Ethanol Blending in India

Why in news?

India in 'G20 Energy Ministers' 2023, has rolled out 20% ethanol-blended petrol in 2023 and aims to cover the entire country by 2025.

What is ethanol blended petrol?

- Ethyl alcohol or Ethanol *(C2H5OH) is a biofuel that* is naturally made by fermenting sugar.
- It is basically *99.9% pure alcohol* that can be blended with petrol.
- While it is mostly derived by extracting sugar from sugarcane, other organic matter like foodgrains can also be used for their production.

Status of Ethanol Production in India
• India is the ***world's 3rd largest energy consuming nation*** and a significant part of India's energy requirement is met through oil imports. • Ethanol production capacity increased *more than 2.5 times* and no. of distilleries *increased by 66%* in 8 years. • Most of the ethanol production in India comes from *B Heavy Molasses.* • Ethanol Industry is expected to grow by 500%. • India has doubled ethanol blending with petrol to ***10%** in the last two years.* • Ethanol blending will reach 12% in 2023 and meet the target of ***25% by 2025***.

What are the advantages?

- **Energy security-** It will reduce the import bill and save Rs 30,000 crore of foreign exchange per year and lower the carbon emissions.
- **Farmers' income-** As the ethanol feedstock is diversified (rice, maize, jowar etc.,) it will increase farmers' income.

  Ashok Dalwai committee recommends for doubling farmers income by farm diversification.

- **Employment generation-** With new technology and ethanol production there will more employment opportunities created.
- **Sustainability-** Ethanol can be procured even from the damaged foodgrain and vegetable waste, so that it does not compromise on food security.
- **Fuel India-** Uttar Pradesh and Bihar would "fuel India" in future as Punjab, Haryana, Maharashtra feeds India.

Uttar Pradesh is a major sugarcane producer, Bihar is the major producer of maize.

- **By-products-** The new molasses-based distilleries gives around 28% of potash that can be used as fertilizer and the by-product can be sold as animal feed.

What are the issues with ethanol blending?

- **Availability of sufficient feedstock-** The ethanol production via food grains which is the staple crop of India may pose a challenge to the food security.
- **Regional disparity-** There are some states which produce ethanol more than the requirement for blending within the State.
- **Climate Change-** Weather related events like flood, drought pose significant challenge on food grains.
- **Low energy content-** The energy content of ethanol is low (almost 35%) than that of petrol. Thus, vehicles running on ethanol have poor mileage.
- **Engine stalling-** This is due to phase separation as ethanol has high affinity for water, it gets separated from petrol when it comes in contact with water.

Steps Taken to Promote Ethanol Blending in India
• **Nodal agency-** ***Department of Food and Public distribution*** is the nodal agency for promotion of fuel grade ethanol producing distilleries in the country. • **Ethanol procurement-** Government has allowed ethanol procurement from sugar cane based raw materials, surplus rice and maize from Food Corporation of India. • **Ethanol Blended Petrol Program-** It was launched in 2003 with the aim to promote the use of renewable fuels. • Started with 5% blending, it has set a target of 10% ethanol blending by 2022 and *20% blending (E20) by 2030 which was now shifted to 2025-26.* • **National Policy on Bio fuels –** It was launched in 2018 which prescribes as indicative target of *5% blending of biodiesel in diesel by 2030.* • **Differential pricing-** The Government fixed higher prices for ethanol produced from B-heavy molasses and whole sugarcane syrup to compensate mills for revenues foregone from reduced/nil production of sugar. • **GST-** Goods & Service Tax (GST) on ethanol meant for EBP Programme has been reduced from 18% to 5%. • **Interest Subvention Scheme**-It is for enhancement and augmentation of the ethanol production capacity which would help in year round production. • **Roadmap for ethanol blending in India 2020-25-** It is released by Niti Aayog which recommends measures for ethanol blending in India.

What lies ahead?

- **Feedstock diversification-** Ethanol yields from grains are actually higher than from molasses.
    - For example, 1 tonne of rice yields around 450-480 litres of ethanol.
- **Augment Ethanol production capacity-** There should be uniform availability of ethanol blends in the country.
- **Infrastructure**- Oil Marketing Companies will need to prepare for the projected requirement of ethanol storage, handling, blending and dispensing infrastructure.

- **Single window clearances**- Faster regulatory clearances are the need of the hour for ethanol production units
- **Ethanol compatible vehicles** - Higher ethanol compatible vehicles need to be produced through incentives.

References

1. Indian Express| Explained how to blend more and better
2. Times of India| What is ethanol blending petrol
3. PIB| Ethanol Blending Program

