (PCEEP)

The PCEEP is a proposed PoA that intended to secure the early replacement of energy-inefficient, large-size chillers. By doing so, the PoA is expected to bring about energy savings, and contribute in the reduction of greenhouse gas emissions given that the energy saved is largely produced by fossil fuels.

PCEEP also introduces an innovative financial incentive that is significant enough to overcome barriers associated with the high upfront costs of early chiller replacement. Notwithstanding the energy efficiency gains to be expected from early replacement, EE benefits are heavily discounted in practice due to perceived technology risk, risk of business disruption, and other competing investment priorities; hence the need for an incentive program justified by the environmental and economic externalities present.

Thus, PCEEP was conceptualized: Grant funding sourced from World Bank's Global Environment Facility (GEF), and the Multilateral Fund (MLF) of the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol), will be used to provide upfront seed funding to fund some of the (early) participating chiller replacement projects under the PoA. The CDM revenues generated by these early participants will in turn be used as incentives/ seed funding to fund participating chiller replacement projects after the grant funding is exhausted.

PCEEP is coordinated and managed by the Philippine Department of Environment and Natural Resources (DENR).

The CPA implementers are the chiller owners, which can either be public or private entities. Each chiller owner is responsible for its respective CPA for all steps of the project cycle, namely design, financing of the project, invitation of proposals, contract award to a supplier, and taking delivery and installing and commissioning the new chillers, and destruction of the old chillers.

As an incentive, chiller owners can avail of the upfront seed funding under PCEEP in exchange for the CERs to be generated by their CPAs, or they can opt to collect up to eighty (80%) of the CER revenues of their CPAs when these revenues are realized.

But like the CFL distribution, this PoA was eventually cancelled. The following are the reasons why CDM component was not pursued:

- Stringent monitoring procedures under AM0060 methodology
    - Determination of average remaining life of the chiller
    - Other historical data requirements
- No takers of the financial incentives due to the stringent documentary requirements
- Complex additionality proofs

7 WORKSHOP DOCUMENTATION

The workshop was conducted last 7 November 2012 to present the results of the Study to various stakeholders. The specific objectives of the workshop were:

- To ***share the study results*** with relevant officials, practitioners and researchers;
- To ***discuss the potential of national-sub-national linkage mechanisms*** and to articulate the effective ideas

The workshop was held at the Eastwood Richmonde Hotel in Pasig City. There were eighteen (18) participants to the workshop coming from the Department of Energy, World Wide fund (WWF), Climate Change Commission (CCC), Cenergy/USAID Project and 5 local government units, namely, Quezon City, Makati City, Mandaluyong City, Pasig City and San Jose del Monte, Bulacan. Please refer to Annex 3 for the complete list of participants.

The following presentations were delivered during the workshop:

Introduction of the workshop (*Mr. Hidenori Nakamura****)***
Mr. Nakamura presented the trends in urbanization in land-use and how policy innovations can promote low carbon development. He also made a differentiation of "knowledge in process" and "knowledge of process" and how it will apply in the development of low carbon development policies.

State of low carbon development policies at the national/sub-national level in the Philippines (*Ms. Marina Mallare****)***
Ms. Mallare presented the different national policies and programs promoting low carbon development in the sectors of energy supply, energy efficiency, transport services, waste,

forestry and agriculture. She also presented the result of the case studies done in the provinces of Aurora and Bohol, and the cities of Quezon and Makati highlighting the various low carbon development policies and programs being implemented by these sub-national levels.

State of monitoring and evaluation of policy and GHG emissions in the Philippines
(Ms. Jeanette Laurente)
Ms. Laurente started her presentation by explaining the jurisdiction among the different levels of government in the Philippines. She presented the flow on how polices are transformed into programs and projects and how monitoring procedures are implemented by the concerned agencies. She also presented the role of the National Economic Development Authority (NEDA) in monitoring national programs and projects. Sub-national level would have their own monitoring and evaluation procedures based on identified indicators. Ms. Laurente also presented the GHG Inventory capacity building being undertaken by CEnergy/USAID for selected local government units including the preparation of the GHG Management Plan. The status of CDM projects in the Philippines were discussed and their general characteristics.

Potential national-sub-national linkage to enhance low carbon development at the sub-national level (*Mr. Hidenori Nakamura****)***
Mr. Nakamura presented four things to be considered for the national-sub-national linkages, (1) Incentive provision and ownership development, (2) Effective monitoring an evaluation of policies, (3 Diverse local conditions, and (4) Support of policy diffusion and mutual learning. He provided examples for each of these considerations.

The participants were given opportunities to ask questions or provide comments every after presentation. Some of the questions were:

- Is there a way to compute for GHG emissions from losses?
- How do you account for the grid emission factor for private plants? We need to know the particular emission of these in order for us to know the emission factor if we shift from one form of energy to another
- How do you see the CDM development in the Philippines globally?
- When you say a single project, if we have aggregated projects, how do we group it?
- What could be the reason why a small number of projects have CER?
- In your possible options, you said that the first phase must be grants mechanism. What approach is suggested for this?
- Are there any activities being done to identify efficiencies in power plants? Are these being monitored? Are they improving or are they stuck in a plateau stage?

The last part of the workshop was to gather inputs from the participants on how the national-sub-national linkages could promote low carbon development at the sub-national level. Would the four considerations previously presented by Mr. Nakamura enable the sub-national level develop policies and programs that promote low carbon development. The following are some

of the key points raised by the participants: Please refer to Annex 4 for more detailed comments of the participants.

- It is important to identify where we are right now and identify the goals and measures on how to attain these goals. It may be costly not knowing where we are heading;
- Start with the defining the policies and not regulations. But we need to identify strategies in legal procedures to enable enforcement;
- Loans and grants from the national government may be used as incentives to implement policies and programs;
- Financing mechanism is important for the local and national government for the long term implementation. Also, enforcing implementation by starting with subsidies for the first period and then go to penalties in the latter part. For the whole period, you can balance it out
- When we look at the implementation of projects, the driver comes from the commercial calculations. The national government does not play a big role in this;
- Implementation of the policies/programs depends on the commitment of the political leader of the municipality. Changes in political leader/s will result to changes in the priorities of the municipality;
- Co-benefits and the need to comply with national regulations are strong drivers for the local government to implement national policies and programs. The commitment of the chief executive officer is also a strong factor;
- Technical and financial assistance provided by the national government to support the implementation of the policies and programs are necessary;
- The Philippines has several plans and programs, but implementation is lacking. We need to implement these plans and programs to learn;
- Some policies and programs do not have linkages from national to sub-national level. The national government has their own programs and implements them, while the sub-national level does the same;
- Top-down approach linked to multiple expertise will be effective. Expertise is sometimes very limited at the sub-national level;
- To avail of the PoA, the national approach is best. This benefits the project more if the national and sub-national linkage can be established;
- A top-down approach from one solution will not probably get an optimal result. There is a need for more flexible approach or a more innovative one should be used. An open market based platform that would lead to optimal results. An example is the feed-in tariff provision;
- The big industries are presently reporting to the Department of Energy their electricity consumption based on a voluntary basis. However, when the Energy Conservation Bill is approved, it will require mandatory reporting with penalties for non-compliance. Awards are given to those who complied;

- The Philippine League of Local Environmental and Natural Resources Officers (PLLENRO)[30] is an avenue to share programs and experiences among the local government units. PLLENRO highly encourages this activity to learn from each other.

The workshop ended at 12:00 noon. Copies of the presentation will be provided to participants who requested for them, including the final report when finished.

8 STUDY FINDINGS AND RECOMMENDATIONS

8.1 Findings

Philippine national policies, in general, are responsive to the needs of its people. It has a progressive set of environmental policies, each intended for specific purposes. However, as outlined above, the level of carbon governance in the Philippines poses a lot for improvement. This is not to say that there are no measures towards low carbon governance being implemented: rather there is minimal consciousness and acknowledgement that the present environmental policies are also geared towards promoting low carbon development. As such, a more defined national low carbon development strategy to acknowledge and unite all existing policies towards low carbon development is needed.

On the other hand, Philippine rules and regulations related to low carbon governance at the sub-national level are highly decentralized due to the devolution of powers accorded to sub national levels under the Local Government Code. But while these policies are left to each sub national authority, it can be generalized, that the potential for an effective low carbon governance strategy in each sub national unit is highly achievable. Certain sectors such as solid waste management and energy efficiency in buildings and transportation are more advanced, but other sectors such as renewable energy are following suit.

The cases of Makati and Quezon Cities have demonstrated that a tailor-fitted strategy can be accomplished for a city once local government authorities have acknowledged the need to reduce carbon emissions and take the path towards low carbon development.

