KAVISH IAS

— Converting Possibilities into Reality —

KAVISH INFORMIX

DAILY CURRENT AFFAIRS



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Kolkata Topper

VAISHNA BISWAS

AIR - 367 | CSE 2025

TODAY'S DATE

28 OCTOBER 2026

---WEDNESDAY-----

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OUR UPSC TOPPERS 2023



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RANK - 597
FORMER ASST. COMMANDANT IN BSF
CITY COLLEGE KOLKATA

OUR UPSC TOPPERS 2024



IRS SARLA JAKHER
AIR 593
CITY COLLEGE KOLKATA



IRS TANMAY
AIR 346
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DAILY CURATED NEWS | EXAM ORIENTED ANALYSIS | SMART NOTES & INFOGRAPHICS | BOOST YOUR PREPARATION

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DAILY CURRENT AFFAIRS-

1. **DNA and Personality Traits**
2. **Glaciers Ending in Lakes**
3. **Crops and Indigenous Biotechnology in India**
4. **Next Generation Offshore Patrol Vessel (NGOPV) — Srishti**
5. **Kerala's Senior Citizens' Bill, 2026 and the Silver Economy**

1.DNA and Personality Traits

Source: The Hindu, Pg. II | GS Paper III: Science & Technology | GS Paper IV: Ethics (applications and implications)

Why in the News?

A large genetic study published in Nature, involving up to 1.14 million participants, identified around 1,250 genetic variations associated with the Big Five personality traits. The findings show that personality has a complex genetic basis, but DNA alone cannot reliably predict an individual's personality.

Key Findings

- Polygenic nature: Personality is influenced by many genetic variants, each generally having a very small effect.
- Big Five traits: Openness, conscientiousness, extraversion, agreeableness and neuroticism.
- Health associations: Genetic patterns associated with conscientiousness were linked to lower BMI and substance use, while neuroticism-related patterns were associated with anxiety and depression.
- Limited prediction: Individual genetic effects are weak; environmental influences and life experiences also matter.
- Population bias: Genomic studies dominated by European-ancestry participants may not generalise well to India's diverse populations.
- Important caveat: Genetic correlations do not establish causation.

Important Scientific Concepts

- Genome-Wide Association Study (GWAS)
- Scans genetic markers across the genome to identify statistical associations between genetic variants and traits or diseases.
- Single Nucleotide Polymorphism (SNP)

- A variation at a single nucleotide position in DNA among individuals.
- Polygenic Index
- A score combining the estimated effects of many genetic variants to assess genetic propensity for a trait. It is probabilistic, not deterministic.

Gene–environment interaction

Genetic influences can vary depending on environmental conditions, social circumstances and life experiences.

Significance for India

- Precision medicine: May improve understanding of the biological factors underlying mental health and other conditions.
- Genomic diversity: Highlights the need for representative Indian genomic databases.
- Genome India Project: Sequenced 10,000 whole genomes from diverse Indian population groups to build a reference resource for research.
- Research collaboration: Institutions such as NCBS and NIMHANS contribute to research into genetics and psychiatric conditions.
- Ethical concerns: Genetic privacy, discrimination, informed consent and misuse of personality predictions require safeguards.

Way Forward

- Expand genomic research across India's diverse population groups.
- Protect genetic data through robust privacy and consent mechanisms.
- Distinguish statistical association from causation in research and clinical applications.
- Avoid using genetic scores as definitive tools for employment, education or psychological profiling.
- Combine genetic evidence with environmental, behavioural and clinical information.

UPSC Prelims Practice MCQ

Q. With reference to Genome-Wide Association Studies (GWAS), consider the following statements:

1. GWAS can identify genetic variants statistically associated with a trait.
2. An association identified by GWAS necessarily establishes a causal relationship.
3. Polygenic scores combine information from multiple genetic variants.

A. 1 only

B. 1 and 3 only

C. 2 and 3 only

D. 1, 2 and 3

UPSC Mains Practice — GS Paper III

Question: "Recent advances in genomics offer significant opportunities for precision medicine but also raise scientific and ethical concerns. Discuss." (150 words)

Answer framework:

- Introduction: Define genomics and its role in understanding complex traits and diseases.
- Opportunities: Precision medicine, disease-risk research and improved understanding of biological pathways.
- Challenges: Population bias, privacy, genetic discrimination, uncertain predictions and the distinction between correlation and causation.
- Way forward: Diverse genomic databases, informed consent, data protection and responsible scientific communication.

2.Glaciers Ending in Lakes

Source: The Hindu, Pg. II | GS Paper III: Environment, Climate Change & Disaster Management

Why in the News?

A global study led by researchers from the University of Birmingham and the University of Leeds found that glaciers terminating in lakes, oceans or ice shelves accounted for more than half of global glacier ice loss between 2000 and 2019, despite representing only 3.2% of the world's glaciers.

