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Is Ethanol Going to be a Real Driver?

INTRODUCTION

A lot of forums, interviews, protocols, and many other reunions have taken place since we have realized that our planet is being damaged and destroyed with all the activities that produce pollution, which is created by necessities of the population in every country in the world. Many governments have signed treaties in favour of our Earth, because as it has been said, this is the only planet we have, and each cause has its effect. Research about pollution is not separated from these treaties, and it has been discovered that a very strong cause of pollution is the fuel and gases that are produced by our automobiles, during the production of the fuel and with all its waste, which are projected into the environment, such as lakes and the atmosphere. Many substances are used for production and use of fuels, and those substances are obtained by the natural resources that surround our world; but since population has increased worldwide, necessities have grown too. As a result, natural resources are being exploited in an unconscious way; provoking pollution and damages to the biosphere. Many substances are used as fuels, but the most important seems to be oil. Oil has been used since the first car was built, and human beings have realized that it will end at any time, but in the meanwhile the exploitation of this natural resource is bringing problems to the entire world, including the population and the environment. Oil is obtained from natural deposits that are located mostly in the ocean, and for its exploitation many machines and procedures are needed. During the process, waste is produced, and it is thrown into the ocean, causing pollution. After its production, oil is used as a fuel in cars, and burning it in the motor generates gases that damage our environment; and can cause many damages to the entire world, including us.

Due to this problem, research has been made and solutions have also had an important place in looking for the best way to stop, or reduce the damage that is caused to the Earth every day. Many scientists think that the solution for pollution is neither easy nor simple, but intentions and efforts are very important in the pursuit of a more appropriate way to produce fuels; and in many cases, some think bio fuels are the best option. Many opinions have emerged since the proposal of using bio fuels, which are home-grown fuels that are obtained from renewable resources or biological matter. Some experts say that benefits can be found in production of bio fuels that come from rural areas. We may assume that the production of bio fuels will increase investment in rural areas where corn and many other crops are used as bio fuels; resulting in higher employment and development of these forgotten areas. Producing crops for bio fuels will decrease the level of carbon dioxide, as the gas which is produced during the process of burning crops in order to obtain the energy comes exactly from the atmosphere.

Corn may be the first option of crops to be used to produce bio fuels. The advantages and disadvantages could be discovered during production. Corn normally, needs fertilizers and herbicides that can cause soil erosion to the area. We can also think that after governments decided to use corn as bio fuel, prices have increased the same as fees, tariffs and taxes; compared to another bio fuel, like soybeans' tariffs, which are slightly cheaper.

Ethanol is the resulting substance after production of corn as a bio fuel. Opinions and arguments around ethanol seem to be increasing as the use of ethanol is on the rise. Scientists that are in favour of using ethanol think that this use is increasing the quantity of subsidies to bio fuels in rural areas, because many years ago the budget for subsidies for agriculture was very low and even forbidden, but now, when the production of crops is an important requirement, and that the promotion of this procedure will increase power and economy in those rural areas. Budgets for these crops seem to be increasing and interest in this activity will mark the future and the survival of our atmosphere.

The subsidies mentioned above will help these rural areas and the population that work there. As investment in rural areas has risen, the cattle business seems to decrease, because money earned for corn production doubles or even triples profits obtained from them during a year. As a result, ethanol has been used as bio fuel, but it also has competitive situation due to prices and uses, because ethanol is cheaper than gasoline; but it gives fewer miles to the gallon than gasoline. Benefits to nature and the environment can also be found before and after the production of bio fuels. For instance, while corn is cultivated and produced, water used during the process is recycled, this means, it is used in soil as a fertilizer because it is very rich in nitrogen which helps the crops. Nevertheless, bio fuels are not exempt of polluting the atmosphere. First of all, to cultivate any crop used as bio fuel, fertilizers are needed; for example, the components of nitrogen, natural gas and diesel, are needed for cultivating crops, but they represent a very important and strong cause of pollution.

