SAVING THE FUTURE THROUGH BIOENERGY

by
Engr. Janzen Noel M. Valdez

In the progress of human lives, energy has been continually used up. We use energy in our houses, offices, cars and other facilities that include technology to make our life convenient and comfortable. People have been depended on it up to the point that everyone cannot imagine their lives without it. But unfortunately, its availability is limited and it is getting difficult for it to support the daily needs of the society.

Energy sources come in two forms: renewable and non-renewable. Renewable energy are those energy coming from renewable sources such as sun, water, wind and geothermal. These are considered as renewable because the sources are not depleted in the process. Also, they do not produce harmful effects on the environment. It is often called green energy because it is environmental friendly. On the other hand, non-renewable sources are those that get depleted over time. These include coals and fossil fuels. Sources of this type produce harmful chemicals which caused the current problems of the society today. Currently, we are mostly dependent on the latter one because of its availability.

It is evident that renewable sources of energy are better than the non-renewable ones but the opposite is currently happening. The reason that these energy sources are not entirely utilized is because of its insufficiency. It means that the energy coming from these are inadequate for the needs of the world. In addition to that, the transport of energy from these sources to the place where it is used is difficult. Unlike electricity that can be transported through wires, energy for vehicles must be stored first before it is used which is difficult for renewable sources. That is why this type is commonly found on infrastructures like houses and schools. While renewable sources shows a lot of limitations, non-renewable sources cover up for these. They can be transported and stored. The only problem is that it is very limited.
According to N. El Bassam (2013), in less than three centuries, the world consumed half of the fossil fuels that were produced from millions of years ago. It took tons of years to produce the energy and was just consumed for hundreds of years. This proves that the consumption of the energy is greater than the production of it. Moreover, since most of it is converted into electricity, a lot of it is lost along the process. According to F.F. Chen (2011), 69 percent of the converted energy is converted into heat and is lost. Even if the process becomes ideal, only 52 percent of it can be retrieved. The point is that the limited amount of energy is getting used up a lot with a very low efficiency. To meet the energy demand of the world, more fuel is used and more energy is lost.

Before the era of fossil fuels, our ancestors have been using bioenergy. This is the energy that is produced from solid, liquid or any chemical derived from plants. According to C. Baskar et.al (2012), “biopower” or biomass power is the power derived from biomass that can replace coals and natural gas in electricity production while “biofuel”, biomass fuel, is the fuel that can replace petroleum based products. Compared to fossil fuels, bioenergy does not take long to produce and compared to known renewable sources, it is very flexible since it can be used in many applications. In the past years, many bioenergy have been studied which include bioalcohols, biodiesel, vegetable oil, bioethers, biogas and solid fuels. These are not yet produced in large scales but are currently being pursued. Few industries have installed facilities in their compound to promote cultivation of bioenergy. With the current state of our energy industry, revival of these methods will be a good move but needs to be improved. Issues on bioenergy are: It comes from plants which is one of human’s primary food sources and it consumes a large of land area for production and takes a lot of resources to grow.
Many researchers have found that there are a variety of plants that are potential sources of biomass so as not to affect the source of food. They have tried to produce it by using grass, sugar, corn and soy bean. The key parameter for this is the high conversion efficiency of the material. One of the most popular researches on this line is algae. According to the study conducted by A. Mann (2013), algae have 50 % oil content and can be grown wastewater treatment plants. That is a high percentage of oil for its volume. An additional feature of this process is that the residue of the process can be further converted into other chemical like alcohols. Landfill input is lessened and so is the methane production. By doing so, land area consumption is compensated by bioenergy output.

Aside from solving energy issues, bioenergy also solves one of our main problems which is pollution. Carbon dioxide emissions through the use of fuels are massive and are a cancer to our environment. Through the use of biofuels, emissions of carbon dioxide are lessened because the carbon dioxide emitted by these fuels originally comes from the atmosphere unlike petroleum which only increases it. It also produces less greenhouse gases. If successfully pursued, lots of plants will be erected and will create job opportunities for people.

Bioenergy shows lots of potential for the future. Further researches on finding compatible and efficient sources will make a great leap to a more sustainable future.
References