- These glaciers lost approximately 134 billion tonnes of ice annually.
- The study examined 216,502 glaciers, excluding the Greenland and Antarctic ice sheets.

Key Findings

- Lake-ending glaciers: Generally larger and lose ice around 57% faster relative to their size than land-ending glaciers.

- Flow speed: Lake-ending glaciers flow about 10% faster, while ocean-ending glaciers flow about 44% faster than land-ending glaciers.
- Calving: The detachment of ice chunks from a glacier into water, forming icebergs.
- Subaqueous melting: Melting of glacier ice below the waterline due to contact with lake or ocean water.
- Model limitation: Existing glacier projections do not fully capture the distinctive dynamics of lake-terminating glaciers.

Why Are Glaciers Important?

- Sea-level rise: Meltwater from glaciers contributes to global sea-level rise.
- Freshwater security: Glacier melt supports rivers, drinking-water supplies, irrigation and hydropower.
- Climate regulation: Snow and ice reflect sunlight through the albedo effect.
- Ecosystems: Glacier-fed rivers sustain mountain ecosystems and downstream communities.

Major Risks for India

- Glacial Lake Outburst Floods (GLOFs):Rapid release of water from glacial lakes can cause destructive floods, damaging settlements, roads and hydropower infrastructure.
- Peak water: Accelerated melting may initially increase river discharge, followed by declining flows when glacier reserves shrink.
- Black carbon: Soot deposited on snow and ice reduces reflectivity, increases solar heat absorption and accelerates melting.

Way Forward

- Expand satellite monitoring, field observations and early-warning systems for glacial lakes.
- Map high-risk lakes and develop controlled drainage and evacuation plans where appropriate.
- Climate-proof Himalayan roads, bridges and hydropower infrastructure.
- Reduce black carbon emissions from transport, industry and biomass burning.
- Strengthen transboundary cooperation among India, Nepal, Bhutan and China on glacier monitoring and disaster preparedness.
- Pursue the Paris Agreement's temperature goals to limit long-term glacier loss.
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UPSC Prelims Practice MCQ

Q. Consider the following statements about glaciers:

1. Calving refers to the detachment of ice from a glacier.
2. Black carbon deposited on snow increases its albedo.
3. Glacial Lake Outburst Floods can occur when water stored in a glacial lake is suddenly released.

A. 1 only

B. 1 and 3 only

C. 2 and 3 only

D. 1, 2 and 3

Check answer

UPSC Mains Practice — GS Paper III

Question: "Himalayan glacier retreat poses interconnected risks to water security, disaster management and regional livelihoods. Discuss the challenges and suggest adaptation measures." (150 words)

Answer framework:

- Introduction: Explain glacier retreat in the context of global warming.
- Challenges: GLOFs, changing river flows, water insecurity, ecosystem disruption and infrastructure damage.
- Way forward: Early-warning systems, risk mapping, climate-resilient infrastructure, black carbon reduction and regional cooperation.
- Conclusion: Combine climate mitigation with science-based adaptation to protect Himalayan communities and downstream water systems

3.Crops and Indigenous Biotechnology in India

Source: PIB

Why in News?

- Nobel laureate Richard J. Roberts advocated developing genetically modified (GM) and gene-edited crops in Indian laboratories to strengthen agricultural innovation and reduce dependence on foreign technologies.

- He made these remarks at the Emerging Science, Technology and Innovation Conclave (ESTIC).

What are GM and Gene-Edited Crops?

- Genetically Modified (GM) crops: Crops whose genetic material is altered using genetic engineering techniques, often by introducing specific genes to obtain desired traits.
- Gene editing: Techniques such as CRISPR-Cas9 make targeted changes to an organism's DNA, sometimes without introducing foreign genes.
- Roberts prefers the term biotechnologically modified and argues that Indian scientists can develop and retain intellectual property over these technologies.

Potential Benefits

- Higher productivity: Develop crops with improved yield and resistance to pests and diseases.
- Climate resilience: Improve tolerance to drought, heat, salinity and other environmental stresses.
- Reduced chemical use: Certain pest-resistant crops can reduce the need for specific insecticides.
- Nutrition security: Biofortified crops may improve the nutritional quality of food.
- Indigenous innovation: Indian research institutions can develop locally suitable crop varieties and intellectual property.

GM Crops in India: Key Issues

- Bt cotton: The principal GM crop commercially cultivated in India.
- Bt brinjal: Its environmental release was placed under an indefinite moratorium in 2010.
- GM mustard: Its environmental release has been legally contested. In July 2024, the Supreme Court delivered a split verdict and called for a national policy on GM crops.
- Intellectual property rights: Patents and licensing arrangements can affect access to biotechnology and the ability of domestic institutions to commercialise innovations.
- Biosafety concerns: Potential ecological effects, gene flow, resistance development and impacts on biodiversity require scientific assessment.
- Socio-economic concerns: Seed affordability, farmers' autonomy, market concentration and public trust remain important considerations.