Thus, the case of the Philippines shows that initiatives from some sub-national governments may precede that of the national government. Lessons learned from these initiatives are learnings for a bottom-up approach towards ultimately realizing a national low carbon development strategy. Meanwhile, in areas where the sole authority is with the national government, an evaluation of existing projects implemented on a national scale can contribute

[30] It is an organization of local environmental and natural resources officers.

towards a top-down approach towards realizing a common but area-specific sub-national strategy that supports the national low carbon strategy.

Basing from the four (4) considerations to link national with sub national policies on low carbon development, the following were the findings from this study:

(1) *Incentive provision and ownership development*

Incentive provisions are already included in some national policies and are being replicated at the local government level. The GEMP, for example, requires national agencies 10% reduction on electricity and fuel consumption annually. This mechanism allows the agencies to use 100% of the monetary value of their savings as their incentive if they achieve the 10% required reduction. This kind of incentive is a good example to promote specific GHG reduction goals and allow these national agencies to devise their 'own' strategies to achieve the 10% target. LGUs on the other hand have also been implementing their own energy conservation measures, replicating the goals of the GEMP.

Other national laws offer subsidies for infrastructure and technical assistance to LGUs to engage them in developing projects that support the goals of the specific policy, such as waste management.

(2) Effective monitoring and evaluation of policies

There are monitoring and evaluation schemes that have already been institutionalized at the national level to evaluate policy measures. Similarly, sub-national governments have also instituted monitoring and evaluation of their programs and projects based on specific criteria and indicators. The percentage of budget releases is often proportional to the percentage of success or failure as per the projects' indicators and criteria.

However, in terms of carbon governance, indicators and criteria are often lacking. Therefore effective monitoring and evaluation of policies on this area is not achieved.

(3) Diverse local conditions

Under the Local Government Code, LGUs discharge functions and responsibilities of national agencies devolved to them such as environmental management which includes policies on low carbon governance. Thus, implementation of policies related to low carbon governance are LGU-specific, depending on each LGUs priorities, resources and vulnerability, among others.

Therefore, LGUs can learn to apply best practices from national government implementation i.e. pilot projects undertaken by national agencies in implementing their specific low carbon policies and measures.

(4) Support of policy diffusion and mutual learning

Information, Education, Communication (IEC) activities have become an integral part of many, if not all, national policies and programs. IEC facilitates easier implementation, including those national policies and programs to be implemented by the sub-national levels.

Nationwide organizations of local government officials such as the Philippine League of Local Environment and Natural Resources Officers (PLLENRO) encourage sharing and mutual learning among its members. Best practices of projects implemented by a member of these organizations can easily be shared or copied by the other members. LGUs can also modify these best practices so that they can be adapted to suit their specific needs.

8.2 Recommendations on how to develop a monitoring mechanism of low carbon development in the Philippines

The myriad of environmental policies and projects, in general, are rich possible sources of baseline data and of effective monitoring scheme to promote low carbon governance.

While there is an absence of an institutional unified strategy to measure GHG emissions and reduction on the national level, there are existing mechanisms in place that can be utilized to institutionalize this such as the following:

- The CCC is in charge of the overall coordination of climate change related policies and measures.
- NEDA-ICC is in charge of monitoring national programs and projects for their contribution to the Philippine economy.
- Project implementers are national agencies which also take charge of monitoring them.

What is needed for the Philippines is to include in the monitoring of all programs and projects, a climate change dimension which includes defining sources of GHGs and providing for criteria and indicators to measure these sources as well as measuring how the program or project can contribute to its reduction.

On the sub-national level, it is acknowledged that at present, LGUs have differing progress in terms of monitoring low carbon developments in their localities – some are advanced, but most are starting.

Looking at the experiences so far of the different LGUs that were studied, a common set of capacity building measures is needed to allow these LGUs to formulate their own criteria and indicators to achieve the following:

- For existing programs and projects, allow the LGUs to evaluate their contribution to GHG reduction, to addressing climate change in general and towards achieving sustainable development
- For new/ planned initiatives, provide a set of criteria and indicators to measure their contribution to GHG reductions
- Include a climate change dimension in their local development plans to institutionalize a working low carbon development policy in their localities. These plans may not be necessarily new, but may just be an enhancement of the existing plans that the LGUs have.

Participation in future Carbon Market Regimes

With limited opportunities for CDM today, national and sub-national governments may benefit instead from other future carbon market regimes using lessons learned from CDM. The case studies provided for barriers to watch out for, as well as lessons that may and may not be replicated as regards national government and LGU participation.

Programme of Activities (PoA) is a viable avenue for the national government and LGUs to participate in the CDM. The national government can develop nationwide programs that will be implemented at the sub-national level. Notable examples include National Environmentally Sustainable Transport Strategies (NESTS), *PALIT-ILAW*, and others. In these programs, the LGUs are encouraged to actively participate as conduits or implementers of policies promulgated by the national government.

A balance should be made between the principles of relevance, transparency, accuracy, credibility and completeness in defining how to monitor and report GHG reductions and provide for a sound GHG management plans both in the national and sub-national levels. The CDM has traditionally favored accuracy and credibility over relevance, but as with the case of climate change and GHG reduction policies, undertaking monitoring and reporting may need to be considered.

References

General Sources

Various publications from the following:

- Environmental Management Bureau of the DENR (EMB-DENR)
- Department of Energy
- Quezon City Government
- Provincial 10-Year Integrated Solid Waste Management Plan of Aurora for 2009-2018
- Philippine Climate Change Commission
- World Bank, Asian Development Bank etc
- Second National Communication of the Philippines
- ICLEI
- IGES

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Climate Change Commission (2010). *National Framework Strategy on Climate Change. http://www.climate.gov.ph/index.php/en/downloads/category/5-national-framework-strategy-on-climate-change-nfscc*

http://www.gov.ph/2011/04/06/fueling-sustainable-transport-program-to-mitigate-fuel-price-increases-in-the-future/Philippine Environmental Governance Project. http://ecogovproject.denr.gov.ph/docs/Downloads.htm

http://www.doe.gov.ph/news/2011-04-18-eTrike.htm

http://www.senate.gov.ph/press_release/2011/0414_angara2.asp

http://3wheeledcheese.com/2011/07/25/manila-promotes-use-of-green-vehicles-philippines/The World Bank Group: Philippine LGU Assistance Portal. *Metro Manila Urban Transport Integration Project (MMURTRIP).* LGU Portal Online:

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http://businessmirror.com.ph/home/economy/25687-pnoc-ec-takes-lead-in-natural-gas-vehicle-program-for-public-transport

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Legal sources:

Department of Interior and Local Government. The Local Government Code of the Philippines: Book III Local Government Units

Republic of the Philippines (1998, July 27). An Act Providing for a Comprehensive Air Pollution Control Policy and for Other Purposes. Republic Act No. 8749.

Republic of the Philippines (2001, January 26). An Act Providing for an Ecological Solid Waste Management Program, Creating the Necessary Institutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds Therefore and for Other Purposes. Republic Act No. 9003.

Republic of the Philippines (2006, November 29). An Act to Direct Use of Biofuels Establishing for this Purpose the Biofuel Program, Appropriating Funds Therefore, and for Other Purposes. Republic Act No. 9367

Republic of the Philippines (2008, December 16). An Act Promoting the Development, Utilization and Commercialization of Renewable Energy Resources and for Other Purposes. Republic Act No. 9513

Republic of the Philippines (2010, October 27). An Act Mainstreaming Climate Change into Government Policy Formulations, Establishing the Framework Strategy and Program on Climate Change, Creating for this Purpose the Climate Change Commission, and for Other Purposes. Republic Act No. 9729

Republic of the Philippines 9367, Biofuels Act of 2006, Directs the use of biofuels in all motor vehicles through mandatory blend.

Presidential Decree 1586 Environmental Impact Assessment, Establishes an Environmental Impact Statement System Including Other Environmental Management Related Measures

Republic Act 10068, Organic Agriculture Act (OAA) of 2010, Promotes, propagates and develops further and implement the practice of organic agriculture in the Philippines

Executive Order 23-2011, Declaring a moratorium on the cutting and harvesting of timber in the natural and residual forest and creating an anti-illegal logging task force.

