

1 Gaganyaan Mission (Source: The Hindu)

Gaganyaan Mission is the manned space mission of India.

Fact To Know

- The crewed spaceflight plans to place humans to Low Earth Orbit (LEO) in the initial missions.
- Will help India in gaining practical knowledge and experience in launching future space exploration missions.
- The first uncrewed mission with a robot called Vyom-Mitra will help in assessing the preparedness of ISRO in manned missions.

Manned Space Exploration Across the World

- Project Apollo of the USA: Moon
- Artemis Programme of the USA: Moon
- Tiangong Space Station: China





2 Ethanol Blending (Source: The Indian Express)

Ethanol Blending involves mixing 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 requires flex-fuel vehicles capable of running on varying ethanol blends.

Benefits

- Reduces hydrocarbon emissions, making the atmosphere cleaner (GHG emissions when using sugarcane- and maize-based Ethanol are 65% and 50% lower, respectively, than those of petrol).
- Saves precious foreign exchange by reducing import demand.
- 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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3 Asiatic Lions (Source: The Hindu)

- *Gir National Park and Wildlife Sanctuary (dry deciduous forests) is the only abode of the Asiatic lion.*
- **Protection Status**
 - **IUCN Red List:** Endangered
 - **CITES:** Appendix I
 - **Wildlife (Protection) Act 1972:** Schedule I
- **Associated Tribe:** Gir is often linked with "Maldharis" (pastoral communities in the region), who have survived through the ages by having a symbiotic relationship with the lion.



Project Lion

- **Aim:** It envisages landscape ecology-based conservation of the Asiatic Lion in Gujarat by integrating conservation and eco-development.