India’s Refinery Sector

Why in news?

India can become a global refining hub by turning its disadvantage of inadequate oil and gas production into an advantage.

What is the history of India’s refinery sector?

- **Pre-Independence-**The first oil refinery in India was established in Digboi, Assam, in 1901.
- **Focus-** It was primarily on meeting local demand for kerosene and lubricants.
- **Post-Independence**- In 1947, the government took steps to establish more refineries to meet the growing demand for petroleum products.
- **Indian Oil Corporation-** It was formed in 1958 marking the nationalization of refining sector.
- **Additional refineries**- It was established in Mumbai, Barauni and Visakhapatnam.
- **Oil crisis-** The oil crisis of 1970’s prompted India to focus on achieving self-sufficiency in the oil and gas sector.

Oil and Natural Gas Company (ONGC), a Maharatna company, is the biggest crude oil and natural gas name in India, contributing around 75% to Indian domestic production.

- **New Economic Policy, 1991-** It opened up the refining sector to private investment and foreign collaborations.
- **Energy demand-** It is expected to grow at about 3% per annum by 2040, compared to the global rate of 1%. Further, 25% of the global energy growth between 2020 and 2040 is envisaged to come from India due to the fast-growing economy and demographic dividend

Status of India’s refinery sector

• **Self-sufficient**-India from a deficit scenario in 2001, achieved self-sufficiency in refining and today it is a major exporter of Quality Petroleum Products.
• **Global refining hub**- India with refining capacity of 248.9 Million Metric Tonnes Per Annum (MMTPA) is *4th largest in the world* after the United States, China and Russia.
• In 2020-21, India was the largest exporter of petroleum products in Asia.
• **Target**- India is planning to double its oil refining capacity to 450-500 million tonnes by 2030.
• **Foreign Direct Investment**- ***100% FDI*** is allowed in automatic route for strategic disinvestment, exploration of all oil and natural gas fields, infrastructure related to marketing of petroleum products and natural gas.
• **Energy consumer**- India is the 3rd largest energy and oil consumer in the World and 4th largest importer of liquefied natural gas (LNG).

What is the significance of refinery sector?

- **Energy security**- Refineries play a crucial role in ensuring energy security by processing crude oil to produce various petroleum products such as petrol, diesel, kerosene, and LPG, it helps to meet the growing energy demands of the country.
- **Employment generation**- Refinery sector generates employment opportunities, both directly and indirectly, through the entire value chain, from exploration and production to refining, distribution, and retail.
- **Infrastructure development**- The establishment of refineries involves significant infrastructure development, including pipelines, storage facilities, and transportation networks. It contributes to the overall economic development of the regions where refineries are located.
- **Reduce import bill**- It will reduce India's dependence on importing refined petroleum products, helping to save foreign exchange.It allows the country to process crude oil domestically, meeting a substantial portion of its demand for refined products.
- **Industrial growth-** The refinery sector serves as a foundation for the growth of downstream industries, such as petrochemicals, fertilizers, and various manufacturing sectors.
- **Technological advancements**- Continuous improvements and investments in technology contribute to the production of cleaner fuels, compliance with environmental regulations, and the adoption of sustainable practices.

  The production of Bharat Stage VI (BS-VI) fuels to reduce vehicular emissions, it is based on Europe emission norms

- **Strategic importance**- A diverse and well-distributed refinery network helps mitigate risks associated with supply chain disruptions, ensuring a stable and secure energy supply.
- **Improve exports**- It allows the country to produce high-quality fuels, comply with international standards, and participate in the global energy market.

What are the challenges present in the refinery sector?

- **Crude oil price volatility**- The sector is highly sensitive to fluctuations in global crude oil prices, sudden and unpredictable changes in prices can affect the profitability of refineries and their ability to offer competitive prices for refined products.
- **Infrastructure deficit**- Inadequate infrastructure, such as pipelines, storage facilities, and transportation networks, can lead to logistical challenges in the supply chain.
- **Environmental compliance**- Stringent environmental regulations require refineries to invest in advanced technologies to reduce greenhouse gas emissions and produce cleaner fuels.
- **Geopolitical risks**- Global issues like *COVID-19*, Russia-Ukraine war has affected the global oil market and the refining industry, by creating supply shortages, price volatility, and capacity reductions.
- **Capital-intensive**- Obtaining funding for new projects, expansions, and modernization can be challenging, especially for smaller players in the industry.
- **Policy paralysis**- Frequent changes in government policies and regulations can create uncertainty for the refinery sector. Regulatory stability is crucial for long-term planning and investments, and uncertainties can affect decision-making and project implementation.
- **Demand fluctuations**- Economic uncertainties, global events, and changes in consumer behaviour can lead to fluctuations in the demand for refined products.
- **Supply chain disruption**- The private refineries in particular have benefitted from high global product prices and increase in prices and increased their exports while curtailing supplies to lower priced domestic market.

Indian government has imposed a windfall tax on fuel exports to prevent domestic refiners from selling their products abroad at higher prices, instead of meeting the local demand.

What lies ahead?

- India should continue to pursue the path of not only being a refining but a refining - petrochemical hub.
- There is a need to set up integrated projects that can produce both fuels and petrochemicals, and adjust the output according to the market demand1
- India should built large-scale projects that can compete in the global market and generate export revenues.
- India should leverage its geopolitical relationships with major oil producers to secure long-term crude oil supply.

References

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3. MoPNG- History and evolution of India’s refinery sector

