Science & Technology · GS - III

What is the present world scenario of intellectual property rights with respect to life materials? Although, India is second in the world to file patents, still only a few have been commercialized. Explain the reasons behind this less commercialization.

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MARKS	WORD LIMIT
10	~150 words

Answer Hint

IPR, life materials, biotechnology, patents, TRIPS, biological resources, patent-commercialization gap, technology transfer

Model Answer

Introduction

Intellectual property rights concerning life materials such as genes, microorganisms, biological processes and biotechnology raise complex questions involving innovation, ownership, biodiversity and ethical concerns.

Body

1. Global Scenario

- The TRIPS framework provides international standards for intellectual-property protection.
- Patentability of biological inventions varies across jurisdictions.
- Naturally occurring organisms or biological phenomena may receive different treatment from artificially developed processes or products.

- The Convention on Biological Diversity and related frameworks emphasise conservation, access and benefit sharing.

2. India’s Patent-Commercialization Gap

- Limited industry-academia collaboration delays technology transfer.
- Many research institutions lack dedicated technology-transfer and commercialisation capabilities.
- Patents may be filed primarily as research outputs without adequate market assessment.
- High costs of scaling, validation and regulatory approvals discourage commercialisation.
- Weak linkages between laboratories, startups and manufacturing ecosystems impede translation.
- Risk-averse investment and limited access to patient capital further constrain deep-tech commercialisation.

Conclusion

India's challenge is therefore not merely generating patents but converting intellectual property into marketable products. Stronger technology-transfer offices, industry partnerships, startup incubation, regulatory support and outcome-oriented research funding can narrow this innovation-to-market gap.

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