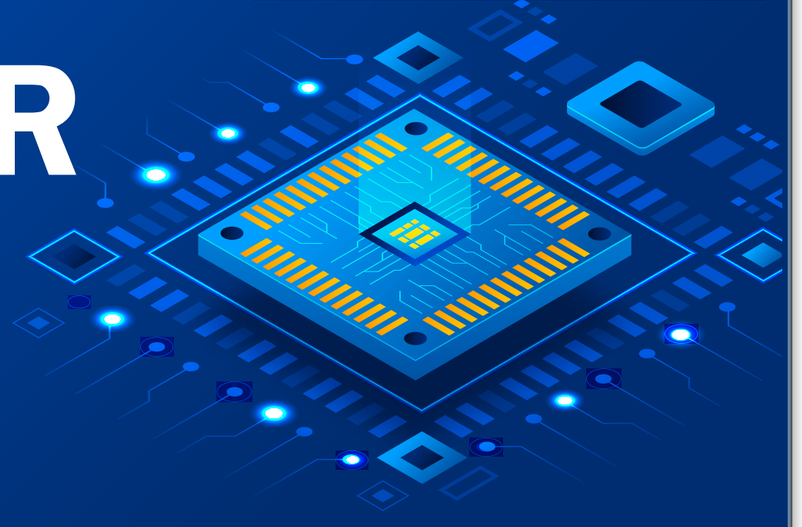
INDIA SEMICONDUCTOR MISSION PROGRAM



Context:

The consumer electronics and appliance industry in India are expected to become the fifth-largest market in the world by 2025.

About Semiconductor chips:

Semiconductor chips are the lifeblood of the modern information age. They enable electronic products to compute and control actions that simplify lives.

It is an electric circuit with many components such as transistors and wiring formed on a semiconductor wafer.

The manufacturing cycle of a semiconductor chip from sand to a finished product, sees it change hands approximately 70 times across international borders.

Challenges faced by India in manufacturing semiconductor chips:

1. ***Design and manufacturing:*** While welcoming such moves by the government and technology experts, local players in the segment say that chip-making itself will not be enough.
2. ***Resource Inefficient Sector:*** Chip fabs are also very thirsty units requiring millions of liters of clean water, an extremely stable power supply, a lot of lands, and a highly-skilled workforce.
3. ***Lack of skilled workforce:*** India has a large talent pool of chip designers, but lacks process engineers who can run a front-end chip factory where microscopic transistors are etched onto silicon.

Initiatives were taken for boosting semiconductor manufacturing:

India Semiconductor Mission: It has been set up as an Independent Business Division within Digital India Corporation having administrative and financial autonomy to formulate and drive India's long-term strategies for developing semiconductors and display manufacturing facilities and semiconductor design ecosystem.

Production Linked Incentive scheme: The government also recently announced the PLI and DLI schemes as major steps towards building a semiconductor ecosystem in the country.

Semicon India program: It aims to provide attractive incentive support to companies/consortia that are engaged in Silicon Semiconductor Fabs, Display Fabs, Compound Semiconductors / Silicon Photonics, Semiconductor Packaging (ATMP / OSAT), and Semiconductor Design.

Way forward:

Semicon diplomacy: India must seize the opportunity and become an attractive alternative destination for semiconductor manufacturing. The way ahead is conceptualizing a Semicon diplomacy action plan.

Requires more budgetary outlay: The average fab unit incurs capital expenditures of several billion dollars. Samsung's new advanced logic facility in Texas, United States, announced recently, will incur $17-18 billion, for instance.

Collaboration with Industry and academia: With a greater emphasis on research and innovation in India's higher education landscape through the newly unveiled National Education Policy, there is now the possibility of a better synergy between industry and academia.