Indian Economy · GS - III

Foreign investment in advanced electronics and sensor manufacturing can strengthen India's position in global value chains. Assess the economic and strategic significance of such investments, with reference to the opportunities and challenges involved in developing domestic electronics manufacturing hubs.

EXAM YEAR	PAPER	SUBJECT
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MARKS	WORD LIMIT
15	~ 250 words

Answer Hint

FDI, electronics manufacturing, global value chains, technology transfer, employment generation, import dependence, industrial clusters, skill development, infrastructure, ease of doing business

Model Answer

Introduction

India's ambition to become a global electronics manufacturing hub requires sustained investment, technological upgrading and integration with international supply chains. The proposed ₹1,141-crore investment by Taiwan's Creative Sensor Inc. in Uttar Pradesh illustrates the potential of foreign investment in advanced electronics and sensor manufacturing.

Economic and Strategic Significance

1. **Domestic manufacturing capacity:** Investment in sensors and advanced electronics can strengthen India's manufacturing ecosystem and reduce dependence on imported components.

2. **Technology transfer:** Foreign companies can introduce advanced production processes, research capabilities, quality standards and technical expertise.

3. **Employment generation:** Manufacturing facilities create direct industrial jobs and indirect opportunities in logistics, maintenance, packaging and supporting services.

4. **Global value-chain integration:** Partnerships with international firms can connect Indian production units to global electronics supply networks and export markets.

5. **Strategic resilience:** Domestic capabilities in sensors and electronic components can support sectors such as telecommunications, automotive systems, healthcare and defence.

Challenges

1. **Component dependence:** Limited domestic availability of semiconductors, specialised materials and precision components can increase production costs.

2. **Infrastructure requirements:** Electronics manufacturing needs reliable power, water, logistics, testing facilities and industrial infrastructure.

3. **Skill shortages:** Advanced manufacturing requires specialised technical training and industry-linked research.

4. **Global competition:** India faces competition from established manufacturing centres offering mature supplier ecosystems and economies of scale.

5. **Investment uncertainty:** Policy consistency, regulatory efficiency and timely project implementation are essential for investor confidence.

Way Forward

1. Develop integrated electronics clusters with common testing and logistics facilities.
2. Strengthen domestic component suppliers and MSME participation.
3. Promote industry-academia partnerships and specialised skill development.

4. Ensure predictable policies, transparent incentives and effective single-window clearances.
5. Encourage research, innovation and domestic value addition rather than relying only on assembly operations.

Conclusion

Foreign investment can become a catalyst for India's electronics ambitions when combined with domestic technological capabilities, skilled human resources and strong supplier networks. The objective should be to move from assembly-led production towards innovation-driven manufacturing.

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