UPSC Daily Current Affairs| Prelim Bits 31-05-2025

Stromatolites

Prelims *– General issues on Environmental ecology, Bio-diversity and Climate Change.*

Why in news?

Recently, 600-million-year-old stromatolite outcrop has been discovered in Chambaghat, Solan district, Himachal Pradesh.

- **Stromatolites** – They are reef-like **bio sedimentary structures** formed by cyanobacteria (blue-green algae) in ancient shallow seas.



- **Time period** – It dates from 3.6 billion years old (Australia) to 600 million years old (recent Himalayan discovery).
- **Distinction from fossils** – If original organism is preserved, it's technically a fossil; if only the *mineralised structure (calcium carbonate precipitates)* is preserved, it's a biosedimentary structure.

Recent Discovery in the Himalayas

- **Location** – Pine-clad ridges of Chambaghat in Solan district, Himachal Pradesh.
- **Age** – 600 million years old.
- It is found at 5,000-6,000 feet above sea level in entire hill covered with stromatolites, not just isolated samples.
- **Younger stromatolites** – This is the youngest stromatolites in India.

Oldest stromatolites are found in Dharwad in Karnataka, which are at least 2,500 million years old.

- **Geological significance –** It is part of the Krol Group of sedimentary rocks that is formed in shallow marine environment of the ancient Tethys Sea.
- It helps to reconstruct the theory of a vanished Tethys Sea in the Himalayan region.
- These structures indicate the shallow marine conditions that once existed before the Indian plate collided with Eurasian plate.
- **Historical significance** – Earth's atmosphere doesn't contain oxygen when it is formed and it is composed of carbon dioxide, methane, and water vapor.
- **Oxygen production** – Cyanobacteria in stromatolites began producing oxygen through photosynthesis around 3.5 billion years ago.
- This contributed to the **Great Oxygenation Event**, making Earth habitable for complex life.

Great oxidation event occurred around 2.4 billion years ago, transforming Earth's atmosphere and enabling multicellular life.

- **Threat –** Risk of permanent loss due to development and natural processes such as mining activities, construction and erosion.

Other Stromatolite Sites in India
• **Uttarakhand** – Mussoorie, Nainital (Krol Belt formations) • **Haryana** – Morni Hills (dolomite formations) • **Uttar Pradesh** – Chitrakoot (Vindhyan limestones), Salkhan (fossil park) • **Rajasthan** – Jhamarkotra (mining threatened), Zawar, Jaisalmer Fossil Park, Bhojunda, Bilara Group • **Andhra Pradesh** – Kadapa Basin (Cuddapah Supergroup) • **Madhya Pradesh** – Kadapa mountains • **Chhattisgarh** – Chandi Formation • **Sikkim** – Buxa Formation (declared Geoheritage site)

Reference

Indian Express| 600-million-year-old stromatolites found in Himalayas

Tral Wildlife Sanctuary

Prelims: General issues on Environmental ecology

Why in News?

The Centre has officially designated an Eco-Sensitive Zone (ESZ) around the Tral Wildlife Sanctuary recently.

- It is situated in the Pulwama district, Jammu and Kashmir.

- It serves as a vital corridor for the remaining population of Hangul in the country.
- This location is one of the rare regions beyond Dachigam National Park where a population of the critically endangered Hangul deer continues to exist.
- **Vegetation** – It primarily consists of Himalayan moist temperate forest, sub-alpine forest, and various types of alpine forest.
- The sanctuary is also connected to other important wildlife areas, such as Overa-Aru Wildlife Sanctuary and Khrew Conservation Reserve.
- **Fauna** – Endemic to Kashmir Musk Deer and Kashmir Gray Langur, as well as threatened species like the Common Leopard, Himalayan Griffon Vulture, Bearded Vulture, and Kashmir Flycatcher.
- **Flora** - It also harbours numerous plant species with significant medicinal value.
- Following the notification, the government can now regulate activities in the area to create a buffer zone, aiding the survival of this vulnerable species.

Kashmiri Stag

- It is referred to as Hangul, a subspecies of the Central Asian red deer that is native to Kashmir and its neighboring regions.
- This deer inhabits thick riverine forests located in the high valleys and mountainous areas of Jammu and Kashmir, as well as northern Himachal Pradesh.
- In Kashmir, its main habitat is the Dachigam National Park, where it is afforded protection.
- Additionally, a small population has been observed in the Overa-Aru Wildlife Sanctuary situated in southern Kashmir.
- **Conservation status**
  - **Wildlife (Protection) Act, 1972** – Schedule I.
  - **IUCN** - Critically endangered.
- **Threats** – Poaching and Habitat threats.

