

# Industry Initiatives for GHG Reduction and AQM: A Model for an Emerging Economy

Extended Abstract # 045

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## INTRODUCTION

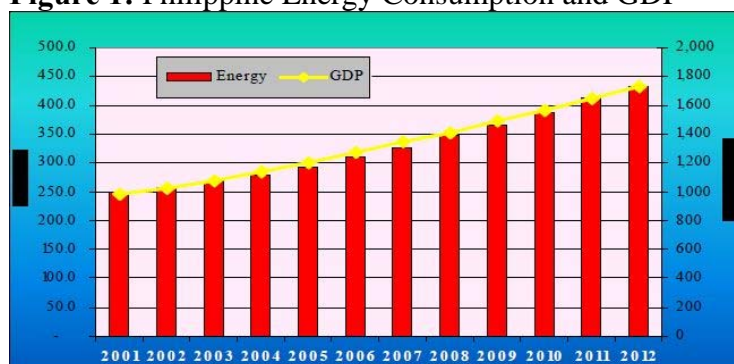
Given on one end the small amount of the Philippines' contribution to global ghg inventory (0.24% by US DOE 2007 estimate<sup>1</sup>) and on the other, the extreme vulnerability of the country to climate change effects the choice of priority between mitigation and adaptation. the latter involving huge resources, pose a timely and urgent challenge. Of the country's 2000 inventory the energy/industry sectors account for about 60 % of the gross ghg (before LUCF)<sup>2</sup>; while the *apparent* role of LUCF in ghg capture is a major positive aspect.

## Population Growth Vs Energy Use/Philippine Energy and Power Plant Mix.

With a robust population (94 M in 300,000 sq. km. land vs. 38 M/404,000 sq.km. California) CO<sub>2</sub> emissions are largely attributable to fossil fuels. Lacking in *known* natural oil deposits the country's energy self sufficiency is 44.4 % by 2012.

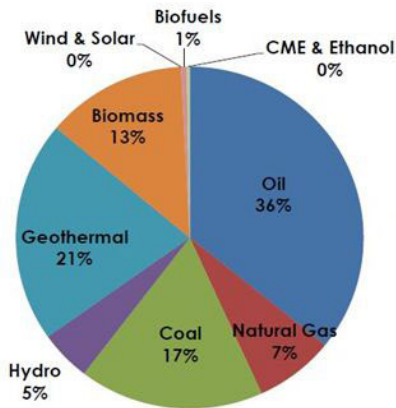
Figure 1 shows the Philippine energy use (the main source of ghg) and GDP.

**Figure 1: Philippine Energy Consumption and GDP<sup>3</sup>**

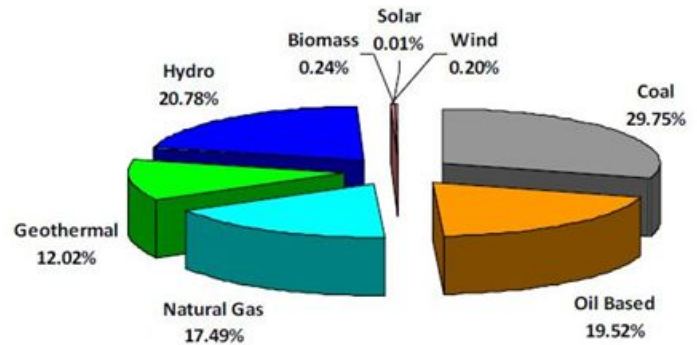


**Figures 2** show that **(i)** the country is still highly dependent on fossil fuels and that **(ii)** coal remains a significant portion of the energy/power plant mixes. The previous government move to “re think” nuclear power has been sidetracked because of the recent Japan experience.

**Figure 2.1: Philippine Energy Mix<sup>4</sup>**



**Figure 2.2: Philippine Power Plant<sup>4</sup> Mix**



## DISCUSSIONS

### Adaptation or Mitigation-A Cross Road?

Climate Change's threat to survival of emerging economies is not an exaggeration. Table 1 illustrates the impacts on the Philippines of climate change such as flood, wind storm, drought and landslide. Given the country's extreme vulnerability it can be reasonably argued that internal resources could be instead utilized more for adaptation which require huge funds and that mitigation could take a secondary attention if simultaneous efforts are not doable. Some sectors may also responsibly contend that even drastic reductions in the extremely small country ghg emissions would not reverse the global climate change trend.

