

## A STUDY ON BIO FUEL POLICY IN INDIA

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### ABSTRACT

The modernization of society in India is largely attributable to the country's rapid economic growth, which has helped lift millions of people out of poverty. However, economic aspirations have not been realized without incurring some expenses. The increased reliance on foreign sources of energy supply has a negative impact on India's energy security. The pollution that is caused by industry, transportation, and traditional stoves for cooking has a negative impact on air quality and is increasing emissions of greenhouse gases, which contributes to climate change. India started producing biofuel about a decade ago in an effort to lessen its reliance on oil imported from other countries and, as a result, enhance its energy security; now, India is one of the leading producers of jatropha oil. 2001 saw the beginning of India's 5% ethanol blending (E5) pilot programme, and in 2003 the government established its National Mission on Biodiesel with the goal of increasing its biodiesel blends to 20% by 2011–2012 (Government of India, 2002, 2003). In the same way that biofuel programmes in many other nations across the globe have been stymied, India's have as well. This is largely due to supply limitations as well as global worries around food security. In 2009, India's National legislative on Biofuels included a comprehensive plan for the biofuels programme as well as legislative measures that may be adopted to provide support for the programme. The policy also recommended a non-mandatory aim of a 20% mix for both biodiesel and ethanol by the year 2017. pertaining to the use of biofuels in India, with some recommendations given on the function of biofuels in the near and distant.

**Keywords:** *Bio Fuel, Economic development in India*

### INTRODUCTION

Energy is the power that is produced or generated by either the burning or combustion of fossil fuels such as petrol, diesel, coal, kerosene, coal tar and other similar substances, or by soaking up the sun's rays with the aid of solar panels and other such technologies. We need energy to power our industries, factories, vehicles, homes, and automobiles, and for this energy to have a positive influence on the natural environment, it must originate from a source that does not produce pollution. The vast majority of countries around the world produce their own electricity by burning fossil fuels, which, due to the potentially polluting properties of these fuels, have a negative impact on the environment in which they are located and pose a threat to human health, which in turn causes a variety of health risks. According to the theory of energy conservation, energy cannot be created nor destroyed; rather, it can only be transformed from one form to another. This is the only way energy can be dealt with. There are two broad categories that may be used to classify the various types of energy sources: those that are renewable and those that are not.

The term "renewable energy" refers to the type of energy that can be reused and is typically safe for the environment. On the other hand, the term "non-renewable energy" refers to the type of energy that is "non-

renewable," which means that it cannot be reused after it has been depleted, has a formation process that takes millions of years, and is harmful to the environment. One of the biggest contributions to the emission of greenhouse gases into the atmosphere is the burning of fossil fuels. This, in turn, adds to the phenomena known as global warming by causing a rise in the average temperature of the world. In addition to this, it contributes to the depletion of the ozone layer. At the start of the 20th century, the principal fuel source for the Henry Ford Model T vehicles was a mixture of ethanol and peanut oil. These autos were propelled by Henry Ford himself. After then, the discovery of petroleum reserves in various regions of the globe led to the beginning of a decade in which petrol and diesel were available at extremely low prices and were quite easy to get. During this time, there was absolutely no thought given to the use of biodiesel. However, in recent times owing to recent rises in the price of oil around the globe as well as global warming, the utilization of biofuels has lately seen a comeback in popularity. This is because biofuels are more environmentally friendly than traditional fuels.

### **Bio fuels**

In addition to its use as a source of fuel for ranges and ovens, biofuels may also be utilized as an alternative fuel in automobiles. The manufacturing of biofuels may result in the creation of useful byproducts. As yet another of its many uses, it may be found in boilers where it serves the function of a heating element. Utilizing biofuels comes with a number of benefits, some of which include their ability to be refilled, their rapid decomposition, and their complete composition of biomass, which is another name for organic materials. All of these aspects contribute to the fact that biofuels may be considered environmentally friendly. In comparison to other types of renewable energy sources, they have a very simple design and are uncomplicated to put into practice. In addition to this, they help bring about a reduction in the output of greenhouse gases.

Biofuels do not add to the total amount of carbon dioxide in the atmosphere and so help to keep it at its current level. This is because they do not release any more carbon dioxide into the air. Simply combining them in the fuel tank with either petrol or diesel before starting the engine is all that is required to utilize them in a regular petrol or diesel engine. Because of this, they are able to be used. There is no specific hardware supplied, nor is there any change made to the engine. The fact that it is a high-quality petrol leads to improvements in both the performance of the engine and the cleanliness of the fuel system. These benefits are a direct result of using the petrol. In addition to this, it helps to raise the octane number, which in turn contributes to a reduction in the quantity of harmful contaminants. The fact that it may be obtained quickly and at a cost that is not prohibitively expensive is yet another significant advantage offered by this option.

