

EDITORIALS - 8TH OCT 2026

1. Eyes on ice (GS Paper III Science and Technology)

This editorial 'Eyes on ice' was published in **The Hindu** on 8th Oct 2026, highlights how **individual-centred Nobel recognition** obscures the collective nature of scientific achievement.

IceCube's Scientific Contribution

- Francis Halzen's idea of using Antarctic ice to detect elusive particles helped create **IceCube**, which has detected high-energy **neutrinos** from astronomical sources thousands to billions of light years away.
- Thousands of **sensors**, embedded up to 2.5 kilometres beneath the South Pole, record flashes from neutrino-atom interactions, enabling reconstruction of each particle's **energy and direction**.
- Operational since **2011**, IceCube has strengthened **neutrino astronomy** by revealing particle-production conditions; Halzen's leadership brought together over 400 experts from 14 countries across astrophysics, engineering and software development.

Limitations of Individual-Centred Recognition

- Awarding Halzen alone obscures **collective achievement**, repeating the **2017 physics prize** pattern, when three scientists received recognition for gravitational-wave detection involving hundreds of researchers.
- The **Nobel Foundation's statutes** limit each prize to three individuals but permit awards to **organisations**; overlooking this option reflects institutional choices rather than unavoidable fidelity to tradition.
- Accumulated **prestige** allows Nobel Prizes to confer distinction on laureates, reducing the institution's **reputational accountability** when its recognition model remains outdated.
- Attributing exceptional discoveries to exceptional individuals entrenches a distorted understanding of **scientific progress**, increasingly dependent on extensive **cooperation**.

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What Enables India to Participate in Global Big Science?

- **Sustained funding: Predictable investment** supports lengthy construction and research cycles, exemplified by the ₹2,600-crore approval for the **Laser Interferometer Gravitational-Wave Observatory (LIGO)-India** project in 2023.
- **Advanced infrastructure: Domestic research facilities** provide platforms for international collaboration; India's Giant Metrewave Radio Telescope helped test software concepts for the **Square Kilometre Array (SKA)** project.
- **Instrumentation capability: Precision engineering** enables substantial contributions, illustrated by India supplying superconducting corrector magnets and positioning

systems for the **Large Hadron Collider** at the European Organization for Nuclear Research (CERN).

- **Skilled researchers:** International **research training** develops experimental expertise; CERN's Summer Student Programme gives undergraduate and master's students practical exposure to particle physics and **advanced engineering**.
- **Institutional coordination:** **Research-industry collaboration** pools complementary skills, as demonstrated by the Indian-led Telescope Manager consortium, which included **software companies** such as Tata Consultancy Services and Persistent Systems.
- **Meaningful participation:** **Institutional representation** strengthens involvement beyond equipment supply; India's CERN associate membership permits participation in Council deliberations and enables **industrial access** to procurement opportunities.
- **Domestic spillovers:** International projects build **manufacturing capability**, illustrated by Larsen & Toubro's fabrication of the International Thermonuclear Experimental Reactor cryostat at Hazira, developing experience in **advanced vacuum engineering**.

2. From the brink to a comeback, hope for India's wildlife (GS Paper III Environment)

This editorial 'From the brink to a comeback, hope for India's wildlife' was published in **The Hindu** on 8th Oct 2026, highlights how **scientific conservation**, **community participation** and sustained **political support** enable species recovery.

Conservation Gains and Assessment Gaps

- A **Great Indian Bustard** chick hatched in Kutch after a decade; **Iberian lynx** recovery from 62 mature individuals in 2001 to 648 in 2022, alongside oryx and saiga recoveries, demonstrates conservation's potential.
- The **Integrated Development of Wildlife Habitats** scheme supports 24 identified species, requiring States to undertake research, habitat improvement, protection and **community participation**.
- India occupies **2.4% of global land** but supports nearly 8% of flora and 7.5% of fauna; substantial **endemism**, 17-country megadiversity status and parts of four biodiversity hotspots increase conservation stakes.
- Of 7,516 Indian animal species assessed for the **International Union for Conservation of Nature (IUCN) Red List**, 1,012 are threatened, but coverage is only 7.2%; the **National Red List Roadmap**, launched in 2025, targets national plant and animal Red Data Books by 2030.

