SANSKRITI IAS DAILY CURRENT AFFAIRS

04-11-2026

INDIA SCIENCE AND TECHNOLOGY SCOREBOARD

News On AIR

NITI Aayog launches India Science and Technology Scoreboard to assess performance of States and UTs

NITI Aayog today launched the India Science and Technology (S&T) Scoreboard to assess the scientific and technological performance of States...

Why in News?

- **NITI Aayog** launched the India Science and Technology (S&T) Scoreboard to map and compare the science and innovation ecosystem across States and Union Territories.



Institutional Framework

- It is an interactive data platform developed by **NITI Aayog's Science and Technology Division**.
- It enables policymakers to assess performance, identify gaps and benchmark States and UTs.

Key Features

- It consolidates data on **research institutions, publications, patents, start-ups, R&D funding and State policies**.
- It provides national and State-wise profiles, allowing comparison of research output and sectoral performance.
- It covers **11 priority research areas**, including clean energy, artificial intelligence, semiconductors, critical minerals and agriculture.
- Its database includes higher education institutions, R&D laboratories, deep-tech start-ups and **Atal Tinkering Labs**.

DELHI DEFENCE DIALOGUE 2026

Why in News?

- The Defence Minister addressed the **Delhi Defence Dialogue 2026**,

Reuters Connect

Licensable picture: Defence Minister Rajnath Singh Attends MP-IDSA's Delhi Defence Dialogue 2026

New Delhi, Nov 03 (ANI): Union Defence Minister Rajnath Singh addresses the Two-Day Delhi Defence Dialogue 2026 on 'Defence Atmanirbharta,...

organised by the **Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA) in New Delhi.**

Delhi Defence Dialogue

- It is an annual flagship platform of **MP-IDSA** for discussing India's defence and security challenges.
- Its inaugural edition was held in **2024**, and the 2026 edition was its third edition.
- **Theme 2026:** "***Defence Reforms, Aatmanirbharta, Collaborations and Exports***".
- It brings together government officials, military leaders, defence experts, industry representatives and international delegates.

Strategic Significance

- The dialogue provides a platform for discussing **defence indigenisation, military modernisation, international cooperation and defence exports**.
- It supports policy-oriented research and India's long-term security preparedness.

INDIGENOUS AI MODELS: EKA-1, DHIR 2B AND DHIR 5B

News On AIR

Govt launches 3 new indigenous AI foundation models under IndiaAI Mission to strengthen homegrown AI capabilities



Government has launched the indigenous AI foundational models Eka-1 by Soket Labs and Dhir 2B and Dhir 5B by ZenteiQ.

Why in News?

- Indigenous foundational AI models **Eka-1, Dhir 2B and Dhir 5B** were launched with support under the **IndiaAI Mission**.

Eka-1

- Developed by **Soket Labs Technology and Research**, Eka-1 is a foundational AI model with **26.3 billion parameters**.
- It was trained on approximately **7.5 trillion tokens** and supports all **22 scheduled Indian languages**, along with English.
- It uses an open, sparse hybrid architecture and is designed for mathematics, coding, reasoning and agentic applications.

Dhir 2B and Dhir 5B

- Developed by **ZenteiQ AI Tech Innovations**, these are open-source AI models.
- They support English and **10 Indian languages** and can operate on GPUs and TPUs.
- Their lightweight architecture enables on-device deployment on mobile phones without cloud connectivity.

Applications and Significance

- They support offline document-based automation, knowledge retrieval and multilingual assistance.
- Potential applications include **defence, governance, education and industrial services**, particularly in sensitive and low-connectivity environments.
- Their development supports India's objective of building indigenous AI capabilities under the **IndiaAI Mission**.

SIRI CATTLE: INDIGENOUS LIVESTOCK CONSERVATION

DD News

Rajiv Ranjan Singh Announces Centre of Excellence for Siri Cattle in Sikkim, Launches North District Milk Producers' Union



Union Minister of Fisheries, Animal Husbandry and Dairying Rajiv Ranjan Singh, alias Lalan Singh, on Monday announced that the Department of...

