

9th July 2025 Current affairs by Right IAS**Topic--> Gene-edited rice**

Scientists at NIPGR used CRISPR Cas9 gene editing on japonica rice to improve phosphate uptake and transport. Edited rice lines showed more seeds and panicles, leading to higher yield without affecting seed quality. Even with only 10% of the usual phosphate fertilizer, yield increased by 40% over unedited rice. Rice needs phosphate for growth, but only 15–20% of applied phosphate fertilizer is used by the plant. Phosphate is absorbed by roots and sent to the shoot via transporters. The transporter focused on here is OsPHO1;2. Researchers identified a repressor gene (OsWRKY6) that reduces the transporter's activity. Critics worry about foreign DNA from bacteria like *S. pyogenes* and *Agrobacterium*.

Topic → Research, Development and Innovation (RDI) Scheme

Approval & Objective The Union Cabinet has approved a ₹1-lakh crore RDI scheme. **Main goal:** To incentivise private sector investment in basic research and innovation in India. Anusandhan National Research Foundation (ANRF)

Funds to be managed by ANRF a newly created independent institutional body under the Science Ministry. Acts as a custodian of funds and a single-window clearance mechanism for research and development (R&D) in universities and institutions. **Expected funding pattern:** 70% from private sector and 30% from government sources.

Funding Mechanism Funds will be disbursed as low interest loans, not grants or subsidies. Aims to reverse the current R&D expenditure ratio where the government accounts for 70%

and the private sector only 30%. **Implementation Challenges** 1. **Technology Readiness Level (TRL) Restriction** Only TRL-4 and above projects are eligible. TRL is a scale from 1 (basic research) to 9 (market-ready). TRL-4 denotes lab-validated proof-of-concept. This is seen as a conservative and limiting approach, bypassing early stage innovations.

Over-Reliance on Private Sector Heavy dependence on private capital infusion in basic research a traditionally public-sector driven area. The scheme assumes private sector will take greater risks, which may not align with ground realities. **Neglect of Military-Driven R&D** Lessons Advanced nations often developed key technologies (like GPS, Internet) via military industrial complexes. India lacks a similar risk-tolerant R&D ecosystem driven by defence needs. **Brain Drain** Indian scientists continue to migrate to Western countries due to a lack of advanced research opportunities and infrastructure at home.

Weak Manufacturing Base Even if innovations happen, India lacks high-quality manufacturing capability to translate ideas into products. **Structural industrial limitations** may hinder scaling of innovations. **Systemic Concerns** **Premature Optimism** The scheme signals that government believes it has done its part, now private sector must respond. However, infrastructure, incentives, and ecosystem readiness are lacking. **Funding Criteria May Miss Breakthroughs** By funding only mid-level (TRL-4) technologies, the scheme may miss out on disruptive early stage innovations. **Venture capital's inherent unpredictability** highlights the flaw in rigid selection criteria.

Surgical Fix Needed, Not Cosmetic India's R&D ecosystem needs structural reform, not just funding boosts. Mere budgetary announcements cannot fix skill shortages, risk aversion, or institutional inertia. Conclusion The RDI scheme and ANRF are well intentioned efforts to increase India's innovation capacity. However, design limitations, risk averse criteria, and over-reliance on private sector may reduce effectiveness. To truly boost R&D, India needs robust infrastructure, visionary funding models, deep manufacturing support, and a culture that tolerates failure and risk in innovation.

Topic → The Special Intensive Revision in Bihar

The Election Commission of India (ECI) ordered a Special Intensive Revision (SIR) of electoral rolls in Bihar, ahead of the November 2025 Assembly elections. Opposition parties allege the revision aims to disqualify thousands of voters, claiming they are not Indian citizens. ECI denies this and defends the revision, citing legal powers. Multiple petitions have been filed in the Supreme Court challenging the legality of this exercise. Legal Framework for Voter Qualification Article 326 of the Constitution: Elections are based on adult suffrage. Key qualifications: Must be an Indian citizen. Must be at least 18 years old. Representation of the People Act (RPA), 1950: Section 19: Registration as a voter requires age ≥ 18 and ordinary residence in a constituency. Section 20: Explains "ordinary residence" — mere property ownership is not sufficient; temporary absence does not affect residency.