State-Level Recovery Models

- **Project Nilgiri Tahr** integrates surveys, radio-collaring, habitat mapping and institutional collaboration across Tamil Nadu and Kerala; recorded populations rose from 1,303 in 2025 to 1,364 in 2026, strengthening the **scientific baseline**.
- **Vulture conservation** combines breeding, safer habitats, monitoring and awareness, supported by the veterinary **diclofenac ban**; Pinjore's Jatayu centre breeds three

threatened species, while Madhya Pradesh recorded 12,981 vultures in 2025 against 8,397 in 2019.

- Long-term **habitat management**, monitoring and community support helped Gujarat's **Asiatic lion** population rise from 674 in 2020 to 891 in 2025, with wider distribution across Saurashtra.
- **Greater one-horned rhinoceros** recovery combines grassland management, invasive-plant control, research and translocation; Pobitora integrates awareness, monitoring, livelihoods and **conflict reduction** to sustain protection against poaching.
- Meghalaya's **clouded leopard** plan combines habitat restoration, monitoring, frontline training and community participation; 14 priority northeastern landscapes support protection of **population connectivity**.
- Tamil Nadu's **dugong conservation reserve** covers 448.34 square kilometres of Palk Bay; a 2026 assessment estimated 270 dugongs—158 there and 112 in the Gulf of Mannar—while **gear compensation** supports fishermen releasing net-entangled animals.
- India's first scientific assessment estimated 718 **snow leopards** in 2024; Kibber women assist field teams with camera traps, monitoring and protection, linking science with **local stewardship**.

Requirements for Sustained Recovery

- **Political commitment** must coordinate departments, sustain successive budgets and shape land-use, infrastructure and livelihood decisions; implementation requires adaptable programmes, clear goals, steady investment and **measurable outcomes**.
- **State-level conservation funds** can support overlooked species through government, industry, philanthropy and science, as in Tamil Nadu; the 2026 **Phoenix Species Project** committed \$200 million to recovering 100 threatened species through sustained support for conservationists and communities.
- Forest departments need **scientific capacity** in surveys, habitat assessment, breeding and genetics; meaningful **community participation** in fieldwork and decisions improves plans and sustains implementation.

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Why Population Growth Alone Cannot Establish Conservation Success

- **Genetic diversity:** Higher numbers can conceal **inbreeding depression**; Florida introduced eight Texas pumas in 1995 to restore **genetic variation**, yet continued isolation leaves its panthers vulnerable.
- **Breeding viability:** Recovery depends on **successful reproduction**, not adult counts alone; New Zealand's kākāpō programme manages supplementary feeding and breeding conditions to improve **chick survival**.
- **Habitat capacity:** Population gains remain conditional on **habitat security**; giant pandas improved to Vulnerable status in 2016, but projected losses of bamboo habitat threaten **long-term recovery**.

- **Ecological functionality:** Recovery should restore **ecological interactions**; Yellowstone wolves support scavengers through their kills, making **food-web functioning** an additional measure of success beyond wolf abundance.
- **Landscape connectivity:** **Wildlife corridors** sustain movement between populations; the restored Khata Corridor connects Nepal's Bardia National Park with India's Katarniaghat Wildlife Sanctuary, supporting **landscape-level conservation**.
- **Threat reduction:** Population monitoring cannot substitute for reducing **human-induced mortality**; Mexico's vaquita remains threatened by entanglement in illegal totoaba gillnets despite **conservation interventions**.
- **Shock resilience:** Apparently substantial populations can collapse through **disease outbreaks**; over 200,000 saiga died in Kazakhstan in 2015, demonstrating the importance of **environmental resilience** alongside numerical recovery.

