

## General Studies-3; Topic– Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

### Biofuel Development Programme in India

#### 1) Introduction

- Energy is a critical input for socio-economic development.
- Conventional or fossil fuel resources are limited, non-renewable, polluting and, therefore, need to be used prudently.
- Renewable energy resources are indigenous, non-polluting and virtually inexhaustible. Therefore, their use should be encouraged in every possible way.
- Biofuels are liquid or gaseous fuels produced from biomass resources and used in place of, or in addition to, diesel, petrol or other fossil fuels for transport, stationary, portable and other applications.
- Biofuels are environment friendly fuels and can provide energy security.

#### 2) Advantages

- Biofuels provide a strategic advantage to climate change mitigation and promote sustainable development.
- They supplement conventional energy sources in meeting the rapidly increasing requirements for transportation fuels.
- Meet the energy needs of India's vast rural population.
- They satisfy the energy needs in an environmentally benign and cost effective manner while reducing dependence on import of fossil fuels and thereby providing a higher degree of National Energy Security.
- Biofuels stimulate rural development, create employment opportunities and boost farm incomes.
- Using advance technologies, the waste in municipal solid waste (MSW) can be converted to bio-fuels. This helps in reduction of 62 million metric tonnes of MSW generated in the country.
- By using cooking oil as a potential feedstock for biodiesel will prevent diversion of used cooking oil in the food industry.

#### 3) National Policy on Biofuels, 2018

- The Union Cabinet approved National Policy on Biofuels – 2018 in order to promote biofuels in the country.
- It will help India's efforts to cut energy imports and carbon emissions.
- It augers well with ongoing initiatives of Government such as Make in India, Skill Development and Swachh Bharat Abhiyan.
- It also offers great opportunity to integrate with ambitious targets of doubling of import reduction, farmers' income, employment generation, waste to wealth creation.
- The policy has expanded the scope of raw material for ethanol production to include sugarcane juice, sugar beet, sweet sorghum and starch containing materials such as corn, cassava, and damaged grains.
- The policy allows use of surplus foodgrains for production of ethanol for blending with petrol with approval of National Biofuel Coordination Committee.
- This will ensure farmers get appropriate price for their produce during the surplus production phase.
- The policy, which aims to provide financial and fiscal incentives specific to a biofuel type, categorized biofuels as first generation (1G), second generation (2G) and third generation (3G) fuels.

- The first generation category of biofuels includes bioethanol and biodiesel.
- The second generation comprises ethanol and municipal solid waste.
- The third generation includes bio-compressed natural gas (CNG).
- With a thrust on advanced biofuels, the policy indicates a viability gap funding scheme for 2G ethanol bio-refineries of Rs5,000 crore in six years.
- The policy encourages setting up of supply chain mechanisms for biodiesel production from non-edible oilseeds, used cooking oil, short gestation crop.
- The government aims to develop a Rs1 trillion biofuel economy.

#### 4) Concerns / Challenges

- Biofuels could lead to conflict with food security.
- The targets of earlier ethanol blending were not met.
- Fuel blending with ethanol varies from 85 per cent (E85) in Australia to vehicles run on 100 per cent (E100) ethanol in Brazil, where the ethanol blending mandate is 27 per cent (E27).
- India has an abysmal 2-4 per cent blending rate.
- National Biofuel Policy, 2018 is silent about octane, which has direct consequences of air quality and pollution — octane assists in proper combustion of fuels and thereby impacts vehicular emissions.
- Petrol is blended with cancer-causing imported aromatics to boost octane rating, with negative consequences on health and emissions.

#### 5) Way Forward

- It is important to enable the creation of facilities for the biofuel sector to develop.
- Development and implementation of new technologies.
- Enabling and encouraging entrepreneurship in these sectors.
- Removing the blocks in prevailing purchase systems and facilitating marketing of biofuels.
- If the marketing and distribution is made easier, a number of large industries will enter this field, which will result in the growth of the sector and, ultimately, the increased use of green fuels.
- It will be important to create sustainable support mechanisms for investors in feedstock development, as the US, the European Union, China and Brazil have shown.
- There is a huge potential for farmers to grow feedstock yielding biofuels in the periphery of their farms and thereby have a secondary source of income.

#### 6) Conclusion

- A policy is essentially a resolution and not a solution.
- While the biofuels policy points out a direction, solutions have to emerge from entrepreneurial activity, from government advisories to farmers, and from assistance in advice on multi-cropping.

#### 7) Facts for Prelims

- 'Bio-ethanol': ethanol produced from biomass such as sugar containing materials, like sugar cane, sugar beet, sweet sorghum, etc.; starch containing materials such as corn, cassava, algae etc.; and, cellulosic materials such as bagasse, wood waste, agricultural and forestry residues etc.
- 'Biodiesel': a methyl or ethyl ester of fatty acids produced from vegetable oils, both edible and non-edible, or animal fat of diesel quality.
- Other biofuels: biomethanol, biosynthetic fuels etc.