Why in News?

- The Department of Animal Husbandry and Dairying announced the establishment of a **Centre of Excellence** in Sikkim for the conservation and development of Siri cattle.

Geographical Distribution

- Siri is an indigenous **zebu-derived cattle breed** native to the Eastern Himalayan region.
- It is mainly found in **Sikkim, Darjeeling hills of West Bengal and Bhutan**.
- It is also known as **Trahbum** and is adapted to the hilly terrain.

Physical and Economic Characteristics

- It is a dual-purpose breed, primarily used for draught work in hilly regions.
- Its coat is generally black or brown with white patches, although completely black or brown animals also occur.
- It has a cervico-thoracic hump with hair tufts and medium-sized outward-curving horns.
- Average milk production is approximately **425.8 kg per lactation**, with milk fat content ranging from **2.8% to 5.5%**.

Conservation Significance

- The proposed Centre of Excellence aims to conserve and develop this indigenous breed.
- Conservation supports **livestock biodiversity, traditional farming systems and sustainable hill agriculture**.

NAHARGARH WILDLIFE SANCTUARY: RAJASTHAN

India Legal

[Nahargarh Wildlife Sanctuary boundary dispute: Supreme Court asks activist to pursue challenge to revised map before Rajasthan High Court]



The Supreme Court on Tuesday, November 3, declined to examine the merits of a challenge concerning the revised boundaries of the Nahargarh...

Why in News?

- The Supreme Court declined to examine the merits of a challenge concerning the revised boundaries of **Nahargarh Wildlife Sanctuary**, leaving the matter to the Rajasthan High Court.

Geographical Profile

- Located in **Jaipur district, Rajasthan**, the sanctuary covers approximately **52.40 sq. km** in the **Aravalli Range**.
- It is named after **Nahargarh Fort**, built in the 18th century by Maharaja Sawai Jai Singh II, founder of Jaipur.
- It features rugged hills, valleys and seasonal streams.

Flora and Fauna

- Major forest types include **Tropical Dry Deciduous Forests and Tropical Thorn Forests**.
- Important trees include **dhok, babool, khejri and ber**.
- Major fauna includes Indian leopard, chinkara, Indian wolf, sloth bear and caracal.
- The sanctuary also supports diverse birdlife, including peacocks, owls and eagles, along with reptiles such as Indian rock pythons and monitor lizards.

Conservation Features

- **Nahargarh Biological Park**, spread over approximately 720 hectares, is located within the sanctuary.
- It focuses on wildlife conservation, including species such as Bengal tiger, Asiatic lion and sloth bear.
- The sanctuary forms part of the broader ecological landscape of the Aravalli region.

PRALAY MISSILE: INDIGENOUS QUASI-BALLISTIC MISSILE

Why in News?

- **DRDO** successfully test-fired the indigenous Pralay missile

Swarajya

[India Successfully Tests Quasi-Ballistic Missile 'Pralay' Off Odisha Coast, Paving Way For Induction Into Armed Forces]



India successfully flight-tested its indigenously developed Pralay quasi-ballistic missile off the Odisha coast on Thursday (5 November),...

from the **Integrated Test Range (ITR), Chandipur, Odisha**.



Development and Institutional Framework

- Pralay is an indigenous **short-range, surface-to-surface quasi-ballistic missile**.
- It was developed by **Research Centre Imarat (RCI), Hyderabad**, in collaboration with DRDO laboratories and Indian industry.
- **Bharat Dynamics Limited (BDL)** and **Bharat Electronics Limited (BEL)** are among its industrial partners.

Technical Specifications

- It uses a **solid-propellant rocket motor** and can be launched from mobile platforms.
- Its operational range is up to **500 km**, with a payload capacity of **500-1,000 kg**.
- It can attain terminal speeds of approximately **Mach 6.1** and has a **Circular Error Probable (CEP) of less than 10 metres**.
- It can carry different warheads and is designed to target command centres, air defence installations, logistics hubs and airbases.

