

EVA STALIN IAS ACADEMY – BEST IAS COACHING IN CHENNAI

12/24, Muthurangan Muthali St, West Tambaram, Chennai - 600045

<https://www.evastaliniiasacademy.in/>

Contact Number – +91-8678969915, +91-9940332851

EDITORIAL ANALYSIS → 05 JUNE 2023 → THE INDIAN EXPRESS:

OIL RESERVES IN INDIA:

- **Current Situation:**

- In keeping with the government's goal of expanding the nation's strategic oil storage capacity, the government-owned engineering consultancy firm Engineers India (EIL) is now researching the potential and viability of creating salt cavern-based strategic oil reserves in Rajasthan.
- India might obtain the country's first oil storage facility built inside a salt cavern if the plan is realised.
- The three strategic oil storage sites now in use by the nation are located in the states of Andhra Pradesh, Mangaluru, and Padur in Karnataka.

- **Indian strategic crude oil reserve position:**

- The Indian Strategic Petroleum Reserve (ISPRL), a special purpose company under the Petroleum Ministry, is responsible for managing India's strategic oil reserves. EIL played a crucial role in establishing the nation's current SPR as the project management advisor.
- Strategic crude oil reserve building by nations helps to reduce significant supply disruptions in the global supply chain.
- India, the third-largest consumer of oil in the world, imports more than 85% of what it needs, therefore strategic petroleum reserves (SPR) could be useful in ensuring energy security and availability in times of emergency or disruption in the world's supply.
- India now has 5.33 million tonnes of SPR capacity, which can provide the country's needs for 9.5 days. At Chandikhol in Odisha (4 million tonnes) and Padur (2.5 million tonnes), the nation is currently enlarging its SPR capacity by a total of 6.5 million tonnes.

- **Rock-based reserves against salt-based reserves:**

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- Salt caverns are created through the process of solution mining, which entails pumping water into geological formations containing significant salt deposits to dissolve the salt. This method differs from the excavation method used to create underground rock caverns.
- Crude oil can be stored in the area once brine (water with dissolved salt) has been pumped out of the deposit. Compared to creating excavated rock caverns, the procedure is easier, quicker, and less expensive.
- Oil storage facilities built in salt caverns are also naturally well-sealed and designed for quick injection and extraction of oil. According to a report by the Massachusetts Institute of Technology's (MIT) Environmental Solutions Initiative, this makes them a more desirable alternative than storing oil in other geological formations.
- These caves are ideal for storage because the salt that lines the interior of them has a very low oil absorption, which offers a natural impermeable barrier against liquid and gaseous hydrocarbons. Furthermore, salt cavern-based storages can be built and maintained almost entirely from the surface, unlike rock caverns.
- Up to this point, the entire SPR programme of the United States has relied on storage facilities built in salt caverns. The US Strategic Petroleum Reserve is made up of four locations with deep underground storage caverns built in salt domes along the Gulf of Mexico coast in Texas and Louisiana. It is the largest emergency oil storage facility in the world. The total storage capacity of the US strategic oil reserves is about 727 million barrels.
- In some places of the world, liquid fuels and natural gas are also kept in salt caverns. They are also thought to be excellent for storing hydrogen and compressed air.
- **Possibility of storing crude and petroleum products in India:**
 - The state of Rajasthan is seen to be the most suitable for creating strategic storage facilities based on salt caverns because it holds the majority of the necessary salt deposits in India.
 - The examination of the prospect of salt cavern-based strategic storage in Rajasthan might be considered as a repeat of the idea made ten years ago, according to Vartika Shukla, Chairman and Managing Director of EIL. Plans to establish a strategic oil reserve in Bikaner did not materialise.
 - There will soon be a refinery built in Barmer, and crude pipelines also exist in Rajasthan; such infrastructure is ideal for creating strategic oil reserves. However, neither EIL nor any other Indian enterprise have the necessary technical know-how to construct a salt cavern-based strategic hydrocarbon storage system.
- **Programme for Strategic Petroleum Reserves: Up to this Point:**

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- The endeavour to develop adequate emergency stocks along the lines of the reserves that the US and its Western allies established following the first oil crisis of the 1970s includes India's strategic oil reserves. The three facilities that are currently based in rock caverns were constructed during the program's initial phase.
- In the case of supply disruptions brought on by a natural disaster or any unanticipated worldwide event that causes an extraordinary rise in prices, crude oil from the reserves is to be released by an empowered committee established by the government.
- All nations are advised to maintain an emergency oil stockpile large enough to cover 90 days of import protection by the International Energy Agency (IEA), a Paris-based autonomous international institution in which India is a 'Association' member.
- In India, the oil marketing companies (OMCs) have storage facilities for crude oil and petroleum products for 64.5 days, which implies there is enough storage to cover around 74 days of the country's petroleum demand. These facilities, in addition to the SPR, are adequate to meet 9.5 days of the country's oil requirement.
- The Abu Dhabi National Oil Company (ADNOC) stockpiled around 0.8 million tonnes of crude oil in the Mangaluru strategic reserve as part of India's decision to commercialise its strategic petroleum reserves.
- In order to cut costs and maximise the reserves' commercial potential, the government plans to create strategic reserves through public-private partnerships in the second phase of the strategy.
- **Conclusion:**
 - The government fully stocked these reserves in April and May 2020 by taking advantage of the low price of crude oil, resulting in expected savings of almost Rs 5,000 crore.
 - As part of a coordinated US-led response by major oil consuming countries to the united decision of major oil producing nations to reduce output, India released 5 million barrels from its strategic reserves in late 2021.
 - With salt cavern-based storage, which is thought to be less expensive and labour- and money-intensive than rock caverns, India's SPR story may receive a much-needed new chapter.