Disqualifications: Unsound mind (as declared by court). Disqualified under Section 11A of RPA 1951. Powers of the

Election Commission Article 324: Grants ECI vast powers to supervise elections, prepare rolls, etc. Described by SC as a "reservoir of power". But the powers are not absolute. Supreme Court (Mohinder Singh Gill Case, 1978): ECI must follow existing laws when applicable. ECI can use Article 324 powers only when no law covers the issue.

Provisions for Revision of Electoral Rolls 1. 2. 3. 4. Section 21, RPA 1950: Allows four types of revision: Before general elections (Lok Sabha/Assembly). Before by-elections. On ECI's direction in any year (with reference to qualifying date). Special revision for constituency or part thereof (no qualifying date mentioned). Section 14: Sets qualifying date as January 1st of the year. Problems with ECI's Bihar SIR Order ECI's order (June 24, 2025) mentions qualifying date as July 1, 2025 not supported by law (should be January 1).

Term "Special Intensive Revision (SIR)" does not exist in the law. A State-wide revision (as in Bihar) is not allowed under Section 21(3) applies only to a constituency or part.

Concerns Regarding Natural Justice Supreme Court: ECI must follow natural justice and statutory procedures. Rule 8 of Registration of Electors Rules: Citizens must furnish documents "to the best of their ability". Electoral officers cannot summarily reject claims over citizenship doubts without fair assessment. ECI must uphold fair and inclusive democratic process Conclusion While the ECI does have powers under Article 324, its Bihar revision order seems to exceed its mandate under the RPA. Legal and procedural inconsistencies have raised serious constitutional and democratic

concerns. Judicial scrutiny of the SIR is likely, and will clarify the boundaries of ECI's discretion.

Topic → India's DeepTech Push

Context and Background Commerce Minister Piyush Goyal recently compared Indian startups with Chinese ones, triggering debate. India's startup ecosystem has largely relied on business model innovation (e.g., food delivery, fintech, gig economy). Time has come to transition from surface-level innovation to DeepTech innovation.

What is DeepTech?

Goes beyond popular buzzwords like AI, drones, IoT. Involves fundamental science and engineering breakthroughs: Material science, power electronics, advanced manufacturing, drug discovery. DeepTech is about building from first principles, not just combining existing tools

Why DeepTech Matters Enables technological sovereignty. Powers critical sectors like energy, defence, healthcare, robotics, AI hardware. Example: China's lead in battery tech due to early investment in core chemistry, not just assembly. **Key Challenges** Weak product mindset: Few globally recognised products originated from India. Lack of R&D culture: Limited experimentation, long-term focus. Education system focuses more on tools than on fundamentals. Infrastructure gaps: No access to fab labs, testing centres, prototyping facilities. Funding policies are narrow (e.g., limited to incubator-based startups).

Pillars to Build DeepTech Ecosystem
1. 2. 3. 4. 5. Product mindset: Encourage creation of world-class products. R&D culture: Founders must have hands-on technical expertise. Technical depth: Focus

on core science and engineering. Educational reform: Teach fundamentals and promote interdisciplinary learning. Policy and government support: Broaden funding access. Build shared infrastructure. Enable academia-industry collaborations. Policy suggestions: Evaluate startups by technical merit, not just location. Support low-volume, high precision prototyping. Offer access to expensive infrastructure.

The Road Ahead India must align founders, academia, and government in a coordinated push. Emphasise technical innovation, core research, and interdisciplinary collaboration. Only then can India produce globally competitive DeepTech products "born in India, built for the world".

Fact --> Fierljeppen or polsstokverspringen is a traditional sport of the Netherlands, and of West Frisian people in the Dutch province of Fryslân.

Topic → Great Hornbill



Prefers old-growth, moist evergreen and deciduous forests, often in hilly regions at elevations of 600–2,000 m. Social – forms small groups (2–40 birds) and larger roosting aggregations at dusk. Vocalizations include loud calls like "kok", hoarse grunts, and roars

Primarily frugivorous (especially figs), also eats insects, small reptiles, mammals, and birds Monogamous pairs mate for life Listed as Vulnerable on the IUCN Red List and on CITES Appendix Regarded as the state bird of Kerala and Arunachal Pradesh Celebrated in Nagaland's Hornbill Festival, where the bird symbolizes strength and cultural identity