3. India's stakes in the Global Pandemic Agreement (GS Paper I Society)

This editorial 'India's stakes in the Global Pandemic Agreement' was published in **The Hindu** on 8th Oct 2026, highlights India's role in reconciling **sovereignty, equitable access** and **international cooperation** in pandemic governance.

Emerging Framework and Negotiating Divides

- The **World Health Organization (WHO) Pandemic Agreement** was adopted by 124 member-states, including India, in **2025**, with no opposing votes and 11 abstentions; implementation requires reconciling sovereignty with international solidarity.
- **Global North-South divisions** concern funding for One Health commitments, harmonising national regulations, affordable vaccine sharing and **technology transfer**; African countries resisted unfunded monitoring obligations, while northern countries opposed binding transfer targets.
- Ratification awaits the **Pathogen Access and Benefit-Sharing (PABS)** annex, intended to secure fair access to vaccines, medicines and therapeutics for **low- and middle-income countries** during pandemics.
- Balancing unequal national interests will determine whether **global health governance** becomes inclusive or reproduces **COVID-19 inequities**; the United States rejected the 2026 declaration over PABS and WHO's pandemic-declaration role.

India's Position and Policy Options

- At the September 2026 **United Nations High-Level Meeting**, India supported multilateral coordination grounded in **national sovereignty**, prioritising equitable access to drugs, vaccines and therapeutics alongside digital public goods.
- India should translate solidarity into **technical partnerships** on One Health, surveillance and health-workforce strengthening, building trust across the **Global South** and practical solutions to sovereignty disputes.

- India can advance pandemic priorities through **multilateral platforms**, including the 2027 H20 summit, its 2023 Global Initiative for Digital Health and the European Union's 2026 **Partners for Multilateralism** initiative.
- Domestic **regulatory alignment**, particularly equitable access to biological material and benefit distribution, must underpin India's global demands; credible **international leadership** rests on national policy strengths.

Strategic Stakes for India

- Despite large vaccine-manufacturing capacity, India depends on global pharmaceutical firms' **patents** and imports of **Active Pharmaceutical Ingredients (APIs)**, reinforcing its interest in equitable vaccine access.
- Access to northern **technology** is needed for advanced protective equipment and medical devices; India should simultaneously share its capabilities through **South–South cooperation**.
- India's digital health infrastructure, laboratory networks and One Health interventions offer **global public goods**; an effective agreement requires Indian engagement and strengthens its own **pandemic preparedness**.

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How Social Vulnerability Shapes Pandemic Outcomes

- **Poverty amplification:** Pandemic disruption deepens **economic vulnerability**; the World Bank's 2022 assessment estimated that about 70 million people entered **extreme poverty** in 2020.
- **Informal employment: Livelihood insecurity** restricts workers' ability to stop working; the International Labour Organization estimated that 1.6 billion informal workers were severely affected in 2020, with major **income losses**.
- **Housing deprivation: Crowded accommodation** limits preventive measures, illustrated by Singapore's migrant-worker dormitory outbreaks, where residents faced difficulties following **infection-prevention guidance**.
- **Gender disparities:** School closures increased women's **unpaid care burden**; UN Women documented how additional childcare responsibilities constrained participation in **paid employment** during the pandemic.
- **Healthcare inequality:** Weak **service continuity** magnifies existing disadvantage; a 2020 World Health Organization survey found disruptions in 90% of responding countries, with **lower-income countries** reporting greater difficulties.
- **Social exclusion:** Inclusive **healthcare access** reduces migrant vulnerability; Serbia provided refugees and migrants COVID-19 protection comparable to its host population, offering an example of **universal coverage** in practice.
- **Unequal recovery: Digital exclusion** extends pandemic harm beyond illness; the United Nations Children's Fund estimated that 463 million schoolchildren could not access remote learning in 2020, exposing deep **educational inequality**.