**Table 1. Impacts of Climate Variability and Extremes on the Philippines<sup>5</sup>**

Natural Disasters	Occurrence, in %
Flood	34 %
Wind Storm	29 %
Earthquake	9 %
Drought/Famine	9 %
Avalanche/Landslide	7 %
Forest/Scrub Fire	5 %
Extreme Temperature	4 %
Volcanic Eruption	2 %
Others	1 %
Total	100 %

### Drivers for Mitigation

- ✓ The two CSRs provide good motivations:
  - **Country** Social Responsibility because we are responsible member of the family of nations with commitments to the international community.
  - **Corporate** Social Responsibility which is imbedded in Philippine business and industry.

To attain real impacts, the sharing of responsibility for ghg mitigation with other economies will produce cumulative effects. The paradigm of “common but differentiated responsibility” would sit well among emerging economies, giving them even playing fields.

- ✓ **Co (“ancillary”)–benefits** stimulate strong motivations  
Ghg -reduction policies which translate to the co-benefits of Air Quality Management stand to reason for small emitter/emerging economies saddled with other key internal issues, e.g. poverty alleviation.
- ✓ Reduction of ghg emissions through minimization of oil consumption makes sense given the growing stress on supply by demands even in the next 5 – 10 years with attendant volatile and high prices. The Shell CEO recently pointed to Asia as the vulnerable region.

## Premises for Mitigation

### *“Know the Problem Before You Solve It”*

A purely science-based well-defined country’s baseline on Climate Change agents (CO<sub>2</sub>, CH<sub>4</sub>, black carbon, etc.) in relation to the global as well as its natural sinks form the rationale for balanced policies. The potential for carbon sequestration by forest lands which has been advanced by Philippine experts<sup>6</sup> is a vital baseline input. The contribution of the global aviation ghg’s which is estimated at 3% of global vs. ASEAN’s of about 3.8 % may also be considered as basis for sharing of responsibilities and thus the crafting of national actions.

### *Philippine Industry Initiatives*

Industry responses are strongly intertwined to the co-benefits with AQM and separately with the goal for energy sufficiency. The Philippine has set the strategic building blocks to leap from fragmented and halting RE initiatives into a focused and sustained actions with multiple co-benefits. Incentives under the Feed-in-Tariff (FIT) have boosted investments. The on-going projects are shown below wherein wind farms are emerging among the non-traditional RE’s.

**Table 2.** The Philippines on-going RE Projects<sup>4</sup>

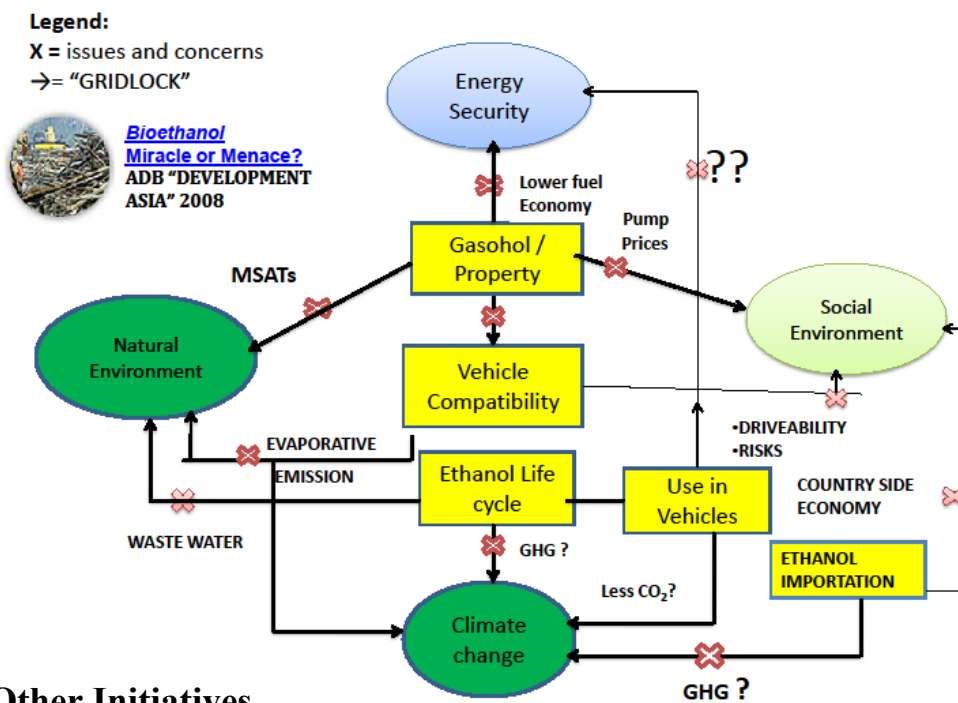
<b>Resource</b>	<b>No. of Projects</b>	<b>Installed Capacity (MW)</b>	<b>Est. Cost, M US \$</b>
Biomass	16	166	63.5
Geothermal	21	2,579	12,146.14
Solar	2	31	0.023
Hydro	126	937	434.01
Ocean	3	11	8.39
<b>Wind</b>	<b>45</b>	<b>921</b>	<b>10.25</b>
<b>Total</b>	<b>213</b>	<b>4.645</b>	<b>12,662.313</b>