I have mentioned about corn as a bio fuel, but sugarcane should not be ignored. Sugarcane has been used for many years. In countries where the natural conditions permit it to be raised the same as in tropical climate; scientists and researchers have discovered that a stalk of sugarcane contains 20% of sugar alone, compared to the quantity or amount that corn contains. Talking about productions, cane delivers 600 to 800 gallons of ethanol an acre, which is a very important amount for rural business. The process of production and burning ethanol from sugarcane pollutes 55 to 90 percent less than gasoline does. Corn and sugarcane have been mentioned as a bio fuel, but we also have to be aware that there are many other substances that can be used as bio fuels, that can contribute to have better living conditions for population, and to help decrease the damage that has been done to our world.

First of all, we can think about the waste of biomass, this production will reduce the use of fossil fuels, the same as greenhouse emissions and reduce pollution and waste management problems. Studies around this procedure have revealed that the use of waste will contribute in the reduction of global warming. But what is bio waste? Bio waste is the set of products that are normally taken as garbage, and that studies have revealed that can be used as bio fuel in order to produce or create energy. Some examples are municipal solid wastes, agricultural residues, farm waste and other biodegradable waste streams. We can also take into consideration the landfill gases, which come from landfill sites where the waste is buried. They can be burnt and can be used as a source of energy, they can be burned either directly for heat or to generate electricity for public consumption. This gas contains approximately 50 percent methane, the same gas that is found in natural gas. We should also mention that as studies have been taking place around this issue, scientists have decided to divide bio fuels into two generations; the first one contains vegetable oil, animal fats, etc.; and the second one with products using bio mass to liquid cellulose bio fuels from non crops. Vegetable oil can only be used in engines that are adapted to diesel, and it is not a good source of energy. Another inconvenience is that it can only be used in warm climates. Vegetable oil can be filtered and processed in order to form bio diesel. Bio diesel is the most common bio fuel used in Europe. Bio diesel is produced from oils or fats using different types of procedures in order to form the bio fuel. This type of fuel is rather expensive, because it is only used in countries that are well developed with a stable and powerful economy. The second generation has been mentioned above, and the following are the components and processes that are involved and used in this generation. Bio hydrogen can be used in fuel cells to produce electricity, and it is produced from a biomass feedstock. It is produced in a process that includes gasification and the reformation of the methane obtained during the process; this type of bio fuel is very expensive and for well-developed countries. The methanol used in many activities today, can also be changed into bio methanol that is produced from biomass. The production of this bio fuel causes no infrastructure changes.

Mixed alcohols are produced from syngas, which catalysts are similar to those used for methanol. Mixed alcohols are superior to pure methanol and ethanol, and they have higher energy content. When blending with some elements or substances, the resistance to water upgrades and decreases evaporative emissions. Mixed alcohols also have another benefit, which is that they have lower heat of vaporization than ethanol that is important for cold starts.

Finally, wood diesel is considered to be very important in the protection of the environment. Oil that is used for the environment is extracted and then added to several engines, like some unmodified diesel engines. The waste product that is obtained because of this procedure is used as fertilizer. This product can be as carbon negative, not just carbon neutral; because it also returns to soil in carbon. Carbon negative decreases carbon dioxides in the air reversing the greenhouse effect not just reducing it.

Some years ago, a proposal of using algae as bio fuel came; and since then, research has continued in order to create a bio fuel that can be natural and renewable, but the most important detail is that it could be biodegradable. It is thought to be cheaper than many other bio fuels, and can be obtained easier than others, because they grow in humid places and in places with water as a source. The process to produce it is the following: algae need water, sunlight and carbon dioxide to grow. The oil they produce can then be harvested and converted into biodiesel; the algae's carbohydrate content can be fermented into ethanol. Both are much cleaner-burning fuels than petroleum-based diesel or gas.

After I had researched about the bio fuels I mentioned before, questions have emerged in my mind. Bio fuels can be used as a solution in order to decrease the damage we are doing to our planet; but are human rights and conditions of working safe enough? Should agriculture be used as way of producing bio fuels, or in order to stop world hunger? Are prices going to rise? What can countries with a low economy do with this issue? Are they a viable solution? In order to answer these questions, I decided to do some research about it. Many human rights are violated in plantations, and people die every day because their working conditions appear deplorable. Cutters die everyday because of heat, sun, exploitation, exhaustion and dehydration; these problems are expressed as the following:

“If alcohol is now considered a “clean” fuel, the process of making it is very dirty”

We can say that, nowadays, nutrition is based on food that comes from rural areas; that is cattle, crops, etc.

