

## **Energy and Food**

### **THE FOOD AND THE FUEL ISSUE**

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#### **Abstract**

The author believes that the current trends in diverting carbohydrate- and oil-rich crops into biofuels in countries that are well endowed with land resources and whose agriculture is well advanced are irreversible as new corridors of investment opportunity are created. Its long-term positive effect is in creating a wedge against the speculative increases in the world price of crude oil. The negative impact is in driving global food prices up to less affordable levels especially to the poor of the underdeveloped world.

As a positive dimension, the increased farmgate prices of commodities will serve as a powerful incentive to farmers around the world to raise farm productivity and, thus, income. Traditionally in the Philippines, domestic production of food- and feed-grains could not compete economically with cheap imported stuffs. Now, the tide is reversed. Likewise, if sugarcane and coconut products are used in a diversified way to include biofuel production, it will have a resonant effect on improved farm prices. It will be the driving force in transforming the industries from a moribund to a vibrant state.

Jatropha and sweet sorghum can play an important complementing role in biofuel production and may become an economic imperative for Philippine agriculture.

As agriculture expands its role to feed machines as well, the commercial opportunities are great. Agriculture can become an investment magnet for the business sector. Private business and the whole farming sector can form the alliance and synergy to transform the countryside as engines for economic development.

The world is besieged with apocalyptic problems – global warming; the energy crunch; and the food crisis. The food riots that have come about across the globe are a grim reminder of what people with empty stomachs can unleash. This is the backdrop of the world situation as we focus on the particular issue on food vs biofuel.

I will use as frame of reference Dr. Emil Q. Javier's excellent paper which he presented at the 2008 Philippine Energy Summit, entitled: "Weighing the Trade-off: Food vs Fuel".

Dr. E. Q. Javier's paper has articulated the issues on gas emissions, use

of biofuels and its impact on food supply, as they relate to our particular situation in the Philippines. He has pointed out that such interwoven issues create conflicts as well as opportunities, which we should be on the lookout for. Allow me to give my views on the trade-offs between food production and biofuel use.

The worldwide spiralling cost of food grains, which has tripled in the case of rice and wheat is an offshoot of current trends in diverting carbohydrate- and oil-rich crops into biofuels and the dwindling stocks of food grains to meet rising demands associated with growing populations and affluence in Asia. Furthermore, grain production has suffered setbacks this year – millions of hectares of maize were flooded and destroyed in Iowa and the Midwest; the 7-year drought has adversely affected rice production in Australia; the Irrawaddy Plains in Burma were devastated by ocean surges. The Philippines has to adjust to these inevitable global developments.

Countries that are well endowed with land resources like North America, Brazil, Argentina, and Australia and parts of Europe will continue and widen their efforts towards biofuel production. This is because such efforts have opened up new corridors of opportunity for farmers, corporate farms, and the biofuel industries to generate more wealth. The ultimate effect of such energy substitution will be the reduction in world prices of crude oil to more reasonable levels. It may take sometime but certainly it will have a countervailing effect.

As world prices for rice, maize, wheat and soybeans dramatically increase, we soon find that our domestic production of rice and maize has become highly competitive with the more expensive imported stuffs. This will be the driving force to spur domestic production. This is a window of opportunity that the country should exploit to the hilt.

Let me provide some facts about the growing competitiveness of our domestic production. In the case of rice, the international price of Thai rice 100% B-grade has more than doubled to \$950 per ton or an equivalent of P43/kg. The farmgate price of palay in the Philippines has doubled to P17 to P21/kg compared to 2003 rates or in milled rice equivalent it is around P28/kg. The rice that you buy at P35/kg to P40/kg is much cheaper than imported rice. For corn which is the main feedstock for ethanol production in the U.S., landed cost in the Philippines, without tariff, is P15/kg. Cost of locally produced corn is P13 - P14/kg. For soybeans, the Philippines makes an annual import of as much as 19-20 billion pesos worth of meal and whole soybean. Local production is only on 1,000 hectares. It was cheaper to import. But now the average landed price of soybean has steadily increased from the usual P14 - P21/kg to P24-P29/kg. Local production of soybeans at 1.5 to 2.0 tons per ha. is now highly competitive.

