

Of Sea Grabs and Alien Species: The New Face of the Biofuels Industry in the Philippines

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The classical debate surrounding biofuels, or more aptly referred to as agrofuels, is the use of scarce land resources for the cultivation of fuel instead of food crops. This rabid conversion is known as landgrabs, with biofuels often cultivated in fertile lands or marginal lands instead of food crops. In the Philippines, this debate has taken on a new dimension. While land grabs continue in rural areas, there is a new threat to people's food security, biofuels is cultivated not only on land, but now in the seas.

In 2008, the Korean Institute for Industrial Technology developed a process of extracting ethanol from seaweed. Philippine Senator Edgardo Angara claimed that this ethanol is more cost-efficient and advantageous than other sources of biofuel. Oilgae, as algal biofuel is called, was also perceived as politically insensitive, does not encroach on land used for food-crop production, and absorbs up to seven times more carbon in the atmosphere.

Angara's endorsement, and the favorable policy atmosphere in the Philippines allowed KIIT, the US-based Bio Architecture Labs, and the Philippine government to venture into algal fuel.

The Philippine government laid out plans to develop a \$5-million (P220-million) ethanol farm at a 100-hectare site in the province using the Korean technology of extracting ethanol from seaweed. The project was expected to be implemented in two clusters, one in the provinces of Aurora, Isabela and Quirino in Northern Luzon and another in Bohol where a similar \$5-million facility has been established to jump-start the cooperative venture.²

On July 16, 2009, a US\$3.6 billion worth of investment was signed between Biolsystems Co. Ltd of the Republic of Korea and the Province of Bohol on research and development of seaweed farms for bioethanol production. The Memorandum of Understanding on Marine Aquaculture, which was signed by former Bohol Governor Erico Aumentado and Mr. Gyungsoo Kim of Biolsystems Co. Ltd, includes the following commitments for the Bohol Province, among others:

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² <http://biofuelsdigest.com/bdigest/2010/06/04/19-transformative-algae-technologies/>

- To supply Biolsystems with 3 hectares as test (research area), 500 hectares of seedling plantation for aquaculture and 25,000-100,000 for the aquaculture site for 50 years and an extension for another 25 years;
- To guarantee 60 hectares for ethanol production factory and residential area for workers by setting up Talibon Free Economic Zone geared towards export as well as domestic market for bioethanol;
- To convince other neighboring provinces to contribute their territorial seas to make a combined total of one million hectares for seaweeds plantation. Then, Gov. Aumentado said they can count on the support of Siquijor and Negros Oriental for the algaculture project³; and
- To invest US \$0.1 million as counterpart.

For its part, Biolsystems will “lead investment into seaweeds aquaculture, bio-fuel production and post harvest industries,” the MOU provides. It is also allowed to conduct research and development of improved methods for higher yield of algae species and marketing methods and should give priority to Boholanos in hiring manpower. The company should not cause environmental and eco-tourism degradation as a result of the bio-fuel production.

Both Biolsystems and Bohol will undertake to promote and encourage the cooperation for investment and joint venture between them in the fields of aqua-culture and related post harvest development.

Biolsystems Co., Ltd., a Seoul-based company has developed a marine farm in Talibon town and is said to put up a US\$150-million facility for bio-ethanol extraction, biomass power generation and organic fertilizer production and the US\$2.9 million algae bio-ethanol research center funded as a grant by the Korea International Cooperation Agency (Koica), said the report earlier published⁴.

It is expected that over 300 jobs will be created for ethanol extraction in the area once Kim's Biolsystems builds the USD 100 million-facility. It will be guarded by province, military and police officials, per the MoU.⁵

³ Bohol Sunday Post, July 19, 2009.

⁴ The Bohol Standard/ Vol. 8 No. 313, Sunday, August 29, 2010

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<http://www.fis.com/fis/worldnews/worldnews.asp?l=e&country=0&special=&monthyear=&day=&id=33876&ndb=1&df=0>, September 18, 2009.

