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Going Green or Growing Green?

In today's society, going green is the next frontier. It can be something as simple as turning off the lights when they aren't in use or recycling metal cans. However, it can also be as complicated as making more fuel-efficient cars, developing technologies that use less electricity, and building houses that keep the drafts from coming inside so that homeowners don't have to use more heat than they need, including geothermal heating. In the past couple decades, Ethanol has been another way to "go green". With its 10% corn-based alcohol, it lessens the burden on our world's oil supply. Some cars can even run on what's called E-85 (85% Ethanol). As gas prices go up, car companies are in a race with each other to create cars that can run on more than just E-85. As the world would be a better place, emissions-wise; however, the hunger rate would not. Today, there is more than enough food grown to feed the whole world adequately, even though the populations' demands are not met. When cars can run on a more flexible fuel, does going green become a controversy? If more Ethanol (corn) and Biodiesel (soybeans) are used, would there still be enough food to feed the entire world? What's the fine line between going green to save the planet and growing green to feed the world?

Panama is a country with a tropical climate. A family in this part of the world usually consists of two children. With a Caribbean Spanish background, the heritage is rich in culture, and since the country of Panama is right next to two oceans, seafood is a staple in the diet. With no true middle class in Panama, the poor are very poor and the rich are very rich. Access to healthcare is totally dependent on the Socio-Economic-Status (SES). The poor have almost no true access to healthcare, while the rich have immediate access. A big difference between Panama and America is that Americans cannot be denied healthcare in an emergency. Panamanians, however, must be able to afford the doctor visit, the procedure, and any other needed services up front.

An urban family makes about \$3,000 per year. This wage is unusually high when compared to countries in Africa or Asia. In the eyes of Americans these wages are still very low. Purchasing food is fairly easy in Panama. A fish market/farmer's market is the usual way of buying food there. Many common staples of the Panamanian diet are bountiful at the market.

Although Panama isn't a country with an extremely high poverty level, the percentage is still alarming enough for concern. Thirty-seven percent of all Panamanians live in poverty and about one in five people live in extreme poverty. Even though poverty levels are greater in the rural areas, it is in the urban areas where it is most noticeable. Adequate nutrition is extremely hard for those living in extreme poverty due to job wages. Since some jobs pay so little, food is not able to be purchased for the family. Providing for a family on \$3,000 seems quite inadequate in the eyes of Americans. When thinking about poverty, food is the first thought that comes to mind. Making \$3,000 seems like more than enough. However, compared to any other place in the world, there are more costs. There are bills that need to be paid, clothes that need to be purchased, medical expenses (if they can afford them) that need to be paid and gas that needs to be purchased to get to work.

In 2005, gas prices in Panama City, Panama were \$2.19 per gallon. With inflation statisticians could probably make an educated guess that gas prices are similar to the prices here in Iowa (\$3.50). A man driving 10 miles to work in a 20 MPG car complicates financial issues. This means about 10% of the income goes for transportation. Imagine making one-hundred dollars in a single day. Ten dollars of that whole one-hundred was taken away just to get to the job and back home.

As much as people would hate to admit, the situation on gas is only getting worse. With new technologies involving corn and soybeans, gas prices are able to become cheaper. As stated earlier though, this impacts the hope of feeding the world. This is only going to become more complicated in the long run, because fossil fuels will only last for so long. Oil consumption is rising almost exponentially, so fossil fuels cannot be a permanent solution.

Improving this problem is not going to happen overnight. A factor in this problem is finding a renewable, non-food based resource. Water is a good example. How would this technology work? First off, an engine that is able to separate the two hydrogen atoms from the one oxygen atom would be required. Going back to chemistry, in order for combustion to be made, oxygen must combine with the hydrogen atoms. The chemical reaction would look like this $2\text{H}_2 + \text{O}_2 = 2\text{H}_2\text{O}$ (water). Essentially there would be no waste product because when separating the water, the water is remade and can be used again.

Although the positives seem great, the negatives might possibly destroy the idea. Hydrogen is a very combustible element. A more combustible element means as a fuel, the hazards skyrocket. The Hindenburg is a prime example of what could happen in an engine. The Hindenburg was a blimp back in the 1920s. Blimps used hydrogen to float, since it was cheaper, more abundant, and even lighter than helium. While in the air, however the Hindenburg combusted into flames. It was truly a disaster, but also a lesson in physical science. Ninety years have passed since the Hindenburg and technology has greatly increased. Do we have the technology today to control the combustion of hydrogen?

If this fuel cost problem could be fixed, the 10% of the Panamanian income spent on fuel could hopefully be reduced by as much as 5%. This would put more money into their pockets for more food, clothing etc. This would also help the environment in either the short run or the long run. There is never going to be a solution that fills both the short term goals and the long term goals at the same time. If scientists design technologies for the long term goals, will the earth be habitable long enough for those goals to be reached? On the flip side, if we make technologies for the short term goals, how long could the earth stay habitable after the technologies have been made?

There are many high priority crises ideas that will affect this factor. Urbanization will create an environment where cars are more abundant. A simple supply and demand explanation would help with this. If people have more cars consuming gasoline, the demand for it goes up, decreasing the supply. If the supply gets decreased, then prices will go up, putting even more financial strain on low income families. Energy demands and pollution will go hand in hand for this factor, simply because unless that energy demand is made with a less polluted emission, the pollution issue will steadily increase. Climate change is not going to be an affecter but an effector from the pollution problem if this factor cannot be resolved.

Based on everything discussed, my recommendation is to put more research into not only hydrogen technologies but further it to develop the technologies for a water powered car. As explained earlier, a water car would be an infinite solution to the oil crisis, and reduces the need of food based fuel sources.

The best way to go about all this is to contact research agencies, specifically specializing in chemical engineering. The sooner research can be done on this particular idea; the sooner a conclusion can be made. Maybe this idea is impossible and can never be done, but unless attempts are made, we will never know for sure.

Panama is a beautiful place to visit on vacation, but if people were to go they would only see the luxury and wealth of the cities. Panama is a country where poverty runs deep within the veins of its citizens. With money tight in a family, there are no sure ways to get medical help or even the adequate nutrition they need to survive satisfactorily. The scariest part about this problem is that Panama isn't the only country experiencing this problem. It is the bigger countries like the United States of America, China, Japan, Britain, etc., that are putting such a strain on a family in poverty. Gas consumption is too high in

the world and needs to be brought down. The only hope citizens could have to solve this problem is through extensive research and new technologies, fighting hand in hand with the people around the world. This is the only way to dream of not a better “tomorrow” but a better “day after tomorrow”.

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