List of Organizations and personnel visited or interviewed:

Table 13: List of Organizations and Personnel Visited or Interviewed

Organization/ Institution	Contact Person	Position	Contact Details
Department of Environment and Natural Resources	Albert Magalang	OIC, Philippine DNA Secretariat	Visayas Ave. Quezon City
	Engr. Minda Osorio	Environmental Management Bureau	Visayas Ave., Quezon City
Department of Energy	Vilma P. Reyes	Senior Science Research Specialist – EUMB	840-2243
	Rosalie Joan DR. Sotelo		
	Antonio Basco		
	Jesus C. Anunsacion	OIC Assistant Director – EUMB	
	Maria Lourdes Capricho	Division Chief – AFETD	
	Gerardo Palabrica	Acting OIC – AFETD	
	Atty. Marissa Cerezo	OIC Assistant Director – REMB	
	Arturo Zabala	PEEP – Lighting Specialist	
Commission on Climate Change	Sandee G. Recabar	Senior Science Research Specialist	
Department of Agriculture	Alice Ilaga	Head, Climate Change Office	
Makati City	Kathleen Almonte	Planning Officer	Tel: 8954991, 8701727
	Mr Danilo V. Villa	Director – Department of Environmental Services	
	Mr. Sherwin Pendall C. Nahial	Project Development Officer	
Quezon City	Andrea Valentine Andres-Po	Chief, Plans & Development Division, Environmental Protection & Water Management Dept	Drei_andres_po@yahoo.com
	Magdalene Guevarra	Planning and Research Officer – EPWMD	
Bohol Province	Ms. Myra Trinidad	ESWM Board Chair of Bohol	
KfW	Olga Asana-Caday	Philippine Representative	Tel No. 812-3165 local 27 Fax No. 753-1441, 753-4800 Email: Ma.Caday@gtz.de
KfW-LGU Investment Programme/ LandBank	Mr. Jose Eduardo Mandapat, Jr.	Program Management Department of Land Bank	jmandapat@mail.landbank.com
Manila Water Inc.	Ray Gozon	Communication Department, MWCI	Rheyan.gozon@manilawater.com
Province of Aurora	Cristina dela Cruz,	PGA-ENRO (CDA II)	wageyen@yahoo.com

Quezon City

1. Interviews with Ms. Andrea Andres-Po and the staff of the Environmental Protection and Waste Management Department (EPWMD)
2. Various brochures and leaflets on Ecological Solid Waste Management
3. **Executive Order 301 by the President of the Philippines** – *Establishing a Green Procurement Program for all departments, bureaus, offices and agencies of the Executive Branch of Government*
4. **Executive Order No. 19 Series of 2010** – *Creating the Environment Policy Management Council, defining its functions and composition and providing for its technical working group*
5. **Ordinance No. SP 1917 S 2009** – *An ordinance requiring the design, construction or retrofitting of buildings, other structures and movable properties to meet minimum standards of a green infrastructure, providing incentives therefore and for other purposes*
6. **Ordinance No. SP 1731 (2006***) – An ordinance prohibiting any person to discharge or dispose any untreated waste water, sludge oil, chemical or other wastes to any part of Quezon City that will endanger the environmental condition of the City's rivers, creeks and waterways with the corresponding penalties thereof*
7. **Ordinance No. 1501 (2005***)- Requiring subdivision developers and/or subdivision owners in Quezon City to provide sufficient space for the installation of composting facilities to accommodate the disposal of recyclables or biodegradable waste generated by home owners and providing for penalties and administrative sanctions in violation thereof*
8. **Ordinance No. SP 1630 (200***5) – An ordinance amending Section 4 of Ordinance No. SP 1501, S-2005 "Requiring subdivision developers and/or subdivision owners in Quezon City to provide sufficient space for the installation of composting facilities to accommodate the disposal of recyclables or biodegradable waste" authorizing the Environmental Protection and Waste Management Department in coordination with the subdivision unit to undertake the implementation and enforcement of this Ordinance.*
9. **Ordinance No. SP 1323 (2003***) – An ordinance adopting guidelines and procedures for a unified approach or solid waste management*
10. **Ordinance No. SP 1009 (2001)** – *An ordinance requiring the Barangay Councils of Quezon City to establish and operate an Ecological Recycling and Composting Centers as part of their respective solid Waste Management Program before the end of the year 2001 and as a component thereof, to purchase and operate at least two 92) composting and shredding machines, and mandating that funds be taken from their respective shares of the unprogrammed appropriation from the Local government.*

11. ***SP-2140 and SP-2103****, which aims to effectively regulate the use of plastic bags in the city last April 2012. SP-2140 or the Plastic Bag Reduction Ordinance regulates the use of plastic bags and establishing an environmental fee for its use. While SP-2103 mandates all business establishments that uses plastic bags to display conspicuously in their stores a notice that encourages their customers to protect the environment by bringing their own recyclable/reusable bags.*
12. *http://www.cenergy.ph/Task3.php*

Makati City

1. Villas, Danilo, Sherwin Nahial, Sherissa Ursua. Personal Interviews. July 24, 2012, August 1, 20112, August 29, 2012
2. Ursua, S (2012). "Makati's initiatives on GHG reductions." PowerPoint presented on 30 August 2012 at the GHG Management Plan forum at Friendship Suites, Makati City
3. Camarillo, E. (2011). "Makati City's Energy Efficiency Initiatives." PowerPoint presented on 2 February 2011 at the "Addressing Climate Change through Energy Efficiency Investments," 22/F Session Hall, New Makati City Hall, Makati City
4. Makati City Government (2011). CY 2012 Annual Investment Program by Program/Project/ Activity by Sector
5. City Resolution (CR) No. 2005-214 – *A Resolution authorizing the Honorable Mayor Jejomar C. Binay to enter into a Memorandum of Agreement with the Ligangmga Barangay and the concerned national government agencies on cooperation and creation of the Makati City Protection Council subject to al laws and existing legal rules and regulations*
6. Executive Order (EO) No. 003 Series of 2006– *An Order creating the Environmental Protection Council of Makati City*
7. CR No. 2007-025 – *A Resolution urging all sectors within the City of Makati to support the Palit-Ilaw Program and to use compact fluorescent lamps (CFLs) instead of the conventional incandescent lamps, T8, or slimmer linear fluorescent lamps (triphosphor coated) instead of 40W fluorescent lamps, (T-12), and low-loss magnetic and electronic ballast instead of the conventional magnetic ballast for energy efficiency and conservation, subject to all laws and existing legal rules and regulations*
8. CR No. 2007-044–*A Resolution authorizing the Honorable Mayor Jejomar C. Binay to enter into a Memorandum of Mutual Cooperation between the Philippine Green Building Council, Inc. On the promotion of green building practices within the building industry to ensure a sustainable built environment, subject to all laws and existing rules and regulations*

9. CR No. 2005-158 – *A Resolution urging the use of alternative fuel (natural gas, coconut methyl ester, ethanol, auto gas, and the like) for vehicles within Makati City in compliance with the mandate of the Philippine Clean Air Act of 1999 (R.A. 8749)*
10. City Ordinance (CO) No. 2004-032 – *An Ordinance enacting the Makati City Vehicle Emission Control Code and providing penalty for violation thereof*
11. CO No. 2003-089: *Traffic Management Code of the City of Makati*
12. CO No. 2003-095: Solid Waste Management Code, *An Ordinance adopting the Makati City Solid Waste Management Code and providing penalty or violation thereof, subject to all laws and existing legal rules and regulations*
13. EO 001 Series of 2005 – *An order creating the Makati Solid Waste Management Board as mandated by Republic Act 9003*
14. CO 2000-078: Zoning Ordinance, *An Ordinance adopting zoning regulations for Makati City and providing for the administration, enforcement and amendment thereof and for the repeal of all ordinances in conflict therewith, subject to all legal and existing rules and regulations.*
15. http://www.cenergy.ph/Task3.php

