



### Biofuel as eco-friendly renewable energy approach

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Energy is an important factor of production in the global economy, and 90 % of the commercially produced energy is from fossil fuels such as crude oil, coal, and gas, which are non-renewable in nature. Much of the energy supply in the world comes from geo-politically volatile economies. In order to enhance energy security, many countries, including the USA, have been emphasizing production and use of renewable energy sources such as biofuels, which is emerging as a growing industry in the current economic environment. Biofuels have become a high priority issue in India, Brazil, the USA, the European Union as well as many other developing countries around the world, due to concerns of oil dependence and interest in reducing CO<sub>2</sub> emissions. All these regions have had significant subsidies or mandates for renewable energy production from agricultural sources. The impacts of these subsidies and mandates reach far beyond the borders of their economies. The very nature of biofuels production as a global economic activity affecting the pattern of energy demand and resource use motivates us to employ a global computable general equilibrium (CGE), since biofuel programs in various countries are mainly driven by external shocks and domestic policies.

The fast growing population, rapid modernization and industrialization have relentlessly increased the demand of energy in developing countries like India. The current demand of energy in India is mostly met from non-renewable resources such as natural gas and coal. Since these sources are non-renewable in nature, the reserve will be depleted one day. In addition, the dependency on these fossil fuels, which are largely been imported, has serious implications on economy and environment. Fossil fuels are coming to the end, scientist say that up to 2040, all the resources of fossil fuels will be finished. So for this reason scientist needs to focus their view on the alternative renewable energy resource such as solar energy, biogas, biodiesel, wind power, tidal energy etc.

Biodiesel as a bio-oil is an environmentally safe, low polluting fuel for most diesel internal combustion and turbine engines. The oil can be mixed with petroleum diesel fuel and stored anywhere petroleum is. It is made from fresh or waste vegetable oils (triglycerides) that are a renewable energy source.

Bio-diesel is an eco-friendly, alternative diesel fuel prepared from domestic renewable resources that is vegetables oils (edible & non-edible oil) and animal fats made up mainly of tryglycerides. Being vegetation in origin, these oils are the result of carbon sequestration. Further, their use along with fossil fuel reduces emission of CFC that are increased in depletion of Ozone layer and consequent increased UV radiation besides direct impacts on global warming, hence are eco-friendly. These are made up of fatty acid esters. These esters show striking similarity to petroleum derived diesel and hence are called "Bio-diesel". Bio-diesel is the most valuable form of renewable energy that can be used directly in any existing, unmodified diesel engine. It's having major importance in energy independence, smaller trade deficit, economic growth, air cleaner and less global warming. Karnataka state, with its State Bio Diesel Board stands top among all the states. It is sensitizing people and motivating rural community particularly youth as a subsidizing entrepreneur and off season vocation for farm women. University of Agricultural Sciences, Raichur in the farm machinery division is arriving at suitable proportions for different oils and machinery. However, more efforts are needed to focus on development of renewable energy sources like biofuel production from now on.

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