Of sea grabs...

It was only after the MoU was signed and after the initial Bohol biofuel cluster was initially set up, that Bohol civil society learned about the oilgae agreement. Opposition hit local officials like a tsunami, with fears of the oilgae contaminating and destroying the Danajon Bank, the only double barrier reef in the Philippines considered as a very rare geologic formation⁶. Mr. Kim targeted the whole 273-meter Danajon Bank as the most conducive place for red algae cultivation even as there are reportedly 154 marine protected areas established in the Danajon Bank.

In the September 1, 2010 issue of the Bohol Chronicle, NGOs, some mayors of coastal towns, fish wardens and municipal police forces of the coastal towns said that the seaweeds projects of Korean and Chinese companies in the island caused the degradation of marine resources across Danajon Bank and displaced fisherfolk.

The Bohol paper reported that low catch reaching only 30,136 tons have been observed in areas across Danajon Bank. The news item also cited a study by Marine Biologist Hilconida Calumpong of Silliman University that low fish biomass was discovered in six sites within Danajon Bank. The NGOs led by Fisheries for Improved Sustainable Harvest (FISH) monitored that mangroves have been converted to aquaculture ponds, and there was poor diversity and density of macro-invertebrate fauna like sea urchins, sea cucumber, and molluscs. Project Seahorse, another civil society group also monitored low density of seahorse at 0.105 per 200 square meter in three major fishing grounds, the marine protected areas across Danajon Bank and the landing sites of 28 fishing grounds.

The paper also reported that fisherfolk who tried cultivating seaweed on their own reported that representatives of Chinese and Korean companies would drive them away from the island's marine grounds.

These various reactions to the Bohol Oilgae project points to an impending possibility of a sea grab, a marine version of the land grab phenomenon that has fueled the food vs. fuel debate in the terrestrial biofuel industry. In land grabs, scarce land resources are grown to fuel crops instead of food crops; or food crops are for fuel instead of food.

In the Philippines, the land grab phenomenon has insidiously crept in biofuel

⁶ Danajon Bank. <http://www.bohol-philippines.com/danajon-bank.html>

fields carved out of agricultural land resources. Neighboring countries like Malaysia and Indonesia who have found their niche as palm oil biodiesel producers, are expanding their investments off shore such as in Mindanao island to supplement the growing demand for industrial oil.

The demand has triggered some Mindanao farmers to convert their rice and corn lands into oil palm plantations. AGUMIL Plantations, one of the joint venture between Filipino and Malaysian investors engaged into palm oil production, have expanded the coverage of their palm oil plantations particularly in marshy plains of Agusan and Sultan Kudarat provinces. These marshy plains contain flora and fauna that are important in maintaining the country's biodiversity.

In Sultan Kudarat, expansions have almost doubled from 1,678 hectares in 2005 to 2,592 hectares in 2010³. Most of these areas were formerly irrigated rice farms and productive corn municipalities such as Columbio and Pres. Quirino.

In sea grabs, like in land grabs, precious marine resources compete either as source of food and livelihoods or fuel. Commercial cultivation of seaweeds or algae has also resulted to the following impacts:

1. Damage to the coastal habitat due to the physical presence of the farm;
2. Contamination from excessive feed and waste products;
3. Introduction of antibiotic and other contaminants into the environment;
4. Spread of disease from farmed animal or plant to wild marine organisms;
5. Introduction of invasive species;
6. Release of reproductive material;
7. Hybridization of farmed animal or plant with native stock; and
8. Establishment of feral population of farmed organisms through escape from culture facilities.⁷

The 2008 study investigating the feasibility of biofuels in offshore seaweed farming for biofuels by Roejadi, et. al. also said that oilgae, particularly, will require the application of chemical fertilizers and may result to algal bloom.