Annex 1: NEECP Activities

Table 14: NEECP Activities

Activity	Activity Description	Implementation
DOE Fuel Economy Run	• Promotes the efficient use of fuel by increasing the knowledge on vehicle fuel consumption • Highlight vehicle maintenance and driving capabilities under normal driving condition • Incentives for participating in the run are cash prizes and certificates • This project is being co-sponsored by petroleum companies which include: Petron, Shell, Chevron and Total • The runs conducted are for different types of vehicles encompassing not only utility and private vehicles but also CNG and Biodiesel-run vehicles	First run for Asian utility vehicles – November 10, 2002
Don Emilio Abello Energy Efficiency Awards	• A recognition given to companies and energy managers who have implemented energy efficiency and conservation programs to significantly reduce their energy consumption • As of 2010, 61 establishments and 31 energy managers have already been awarded and recognized for their efforts • The energy savings generated by the participating establishments amounted to 159 million liters of oil equivalent and CO2 avoidance of 268,444 tons	Launched - 1982
Energy Labeling and Efficiency Standards	The DOE houses the Lighting and Appliance testing Laboratory (LATL) which is capable of conducting tests on energy efficient devices which can be applied to household electrical products. This aims to improve the performance of appliances as well as the choosing capacity of the consumer for choosing appliances.	
Energy Audit	This is a technical service provided by the DOE to evaluate the utilization efficiency of manufacturing plants, commercial buildings and energy-intensive industries. This helps the establishments determine their energy consumption patterns and identify a possible energy conservation program for the sector.	
Philippine Energy Efficiency Project (PEEP)	This project contains two (2) aims: the reduction of power generation through curtailment of peak demand; and the reduction of GHG emissions. These aims can be achieved through accomplishing the following objectives: 1. Retrofit of government building 2. National and Residential Lighting Program 3. Public Lighting Retrofit Program 4. Energy Efficiency Testing and Lamp Waste Management 5. Efficient building initiative 6. Communication and Social Mobilization	Launched – 2009; extended – December 2013

Government Energy Management Program (GEMP)	A series of presidential issuances which revolve around government sectors' reduction on electricity and fuel costs by 10%. To ensure compliance of government agencies, spot checking is done by the DOE. Grades (rated evaluation) are passed to government bodies which have submitted their monthly reports on fuel and energy consumption. The following activities are under GEMP: 1. Spot check by Energy Audit Team (EAT) 2. Requirement of submission of relevant data 3. The designation of an Energy Conservation Officer (ECO) for the concerned agency 4. Monthly submission of fuel and electricity consumption report 5. Posting of agency rating as a result of spot check 6. Seminar workshop on Energy Conservation for Government Employees 7. Conduction of Information, Education and Communication (IEC) campaign to different government offices	Approved – October 2004
Energy Efficiency and Conservation Programs (EE&C) – Voluntary Agreement	A voluntary agreement between the DOE and industrial and commercial establishments through the Partnership for Energy Responsive Companies/Ecozones to establish the use of EE&C programs. The programs under this are as follows: • Vehicle Use Reduction Program – aims to lessen use of automotive vehicles. Program involves carpooling, car-less day and anti-idling campaigns. Also launched the *park-and-go* parking spaces • Placemates Program – encourages food chains to use EE&C programs and themes • *Palit-Ilaw* Program – encourages the replacement of incandescent bulbs with compact fluorescent lamp (CFL)	Anti-idling campaign – September 2004 *Palit-Ilaw* Program – July 2007
Information, Education and Communication Campaign (IEC)	Accurate information dissemination for energy efficiency and conservation promotes its use. To achieve this, the IEC campaign has the following activities: 1. Conduction of seminar-workshops for target participants in the commercial, residential, academe and government building sector 2. Conduction of fuel economy for transport vehicles 3. Recognition award on energy efficiency 4. Use of media ads on energy conservation tips and practices (in coordination with Philippine Information Agency)	
Demand Side Management Program (DSM)	• Promotes the use of energy efficient technologies in the industrial, commercial and government buildings as well as the household sector • Promotes the use of LED in street lighting	

	• Promotes the Voluntary Agreement with private companies to reduce energy consumption and maintain and energy efficient operation • Expansion of standard and labeling program to include electric appliances	
Foreign Assisted Projects	• JICA – technical assistance in the Developmental Study of Energy Efficiency and Conservation for the Philippines Project • UNIDO-GEF – technical assistance on the Industrial Energy Efficiency Project for the Philippines	

Annex 2: Summary of Low Carbon Policies and Measures

SUMMARY OF POLICIES AND PROGRAM PROMOTING LOW CARBON ECONOMY

Table 15: Summary of policies and programs promoting low carbon economy

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
Energy Supply						
RA 9513 Renewable Energy Act of 2009	Government's policy for promoting the development, utilization, and commercialization of renewable energy sources, and provides a host of fiscal and non-fiscal incentives to RE developers	▪ Declared policy of the State to encourage the development and utilization of RE sources as tools to effectively prevent or reduce harmful emissions …(Sec 2c) ▪ Promotes the creation of an RE market through the following (Ch 3) - ***Renewable Portfolio Standards (RPS).*** Requires electricity suppliers to source certain portion of energy supply from RE - ***Feed-in-Tariff System.*** Prescribes fixed price for electricity produced from RE - ***Green Energy Option***. Allows consumers to choose to buy RE power - ***Net metering***. Allows consumers that generate RE to store or sell excess power… - ***RE market in the WESM***. Provides trading of RE certificates in WESM	DOE, lead agency for implementing RE Act National Renewable Energy Board tasked, among others to: a) Evaluate and recommend to the DOE the mandated RPS and minimum RE generation capacities in off-grid areas, as it deems appropriate; b) Recommend specific actions to facilitate the implementation of the National Renewable Energy Program to be executed by the DOE and other appropriate agencies of government c) Monitor and review the implementation of the NREP, including compliance with the RPS and minimum RE generation capacities in off-grid areas; d) Oversee and monitor the	Five key components under the RE sources include: hydropower, geothermal, biomass, and solar, wind and ocean. Hydropower incentives as provisioned in the RA 7156 (Mini-Hydro Law): a) Special privilege tax rates which sets a payable tax of 2 percent of the developer's gross receipts for the development of Hydropower sites; b) Income tax holiday for seven (7) years from the start of the contract c) Tax credits which covers machinery procurement from local manufacturers d) VAT exemption on gross receipts derived from sale of electric power derived	The projects for the RE sources are handled by the DOE in coordination with other local and foreign agencies which include JICA, DOT and DA. Funding for these projects come from local and foreign funds. Other private investors for the geothermal energy production are PNOC-EDC and the PGI which is under UNOCAL.	RA 7156 - June 5, 1991 Presidential Decree 1442 – June 11, 1978 Amendments to Executive Order 462 – June 17, 2010

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
			utilization of the Renewable Energy Trust Fund created pursuant to Sec 28.	from hydropower Geothermal energy incentives enumerated under Presidential Decree 1442 (An Act to promote the Exploration and Development of Geothermal Resources) a) Recovery of operating expenses b) Tax exemption except income tax c) Exemption from payment of tariff duties and compensating tax for importation of materials for operation d) Service fee of up to 40 percent of the net income tax e) Depreciation of the capital equipment over a ten (10) year period f) Entry of alien personnel including immediate family members Laws governing solar, wind and ocean include the following: a) Executive Order 462		

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
				(Enabling Private Sector Participation in the Exploration, Development, Utilization and Commercialization of Ocean, Solar and Wind resources for Power Generation and other Energy Uses) – Section 4 sites the privileges for the development of OSW resources b) Executive order 232 (Amending Executive order 462) c) Department Circular 98-03-005 (Rules and regulations Implementing EO 462)		
RA 9367 Biofuels Act of 2006	Directs the use of biofuels in all motor vehicles through mandatory blend of 1% biodiesel in diesel fuel and 5% bioethanol in gasoline, subject to increase	▪ Mandates the use of biofuels to mitigate GHG emissions (Sec 2b) ▪ Ensure availability of alternative and renewable clean energy without detriment to natural ecosystem…(Sec. 2d) ▪ Mandatory use of locally-sourced biofuels: (Sec 5) - 5% bioethanol for gasoline fuel, subject to increase of 10% after	DOE ▪ (among others) Tasked to develop the National Biofuels Program ▪ Serves as the Chairperson of the National Biofuels Board tasked to monitor the implementation of the NBP and the supply and utilization of biofuels, among others	Section 6 of RA 9367 identified four (4) points in its incentive scheme for biofuel manufacturers a) Exemption from specific tax on local or imported biofuel components b) The sale of raw materials used for biodiesel	Assistance to be provided by government agencies which include DBP, Landbank, Quedancor, etc.	Implementation of 1% biodiesel and 5% bioethanol – June 2007 Impleme

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		4 years as recommended by the National Biofuels Board - 1% biodiesel for diesel fuel subject to increase of 2% as recommended by the NBB		production are exempt from VAT c) Water effluents from biofuel productions are exempt from wastewater charges d) Financing plans shall be provided by government institutions to an extent of at least 60 percent of the capital stock to biofuel manufacturers (inclusive of blended biofuels) Currently, 10% blended gasoline (E10) is implemented nationwide. The development of 20% blends is currently under evaluation. For diesel, a 2 percent blending scheme has been used since 2009. Studies on other sources such as Jatropha		ntation of 2% biodiesel and 10% bioethanol – 2009 and 2011 respectively Selling and usage of 10% blended gasoline – August 2005
RE Plans and Programs (2011-2030)		▪ The National Renewable Energy Program (NREP) seeks to increase the RE-based power capacity of the country to 15,304 MW by the year 2030 from its current capacity level of 5,438 MW ▪ On a per technology basis, the NREP aims to: - Increase geothermal				

