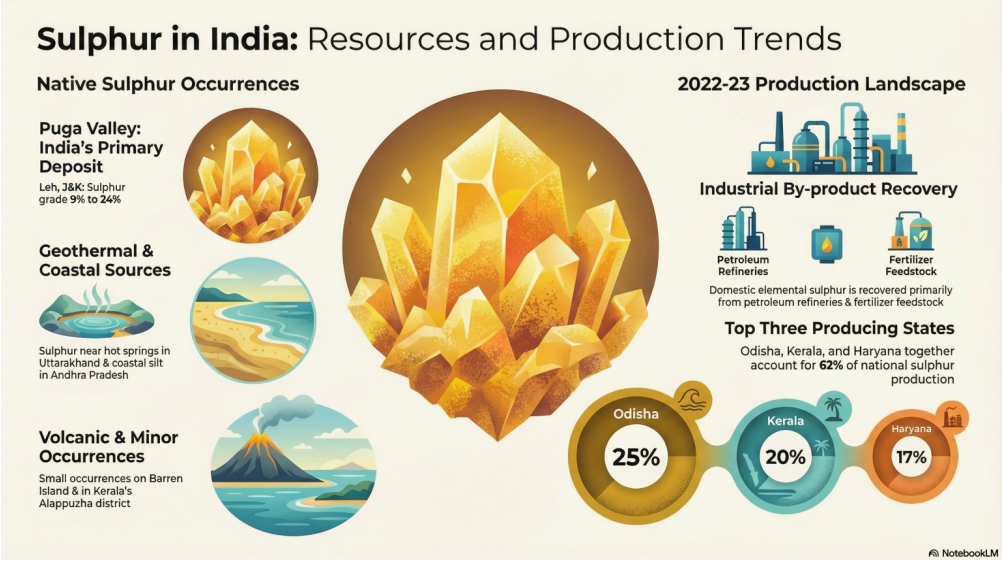
Sulphur

Prelims: *Current events of national and international importance | Science and Technology*

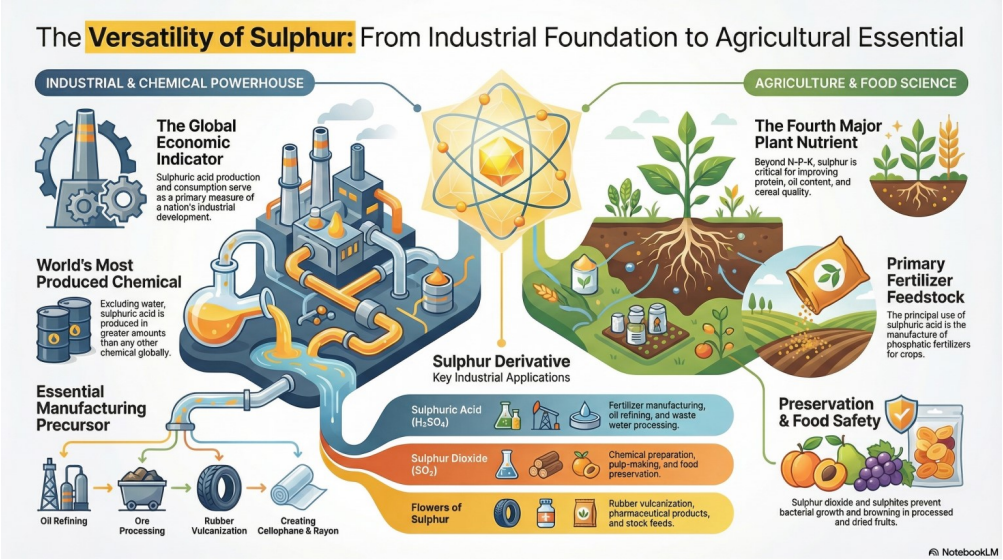
Why in News?

The West Asia conflict has disrupted Indian supply chains, especially for critical raw materials like sulphur.

- **Matter –** Sulphur
- **Symbol –** S
- **Atomic number –** 16
- **Atomic mass** – 32.07 u
- **Common Isotope** – Sulfur-32 and Sulfur-34
- **Type –** Non-metallic chemical element.
- **Occurrence –** Found as native sulphur, sulphates, and sulphides.
- **Source –** Most elemental sulphur is recovered as a co-product from oil and gas production.
- **Property –** *Yellow crystalline solid* in native form; combines with most elements except noble gases.
- **Domestic production –** Top Producers – Odisha, Kerala, and Haryana.
- Mainly from petroleum refineries as by-product recovery.
- **Global production –** Dominated by China, the U.S., Russia, and the Middle East.



Uses of Sulphur		
Sulphuric Acid Production	**Fertiliser Role**	**Industrial Applications**
• King of acid. • Most important industrial use; indicator of industrial development. • Applications – Ore processing, fertiliser manufacturing, oil refining, wastewater treatment, chemical synthesis.	• Essential for *phosphatic fertilisers.* • Improves protein & oil in seeds, cereal quality, copra marketability, tobacco leaf quality, nutritive value of forage crops.	• Rubber vulcanisation (durability, elasticity). • Detergents, fungicides, dyestuffs. • Paper bleaching, food preservation (sulphites). • **Photography fixing agents** (sodium/ammonium thiosulphate). • **Sulphur lamps –** efficient full-spectrum lighting. • **Eco-efficient concrete binder** – alternative to Portland cement



Quick Facts

• Sulphur is 16th most abundant element in Earth's crust.
• Recognised as the 4th essential crop nutrient (N, P, K, S).
• The presence of sulphur on the Moon's South Pole (Chandrayaan-3) discovery.
• Largest source of Sulphur emissions fossil-fuel-based power plants.
• Flue Gas Desulfurization (FGD) – A process in thermal power plants that removes sulphur dioxide from exhaust gases using an alkaline sorbent such as limestone.
• Hydrodesulphurisation (HDS) – A catalytic process used in petroleum refining to remove sulphur from fuels by reacting them with hydrogen.

Reference

Indian Express | Sulphur

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