Bohol is known for its pristine coastal areas and is a prime destination for

⁷ G. Roejadi, A.E. Copping, M.H. Hueemann, Pacific Northwest National Laboratory. March 31, 2008. Techno-Economic Feasibility Analysis of Offshore Seaweed Farming for Bioenergy and Biobased Products. Independent Research and Development Report, IR Number PNWD-3931, Battelle Pacific Northwest Division.

ecotourists. The Bohol Oilgae project might just kill this ecotourism industry considering the impact of the oilgae project on view, odor, noise and light from operation. There will also be competition for scarce stretches of shoreline with port, marina, recreational facilities and commercial water-dependent operations.

Such was the economic impact of the Korean and Chinese seaweed aquaculturists that the Bohol Provincial Seaweeds Farmers Producers Cooperative asked President Ninoy Aquino to review the Oilgae MoU.

...And alien species

Since June 2009, local newspapers in Bohol reported that Mr. Kim of Biolsystems Inc. has been frequently visiting the Bohol islands in search for a suitable site for his algaculture farm. He intends to cultivate a certain red algae of the cottonii species in Bohol for biofuel production.⁸ As of 2004, FAO reported of two red algae species being cultivated in southern Philippines, such as in Bohol, the *Kappaphycu alvarezii*, also known as *Kappaphycu cottonii* species, and the *Euchemia cottonii* species. These are commonly known as elkhorn sea moss and Zanzibar weed. There are no reports as to which of these cottonii species will be used by Mr. Kim for his biofuels project. At any rate, it is important to note that these species were introduced to the Philippines in the late 60s by Marine Colloids Corporation (now FMC Biopolymer) and Dr. Maxwell Doty of the University of Hawaii Botany Department⁹. These can be considered alien species not endemic to Bohol, and the effects of these alien species on the marine life of the Danajon bank and its environs is believed not to have been studied. In the September 12, 2010 issue of the Bohol Chronicle, moreover, Project Seahorse, a coalition of civil society organizations who have expressed concerns about the oilgae project, learned that the seaweed that will be used is non-edible, hence it will not be any of the cottonii species cultivated in the area, as these species are cultivated primarily as food.

Roejadi, et. al. discussed that in large-scale seaweed cultivation the varieties used have always been species that are non-native to the region. *Laminaria japonica* (*L. japonica*) or the Japanese kelp, the largest seaweed crop in China, for instance, is not native to China but was introduced from Japan.

Roejadi, et. al. added that the introduction of alien species is often condemned, due to its adverse impacts on receiving environments.

⁸ <http://www.bohol.gov.ph/news/print.php?newsid=428>

⁹ EI Ask, A Batibasaga, JA Zertuche-González & M de San, all of FMC Biopolymer, "Three decades of *Kappaphycus alvarezii*(Rhodophyta) introduction to non-endemic locations" 2001

Large scale cultivation of alien seaweeds also requires nutrients that might not be available in the local environments. Again in China, the Roejadi study divulged that the use of artificial fertilizers paralleled the use of chemical fertilizers during the Green Revolution on land. Consequently, some coastal waters suffer from excessive nutrient input, from sewage effluents and other sources, causing algal bloom.

Again in Bohol in May 2009, the provincial government signed a Memorandum of Agreement with the Philippine National Oil Company - Alternative Oil Fuels Corporation to devote some 3,000 hectares of the province to *Jatropha curcas*. *Jatropha curcas* is not native to Bohol, but of Central America, and hence the dangers of introducing alien species again resurface.

Facelift Through Genetic Engineering

Even as this article is written, technology development driven by aggressive investments on biofuels is outpacing government's regulatory functions and policy safeguards on responsible biofuels investments in the country. The Biofuels Act or Republic Act 9367 was couched within the backdrop of first generation biofuels. First generation biofuels include crops that are used for food such as wheat, sugar and corn, thereby fueling the food vs. fuel debate; as well as the land grab scenario, where croplands have been reclassified as "wastelands" and extensively planted with food crops guzzled up by the fuels industry. It has since been accepted that this priority of using food crops for fuels have led to food shortages, price spikes, and empty stomachs.