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		capacity by 75% - Increase hydropower capacity by 160% - Deliver additional 277 MW biomass power capacities; - Attain wind power grid parity with the commissioning of 2,345 MW additional capacities - Mainstream an additional 284 MW solar power capacities and pursue the achievement of the 1,528 MW aspirational target - Develop the 1st ocean energy facility for the country ▪ Proposes a development framework to accelerate the development and utilization of the RE sources in the country ▪ Transformation of Negros Island into a model of RE ▪ Achieving a 100% increase in RE production by 2013 by: ▪ Becoming the number one geothermal energy producer ▪ Becoming the number one wind energy producer in SEA				

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		▪ Doubling hydro capacity ▪ Expanding the contribution of biomass, solar and wind to 131 MW				
Clean Technology Fund Investment Plan for the Philippines [31]	CTF-CIP is a proposal for the use of the CTF resources in the Philippines, including a potential pipeline of projects and national resource development	▪ Prioritizes power and transport sectors as highest GHG emitters and focuses on intervention in 3 broad areas: - Supply and demand side energy efficiency, including grid optimization and initial investments in smart grid technology, as well us urban energy efficiency; - Renewable energy; and - Transport systems, including BRT, advanced vehicle technology, urban rail, motor vehicle inspection and emission systems, and wider use of biofuels.	Department of Energy (DOE) for the development of renewable energy sources. Department of Transportation and communication (DOTC) for the National Environmentally Sustainable Transport (NEST) Development Bank of the Philippines will facilitate the financing.		The CIP is a "business plan" developed by the government of the Philippines (GOP) in agreement with the ADB, the International Bank for Reconstruction and Development (IBRD), and the IFC.	2009 onwards
Energy Efficiency						
Administrative Order 110 25 October 2004	Government policy that institutionalizes the Government Energy Management Program	▪ Sets as a goal the reduction of government's monthly consumption of electricity (in kilowatt-hours) and petroleum products (in liters) by at least ten percent (10%) through energy efficiency and conservation (Sec 1)	DOE to establish an inter-agency coordination among all government entities to ensure compliance (Sec 2) All agencies to allocate funding to support implementation (Sec 3)	Incentives for Energy Efficiency and Conservation Projects cited in AO 110 are as follows: a) Tax and duty-free importation of (1) products	Funding procured from annual budget issued by the Government	Implementing rules formulated May 30, 2008 Guidelin

[31] http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/philippines_investment_plan_presentation.pdf

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
				not manufactured locally; (2) needed and will be exclusively used for energy efficiency projects; (3) approval from DOE was obtained b) Tax credit on domestic capital equipment which are (1) needed and will be exclusively used for energy efficiency projects; (2) would qualify for tax and duty-free importation; (3) approval from DOE was obtained Developments for AO 110 include the formation of AO 228 and other guidelines for its implementation Penalties for violating the rules and regulation include a fine not less than 10,000 Philippine pesos but not more than 500,000 Philippine Pesos or an imprisonment of six months to one year (Sec 10)		es issued on November 26, 2008 Monitoring and auditing started in 2006
Administrative Order No. 126 13 August	Directs the "enhanced implementation of" energy conservation	▪ Mandates government agencies to "adopt and implement a program that will reduce fuel consumption	All government agencies and offices	This is a strengthening measure for AO 110 For agencies which do not	Government funding	AO 126 – August 13, 2005

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
2005	program among government agencies to address extraordinary increase in world oil prices	for transport by 10% of their average monthly consumption" (Sec 1) ▪ Prohibits the use of government vehicles, aircraft and water craft for purposes other than official business (Sec. 2) ▪ Directs government agencies to discontinue the use of air conditioning facilities during cooler months and to switch not earlier than 9am and switch off not later than 4pm (sec 3) ▪ DTI and DOE shall develop voluntary energy conservation programs (Sec 5) ▪ DENR to strictly enforce smoke belching law (Sec 6)		comply, penalties will be issued accordingly		Auditing – 2006 (including spot-check measures)
Administrative Order No. 183 9 July 2007	Directs the use of energy efficient lighting/lighting systems in Government Facilities (*Palit-Ilaw* Program)	▪ Mandates the use of energy efficient lighting systems (EELs) in all buildings and facilities by all government agencies and instrumentalities (Sec 1) ▪ Provides for administrative sanctions for failure to comply (Sec 5)	DOE through Energy Utilization Management Bureau to serve as lead implementing agencies Supporting agencies: DTI – to provide complimentary policies and activities to ensure that lighting products meet the specifications under the Philippine National Standards and the Minimum Energy Performance Standards for consumer protection	For government agencies which failed to comply with the minimum of 10 percent saving generated by using EELs, the use of its savings will be limited to 50 percent of its accumulated savings in electricity or fuel products. On the other hand, agencies which attained the quota are allowed to use 100 percent of their accumulated savings for the aforementioned products (Sec 4)	Government funding	AO 183 – July 9, 2007 Monitoring started on February 29, 2012

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
			DBM – approve funds and allow only EEL products for government procurement DENR – promulgate policies consistent with proper lamp waste management DPWH – to integrate the use of EELs in planning and development for government buildings/facilities and other infra dev projects DILG – to encourage LGUs to contribute to AO's objective by using EELs	Part of the generated savings from using EELs can be used for the improvement of energy efficiency measures The installation of EELs started on July 2011 and ended on February 2012 The monitoring started for five (5) agencies which have been issued monitors for their energy savings The estimated annual savings from the participating 35 government agencies is 1,788,122.28 kWh. At 0.42 kg CO_2/kWh: 468, 488.037 kg CO_2 Certificate of Savings was issued to 42 participating government agencies as an incentive		
Administrative Order No. 228 2 June 2008	Directs agencies to observe energy efficiency and conservation measures to address rising cost of energy	▪ All agencies to reduce transport fuel consumption by 10% (Sec 1) ▪ Government buildings to turn off air conditioners at 4:30pm, except those with 24-hour work (Sec 2) ▪ Agencies to replace all	All agencies	For government agencies which failed to generate the required minimum of 10 percent savings on their energy consumption, the use of the agencies' savings shall be limited to 50 percent their accumulated savings for	Government funding	AO 228 – June 2, 2008 Auditing – 2005 (inclusive of spot-

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		incandescent bulbs (Sec 3) ▪ Agencies to convert 20% of their vehicles in major cities to LPG (Sec 4) ▪ Agencies to install and/or adopt other energy saving technologies with the help of DOE and DOST (Sec 5)		electricity or fuel products. For agencies which generated the minimum savings, they are allowed to use 100 percent of their accumulated savings for electricity or fuel Only agencies which complied with the minimum shall be allowed to grant transportation and rice subsidy for their employees (Sec 3) The monitoring group for AO 228 is the DOE Energy Audit Team (EAT). The involved government agencies are required to submit (1) Energy Conservation Program; (2) Monthly Electricity Consumption Report (MECR); (3) Monthly Fuel Consumption Report (MFCR). For the MECR and MFCR, the reports should include the converted peso savings from fuel and electricity consumptions The regional participating agencies are estimated to be around 300 and 114 for Metro Manila		checking measures) Data procured from September 2005 – November 2011

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
				The savings acquired are as follows: • Electricity: 206,931,528.91 kWh (86.911 kTon CO_2) • Fuel: 7,171,573.36 liters or (289,134,875.57 Philippine Pesos) The agencies which failed to submit data cannot claim their savings and their data will be counted and published		
Transport						
RA 8749 The Philippine Clean Air Act of 1999	A comprehensive policy and program for air quality management, the CAA prescribes policies to control the spread of air pollution, sets standards for vehicle owners and imposes penalties for violators, and outlines various programs for air quality management and maintenance	▪ The State shall promote and protect the global environment to attain sustainable development (Sec. 2) ▪ Recognizes "polluters must pay" principle ▪ Covers carbon dioxide as one of the air pollutants (Sec. 5) ▪ ***Regulations for motor vehicles:*** New, in-use, rebuilt, and imported second-hand motor vehicles must comply with the exhaust emission standards ▪ ***Regulations for fossil fuels:*** Complete phase out of	DENR (lead) Mitigation of air pollution from mobile sources: LTO, DOTC, Private sector groups Private emission testing centers: DOTC-LTO, DTI, DENR, Private sector groups Reduction of emission from vehicular use: *Introduction of emission control technologies:* DENR, DOTC, DTI, DOST, Automotive industry	The formulation of DENR AO 2000-82 (Integrated Air Quality Improvement Framework) was done six months after the implementation of RA 8749. This outlines the goals of the act as well as the economic incentives which could be undertaken during its implementation (Sec 7) Emission Charge System – Tax incentives will be given to industries which shall install pollution control devices or move to reduce pollution in	Government funding (accounted in the National Treasury by DOTC) Some studies on projects which focus on the implementation of the act are funded by the ADB	Approved on June 23, 1999 Oil Firm Incentives – May 2003

