Science & Technology · GS - III

Developing an indigenous commercial aircraft manufacturing ecosystem requires more than attracting foreign investment; it demands technological capability, industrial integration and a strong regulatory framework. Examine the opportunities and challenges before India in achieving self-reliance in civil aviation manufacturing.

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MARKS	WORD LIMIT
15	~250 words

Answer Hint

Aerospace ecosystem, import dependence, technology transfer, FDI, indigenous R&D, MSME suppliers, skilled workforce, DGCA certification, supply-chain integration, strategic autonomy.

Model Answer

Introduction

India's proposed Aircraft Manufacturing Promotion Scheme reflects an effort to expand domestic aerospace capabilities and reduce dependence on imported commercial aircraft. However, aircraft manufacturing requires a highly specialised industrial and technological ecosystem.

Opportunities for India

1. **Import substitution:** Domestic manufacturing can gradually reduce dependence on foreign aircraft and components.

2. **Industrial development:** It can promote growth in precision engineering, electronics, materials and advanced manufacturing.
3. **Employment generation:** Aerospace production creates demand for highly skilled engineers, technicians and researchers.
4. **Global integration:** Partnerships with international manufacturers can facilitate technology transfer and integration into global supply chains.
5. **Strategic autonomy:** Domestic capabilities can strengthen India's long-term aviation and industrial resilience.

Major Challenges

- High capital investment and long product-development cycles.
- Limited indigenous capabilities in aircraft engines and advanced avionics.
- Need for internationally recognised safety and certification standards.
- Shortage of specialised aerospace skills and research infrastructure.
- Competition from established global aircraft manufacturers.

Way Forward

India should promote public-private partnerships, indigenous R&D, specialised industrial clusters and technology collaboration. Domestic component manufacturers and MSMEs should be integrated into global aerospace supply chains. Strong airworthiness certification and sustained policy support are also essential.

Conclusion

Commercial aircraft manufacturing is a long-term strategic undertaking. A coordinated approach combining technology development, global partnerships and domestic industrial capacity can help India emerge as a competitive aerospace manufacturing hub.