Regulatory Framework and Way Forward

- Genetic Engineering Appraisal Committee (GEAC): The principal regulatory body responsible for evaluating proposals involving the environmental release of genetically engineered organisms under India's environmental regulatory framework.
- Strengthen domestic research: Support public-sector laboratories, agricultural universities and Indian biotechnology firms.
- Science-based regulation: Evaluate crops on their characteristics and risks, with transparent biosafety testing and post-release monitoring where required.
- Clear national policy: Establish predictable rules for research, field trials, commercialisation and public consultation.
- Responsible innovation: Balance food and nutritional security with biodiversity protection, farmers' interests and intellectual property concerns.

Conclusion: Indigenous GM and gene-editing research could contribute to India's food security and climate resilience. Its success depends on strong domestic scientific capacity, transparent regulation and credible biosafety assessment.

4. Next Generation Offshore Patrol Vessel (NGOPV) — Srishti

Source: IE

Why in News?

- Yard 1283, named 'Srishti', was launched at Goa Shipyard Limited (GSL) on 27 October 2026.
- The launch marks progress in India's indigenous defence shipbuilding programme and supports Aatmanirbhar Bharat.

About NGOPV

- Next Generation Offshore Patrol Vessels are designed to strengthen maritime surveillance and protect India's maritime interests.
- The name Srishti is a Sanskrit word meaning "creation".
- These vessels are being constructed at:
    - Goa Shipyard Limited (GSL), Goa
    - Garden Reach Shipbuilders & Engineers (GRSE), Kolkata

Key Roles and Capabilities

- Maritime surveillance: Monitor India's maritime zones and detect suspicious activities.
- Search and Rescue (SAR): Assist vessels and people in distress at sea.
- Offshore asset protection: Safeguard offshore installations and infrastructure.
- Anti-piracy operations: Help counter piracy and maritime crime.
- Humanitarian Assistance and Disaster Relief (HADR): Support relief operations during maritime emergencies and disasters.

Significance for India

- Maritime security: Strengthens surveillance and response capabilities in India's maritime domain.
- Defence indigenisation: Promotes domestic design, construction and manufacturing.
- Industrial development: Supports Indian shipyards and associated defence industries.
- Strategic autonomy: Reduces dependence on foreign suppliers and advances the Make in India initiative.

Conclusion: The launch of Srishti reflects India's growing indigenous shipbuilding capacity and its efforts to strengthen maritime security through domestic defence manufacturing.

5.Kerala's Senior Citizens' Bill, 2026 and the Silver Economy

Source: IE

Why in News?

- The Kerala Legislative Assembly passed the Keralam Senior Citizens' (Care and Protection of Rights) Bill, 2026 to strengthen the rights, care and protection of elderly people.
- Kerala's population aged 60 and above was around 15% in 2021 and is projected to reach 30% by 2051, highlighting the need for a comprehensive ageing policy.

Key Provisions of the Bill

- Care and protection: Strengthens arrangements for the welfare and protection of senior citizens.
- Regulation of care centres: Seeks to improve standards of elderly care.
- Home-based care: Supports ageing at home and access to care services.

- Accessibility and inclusion: Emphasises accessible public spaces, digital inclusion and legal assistance.
- State Reserve Fund: Proposes a fund to support elderly care and welfare.
- Autonomy: Recognises the importance of dignity and personal choice in old age.

What is the Silver Economy?

- The silver economy refers to economic activities involving goods and services designed to meet the needs of older people.
- Key sectors include:
    - Home healthcare and geriatric care.
    - Assisted living and elderly-friendly housing.
    - Assistive devices and healthcare technologies.
    - Financial services, insurance and pension management.
    - Recreation, transport and digital services for senior citizens.

Significance

- Employment generation: Creates jobs in healthcare, caregiving and assistive technology.
- Dignity and independence: Enables older people to live healthier and more independent lives.
- Economic opportunity: Converts the needs of an ageing population into opportunities for innovation and service-sector growth.
- Reduced care burden: Accessible community and home-based services can ease pressure on families and healthcare institutions.

Challenges and Way Forward

- Financial security: Strengthen pensions, social protection and access to affordable healthcare.
- Local-level planning: Introduce a senior citizens' sub-plan for local governments with predictable funding and clear responsibilities.
- Institutional coordination: Establish effective monitoring and service standards for elderly-care institutions.
- Skilled workforce: Train caregivers and geriatric healthcare professionals.
- Digital inclusion: Improve digital literacy and access to public services among older people.

Conclusion: Kerala's Bill highlights the need to move beyond welfare-based support towards a comprehensive ageing policy. A strong silver economy should complement—not replace—social security, ensuring that older people enjoy dignity, financial protection and meaningful participation in society.

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