The manufacture of it here in the country has the ability to generate job opportunities and career paths on the market. As a direct result of this, there will be less of a dependence on the resources of other countries in the production of fossil fuels. The use of biofuels has a tremendous lot of promise that has not yet been realized. It provides great advantages in compared to the traditional sources of energy, both in terms of energy security and the effect on the environment. Biofuels may be in the form of liquids or gases, such as animal fats or vegetable oils; they can also be in the form of solids, such as sawdust, wood, domestic rubbish, agricultural waste, or charcoal; for example, animal fats and vegetable oils are both examples of biofuels that fall into the first category.

### **Ethanol as a Fuel**

One kind of biofuel that is used extensively is ethanol, and there are many more applications for it as well. Ethanol is added to fuel as an additive in order to obtain a significant increase in octane number and to control

the emissions of polluting gases that are generated by motor vehicles. Engines that operate on ethanol give a power output that is somewhat superior to that of typical gasoline-powered engines. Because ethanol has a lower energy density compared to petrol, ethanol fuel tanks need to be replaced more often in order to go the same distance as petrol fuel tanks.

This is because ethanol is a renewable resource. Both Brazil and the United States of America employ ethanol as a fuel source, and both of these countries actively encourage the production of ethanol; the fundamental reason why Brazil and the United States of America are the greatest producers of ethanol in the world is due to the fact that both of these nations actively promote the manufacture of ethanol. Ethanol fuel is produced by the fermentation of sugar, which may be found in a wide variety of foods and plants, including corn, the skins of potatoes, wheat, sugarcane, and many more.

### **Biodiesel**

Biodiesel is a fuel that is renewable, clean, and creates less emissions than fuels that are produced from petroleum, such as petrol. Examples of these fuels are diesel and petrol. In addition, it is easy to transport and use due to the fact that it may be broken down naturally. It is conceivable to make it compatible with engines that have not been modified in any way by only mixing it with petroleum engines that emit fewer dangerous emissions. This would make it viable to use it in existing vehicles. In several countries of Europe, the use of biodiesel has become more widespread. Because it is generated from plants, it is easy to replace via recycling on the farms because it can be done there. Both biodiesel and ethanol are examples of clean fuels that have the potential to be generated locally and are quite easy to get your hands on as a source of energy. As a result, the utilization of biofuels is compatible with the rules established by both society and the economy.

### **Pros of Bio fuels**

Using biofuels, which are healthier for the environment than traditional fuels, will result in a decrease in the amount of pollution produced overall. It is general known that pollution is a major issue facing all of the world's developing countries at the current moment. This is particularly true in the growing nations of. In spite of this, fossil fuels are depleting at an alarming pace; they are a limited resource that cannot be replaced; they are a significant factor in the deterioration of the environment as a result of the high levels of pollution they produce; and they need careful management in order to avoid additional harm. As a consequence of this, we are turning our attention towards different types of energy that are either more environmentally friendly, cause less pollution, or may be considered to be regenerative. The countries that are located in the Gulf area are the ones providing us with crude oil. The price of crude oil on the worldwide market is seeing substantial fluctuations as a direct result of the continuing civil conflicts and other conflict-like events that are occurring in these countries. If in the next years we are able to experiment with a new sort of fuel, then this innovation will be beneficial to the economy of our country, which will in turn profit from it.

Since the oil that is generated in our own country can only meet one-fourth of the demand for oil in our nation, we must import oil in order to meet the other three-fourths of the demand in our nation. Using biofuels is one way to cut down on pollution. They are responsible for a decrease in the overall quantity of carbon emissions. The manufacturing of motor vehicles is the industry that is most responsible for the pollution that occurs in our country. The usage of biofuels has arisen as a key component in the battle against air pollution as a direct consequence of the rising stringency of the rules for the emissions that may be generated by motor vehicles. These criteria are intended to reduce the amount of pollution that is released into the atmosphere. When we go from Bharat stage IV to Bharat stage VI, the laws for vehicle emission will be improved even more, which

will ultimately lead to a reduction in the quantity of pollution that is produced. On the other hand, rather than going from BS V1 to BS VI and so on, there is a need to manufacture biofuels that may be incredibly effective as a result of the fact that they are less polluting and will be able to fulfil the criteria that are sought for.

### **National Biofuel Policy 2018**

The policy broadens the potential scope and feasibility of raw materials for the manufacture of ethanol by permitting the use of sugar-containing materials (such as sugarcane, sugar beetroot, etc.) and starch-containing materials (such as maize, cassava, damaged food grains like wheat, etc.) in the manufacturing process. This allows for a greater variety of raw materials to be used in the production of ethanol. With the permission of the National Biofuel Coordination Committee, the policy authorizes the utilization of excess food grains for the manufacture of ethanol, which may then be blended with petrol. However, this approach does have some drawbacks, one of which is that if farmers are able to earn a higher price for the crops, they sell to biorefineries, they would likely choose to sell the majority of their food grains to these refineries rather than keeping them for themselves, which will have an impact on the food supply. The strategy implies a gap in the financing scheme for generation biorefineries in addition to extra tax incentives and a higher purchase price as compared to first generation biofuels. This is in conjunction with an emphasis on the development of advanced forms of biofuels. The policy incentivizes the establishment of a functional supply chain system for the manufacture of biodiesel from non-edible oilseeds, used cooking oil, short-gestation crops, and the like by providing incentives.