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		leaded gasoline, lowering of sulfur content of industrial and automotive diesel, and lowering of aromatics and benzene in unleaded gasoline Source: DENR, *The Air We Breathe*	*Regulation in the importation of second hand vehicles:* Bureau of Customs – DOF, Bureau of Import Services – DTI, DOTC-LTFRB-LTO Strengthening of ambient air quality monitoring, reporting, and management: - EMB / EMB regional offices in cooperation with concerned government agencies Improvement of fuel quality *Change in composition of fuel quality:* DOE, DENR, DTI-BPS, DOST, Chamber of Automotive Manufacturers of the Philippines, Oil Companies, NGOs *Examination of potential for alternative fuel:* DOE, DOST, private sector groups Reduction in traffic congestion and improvement in traffic flow *Traffic engineering and management:* DOTC, MMDA, LGUs, concerned government agencies *Transport Policy Studies*:	their existing facilities. Emission fees shall be collected from motor vehicle dischargers as part of the emission permitting system of vehicle registration system (Sec 13) The incentive scheme cited in DAO 2000-82 is for the project fund. Fees will be collected from mobile sources whose emission will be based from the vehicle's weight. This fund will be used for projects involved in pollution reduction from vehicles (Sec 5.7) According to the 2003 Investment Priority Plan (IPP), oil companies which will invest 20 percent of its capital on complying with the act will be allowed to register their project with the Board of Investments. This allows them to fiscal incentives which include income tax holidays and duty-free importation of capital equipment		

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
			MMDA, DOTC-LRTA, PNR, LGUs Source: DENR (2003), *Primer on the Clean Air Act*			
Executive Order No. 290 24 February 2004	Promotes the implementation of the Natural Gas Vehicle Program for Public Transport	▪ Promotes the use of compressed natural gas (CNG) as a clean alternative fuel for transport (Sec 1) ▪ Natural gas to be supplied through the use of indigenous gas resource and importation of liquefied natural gas (Sec 2.1) ▪ All public transport such as public utility buses, jeepneys, taxis and other PUVs are encouraged to use natural gas fuel (Sec 2.3) ▪ DOE targets the commercial operation of 200 CNG buses by end-2012.	▪ Department of Energy ▪ Philippine National Oil Co.-Exploration Corp. (PNOC-EC)	The lower cost of CNG compared to diesel and gasoline is obviously a major reason on the preference for this type of fuel. Besides, CNG buses are exempt from the number coding traffic scheme. The important privileges for NGVPPT participants are as follows: • Income tax holiday for projects qualifying for the BOI's IPP • Issuance of compliance certificates from LTO • 1 percent rate of duty on imported equipment • Preferential and exclusive franchises from LTFRB for NGVs • Accelerated issuance by DENR for NGV facilities and	Private sector: There are six accredited CNG bus operators, namely: HM Transport Inc., RRCG Transport System Inc., KL Transport Inc., Greenstar Express, Biñan Bus Line and N. De la Rosa Liner ply various routes from Laguna and Batangas to Manila. 41 out of 61 buses are in operation. The 20 stagnant buses are still under hold due to franchise issues. Philippine National Oil Co.-Exploration Corp. (PNOC-EC) for the supply of CNG	Approved on February 24, 2004

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
				refueling stations		
DOE Department Circular 2005-07-006	Directs the enhanced implementation of EO 290 and development of CNG supply and infrastructure	▪ Accelerates the implementation of NGVPPT and the development of CNG supply so as to make it more accessible to the transport sector (Sec 1) ▪ Ensures supply of CNG from Camago-Malampaya Area and infrastructure development support from PNOC (Sec 2) ▪ Establishes the Technical Working Group (TWG) to coordinate with stakeholders with regard to CNG supply and pilot testing of the NGVPPT	▪ Department of Energy – Technical Working Group (TWG)			Approved on July 05, 2005
National Environmentally Sustainable Transport Strategies (NESTS) Administrative Order 254	Defines the national strategy to promote environmentally sustainable transport (EST)	▪ Reduce the annual growth rate of energy consumption and associated GHG and air pollutant emissions from the transport sector especially in urban areas ▪ Include the following relevant strategies: - Strengthening roadside air quality monitoring and assessment - Vehicle emission control, standards, and inspection and maintenance - Use of cleaner fuels - Public Transport and travel demand management - Development of policies and	DOTC to lead in mainstreaming EST in government processes and advocating EST to the general public	• Clean Technology Fund Investment Plan for the Philippines • Through the DILG, coordinate with local government units and guide them on the plan to transform the locomotion and transportation system to favor parties who have no motorized vehicles, and facilitate the mainstreaming of the National EST Strategy. • Through the Presidential Adviser on Climate Change,	• The development of the national strategy was supported by the United Nations Centre for Regional Development (UNCRD) and the Clean Air Initiative for Asian Cities (CAI-Asia) through a grant from the Swedish International Development Cooperation	

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		guidelines for pedestrian- and cycling inclusive land use planning and provision of non-motorized facilities - Development of environment- and people-friend infra - Road safety and maintenance - Land use planning		consult with the biggest consumers and undertake extensive mass media social marketing and mobilization campaigns to reduce consumption of fossil fuels, as well as consult and coordinate with pertinent agencies and other bodies concerned concerning EST related, plans and programs.	Agency (Sida) and the Asian Development Bank and implemented by the National Center for Transportation Studies of the University of the Philippines. • To support the operations and activities of the Task Group, the DBM shall immediately make available funds from the Special Vehicle Pollution Control Fund of the Motor Vehicle Users' Charges and other such funding sources as may be recommended by it.	
MMDA Regulation No. 96-005 / Memorandum Circular	Implementing Guidelines of the Unified Vehicular Volume Reduction Program (UVRP) under the MMDA	The Unified Vehicular Volume Reduction Program (UVVRP) under MMDA Regulation No. 96-005, applies to all motor vehicles, both public and private, and prohibits the operations of same in all	MMDA			

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
No. 03 Series of 2011	Regulation 96-005, as amended	national, city and municipal roads of Metro Manila from 7:00 a.m. to 7:00 p.m. during corresponding days of the week, except on Saturdays, Sundays and Official Public Holidays, depending on the last digit of the vehicle's license plate				
National Electric Vehicle Strategy (NEVS)	Promotes the use of alternative fuel vehicles. It is a joint partnership between GOP and ADB that aims to reduce the country's carbon footprint of road transport.	DOE will start introducing e-tricycles, e-jeepneys, e-buses, and e-cars with the help of local entrepreneurs and technical experts. The agency is currently developing a sustainable model for introducing electric tricycles.	Department of Energy is the lead national agency Mandaluyong City was the first LGU to receive 20 electric tricycles for testing and demonstration. Makati City will receive 38 electric buses through a joint undertaking with Green Frog Zero Emission Transport.[32]	Use of e-trikes will replace lead batteries with lithium-ion batteries. Lithium-ion batteries' cost is double that of lead batteries but the battery life is 15x longer. Projected savings from using e-trikes is about P200/day. The Department of Energy recently launched a "E-trike Design" project and "Rent-to-Own" program to promote the use of E-trikes. The Rent-to-Own program is still at its planning stage and it is in coordination with the ADB.	Asian Development Bank Private sector: Green Frog Zero Emission Transport	E-trike distribution – April 2011 E-trike Design project – January 2012
Fueling Sustainable Transport Program	A mechanism to implement the Alternative Fuels Roadmap, FSTP "seeks to convert public and private					