Since 12 January 2007 when RA9367 was signed into law, the biofuels technology has already come up with second, third and fourth generation biofuels, or the so-called advanced biofuels. Second generation biofuels derive fuel from nonfood crops and farm byproducts such as wheat, rice, and corn stalks, citrus peels, sawdust and wood. Second gen biofuels are also called cellulosic biofuels¹⁰. Third generation biofuels, on the other hand refer to fuel from algae whereas fourth generation biofuels involve advanced "bio-chemical" and "thermo-chemical" processes that produce "drop in" fuels like "green gasoline," "green diesel," and "green aviation fuel." This category creates biofuels from processes other than first generation ethanol and biodiesel, second generation cellulosic ethanol, and third generation algae biofuel. Some fourth generation technology pathways include: pyrolysis, gasification, upgrading, solar-to-fuel, and genetic manipulation of organisms

¹⁰ Chris Somerville. "Development of Cellulosic Biofuels" (PDF). U.S. Dept. of Agriculture

to secrete hydrocarbons¹¹.

On top of this dizzying array of biofuels, feverish chatter fill laboratories to develop a new breed of biofuels through synthetic genomics.¹² This involves the production of biofuels by tinkering with the DNA sequences to produce artificial cells that build up and become artificial biofuels, totally eradicating the normal agricultural processes of cultivating a fuel-producing plant.

Even as alien species threaten to engulf Philippine lands and seas, collaborations are being undertaken to subject biofuel crops to genetic engineering and synthetic genomics, rendering doubtful, their capacity to produce fuel at their natural states.

There could be truth to the reports that what is being introduced in Bohol waters is a genetically modified algae, considering the secrecy about the particular species that shall be introduced or have been introduced in the area. Algae does not really produce biofuel, thereby justifying the use of genetic engineering and synthetic genomics to increase their capacity to produce fuel or make fuel extraction easier, again all in the name of adjusting to climatic changes. Talk is rife about developing fuel crops, including oilgae¹³, through genetic engineering or synthetic genomics to increase the fuel content of the crop, or to simplify the process by which fuel is extracted from these crops, and such other purposes that benefit corporate proponents and biofuels. This “facelift” of biofuel crops is where danger might rear its ugly head, considering the havoc that genetically modified crops have already imposed among farming communities and consumers and the environment.

On September 28, 2010, the US-Based Bioenergy crop company was able to obtain a \$9.4M financing from Flint Hills Resources, a privately held company based in Kansas and Life Technologies Corporation, a biotechnology tools company based in Carlsbad, California and other investors.

“The financing will support the company’s efforts to advance Jatropha as a high-yielding, low cost feedstock for diesel, jet fuel and petrochemicals.

Earlier this year, SG Biofuels, another company and Life Technologies formed a strategic alliance to further accelerate the development of Jatropha through use of Life Technologies’ biotechnology and synthetic biology tools. The

¹¹ <http://www.gtmresearch.com/report/third-and-fourth-generation-biofuels>

¹² <http://www.smartplanet.com/technology/blog/science-scope/daniel-gibson-on-synthesizing-genomes/4686/>

¹³ <http://pacbiofuel.blogspot.com/>

companies recently announced they have completed the sequence of the *Jatropha* genome.

SG Biofuels has assembled the world's largest and most diverse library of *Jatropha* genetic material and developed a crop improvement platform that has doubled the yield of *Jatropha*, while reducing input costs for growers.