Strategic and Technological Significance

- Unlike conventional ballistic missiles, a **quasi-ballistic missile** can fly at relatively lower altitudes and manoeuvre during flight.
- Its mid-course and terminal manoeuvres make interception by enemy radar and missile-defence systems more difficult.
- **Research Centre Imarat** is a premier DRDO laboratory under the **Dr APJ Abdul Kalam Missile Complex, Hyderabad**.
- RCI works on **control engineering, inertial navigation, imaging infrared seekers, RF seekers, onboard computers and mission software**.

Other Important News of the day

Places in News

SATHYAMANGALAM TIGER RESERVE

The Hindu

Madras High Court orders immediate closure of 87 illegal resorts in Sathyamangalam Tiger Reserve



The Madras High Court has ordered immediate closure of 87 resorts functioning in Sathyamangalam Tiger Reserve without obtaining planning...

Why in News?

- The Madras High Court ordered the closure of **87 resorts** operating in Sathyamangalam Tiger Reserve without the required

planning permission or building approval from the Directorate of Town and Country Planning (DTCP).

Geographical Profile

- Located in **Tamil Nadu**, it lies at the junction of the **Eastern and Western Ghats** within the Nilgiri Biosphere Reserve.
- It is contiguous with **Mudumalai Tiger Reserve, Bandipur Tiger Reserve and BRT Tiger Reserve and Wildlife Sanctuary**.
- Its elevation ranges from **750 to 1,649 metres**, with hilly and undulating terrain.
- Major rivers include **Bhavani, Moyar and Noyyal**.

Ecological Characteristics

- Its vegetation includes **southern tropical dry thorn, mixed deciduous, semi-evergreen and riparian forests**.
- Important flora includes teak, sandalwood, bamboo, Terminalia and Albizia.
- Major fauna includes **tiger, elephant, leopard, sloth bear, gaur, blackbuck and spotted deer**.

Tribal and Conservation Significance

- Indigenous communities include the **Irula and Kurumba tribes**.
- Its location between the Eastern and Western Ghats makes it important for wildlife movement and landscape-level biodiversity conservation.

Environment

WHITE STORK: RARE SIGHTING AT OKHLA BIRD SANCTUARY

Hindustan Times

Rare white stork spotted at Okhla bird sanctuary since Nov 1 | India News

A rare white stork (Ciconia ciconia) was spotted at the Okhla Bird Sanctuary, located at the intersection of the Delhi-Noida border for the...



Why in News?

- A rare **White Stork (Ciconia ciconia)** was spotted at Okhla Bird Sanctuary, attracting birdwatchers and ornithologists.

Biological Characteristics

- It is a large wading bird belonging to the family **Ciconiidae**.
- It has white plumage, black wing and shoulder feathers, a long red bill and red legs.

- Its average height is **95-110 cm**, with a wingspan of **183-217 cm** and lifespan of up to 40 years.
- It feeds mainly on small animals found in fields and shallow wetlands.

Geographical Distribution

- It is distributed across **Europe, Asia Minor, northern Africa and the Middle East**.
- During winter, it migrates to tropical Africa, parts of the Middle East and the **Indian subcontinent**.
- Its preferred habitats include grasslands, agricultural fields, pastures, savannas and shallow wetlands.

Conservation Status and Okhla Bird Sanctuary

- **IUCN Red List:** Least Concern (LC).
- **Okhla Bird Sanctuary** is located in Gautam Buddha Nagar, Uttar Pradesh, near the entrance of Noida.
- It lies where the **Yamuna River enters Uttar Pradesh after leaving Delhi**, covers approximately 4 sq. km and contains a large lake formed by damming the river.
- It is recognised as an **Important Bird and Biodiversity Area (IBA)** by BirdLife International.

Defence

INS SAHYADRI: INDIA-SOUTH KOREA NAVAL EXERCISE

pib.gov.in

INS SAHYADRI CONCLUDES INDIA–REPUBLIC OF KOREA NAVY BILATERAL EXERCISE AT BUSAN

Indian Naval Ship Sahyadri successfully concluded her participation in the Indian Navy – Republic of Korea Navy (IN–RoKN) Bilateral Exercise...



