



## Ethanol Plant

**For Prelims:** Ethanol Blending, Biofuels, Crude Oil, 2018 National Policy on Biofuels

**For Mains:** Ethanol Blending and its significance

### Why in News?

On [World Biofuel Day](#) 2022, the government of India announced a **2<sup>nd</sup> generation (2G) ethanol plant** to be set up at the **Indian Oil Corporation's refinery** in Haryana.

- This ethanol plant will help reduce [air pollution](#) from the Delhi and the NCR region along with generating additional income and [green fuel](#).

### What is World Biofuel Day?

- **About:**
  - It is celebrated every year on 10<sup>th</sup> of August.
  - It is observed to **raise awareness** of the importance of [non-fossil fuels](#) as a substitute for **conventional fossil fuels**.
- **History:**
  - This day is observed in honour of **Sir Rudolf Diesel**.
    - He was the inventor of the **diesel engine** and was the first to predict the possibility of [vegetable oil](#) replacing fossil fuels.

### What do we know about the Ethanol Plant?

- It will boost India's [waste-to-wealth](#) endeavours by utilising about **2 lakh tonnes of rice straw (parali)** annually to generate around 3 crore litres of ethanol annually.
  - This plant will also utilize **maize and sugarcane waste** besides **paddy straw** to produce ethanol.
- The project will provide **direct employment to people** involved in the plant operation and **indirect employment will be generated** in the [supply chain](#) for **rice straw cutting, handling, storage**, etc.
- The project will have **zero liquid discharge**.
  - Through **reduction in burning of rice straw**, the project will contribute to a **reduction of greenhouse gases** equivalent to about **3 lakh tonnes of carbon dioxide** equivalent emissions per annum, which can be understood as equivalent to **replacing nearly 63,000 cars annually on the country's roads**.

### What Is Ethanol?

- **About:**
  - It is one of the principal **biofuels**, which is **naturally produced** by the **fermentation of sugars** by yeasts or via **petrochemical processes** such as ethylene hydration.
  - It is a **domestically produced** alternative fuel **most commonly made from corn**. It is also made from **cellulosic feedstocks**, such as crop residues and wood.
- **Ethanol as Fuel:**
  - The use of ethanol as a fuel for **internal combustion engines**, either alone or in combination with other fuels, has been given much attention mostly because of its possible **environmental and long-term economical advantages over fossil fuel**.
  - **Ethanol can be combined with petrol** in any concentration up to pure ethanol (E100).
    - **Anhydrous ethanol** (ethanol without water) can be blended with petrol in **varying quantities** to reduce the consumption of petroleum fuels, as well as to reduce **air pollution**.

## What are India's Other Initiatives regarding Biofuels?

- **Ethanol Blending Programme:**
  - It is aimed at reducing the country's dependence on **crude oil imports**, cutting carbon emissions and **boosting farmers' incomes**.
  - The Government of India has advanced the target for **20% ethanol blending in petrol** (also called E20) to 2025 from 2030.
  - India has already achieved the target of **10% ethanol blending in petrol** with the country's ethanol production increasing to 400 crore litres.
- **The National Policy on Biofuels-2018:**
  - It provides an indicative target of 20% ethanol blending under the Ethanol Blended Petrol (EBP) Programme by 2030.
- **E-100 Pilot Project:**
  - TVS Apache two-wheelers are designed to run on E80 or pure ethanol (E100).
- **Pradhan Mantri JI-VAN Yojana, 2019:**
  - The scheme aims to create an ecosystem for setting up commercial projects and boost Research and Development in the 2G Ethanol sector.
- **Repurpose Used Cooking Oil (RUCO):**
  - The Food Safety and Standards Authority of India (FSSAI) has launched this initiative that will enable collection and conversion of used cooking oil to biodiesel.

## Way Forward

- **Ethanol From Wastes:**
  - India has a real opportunity here to **become a global leader in sustainable biofuels policy** if it chooses to refocus on ethanol made from wastes.
    - This would bring both **strong climate and air quality benefits**, since these wastes **are currently often burned, contributing to smog**.
- **Prioritize Crop Production:**
  - With our depleting groundwater resources, arable land constraints, erratic monsoons, and dropping crop yields due to **climate change**, **food production must be prioritized over crops for fuel**.
- **Alternative Mechanism:**
  - To achieve the key goal, that is **emissions reduction**, alternative mechanisms-enhanced **Electric Vehicles** uptake, installation of additional renewable generation capacity to allow **zero-emissions** recharging, etc. need to be evaluated.

## UPSC Civil Services Examination, Previous Year Questions (PYQs)

**Q. According to India's National Policy on Biofuels, which of the following can be used as raw materials for the production of biofuels? (2020)**

1. Cassava
2. Damaged wheat grains
3. Groundnut seeds
4. Horse gram
5. Rotten potatoes
6. Sugar beet

**Select the correct answer using the code given below:**

- (a)** 1, 2, 5 and 6 only  
**(b)** 1, 3, 4 and 6 only  
**(c)** 2, 3, 4 and 5 only  
**(d)** 1, 2, 3, 4, 5 and 6

**Ans: (a)**

**Explanation:**

- The National Policy on Biofuels, 2018, allows production of ethanol from damaged food grains like wheat, broken rice, etc., which are unfit for human consumption.
- The Policy also allows conversion of surplus quantities of food grains to ethanol, based on the approval of the National Biofuel Coordination Committee.
- The Policy expands the scope of raw material for ethanol production by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption for ethanol production. Hence, 1, 2, 5 and 6 are correct.
- Therefore, option (a) is the correct answer.

**[Source: HT](#)**

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