The company's integrated breeding and biotechnology approach forms the foundation for its JMax *Jatropha* Optimization Platform, providing research agencies, growers and plantation developers with access to the company's germplasm library, the genome sequence, molecular markers and advanced biotech and synthetic biology tools to optimize elite *Jatropha* cultivars for unique growing conditions around the world. The company has also introduced JMax 100, an elite *Jatropha* cultivar optimized for growing conditions in Guatemala, with projected yields 100 percent greater than existing commercial varieties, resulting in a 300 percent increase in profits for growers.¹⁴

Contradiction Between Policy and Practice

Like most policies promoting biofuels, RA9367 has three intentions: 1) reduce dependence on imported oil; 2) mitigate toxic and greenhouse gas (GHG) emissions; and 3) increase rural employment and incomes. The experiences of the Philippines in *jatropha*, and Bohol oilgae show that these intentions cannot be achieved through industrial or corporate biofuel production.

In a paper presented during the 2008 Philippine Energy Summit, Dr. Emil Q. Javier of the National Academy of Science and Technology identified the three objectives of RA9367: Javier, however, said that the first two objectives are not that important. Javier added that in relation to reducing dependence on imported oil, the target of the Philippine Energy Plan (2005-2014) is to reach an energy of self-sufficiency level of 60 percent by 2010 and beyond. However, the target maximum substitution by biofuels for transport fuel is only 2% and 10% for biodiesel and bioethanol, respectively. The same plan projected that the annual energy savings from the Energy Efficiency and Conservation Program will generate 2.9 million tons of oil equivalent (MTOE) and only 0.3 MTOE from alternative fuels for transport. In other words in the overall scheme of things in the Philippine energy sector, biofuels are at best minor players. More gains can be attained from energy conservation, more oil and gas exploration, fuller utilization of coal resources, and geothermal exploitation.

¹⁴ [http://biocommodity.com/sg-biofuels-completes-9-4-million-financing/September 28, 2010](http://biocommodity.com/sg-biofuels-completes-9-4-million-financing/September%2028,%202010).

As to mitigating climate change, biofuels will not be of much help in the Philippines, Javier said, because the Philippines is already a carbon neutral country. At the most, Javier said, the contribution of biofuels in the country is reducing air pollution in the major urban areas like Manila and Cebu.

The third objective, Javier said, is what is relevant. The Biofuels Industry will achieve its goal, Javier, said, if it can provide the necessary jobs for impoverished Filipinos.

But where are the jobs and what kind of jobs does the biofuels industry offer? The Bohol Oilgae experience, while only in its inception, already shows that instead of offering jobs, it is depriving fisherfolk their jobs, as they are not even allowed to get near the sea, which provides for their livelihood and food. The foreign corporations have arrogated unto themselves the Bohol territorial seas and shores. Bohol's local weekly newspaper, The Bohol Chronicle in its October 24, 2010 issue disclosed the fear of seaweed farmers when they would turn into mere laborers of the giant corporations instead of producers of seaweeds. The article said that "[S]eaweed farmers get P25T gross from seaweeds in a 2,500 sq. meter area five times a year. Sales from abalone at P470/kilo, "tahi-tahi", sea cucumber at P2,000/kilo and rare shells adds up to a tidy sum for the seaweed farmers.

The news article added that "[R]epresentatives from the Seaweed Investors Association of the Philippines (SIAP) condemned the brazenness of these foreign corporations for threatening the livelihood of the Filipino fisherfolks".

Near shore cultivation in Bohol and in Southern Philippines have been the livelihood of residents for the past 40 to 50 years. The seaweeds are sold fresh or processed as carrageenan, a food binder.

The oilgae's effect on Bohol's bustling tourism industry is also unthinkable. Bohol is famous for its diverse sand beaches, the most famous of which is in Panglao island which some opine is better than the famous Boracay beach. The beaches from the north to the south and Bohol's east to the west coast are as varied and uniquely beautiful. Elegant dolphins and majestic whales have been sighted near shore. Bohol's fish sanctuaries in Balicasag and Pamilacan island teem with an assorted array of colorful fishes. These marine resources have brought tourists to Bohol's shores throughout the year, and the locals have successfully promoted ecotourism in the island. Cultivation of the oilgae may affect the diversity of fishes and other marine life in the area, and consequently, drive away tourists due to the odor, noise, and disputes on Bohol beaches.

