# Use of Winter Diesel in Ladakh

## Why in News

Recently, the **Indian Oil Corporation (IOC)** has sought approval from the **Directorate General of Quality Assurance (DGQA)** for the **use of winter diesel** by armed forces for operations in **high altitude areas such as Ladakh.**

- The **winter diesel** was introduced as a **technological solution by the IOC in 2019** in high-altitude sectors like Ladakh, Kargil, Kaza and Keylong, which face the problem of freezing of diesel in their vehicles in **extreme weather conditions.**

## Key Points

- **Winter Diesel:**
  - It is a **specialised** fuel specifically for **high altitude regions and low-temperature regions** such as Ladakh, where ordinary diesel can become unusable.
  - It also meets the **Bureau of Indian Standards (BIS)** specification of **BS-VI** grade.
- **Characteristics:**
  - **Low Viscosity:** It contains additives to maintain **lower viscosity** by enabling the **fuel to remain fluid** in such conditions.
    - **Regular diesel** fuel contains **paraffin wax** which is added for improving viscosity and lubrication. At low temperatures, the paraffin wax thickens or “gels” and hinders the flow of the fuel in the car engine.
    - The viscosity of a fluid is a **measure of its resistance** (due to internal friction) to deformation thereby maintaining the state of being thick and semi-fluid in consistency.
    - **Paraffin wax** is a **soft colorless solid** derived from **petroleum, coal or** shale oil that consists of a mixture of hydrocarbon molecules.
  - **Low Pour Point:** It has **a low pour point (as low as minus 30-degree celsius).** It is the **temperature below which** the liquid loses its **flow characteristics.**
    - The flow characteristics of **regular diesel change** at low temperatures and using it may be detrimental to vehicles.
    - Earlier, the IOCL provided the **Diesel High sulphur Pour Point (DHPP -W)** to armed forces, which also has a pour point of -30°C.
  - **Higher Cetane Rating:** It has a **higher cetane rating** — which is an indicator of the combustion speed of diesel and compression needed for ignition.
  - **Lower Sulphur Content:** It would lead to **lower chemical deposits in engines** and better performance.
- **Significance:**
  - **Border Tensions with China in Ladakh:** It is expected that demand for the winter fuel may rise due to the border tensions in the **Galwan valley in Ladakh** for the patrolling purposes.

- **Boost to Local Economy:** Supply of the special fuel to Ladakh would reduce the hardships faced by the local people for **transportation and mobility** during winter months, therefore facilitate the local economy and tourism.
- **Curb in Air Pollution:** Before the launch of winter diesel, consumers in such areas were using kerosene to dilute diesel to make it usable, which leads to more air pollution.
    - Now use of **winter diesel would replace use of Kerosene** therefore helping in the **reduction of** air pollution**.**

**Indian Oil Corporation Limited**

- Commonly known as Indian Oil it is an **Indian government-owned oil and gas company (Maharatna Status)** which was founded in 1959.
- **Headquarter:** New Delhi
- It is the **largest commercial oil company** in the country .
- **Functions:** It operates in the entire hydrocarbon value-chain, including refining, pipeline transportation, marketing of petroleum products, exploration and production of crude oil, **natural gas and** petrochemicals**.**
- **Subsidiaries:** It has subsidiaries in Sri Lanka (Lanka IOC), Mauritius [IndianOil (Mauritius) Lt]) and the Middle East (IOC Middle East FZE).

**Directorate General Quality Assurance**

- The Directorate General of Quality Assurance (DGQA) is under the Department Of Defence Production, **Ministry of Defence.**
- The organisation provides **Quality Assurance (QA)** cover for the entire range of Arms, Ammunitions, Equipments and Stores supplied to Armed Forces.

**Source: IE**