

A Sustainable Environment: Our Obligation to Protect God's Gift

by
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We Need to Solve the Future's Food Shortage – Today

The world population is over seven billion people and growing at a rate of ten million people every six weeks. That is tantamount to placing a city like Tokyo – population of 20 million – on this earth every three months. Economists predict that we will be at nine to ten billion people by 2050. At the same time, the amount of agricultural land is decreasing. How are we going to feed everyone?

The United States is the leading producer and exporter of corn, and it accounts for four-fifths of the U.S. grain harvest. Internationally, the U.S. corn crop exceeds China's rice and wheat harvests combined. Among the big three grains – corn, wheat, and rice – corn is now the leader, with production well above that of wheat, and nearly double that of rice. But this year, in the production of corn, only 26% is rated good to excellent, one of the lowest ratings on record, due to one of worst droughts in many years. The other 74% is rated very poor to fair. This has caused shortages and increased prices worldwide.

To make this even worse, the U.S. has committed about 40% of the corn crop, in a good crop year, to be converted to ethanol. Why? To reduce the U.S. dependency on imported oil. This has never made any sense as it takes more energy to convert corn to ethanol than the resulting energy produced. Congress made this decision several years ago and gave farmers an incentive equivalent to \$0.50 per gallon. In contrast, Brazil produces ethanol from sugar cane waste, a process that is much more efficient. In order to be sure that sugar cane ethanol is not imported by the U.S., a tariff of about \$0.50 per gallon has been instituted by the U.S. The United Nations recently requested the U.S. to lift its mandate to produce 13.2 billion gallons of ethanol for 2012 and 14 billion gallons for next year and be blended in gasoline. Most of the ethanol is made from corn as the technologies for cellulosic ethanol have not been successful despite the government having invested billions of dollars.

In 1980, the U.S. implemented the Corporate Automobile Fuel Efficiency (CAFÉ) standards that require cars sold in the U.S. to average 27.5 miles per gallon. Thanks to the lobbying of the large auto manufacturers, this standard is still in place. Americans are partially at fault for this due to their love of large cars. If the average fuel efficiency was increased by only four mpg, the U.S. would not have to import any oil from the Middle East. Another increase of four mpg would eliminate the need to import from Venezuela. This should not be difficult as I remember my first car getting 40 mpg about 50 years ago. European manufacturers can produce cars that get 40-70 mpg, but if they were imported the fuel consumption would go

down as well as the tax revenues needed to maintain our roads. Maybe that is why we don't see these cars in the U.S. In any event, this improvement in fuel efficiency would negate the need for this ethanol production.

So what is the answer? Cars should get smaller and fuel efficiency would increase. This will take the pressure off corn production and bring prices down where they belong. But this alone will not solve the pending food shortage problem. As the population has increased and more people live in cities, dwellings have gone from single family houses to high rise apartment buildings. We should take this housing evolution and apply it to farming. Instead of growing crops in agricultural land that averages over 1,500 miles from the source of the food to the table, why not grow them in or near the city where people are living. We should place emphasis on developing vertical farms – perhaps 40 to 50 floors of crops that can grow organically all year around.

Some entrepreneurs are taking the first step to show how to grow crops year-around in abandoned warehouses. Two such facilities growing organic crops are Urban Ponics and The Plant, both in Chicago. As they use hydroponic systems, water efficiency is much better as the consumption is only what is taken up by the plant whereas in typical farms, most of the water is lost in the soil. They should also be located adjacent to a waste-to-energy facility that generates waste heat while producing electricity. This would be helpful for vertical farms in northern climates.

Over the past few decades, the world had been experiencing a rapid decline in the fish population. Since it was difficult to regulate the harvesting of ocean fish, the alternative was to develop fish farms. That is what has been done, and today over 50% of the fish consumed by people comes from fish farms. We know how to solve problems. We just need to have our politicians do what is best for the people.