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Why the Canada uranium deal is crucial for India's nuclear expansion plans

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Why in News?

During the visit of Mark Carney to India, a long-term uranium supply agreement was signed.

The deal was signed between India's Department of Atomic Energy and Canadian company Cameco.

Key Features of the Deal:

22 million pounds (about 10,000 tonnes) of uranium will be supplied.

Supply period: 2027–2035.

Contract value: 2.6 billion Canadian dollars (about $1.9 billion).

Uranium will be used to fuel India's nuclear reactors.

Another Uranium Deal:

India recently signed another uranium supply agreement with Kazatomprom, the state-owned uranium company of Kazakhstan.

Why Uranium Imports Are Important

Fuel Security for Nuclear Reactors:

India has limited domestic uranium reserves.

Importing uranium from Canada ensures stable fuel supply for nuclear power plants.

Expansion of Nuclear Energy:

India plans to significantly increase its nuclear power capacity as part of its clean energy transition.

Reliable uranium imports support new reactor projects and continuous operation of existing plants.

Clean Energy and Climate Goals:

Nuclear energy produces low-carbon electricity.

The uranium deal supports India's climate commitments and energy transition strategy.

Strategic Energy Partnership:

The agreement strengthens India–Canada cooperation in civil nuclear energy following the India–Canada Civil Nuclear Agreement.

Note: India has uranium deposits but low-grade ore (0.02–0.45%) compared to the global average 1–2%.

As a result, over 70% of India's uranium needs are met through imports.

India currently consumes about 1,500–2,000 tonnes of uranium annually.

India's Nuclear Expansion Plan:

The government plans to increase nuclear power capacity from 9 GW to 100 GW by 2047.

Domestic uranium production may meet only about 30% of future demand.

Hence, long-term import contracts are essential.

Diversification of Uranium Supply

India now imports uranium from several countries including:

Canada

Kazakhstan

Uzbekistan

Russia (for reactors at Kudankulam Nuclear Power Plant).

Future agreements may also involve Australia and the United States.

India's Three-Stage Nuclear Programme:

India aims to eventually rely on thorium-based nuclear energy.

A Prototype Fast Breeder Reactor is being developed at Kalpakkam.

This programme was originally envisioned by Homi J. Bhabha in the 1950s.