Why in News?

- Indian Navy's stealth frigate **INS Sahyadri (F49)** completed its participation in the India-Republic of Korea bilateral naval exercise off **Busan, South Korea**.

Historical and Institutional Profile

- INS Sahyadri is an indigenously built, multi-role guided-missile stealth frigate of the **Shivalik Class**.
- It is the third and final ship built under **Project 17**, after INS Shivalik (F47) and INS Satpura (F48).

- Constructed by **Mazagon Dock Limited, Mumbai**, it was commissioned on **21 July 2012**.
- It is part of the Indian Navy's **Eastern Fleet**, based at Visakhapatnam.

Technical Features

- It measures approximately **468 feet in length and 55 feet in breadth**, with a displacement of **6,800 tonnes**.
- Its propulsion system includes **two gas turbine engines and two diesel engines**, enabling speeds exceeding 30 knots.
- It can be equipped with **BrahMos anti-ship missiles, Barak-1 and Shtil-1 surface-to-air missiles**, and anti-submarine rocket launchers.
- It has advanced electronic warfare systems, torpedoes and capacity to carry **two helicopters**.

Strategic Significance

- The exercise strengthens **India-South Korea maritime cooperation** and interoperability between their navies.
- INS Sahyadri demonstrates India's indigenous warship-design and stealth-frigate capabilities.

Science and Technology

COLLETES INAEQUALIS: CELLophane BEE AND BIODEGRADABLE POLYESTER

The Hindu

Cellophane bees produce a kind of plastic that also degrades, study finds



The nest lining of the ground-nesting bee is translucent, flexible, resilient, and degrades within a year.

Why in News?

- Researchers found that the cellophane bee, **Colletes inaequalis**, produces a natural polyester-based nest lining that degrades in soil within approximately a year.

Biological Profile

- It is a solitary, ground-nesting bee belonging to the family **Colletidae**.
- It pollinates plants such as **red maple, willow and apple trees**.
- It is popularly known as the **cellophane bee** because it lines its underground nests with a transparent, cellophane-like material.

Unique Material and Nesting Adaptation

- The nest lining is a flexible, translucent material composed of **polyester and silk**.
- It is produced by a specialised gland called the **Dufour's gland**, connected to the bee's stinger.
- The polyester resembles polyethylene in molecular packing and has a **semicrystalline structure**, containing both crystalline and amorphous regions.

Scientific Findings

- In natural soil, the polyester lining declined from **73% to 40% of nest weight within four months**.
- Cracks appeared by seven months, while the material became brittle and crumbly by 11 months.
- The discovery highlights the potential of naturally occurring biodegradable materials as alternatives to conventional plastics.

Uttar Pradesh in News

UP Leads in Development Works under PM-AJAY's Adarsh Gram Component



Why in News

- According to an RTI response by the **Ministry of Social Justice and Empowerment**, Uttar Pradesh identified the highest number of development works under PM-AJAY's Adarsh Gram component.

Uttar Pradesh's Performance

- UP identified **41,949 works**, of which **2,282 (5.5%)** were completed.
- During 2025–26, UP selected **2,093 additional villages** and declared **446 villages** as Adarsh Gram.
- Tamil Nadu identified 33,881 works and completed 6,856.
- Nationally, **13,459 villages** were declared Adarsh Gram over the four financial years covered; Karnataka led in 2025–26 with **792 declarations**.

Adarsh Gram Eligibility

- The village must have **more than 40% Scheduled Caste population** and a total population of at least **500**.
- Development is assessed through **50 monitorable indicators across 10 sectors**.
- A minimum score of **70/100** and **Open Defecation Free (ODF) status** are required.

About PM-AJAY

- **Full Name:** Pradhan Mantri Anusuchit Jaati Abhyuday Yojana.
- **Ministry:** Ministry of Social Justice and Empowerment.
- It aims to improve the socio-economic conditions of Scheduled Caste communities through employment, skill development and infrastructure.
- Its Adarsh Gram component promotes integrated village development covering basic infrastructure, education, health, livelihoods and financial inclusion.