

AGRICULTURE AND DEVELOPMENT SEMINAR SERIES (ADSS) HIGHLIGHTS

Biofuel as Alternative Energy Option

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This paper does not deal with the technical aspects of biofuels but focuses on why we need biofuels as an alternative energy option. The Philippines, after all, is not the only country working on biofuels. The first question that needs to be answered is: *Why talk about energy?*

Energy is indispensable to economic growth; it is a driver of global competitiveness. It is also an instrument for poverty alleviation and social equity. Indeed, the link between poverty alleviation and access to energy has been proven. The Philippine government recognizes this and the current administration targets to electrify all barangays in the Philippines by 2010. Statistics show that the poorest Philippine barangays are those that have no access to electricity. Lastly, energy is on a crossroad with the environment. The demand for clean energy is becoming more pronounced in lieu of the many environmental problems. This is where biofuel comes in.

Global Energy Challenges

The book *The Tipping Point* by Malcolm Gladwell studied how people react to change. Moreover, it sought find out at what point change can be adopted by a specific community or by a country. One of the factors highlighted in the book is that, to achieve the tipping point, one must be able to define the context that creates the need for change.

At present, there are two global energy challenges:

1. *Oil price volatility in the world market.* Its impacts are greatly felt, especially during the 2008 oil price hike when the price reached \$145/barrel, which was roughly an 81% increase from 2007. The increase was attributed to the strong global demand (China and India), the geo-political situation in the Middle East, the thinning capacity of the Organization of the Petroleum Exporting Countries (OPEC) countries, and weather-related supply disturbances. In response, the energy sector lowered the share of oil into the electricity mix from approximately 15% to 7-8%.
2. *Climate change.* Modern energy production and use have been identified as culprits in a number of our environmental problems such as air pollution, water pollution, land degradation, and global warming. Of these, global warming is considered the most serious environmental threat caused by the emission of greenhouse gases (GHG).

GHGs, which include nitrogen oxide (NO_x), carbon dioxide (CO₂), and methane, are traced mostly to the energy sector. Adverse impacts include rising temperature, erratic shifts in rainfall and wind patterns, sea level rise, and stronger typhoons. The two basic manifestations of climate change resulting to vulnerability in the Philippines include changes in temperature and in the frequency and strength of typhoons.

Philippine Energy Situation

Three major realities confront the Philippine energy sector. These are:

1. *Overdependence on imported fuel.* The Philippines is a net importer of oil. Thus, an increase in oil price adversely affects the local energy sector. Energy demand is highest in the transportation sector; industry only ranks second. In the long run, this will result to unemployment as dependence on oil dampens trade and investment. The business sector will also suffer from the high production cost thereby threatening productivity.
2. *Vulnerability to climate change.* Energy production and its applications are key contributors to GHGs. With the onset of climate change and the continuous need for energy generation, there is increasing pressure on the government and industry to reduce electricity prices by favoring cheaper sources of electricity like coal, which aggravates the environmental impact of fossil-based power generation. This can translate to adverse health impacts.
3. *Slow pace of policy development and implementation.* The approval of the 2008 Renewable Energy Bill took 20 years.

Benefits of Using Alternative Fuels

One major finding of the Clean Cities Report on US alternative fuels is that biofuels are generally more expensive compared to conventional petroleum and compressed natural gas (CNG). So why use biofuel? The answer: biofuels will lead to energy independence.

There are many benefits in using biofuels:

- *For the transport sector:* better vehicle performance, increased engine power, and higher mileage;
- *For the environment:* cleaner emissions that meet clean air standards; and
- *For the agriculture sector:* additional 3.5M jobs for coconut farmers and 87,000 jobs for sugar planters and manufacturers.

Philippine Government Policy and Program

The Alternative Fuels Program is one of the five key components of the Energy Independence Agenda (2008-2030). To achieve long-term energy security while meeting environmental challenges, this program aims to achieve fuel diversification by developing indigenous and renewable energy fuels. This is seen to pave the way towards sustainable growth.