Not to mention the effect of the oilgae industry on the fish eating public. It must be noted that the Philippines intends to identify biofuel clusters all over its territorial seas. The MoU requires Bohol to convince its neighboring

islands to allow the use of their marine resources for oilgae cultivation, because it will need large areas to produce the necessary agrofuel. It is estimated that the one million hectare requirement of the project is the least area that must be devoted to oilgae cultivation to produce the bioethanol. Also as earlier said, the shores of Quirino and Isabela provinces have also been identified for oilgae production. No environmental impact study has been presented of this oilgae project, hence, it will considerably affect fish catch to the detriment of the fish consuming Filipino public.

The economic impact of *Jatropha* in the country, on the other hand, remains to be seen. Whether it helps small farming families and local communities is a question begging to be answered.

False promises of the Biofuels Industry in Germany, Brazil and Mozambique

The Philippines is not the only one that has experienced that the biofuels industry offers false promises of fuel sovereignty, GHG emission reduction and rural employment. A 2010 study by Franco, et. al.¹⁵ which juxtaposed European Union biofuel policies with that in Germany, Brazil, and Mozambique shows that there is a stark contradiction between policy and the effects of the biofuels industry on ground.

False promises of fuel sovereignty. Franco et. al. noted that Germany has been engaged in this industry for the past 30 years. By 2007, biofuels were contributing 7.3% of Germany's total transport fuel. But even as 10% of Germany's arable land was already used up for fuel cultivation and 70% of the country's rapeseed production was already being used for biodiesel production, the country has not yet attained fuel sovereignty. Instead, the situation compelled Germany to import rapeseed from Eastern Europe. In Brazil, the pro-biofuels policy started in 1970, and domestic production has been considerable, but demand, both at the Brazilian and at the international market has increased as well, prompting Brazil to convert precious terrestrial resources in the Amazon rainforest; and Pantanal, and Cerrado savannahs at the expense of Brazil's environment and rural livelihoods. In Mozambique, biofuel production has always been for export, but to manufacture the same, Mozambique has to rely on inputs from the outside, such as hydrocarbons 80 to 90% of which is imported to Mozambique.

False promises of reduced GHG emissions. Franco, et. al.'s study added that

¹⁵ Assumptions in the European Union biofuels policy: frictions with experiences in Germany, Brazil and Mozambique
Jennifer Franco; Les Levidow; David Fig; Lucia Goldfarb; Mireille Hönicke; Maria Luisa Mendonça
Online publication date: 23 September 2010

the cultivation of biofuels has led to more GHG emissions with more intensive agricultural practices such as the clearing of permanent grassland for cultivation and spraying agrichemicals whose production uses fossil fuels. While Germany increases its biofuel use, it will have to import more, and the changes in land and perhaps sea use, as a result of Germany's demand will contribute to more GHG emissions. Franco added that in Brazil, sugarcane plantations are destroying carbon sinks in the Cerrado savannah and Amazon rainforests. And in Mozambique, GHG emissions increase with land clearances and extra infrastructure needed for de novo installations.

False promises of rural development. The Franco report added that instead of rural development, "small-scale producers have been marginalized in practice, and agro-business interests have prevailed instead. The report continued:

The Brazilian government treats millions of hectares as 'marginal', providing a basis for sugarcane plantations to expand on these lands without being perceived as harming the environment or food production. But in practice, biofuel producers seek and gain access to quality land, water sources and infrastructure. Such plantation developments devastate natural resources and local agriculture, as well as forest reserves in some places. They also destroy employment and degrade labour conditions, even through de facto slave labour; mechanisation reduces employment without improving its conditions.

