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Q15

Petroleum refineries are not necessarily located nearer to crude oil producing areas, particularly in many of the developing countries. Explain its implications. (250 words).

UPSC Civil Services Mains 2017 · GS I · 15 marks · Indian Heritage and Culture

Indian culture will cover the salient aspects of Art Forms, literature and Architecture from ancient to modern times.

Core demand of the question

- Explain why petroleum refineries, especially in developing countries, are often not next to crude-producing fields
- Then spell out the spatial, economic, environmental, and strategic implications

Revision summary

Refined products serve cities and ports; crude can travel by tanker and pipeline, so plants need not sit on the field.

Developing countries often import crude and therefore refine at harbours.

India's coastal complexes and pipeline-fed inland plants (Mathura, Panipat) show market pull.

Gains are export capacity and urban fuel; costs are coastal pollution, chokepoints, and weaker downstream growth in producing interiors.

Product pipelines and strategic reserves are the locational correction.

Flow diagram

Wells inland or foreign -> Crude by ship pipeline
Crude by ship pipeline -> Coastal or market refinery
Coastal or market refinery -> City fuel petrochemicals export
Coastal or market refinery -> Spill air coastal risk
Coastal or market refinery -> Jobs tax at port not at well

Conclusion

- Site new capacity by product demand, green norms, and disaster buffers, not by a crude map alone; share petrochemical jobs with producing states through pipelines and tax devolution.

Refineries follow markets, ports, pipelines, and politics more than they follow wells, especially where crude is imported. The implication is a coastal concentration of value, risk, and exports, and a need for product grids, spill control, and strategic reserves so inland producers and city consumers are not left with the wrong half of the oil chain.

Facts & figures

Jamnagar refining complex

Coastal mega-capacity in Gujarat oriented to import crude and supply domestic plus export product markets.

Mathura / Panipat plants

Inland refineries sited for north Indian demand and fed by crude pipelines, not by local wells.

VLCC and port berths

Tanker technology that makes long-haul crude to a coastal plant cheaper than scattered inland refining.

Strategic petroleum reserves

State crude stocks meant to buffer import and chokepoint risk when refining sits on a few harbours.

Assam oil history

Early Indian refining was closer to fields; later national capacity shifted toward western and coastal markets.

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