## Alternative Transport Systems/Fuels

The continuing trend for mobility of expanding populations calls for closer look at alternative transport systems and fuels. For example, coupled with the need for more scientific studies, electric vehicles have earned the attention of government and the support of major businesses.

On alternative fuels the Philippine mandate for bioethanol use which was based on initial experiences of other countries and the current similar plans of other economies are open to more in-depth scrutiny. As illustrated below, noble intentions with bioethanol can encounter gridlock with unintended consequences which include climate change implications.

**Figure 3.** Gridlock in bioethanol policy including consequences on ghg's



- ✓ Under the environmental permitting system tree planting is now required for major projects
- ✓ Others, e.g.waste-to-energy projects are being expanded, e.g. by cement plants
- ✓ Carbon Capture and Storage (CCS) is being evaluated in several ASEAN economies.
- ✓ Legislative interventions, such as the phase out of old vehicles, are under consideration.

## Barriers

While costs, capital requirements and technology are the traditional barriers for projects which have co-benefits the other equally important barriers are the moving targets and changing local and international policies both of which could require tremendous resources to respond to and protracted timelines for implementation.

“Correct Mistake” Versus “Wrong Mistake. Low carbon actions entail enormous costs (financial and political) and some respected opinion raise issues on their effectiveness to reverse the climate change trends. On this point the big economies could evaluate the consequences of “*wrong mistake*” i.e., not taking proactive actions now and facing the irreversible consequences later versus “*correct mistake*” whereby the actions may not (*for the sake of discussion*) actually result in effectively reversing the climate change threat but are correct because of the co-benefits gained from the actions.

## SUMMARY

**MOVING FORWARD** ↑ Small ghg emitter/emerging economies could maximize climate change mitigation actions through the co-benefit rationale. Mitigation can be via reduction of ghg sources or enhancement of natural sinks Common but differentiated responsibilities among all the nations and strengthened cooperation among the neighboring countries rather than stand-alone country actions will bring better results.

“**Know the Problem**”. A holistic purely science-based immediate revisit of the global ghg’s and other Climate Change agents, including methodologies for estimations, appear in order. Renewable energies must be boosted urgently through enhanced government incentives and sustainable policies. Uncertainties for investors should be avoided. Technology transfer from developed nations must be accelerated. Enhanced use of Clean Technologies, cleaner fuels, e.g. LPG for motor vehicles, Natural Gas for power plants, should be vigorously but carefully pursued. Bioethanols should be looked at in-depth from both ghg emission and AQM perspectives, among others.

Encouragement from international institutions especially financial in nature provide impetus, but motives must be clearly understood and accepted by the beneficiary countries.

Industry should take the lead in alternative immediately doable solutions- e.g. inculcation of traffic discipline/management and aggressive educational campaign for good driving habits can be adopted versus the more esoteric approaches. Demand Side Management (DSM), previously adopted during the energy crisis in the 70’s should be resorted to.

The Social Aspects. Population growth, a sensitive matter in some economies needs to be looked at from various perspectives including its ultimate impacts on climate change. (Phl population : 2000 =77 M, 2005=85 M, 2010=94M). Further, changes in lifestyle, e.g. the “shopping mall” complex which is energy intensive should be strongly advocated.

## In recapitulation,

Small ghg emitting and emerging economies may not be the big part of the problem but can be a big part of the solution. Common and differentiated responsibilities among all nations and regional cooperation make good strategy. The real challenge for emerging economies is in balancing the policy of mitigation with adaptation. Most importantly, time is not on our side.

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**Key Words:** emerging economy, co-benefits, common but differentiated responsibilities