### **OBJECTIVES**

1. To study the bio fuel policy in India.
2. To study the Challenges Associated with Biofuels in India.

### **India's Biofuel Policy**

Under the terms of the Power Alcohol Act, which came into effect in 1948, India was the very first nation in the world to make it lawful to mix ethanol with petrol. The major goal was to include ethanol produced from molasses into gasoline as a component of the mix in order to bring the price of sugar down, reduce the amount of molasses that would be wasted, and reduce the amount of dependence on the importation of gasoline. Following that, the Act was abolished in the year 2000, and in January of 2003, the Government of India began the Ethanol Blended Petrol Programme (EBPP) in nine states and four union territories throughout the country. This initiative promotes the use of ethanol as a fuel additive for blending with petrol, and it also promotes the use of biodiesel produced from oils that are not suitable for human consumption as a fuel additive for blending at a rate of five percent with diesel fuel. The National Mission on Biodiesel, which was created by the government in April 2003, reached the conclusion that the tree-borne oilseed *Jatropha curcas* was the one that was most suited for the production of biodiesel. Because there was a scarcity of ethanol during the 2004-2005 academic year, the blending requirement was made voluntary in October of that same year. This was done as a consequence of the situation. It was brought back in October of 2006 as a part of the second phase of the EBPP programme, which was implemented in 20 states and 7 union territories. These ad hoc policy adjustments persisted until December 2009, when the government finally released a comprehensive National Policy on Biofuels. Since that time, the government has been following the new policy. This

regulation was put in place by the Ministry of New and Renewable Energy (MNRE), and it stipulated that diesel and petrol must include at least 20% biofuels by the year 2017.

### **Challenges Associated with Biofuels**

The major challenge that is posed by the use of biofuels is one in which significant quantities of food are not readily available. Nations like India that are on the road to growth yet nevertheless have frighteningly high rates of hunger and famine. The global hunger index (GHI) 2022 ranked India 107th out of 121 countries; as a result of the COVID outbreak, food security worries for India have intensified. India was ranked 107th out of 121 nations. According to the Global Hunger Index (GHI) 2022, India came in at position 107 out of 121 nations. The use of essential commodities like maize, rice, and sugar in the manufacture of more biofuels will have an additional negative impact on India's ability to provide for its population's nutritional needs. Forests will be cut down, and the number of other kinds of crops that may be grown will decrease, if biofuel crops are promoted and given financial incentives. This challenge is one that India is now attempting to overcome with its sugar plants. Corn is the single most important contributor to the total amount of energy that is included in biofuels. As a direct result of this, the amount of maize that was harvested reached an all-time high, while the amount of all of the other crops that were produced decreased.

There is a possibility that this will have an influence, analogous to an externality, on the price of crops, inflation in the food market, and demand on the market. According to the results of a case study of the corn and biofuel markets, the price of corn increased from \$2 per bushel to \$6-7 per bushel as a direct consequence of the significant demand for maize in the biofuel market. This demand was a direct result of the corn being used in the production of biofuels. Both the cost of feeding animals and the cost of regular consumption were impacted as a result of this. In recent years, there has been a meteoric rise in the price of various things that are created from maize and are designed for daily use. Research and development of producing biofuels and blending technologies are not as cost-effective as they might be, which is another barrier that must be overcome. Other methods, such as algae, solar power, and electro fuels, which are some of the most developed alternatives for biofuels, are more efficient than the processes of heat and fermentation, which are used in the creation of first- and second-generation biofuels, respectively. However, these processes are not as efficient as other methods. It is of the utmost importance to offer financial support for the investigation and development of advanced biofuels of the third and fourth generations.

### **CONCLUSION**

Since of this, the authors of this study come to the conclusion that ethanol is a feasible alternative to expensive and possibly hazardous imported aromatics since ethanol is both cost effective and less damaging than other oxygenates. This leads them to the conclusion that ethanol is a viable option. It is critical that the domestic production of biofuels from the first generation be bolstered and supported while the technology to create ethanol from the second generation is still in the process of being developed and demonstrating its economic practicality. These adjustments to the strategy will result in lower prices for petrol, improvements to air quality, savings in foreign currency, and enhanced efficiency in the oil industry. In addition, shifting to the use of biofuels would reduce the amount of dependence that our country has on the economies of other countries around the world for the importation of oil, which would help our country reduce the gap in the trade deficit that it now has. It will aid our country in removing pollution caused by the burning of fossil fuels, which is especially detrimental to society in terms of both its health and its environment. This will be accomplished via the use of cleaner energy sources.

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