[32] http://cleanairinitiative.org/portal/node/7301

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
	vehicles from diesel and gasoline to compressed natural gas (CNG), liquefied natural gas (LNG), liquefied petroleum gas (LPG) and electric power."					
Waste Management						
Republic Act 9003, the "Ecological Solid Waste Management Act "	Provides the legal framework for the country's systematic, comprehensive and ecological solid waste management program that shall ensure protection of public health and the environment.	• Utilize environmentally-sound methods that maximize the utilization of valuable resources and encourage resources conservation and recovery; • Set guidelines and targets for solid waste avoidance and volume reduction through source reduction and waste minimization measures, including composting, recycling, re-use, recovery, green charcoal process, and others; • Ensure the proper segregation, collection, transport, storage, treatment and disposal of solid waste; • Encourage greater private sector participation in solid waste management; • Retain primary enforcement and responsibility of solid waste	Lead Agency is the Department of Environment and Natural Resources under the following offices: – National Solid Waste Management Commission (NSWMC) – Environmental Management Bureau (EMB)	• Local Solid Waste Management Boards shall be created and established in each of the concerned LGUs at t the provincial and municipal/city level within six (6) months upon effectivity of the Implementing Rules and Regulations all; • DepEd and the Commission on Higher Education shall ensure that waste management shall be incorporated in the curriculum of primary, secondary and college students; • Provides incentives in the form of rewards, grants, fiscal and non-fiscal incentives, financial	Creation of the National Solid Waste Management Fund. The Fund shall be sourced from the ff: • Donations, endowments, grants and contributions from domestic and foreign sources. • Amounts specifically appropriated for the Fund under the annual General Appropriations Act. • Fines collected under Sec. 49 of the Act shall be	Closing of all open and controlled dumpsites is 2004

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		management with local government units while establishing a cooperative effort among the national government, other local government units, non-government organizations,		assistance program; • Provision of fines and penalties for specific violations; • Criminal and administrative proceedings maybe instituted for any violations; • Any citizen may file action against non-enforcement of RA 9003	allocated based on a sharing scheme between the Fund and the LGU concerned	
PD 1586 Environmental Impact Assessment	Establishes An Environmental Impact Statement System Including Other Environmental Management Related Measures	▪ Category C and D are exempted from EIA. These Projects are intended to directly enhance environmental quality or address existing environmental problems (and indirectly address GHG mitigation)	DENR			
Commercial and Residential Building						
Senate Bill 2574 (2010)	An Act to create the Green Building Code Commission to draft the National Building Code	▪ Identification of the members of the commission; ▪ Sources of the inputs for drafting the green building code; ▪ The purpose of the Code is to improve public health, safety and general welfare by enhancing design and construction of buildings through the use of building concepts having a reduced				

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		negative impact or positive environmental impact, and encouraging sustainable construction practices .				
Agriculture						
R. A. 10068 Organic Agriculture Act (OAA) of 2010	Promotes, propagates and develops further and implement the practice of organic agriculture in the Philippines	• The policies and principles of the OAA shall be institutionalized in the MTPDP as a major framework for agriculture, sustainable development and ecological stewardship; • The adoption of the organic agriculture shall be considered as a strategy to promote the low carbon development path and provisions for "carbon credits" shall be established;	National Organic Agriculture Board (NOAB) The Bureau of Agriculture and Fisheries Products Standards (BAFPS) will serve as the technical and administrative secretariat of the NOAB	Sec 12. The BAFPS shall develop a plan to bring the program to the grassroots utilizing available personnel and facilities on the local level and those of the LGUs; Sec 23. The national government through the Department of Education and in coordination with the concerned government agencies , NGOs and private institutions shall strengthened the integration of organic agriculture concerns in school curricula at all levels. Sec 24. The government shall extend incentives for the production and propagation of organic farm inputs, such as cash reward for best organic farm; availability of financial, technical and marketing services; exemption from importation duties of equipment, subsidies for	Sec 25. Fifty million pesos and the existing budget for the production of organic farming of the DA is appropriated for the initial year. For the succeeding year, the budget will come from the General Appropriate Act (GAA)	

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
				certification fees		
Memorandum from the Secretary (8 Feb 2011)	Urgent implementation of the DA climate change policy thrusts and programs	• Institutionalization of the climate information system for agriculture and fisheries; • Assess the existing irrigation system vis-à-vis the vulnerability maps to determine the most appropriate water delivery system; • Immediate conduct of inventory of available tools, technologies and existing practices for CC adaptation and mitigation; • All units, bureaus and attached agencies to mainstream climate change in the 2012 budget and in the MTADP. • Creation of the Climate Change Program office (CCPO)	Information Technology Center for Agriculture and Fisheries (ITCAF) to oversee the project in producing CC vulnerability maps; Bureau of Soil and Water Management (BSWM) to optimize the usefulness of Agromet Stations in Highly Vulnerable Areas National Irrigation Administration (NIA) and BSWM Bureau of Agricultural Research (BAR)			
DA Climate Change Policy		Mitigation strategies included the following:	Overall coordinator of the program is the Climate Change Program Office (CCPO). Bureaus/agencies in-charge are as follows:		Funds to implement the CC Program shall come from 50% of some of the commodity	

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		• Organic farming practices; • Novel feed formulation; • Intermittent irrigation for paddy rice; • Waste management; • Biotech crops; • Biological inputs such as bio-pesticides; • Energy-efficient and green agri-fishery machineries including transport vehicles; • Agro-reforestation	BSWM Philippine Rice and Research Institute: National Irrigation Administration BSWM; National Dairy Authority DA Biotechnology Program which is housed at Bureau of Soils DA Biotechnology Program Windmill-powered irrigation system of PHILMECH Bureau of Agriculture and Fisheries		programs to support R & D; payments for borrowers; request the House of Congress to extend ACEF; grants/aids from various funding windows	
Forest						
Executive Order 23 2011	Declaring a moratorium on the cutting and harvesting of timber in the natural and residual forest and creating an anti-illegal logging task force.	▪ DENR is prohibited from issuing/renewing logging contracts and tree cutting permits; ▪ DENR shall review all existing logging agreements and immediately cancel those that have violated forest laws; ▪ DENR shall strictly implement forest certification system in keeping with UN standards; ▪ DENR shall close and disallow sawmills and other wood processing plants that are unable to present proof of sustainable sources of legally cut				

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		logs for a period of at least 5 years; ▪ DENR shall create partnerships (with DepEd, CHED, DILG, DSWD, DBM) to raise awareness, funds and resources for tree planting;				
Executive Order 26 National Greening Program (NGP)	Interdepartmental convergence initiative for the national greening program	• The national greening program shall plant 1.5 billion trees about 1.5 million hectares for a period of six years 2011-1016	Department of Environment and Natural Resources (lead agency); Department of Agriculture; Department of Agrarian Reforms	• All students in coordination with the Department of Education and Commission on Higher Education and all government employees are required to plant a minimum of ten (10) trees every year. • The private sectors and the civil society are also encouraged to participate in the NGP. • The Peoples' Organization shall be mainly responsible for maintaining and protecting the plantations.	• All proceeds from the agro-forestry plantations shall accrue to the NGP community beneficiaries; • NGP beneficiaries shall be given priority in the Conditional Cash Transfer Program; • Convergence Initiative shall develop more incentives	2011-2016
Philippine National REDD-Plus Strategy (PNRPS)	Reduce emissions from deforestation and forest degradation through sustainable management of forests and the	• Nested, scaling-up approach is adopted building on existing data sets, capacity and initiatives; • Identification of priority areas such as ancestral domains, protected areas, and	Department of Environment and Natural Resources (operational arm for REDD-plus activities, and manager of REDD-plus resources acquired by the government.	• Promote REDD-plus through information, education and communication activities; • Establish a REDD-plus continuing education	• Maximize domestic resources to catalyze initial readiness while seeking for	Readiness phase (2009-2011); overlapping scaling

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
	protection and enhancement of carbon stocks in watersheds, forests, and other terrestrial ecosystems.	community-based management areas; • Decentralized forest governance approach is adopted. It recognizes the need for the LGUs and community to engage to ensure REDD-plus operations; • Building on existing structures and streamline REDD-plus related processes to facilitate project development; • Focuses on the roles, responsibilities and benefits of the REDD-plus to local communities; • Promotes participatory planning and multi-stakeholder approaches especially with the Indigenous Peoples and local communities; • Assumes an intersectoral approach to REDD-plus development, seeking to increase communication and coordination among relevant agencies; • Recognizes the importance of establishing credible national and sub-national emissions reference levels and a robust national MRV for carbon accounting; • Assumes watershed, natural		mechanism; • Enhance REDD-plus learning exchanges; • Strengthen REDD-plus implementing mechanisms and structures through organizational development, institutional strengthening, and collaboration; • Sustain government and non-government cooperation	immediate voluntary donor funding thru foreign grants; • Selective engagement with the voluntary carbon markets for the pilot and demonstration projects; • For the engagement phase, possible funding will come from the future carbon markets and/or UNFCCC climate treaty.	up phase (2012-2014); engagement phase (2015 onwards)

Policy / Measure	General Description	Relevant Provisions	Implementing Authority	Mechanism to influence stakeholders	Funding mechanism/ sources	Period of implementation
		ecosystem and landscape-level approaches to REDD-plus development to ensure multiple benefits.				

