



DATE: 30 APRIL 2026

## 1 Stubble Burning (Source: The Hindu)

*Stubble burning, also known as parali burning, is the practice of setting fire to leftover crop residue in fields after harvest. This is a prevalent practice in North-West India, particularly in states like Punjab, Haryana, and Uttar Pradesh.*

### Reasons for Stubble Burning:

- **Quick and Inexpensive Method:** Farmers find it to be a quick and cheap way to clear their fields for sowing the next crop.
- **Lack of Alternatives:** Limited access to or awareness of alternative methods for crop residue management.

### Impacts of Stubble Burning:

- **Air Pollution:** Stubble burning is a major contributor to air pollution, particularly PM2.5 particles, leading to respiratory problems and health issues.
- **Soil Degradation:** Burning destroys essential nutrients and microbes in the soil, reducing fertility and long-term productivity.
- **Climate Change:** Releases greenhouse gases like carbon dioxide, contributing to climate change.



### Government Initiatives:

- **National Policy on Sustainable Agriculture (2015):** Promotes crop residue management practices.
- **Sub-Mission on Agricultural Mechanization (SMAM):** Provides subsidies for machinery like Happy Seeder that can sow seeds directly into the stubble.
- **Financial incentives:** Schemes to encourage farmers to adopt alternative practices like composting or baling.
- **National Green Tribunal (NGT) bans:** Imposed bans on stubble burning with penalties for violations.



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## 2 Ethanol Blending (Source: The Hindu)

Ethanol Blending involves mixing of ethanol with petrol to create cleaner, more sustainable fuel. Initially, the target was 5% blending, which has now been increased to 20% blending.

- The present target is E100 (pure ethanol). E100 needs flex-fuel vehicles that can run on varying ethanol blends.

### **Benefits:**

- Reduces the hydrocarbon emissions, making the atmosphere cleaner (GHG emissions in case of use of sugarcane and maize-based ethanol are less by 65% and 50%, respectively, than those of petrol)
- Saves precious foreign exchange by reducing demand for imports.
- Ensures an alternate source of income for farmers.

### **Challenge:**

- It can lead to a food security crisis due to food crop diversion and water usage for sugarcane cultivation.

### **Ethanol Blended Petrol (EBP) Programme**

- Aimed at mixing ethanol with standard motor petrol. Operating under the ambit of the National Biofuel Policy (NBP) 2018, the program is driven by the Ministry of Petroleum and Natural Gas.
- Its primary goals are to reduce India's heavy reliance on imported crude oil, cut greenhouse gas emissions, and boost farmers' incomes by creating a lucrative alternate market for agricultural produce.

### **Generation of Ethanol**

- **1st Generation Ethanol:** It is made from food crops such as cereals (rice, wheat, barley, corn and sorghum), sugarcane, sugar beet etc.
- **2nd Generation Ethanol:** It is made from ligno-cellulosic or woody biomass, or agricultural residues/waste such as wheat straw, corn stover, wood etc.
- **3rd Generation Ethanol:** It includes those derived from aquatic biomass such as algae.
- **4th Generation Ethanol:** It is derived from engineered plants and microorganisms.



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## ETHANOL BLENDING

Ethanol is blended with gasoline to produce cleaner, renewable fuel.

**ETHANOL** ( $C_2H_5OH$ )

**GASOLINE**

**BLENDED FUEL** ( $E10, E15, E20, \text{etc.}$ )

**BLENDED FUEL E10**

COMMON ETHANOL BLENDS			
<b>E10</b> 10% Ethanol 90% Gasoline	<b>E15</b> 15% Ethanol 85% Gasoline	<b>E20</b> 20% Ethanol 80% Gasoline	<b>E85</b> 85% Ethanol 15% Gasoline

**BENEFITS**

- Reduces greenhouse gas emissions
- Supports energy independence
- Renewable and sustainable

## 3 Mali (Source: The Hindu)

- **Location:** Mali is a landlocked country in West Africa.
- **Capital:** Bamako
- **Border Countries:** Algeria, Niger, Mauritania, Burkina Faso, Côte d'Ivoire, Guinea, and Senegal.
- **Associated Geography:**
  - It is also part of the Sahara Desert, the Sudanian savanna.
  - Mali is one of the countries in Africa through which the Tropic of Cancer passes.

