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## 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.

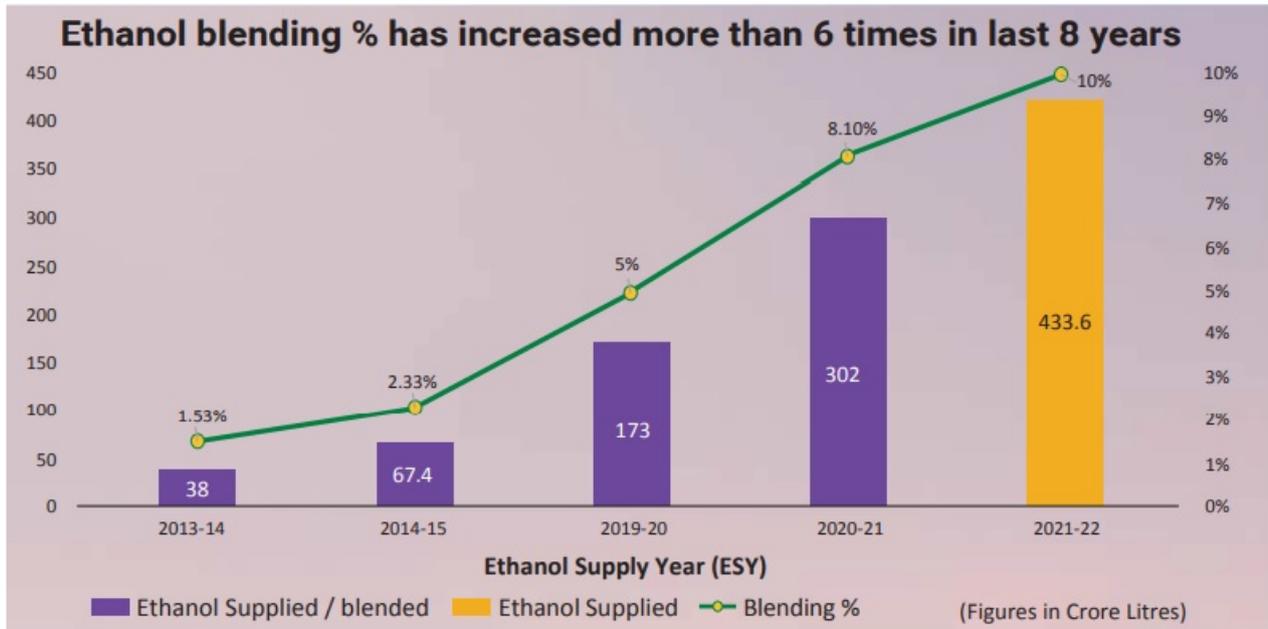
### What is ethanol blended petrol?

- Ethyl alcohol or Ethanol ( $C_2H_5OH$ ) 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.

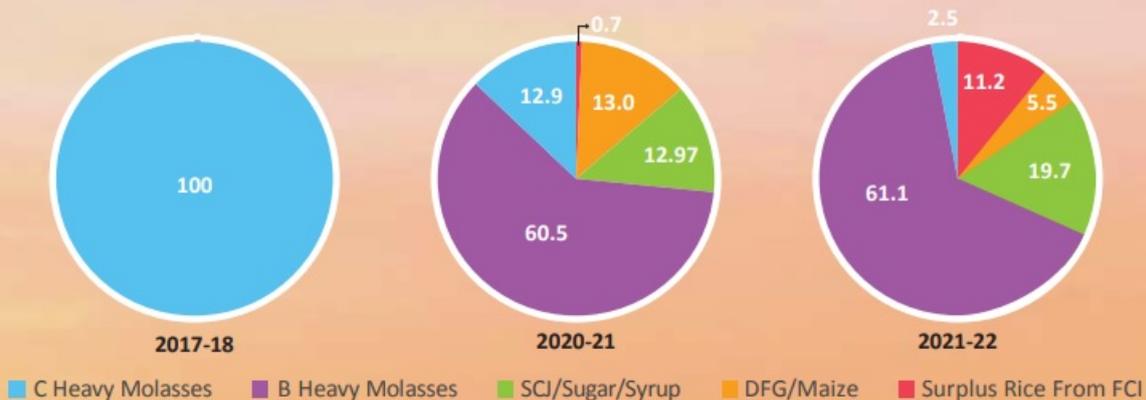
### Status of Ethanol Production in India

- 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%.

## ETHANOL BLENDING IN INDIA



## Ethanol %age contribution from different feed stocks



- 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**.

## AVERAGE ETHANOL BLENDING WITH PETROL (%)



## 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](#)



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