Annex 3: Workshop Attendance – 7 November 2012

	Last Name	First Name	Affiliation	Email Address
1	Bautista	Thelma	San Jose del Monte, Bulacan	
2	Cammayo	Camille	Quezon City LGU	
3	Claudio	Mylene	Climate Change Commission	
4	Co	Patrick	WWF	
5	Cortes	Lani	Climate Change Commission	
6	De Guzman	Ma. Kristina	Pasig City	
7	Fernandez	Bibian	Makati City LGU	
8	Guevarra	Magda	Quezon City LGU	
9	Laurente	Jeanette	ASoG	
10	Lorenz	Juergen	WWF	
11	Mallare	Marina	ASoG	
12	McKenzie	Lexter	Mandaluyong LGU	
13	Moncada	Loreto	DOE-EUMB	
14	Nahial	Sherwin	Makati City LGU	
15	Nakamura	Hidenori	IGES	
16	Palmaria	Ava	GHGMI	
17	Sotelo	Joan	DOE	
18	Sotelo	Tiffany	ASoG	
19	Tejerero	Amy	Mandaluyong City	
20	Tuozo	Rey	Pasig City	
21	Yambao	Ricardo	DOE-EUMB	

Annex 4: Questions raised during the workshop

PERSON	QUESTION	ANSWER
Jeurgen Lorenz – WWF	To know where we stand and where we're going we need to quantify. What are the potentials you can achieve by the methods you applied?	Not all LGUs have the capacity to quantify. The CEnergy project of USAID is assisting them to prepare their GHG management plan for them to know where their emissions are. From there they will identify programs and initiatives and hopefully they can quantify. They can see the impact of their measures.
Jeurgen Lorenz – WWF	It is very important for us to have a strategy to employ low-carbon development. We have to know how to reach that goal. This is important for the LGUs and the national level. We can lose money for not knowing where we're heading.	For the DOE, we have programs for CNG buses. From there, we have projections on how much reductions we're going to get.
Hidenori Nakamura – IGES		In IGES, we brainstorm the factors that affect our emissions. The data we have are then open to everybody who wants to do their accounting.
Lanie Cortez – CCC	We are doing GHG inventory for local level. Is there a way to compute for GHG emissions from losses?	We are not doing it. We're focusing on communities in general. Losses are computed on a project basis. We are aiming to go to project level accounting once we already know our community level inventory. But at our current level, we are not yet accounting for losses.
Juergen Lorenz – WWF	How do you account for the grid emission factor for private plants? We need to know the particular emission of these in order for us to know the emission factor if we shift from one form of energy to another.	For the national level, we have the data in our energy plan (energy mix). You can even calculate the emission grid factor from that data. It is available in the DOE website. But the complete inventory of those plants is not for public use.
Joan Sotelo – DOE		All that we can provide is the computed GEF for the year but not how we came about the data. The data that IGES will be releasing will be based on CDM methodologies.
		Additional info: the need for GHG in the national level. The CCC is already conducting this capacity building program. We already started with DENR for industrial processes and waste. Next week, we will be doing the agriculture sector. Eventually, we will be doing an MRV for this.
Juergen Lorenz – WWF	How do you see the CDM development in the Philippines globally?	This is just a personal comment, I can only say that for the Philippines, single projects may not be beneficial for CDM. Because CDM is a market-based mechanism. This is very volatile and there is not enough market for CDM to flourish. Our market has been largely diminished. The only way that it can flourish is to go through the CDM PoA. But the buyer would be the EU. But there is a directive in the EUTES where the generated CER can be traded. They will only buy credits from PoAs registered by 2012. Currently, 13 projects can participate in this.
Lanie Cortez –	When you say a single project, if we	Under the Program of Activities

CCC	have aggregated projects, how do we group it?	
Lanie Cortez – CCC	Is it applicable for small scale?	For all.
Ava – USAID	What could be the reason why a small number of projects have CER?	It's due to many reasons including financial issues. Also, some are still waiting for the aggregation because they are too small. They are waiting for a good number and then they'll have it verified. This is true for the seven municipalities for composting and other projects. This coincides with the data from the project.
Jeurgen Lorenz – WWF		Additionality requirements also plays the barrier role
Hidenori Nakamura – IGES	What is COA?	Commission on Audit
Hidenori Nakamura – IGES		Japan also has a board of audit. However, we don't have an inside auditor like in the Philippines. We only have 3rd party validation that comes for inspection.
Juergen Lorenz – WWF		Generally, you always start with the policies. Shouldn't you start with laws? We also have to indicate those strategies in legal procedures. Also, the enforcement mechanism is quite important.
Sherwin Nahial – Makati	In your possible options, you said that the first phase must be grants mechanism. What approach is suggested for this?	Lending approach can be used as well as grants. In Japan, this is also used, but the provinces do not receive grants from the national government but from the sub-national government.
Juergen Lorenz – WWF		I think the financing mechanism is quite important for the local and national government for the long term implementation. Also, enforcing implementation by starting with subsidies for the first period and then go to penalties in the latter part. For the whole period, you can balance it out.
Hidenori Nakamura – IGES	To encourage voluntary actions, we also have to seek other ways from institutions. The question is how does the national government play its role?	When we look at the implementation, the driver comes from the commercial calculations. It's a reality. The national government does not play a big part in this.
Hidenori Nakamura – IGES	What would be a good scheme in the incentives given in the Philippines? Do you think the "stick and carrot" approach" is effective?	Actually, most problems encountered in a specific municipality come from its commitment to the task. Also, there is a transition in the political leaders. Hence, the priorities change. This has a lot of influence in the projects given in the previous term. For example, the eco-town project in Palawan had a hard time in the transition of its political government. The implementation became hindered.
Hidenori Nakamura – IGES	Do you have any comments in participating in the national programs?	It's co-beneficiary in Makati. It is also in compliance to the national policies. The local chief penalizes us if we do not comply. Environmental sector. Implementation is lacking but DPWH gives a subsidy of 40% of the investment. This helps LGUs start their own project.

Patrick Co	Please elaborate of the incentive provisions and ownership development.	We have a milestone based approach for projects. For example, every two years, there is a project assessment before the next financial support can be achieved.
Hidenori Nakamura – IGES		At the first phase, they let the local government to make feasible goals. If they think this is a little bit challenging, it is fine. 2nd is a mixture of fail-safe ways. Depending on the performance, the financial support will be released appropriately.
Hidenori Nakamura – IGES	Are there any comments on NAMA? How are national policies linked to sub-national policies?	In the Philippines, we have a lot of plans but there is a lack of implementation. We should go more on implementation and on the way we can learn.
Marina Mallare - ASOG		There are not much national programs linked to the local. If you look at the local projects, they have their own versions of the national policies. They will have their own monitoring scheme for that.
Juergen Lorenz – WWF		I think top-down approach linked to multiple expertise will be effective. Expertise is very limited sometimes so this can be applied.
Marina Mallare - ASOG		To be able to avail of the PoA, the national approach is best. This benefits the project more if the national and sub-national linkage can be established.
Juergen Lorenz – WWF		If you go top-down from one solution, you most probably won't get an optimal result. A more flexible approach or a more innovative one should be used. An open market based platform that would lead to optimal results.
Juergen Lorenz – WWF		N feed-in-tariff, the adjustment period is set by the government (2 years). It's very static. A flexible approach should be used, preferably ones with shorter intervals.
Hidenori Nakamura – IGES		From a business perspective, it is good for the government to lay down roadmaps so that the investment planning can utilize this. This is pointed out in the Japanese context and can also be applied in the Philippines.
Lanie Cortez – CCC	Are there any activities being done to identify efficiencies in power plants? Are these being monitored? Are they improving or are they stuck in a plateau stage?	We have this upcoming EnerCon Bill. We are monitoring consumption of big industries. They are reporting to us on a voluntary basis quarterly and annually. But with the implementation of the EnerCon Bill, it will be a mandatory reporting complete with penalty clauses. It is monitored through evaluation and put into a database. We provide awards for those who have complied and gathered savings from the reports.
Marina Mallare - ASOG	Is copying encouraged from one LGU to another?	We do it in PLENRO. This is encouraged among the group. However, not all LGUs have environment officers who can represent them in the PLLENRO.
Hidenori Nakamura IGES	Who are the participants in the PLENRO?	The city representatives (environment officers) participate in this.