Mozambique too makes claims about much land being available for biofuels cultivation and even carries out surveys of 'marginal' land. Yet land conflicts have arisen with local residents over plans for biofuel plantations. Large land tracts have been allocated for biofuels, especially sugarcane, but operations have been unable to sustain their workforce in full employment. *Jatropha* supposedly avoids competition with food production, but some plantation developments have displaced local food crops, diverted water supplies and/or attracted pests.

In Brazil and Mozambique, then, national practices have contradicted EU assumptions about societal benefits of rural development through biofuels.

Violative of the Biofuels Act

Despite its becoming an international issue, nothing has been heard from the Department of Energy or the Philippine Biofuels Board about the Bohol sea

grab phenomenon. Republic Act 9367 or RA9367 and its Implementing Rules and Regulations is the controlling law behind the Bohol MoU. This MoU should be considered illegal and null and void for violating the following requirements as set forth in the Biofuels Act and its Implementing Rules and Regulations, particularly the provision that encourages indigenous biofuels to be cultivated “without any detriment to the natural ecosystem, biodiversity and food reserves of the country”¹⁶. The MoU also needs to be studied in light of the following provisions in the Implementing Rules and Regulations of RA9367:

- a. Section 5.3 of the Implementing Rules of RA9367 requiring consultation with different entities and requiring the technical validation by concerned national government agencies such as the DOST of the oilgae as a source of biofuel;
- b. Section 21 in relation to the local permits and licenses that LGUs in Bohol extended to the algae companies;
- c. Section 23 on the accreditation of biofuel producers; and
- d. Sections 25 and 26 on quality standards on the biofuel that shall be produced.

Investigating the MoU along these lines will point to the need of conducting an environmental impact assessment of the project, especially on the impact of the project on the precious marine resources that Bohol residents depend on for food security and for their livelihoods as fisherfolk, and seaweed growers.

There is likewise need to determine the violations of the project of the Food and Agriculture (FAO) Fish Code, which was established as a program of global partnerships to promote application of the 1995 Code of Conduct for Responsible Fisheries and related international fisheries instruments. The FAO Fish Code requires that a feasibility and impact study be undertaken before the industrial cultivation of the algae.

Towards a More Responsive Policy Environment

A reality check is always a bitter pill to swallow, but that is what is exactly needed in reviewing policy options for the biofuel industry in the Philippines. The Biofuels Industry has already become synonymous to sea grabs, land grabs, environmental destruction, and the disenfranchisement and marginalization of local farming and fishing communities, as exemplified by the distasteful Bohol Oilgae Project, and the *Jatropha* land grab phenomenon in Southern Philippines. But these are exactly the results of policies that promote industrial or capitalistic agriculture, of which RA9367 is a classic

¹⁶ Section 2d, RA9367

example.

Bitter as it may be, it is necessary to swallow the hard truth that an industrialized biofuels industry has no reason to exist in the Philippines, or in the world. It does not provide fuel sovereignty, reduced GHG emissions, and rural development.

What the Philippines need is to implement policies that will ensure the food and fuel sovereignty of its populace. The country can only do that, when it shifts its priorities away from corporate and industrial agriculture to small-scale, sustainable, environment-friendly and people-friendly practices for food and fuel sovereignty.

In the meanwhile, the call for vigilance needs to reverberate. It bears stressing that it was only a vigilant public that saved Bohol from the ravages of a crippling oilgae industry. In September, 2010 the Bohol Sangguniang Panlalawigan issued a Resolution to suspend the operations of the oilgae project, thanks to a vigilant public. The project can still push through, though and sea grabs remains a specter at the height of efforts to turn precious Philippine marine resources into "biofuel clusters". Sea grabs will be the ultimate nightmare of fisherfolk, Bohol residents, and the Filipino fish-eating public in general. It will be also be the worst nightmare for those who thrive from the eco-tourism industry of which the nature-based island of Bohol and the other Philippine islands are popular for.