The alternative fuel's primary potential market is the transport sector. An estimated 5.53 million vehicles are used in the country and this will most likely grow by 4.6%. Seventy-three percent (73%) of these vehicles are gasoline-fed while 27% are diesel-fed. Motorcycles and tricycles comprise about 50% of the total registered. These vehicles are concentrated at the National Capital Region (NCR), Central Luzon (Region III), Central Visayas (Region VII), and CALABARZON (Region IV-A).

Some laws are already in place in support of the development and use of Philippine biofuels:

- *Biofuels Act of 2006* - mandates the following blends in all liquid fuels sold in the country by February 2009: 2% biodiesel blend; 5% bioethanol blend by volume.
- *Renewable Energy Bill of 2008* - mandates the promotion, development, utilization, and commercialization of renewable energy resources including biomass such as biofuels.

Why Use Biofuel?

Biofuels can be a significant component in the country's energy consumption. It can be cost competitive with gasoline and diesel and can provide major air quality benefits. It will potentially provide a new major source of revenue for the agriculture sector and offer significant land-use benefits.

For more information on Energy and Clean Air Project in the Philippines, please visit www.ecap.com.ph

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Target Usage of CNG

Dr. Divine Reyes, science journalist and communication teacher, commented on the target usage of CNG in the country. She said that although the target was that 200 vehicles would be using CNG by 2008, statistics show that only 24 vehicles are powered by CNG to date. She asked why the program targets are met slowly.

Ms. Tioseco clarified that the said target is for 2010. She also explained that the major barrier in meeting the target is infrastructure. Unlike the common gasoline-powered bus, a CNG bus cannot be operated unless its tank is filled. It cannot leave with its tank half-full because there are no other refilling stations. Refilling usually takes 15-30 minutes. This points to the need for more CNG daughter stations. The supply of buses and the public acceptance of CNG buses also contribute to the slow achievement of targets.

Incentives for the Private Sector

Dr. Lorna M. Calumpang of SEARCA asked whether the government gives incentives to the bus companies who adopt CNG buses. Ms. Tioseco said that although CNG is relatively cheaper compared with gasoline and diesel, the cost of the actual bus is relatively high. Thus, the fare charged is still the same as that in ordinary buses. However, incentives are given to companies who buy CNG-powered buses.

Supply and Demand

Dr. Fernando A. Bernardo, retired professor and scientist, noted that more than supply, price is another important factor in the adoption of alternative fuels. For example, bioethanol is highly expensive. If it is produced at a lower price, it will have a better market. As long as the price of gasoline is high, ethanol can survive.

He also commented on the fact that the demand for vehicles in the Philippines continues to increase. Our country has no junkyard for vehicles and the government is not doing much to develop mass transportation.

Difference in Philippine Biofuel Laws

Dr. Reyes asked whether the Biofuels Act of 2006 and the Renewable Energy Bill of 2008 complement each other. Ms. Tioseco said that both acts complement each other. She further explained that the Biofuels Act was passed first because of Senator Miguel Zubiri's support. Before, supporters were usually dependent on the price of oil. On the other hand, the 2008 bill was passed mainly for power generation.

Role of Forests in Biofuels

For. Mauricio suggested implementing a project that studies forest areas because most forests are now grasslands. Meanwhile, remaining forests may have fruit-bearing trees that can be a source of biofuel. Other trees can produce oil through their roots; this initiative can also complement the wood supply problem. The Department of Environment and Natural Resources (DENR) should be approached and some colleges involved in forestry may be convinced that R&D on this line should be conducted.

Ms. Tioseco responded that a separate study supported this view. The said study also recommends community-based biofuel production where indigenous knowledge may aid in production. She also noted that in terms of the food vs. fuel issue, the Philippine government is keen on supporting R&D to identify non-food crops that may be used as biofuel.

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