Traditionally, farmgate prices of food grains in the Philippines have been so depressed thereby consigning the majority of the small farmers to the life of the underprivileged and marginalized.

Let me show you some facts. The costs and returns per hectare for rice production in the Philippines in 2002 for irrigated and rainfed areas are as follows:

Expenses -	P23,356.00
Cash (42%)	P9,721 (58% hired labors, 15% for fertilizers)
Non-cash (26%)	P6,056 (harvester's, landlord's & thresher's share)
Imputed (32%)	P7,579 (including P3,540 for family and operator's labor)
Gross Income	P29,044.00 (at P8.82/kg of palay)
Net Income	P 5,688.00 (or return to investment of 24%)

As one can see, it was hardly profitable to go into rice farming. But with the increased food commodity prices, it will provide the impetus in breaking the cycle of low productivity and poverty and uplift the small farmers economically.

In a similar vein, the coconut and sugar industries have long been in the economic doldrums. If we embark in the production of ethanol from sugarcane and biodiesel from coconut oil, these will create favorable commodity prices and incentives that may transform the stagnant industries to a vibrant state.

With adequate hectareage for expansion for sugarcane for ethanol production, it will spare cassava from being used for the same purpose. Instead, the thrust should be to convert cassava to flour and mixed with wheat flour at the highest acceptable proportion for baking purposes. In this way, we can rescue the shrinking "pandesal" from its tattered image.

As expounded by Dr. Javier, sweet sorghum can complement sugarcane for ethanol production. This is because the sugar mill operates at only seven months of the year. Sorghum can be grown separately in contiguous areas or planted after the ratooning of the sugarcane crops and while awaiting the regrowth to a new crop. I hope that *Jatropha* could find its niche in biodiesel production. It can provide a lot of employment opportunities for the upland dwellers and migrant workers because, just like in coffee plants, the *Jatropha* berries do not mature at the same time and harvesting will rely on hand-picking. For information, *Jatropha* production has been commercialized by British multinationals in Africa and Madagascar. Production is envisaged to be viable because the cultivars in use are genetically superior and they will be grown and processed under a mechanized system and use of plentiful labor. In Madagascar alone, the targeted plantation size is 450,000 hectares. In the Philippines, *Jatropha* production is a new venture and the Department of Energy intends to go at it in a big way. Its success will hinge on how soon we can resolve the imponderables relating to its agronomy, ecological fitness in the uplands or under coconuts and economic competitiveness as an energy source.

Lastly, let us take issue with the basic food question: "With the critical shortfall of grain supply worldwide, can the Philippines fend for itself and achieve sufficiency in production?" For current self-sufficiency, the average yield of rice must increase from 3.25 t/ha to 3.8 t/ha. For corn, the average yield of 1.92 t/ha must increase to 3.8 t/ha. In 2020, there will be about 106 million Filipinos. We should produce an average yield of 5 t/ha for rice and 4.7 t/ha of corn. The capability or technology to produce 8 to 10 t/ha for grain crops is at hand domestically. The greatest challenge is how we can bring the millions of farmers especially the underprivileged to the mainstream of raising productivity. Technology use requires substantial investments on the part of the farmer and country-wide application needs guidance in terms of a well organized extension machinery. With the devolution of extension functions to local governments, the efforts are fragmentary. To overcome these constraints, the strategy should be to entice big corporations to engage in farming where returns to investments can be as favorable as those in other ventures. The concept is for big business organizations like the Countryside Enterprise Development Foundation to get into the picture and establish a base of operations amidst farming communities through contract-growing schemes and other arrangements with various farmer groups. An alliance and synergy of this sort between corporate entities and farmer groups have proved highly successful in the banana, livestock, rubber and palm oil industries in Asia. We can follow the same scheme for the rice and corn industries. In fact, it is already beginning to happen in the case of the corn industry. Once agriculture becomes an investment magnet for the business sector, it will transform the countrysides as engines for economic development.

Finally, the solution to our food problem will remain delusional if we cannot effect a radical change in the way we manage our population problem. In 2020, the official projection for population growth is at 106 million Filipinos. It looks like we will overshoot this number. But there is still enough time to make the adjustments.

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