We have to be conscious that hunger is a problem that causes the death of 25000 people per day, especially young children. We also know that people who die are mostly from countries that are not well-developed; and that their economy may not subsidise all the credits needed for the production of ethanol or any kind of bio fuel; so they cannot satisfy the needs of society.

“Agriculture should be used to stop the hunger of the people. If one person went hungry, this would be a crime”.

The quote above symbolizes what researchers feel about the production of crops in countries with low development and low economy, where the natural resources just accomplish the needs of a part of the population, and the rest of them survive with a very little amount of food, causing the death of adults and children. So, which is the right way, cultivating crops for bio fuels, or in order to feed the population? That is for each person to decide. If crops are used for bio fuels, people are afraid of prices, because they are going to rise. Farmers all over the world have increased economic incentives to grow crops for bio fuels production instead of food production. If there is no restriction on price increases, this could lead to reduced food production and increased food prices and inflation. The impacts of this would be greatest on poorer countries or countries that rely on imported food for their subsistence. An example of this impact is Mexico. In early 2007 many reports said that there was a problem in Mexico due to rising prices of corn for tortillas.

Many environmental campaigners say that one problem of rising prices and using bio fuels is that economy drives are required in order to push through development of some other processes of the

second generation if the bio fuels. A viable solution is to increase the support of politics and industries to this issue, and the implementation of non food crops, including cellulosic bio fuels. Talking about the use of bio fuels in developing countries there are several points to consider. Bio fuel industries are being established in many developing countries. In many cases, developing countries have biomass resources that are becoming very valuable and appreciated by several countries.

Although these countries have the supply, they lack money in order to make and establish projects that will help to succeed and develop their economy. In some cases, countries are establishing and developing programmes for this kind of activities; and they are also basing their production of fuels on bio fuels. Many organizations around the world are supporting and supplying developing countries with money in order to use alternatives accessible to those who cannot have access to them.

CONCLUSION

After doing some research, I finally realized that bio fuels are a solution for the planet, but they cannot end the problem of pollution. We also have to think that the problem of pollution started many years ago, and that a solution for this problem cannot be as easy and accessible as it should. Promotion and efforts are taking place to make people around the world conscience of this problem, such as campaigns, videos and information. Many organizations are offering help and support for those countries that cannot afford bio fuels, or the costs of the production and development. We also have to be conscious that we are responsible for the damage we have done to our planet, and that we also have to look for solutions to stop the effects of that damage on the planet. We must realize that producing bio fuels will lead to other problems, and that we should have a plan to solve them.

Hunger, exploitation and many other problems that were explained before should be, and we have to have the conscience to solve them and help people deal with them. We can think of alternatives like transgenic corn, but this may be a solution that can cause controversy in the countries, due to the methods used in the corn. We also have to think of the impact that transgenic cause in all terms, like politics, society and culture. We have to think in methods that are viable for the entire world, and that the use of them does not represent a threat to health or to the culture of the countries involved. Talking about exploitation, we can think of regulations from the government. These regulations should consist of limits of working terms, rights, medical insurance and the responsibility of any damage or injury that results to the cutters, or any worker that helps developing the bio fuel industry.

Economy may also suffer the impact of the prices of bio fuels, because the importance of cultivating a crop will rely in the production of a bio fuel, not in feeding population. Food should be regulated and divided in order to make people get the fuels, but also feed themselves.

Answering to the question in the beginning of the essay, I think we cannot judge or think that ethanol, or any other bio fuel is going to solve the problems of pollution we have that involve our world, but we also have to be conscious that we are responsible for this problem, and that we cannot think of a definite solution but we can look for alternatives in order to decrease the damage we have done to our planet. I also think that human integrity should be respected, but we also have to respect our environment, trying not to exploit all the resources we have for fulfilling our necessities. What can we do in order to end this problem? An answer cannot be given as definite. But we have to remember that we only have one planet, and the destruction of it will cause the destruction of every living species in the world. Let us look for solutions, in order to have a better tomorrow for us and for the next generations.

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