Reference

News 18 | Tral Wildlife Sanctuary

SEBI's New Framework for Risk Monitoring

Prelims: Economic and Social Development | Current events of national and international importance.

Why in News?

The Securities and Exchange Board of India (SEBI) has come up with a new framework for risk monitoring and increased the position limits for futures and options.

- SEBI had changed the method to calculate the value of open interest (OI) from notional value-based to delta-based.
- The new method will weigh OI by the price sensitivity making it impossible to manipulate trades.

- SEBI has also increased the limits for positions for options.
- The net end-of-day open interest limit for options will be ***Rs.1,500 crore and gross OI will be at Rs.10,000 crore***.
- For futures, the OI limits are fixed based on the type of investors ranging from 5% of future OI value to 15% of future OI value.
- SEBI has decided not to impose limits on intraday trading.
- Delta-adjusted open interest is a true reflection of the positions taken by traders at large.
- In effect, positions are being assigned weights as per the delta, making the risk management framework stronger.
- SEBI has set a phased timeline for exchanges to implement these steps till September.

Reference

The Hindu | New framework on F&O risk monitoring

Revision on Minimum Support Prices (MSP) for Kharif Crops

Prelims: Public policy| Government Initiatives | Current events of national and international importance.

Why in News?

The Centre recently announced minimum support prices (MSP) for 14 crops for the 2025-26 Kharif Marketing Season (KMS), with moong seeing the lowest and ragi the highest increase.

- **Minimum Support Price (MSP)** – MSP for a commodity refers to the price at which the government is obligated to purchase the produce from farmers if the market price falls below this threshold.
- MSPs serve as a baseline for market prices, guaranteeing that farmers obtain a specific minimum compensation to cover their cultivation expenses and potentially generate some profit.
- By utilising these measures, the government provides incentives for the cultivation of specific crops, thus assuring the maintenance of an adequate supply of essential food grains in India.
- **Revised Prices** - In percentage terms, ragi recorded a maximum hike compared to last season.
- Like ragi, another millet crop, jowar also saw almost a double-digit hike in percentage terms in its MSP.
- The MSP of jowar (hybrid) and jowar (Maldandi) has been fixed at almost 10% higher as compared to the last Kharif season.
- The MSP of bajra has been fixed at 5.71% higher compared to the last season.
- In recent years, the government has been promoting millet crops, including ragi and jowar, and has declared them as ***Shree Anna.***
- Ragi accounts for just 0.51% of the gross cropped area of the country and is mainly

grown in Karnataka, Tamil Nadu and Maharashtra.

Major jowar producing states are Maharashtra, Karnataka, Rajasthan, Tamil Nadu and Uttar Pradesh.

- Moong, a pulse crop, saw the lowest hike of just 0.99%.

Moong is grown in Rajasthan, Maharashtra, Madhya Pradesh and Karnataka.

- Like moong, paddy has also seen a low hike in MSP.
- The MSP for paddy (common) and paddy (Grade A) has been fixed at 3% higher compared to the last season.
- The reason for the low hike in MSP for paddy is that the government has record stock of rice in the Central Pool.
- Centre also approved the continuation of the Interest Subvention (IS) component under the Modified Interest Subvention Scheme (MISS) for the financial year 2025-26.
- Under MISS, short-term credit is provided to farmers at an affordable interest rate through the Kisan Credit Card (KCC).

Reference

The Indian Express | MSP hike for 14 Kharif crops

Shangri-la Dialogue

Prelims: Current events of national and international importance

Why in News?

Chief of Defence Staff General Anil Chauhan will visit Singapore from to attend the 22nd edition of the Shangri-La Dialogue.

- The Shangri-La Dialogue stands as Asia's foremost defense and security summit, uniting defense ministers, military leaders, policymakers, and strategic experts from around the world.
- It is the most influential multilateral security exchange platform in the Asia-Pacific region.
- **Established in** - 2002.
- It has evolved into a pivotal multilateral platform for security discussions in the Asia-Pacific region, taking place annually in June at Singapore's Shangri-La Hotel.
- **Organized by** - International Institute for Strategic Studies (IISS) in London, in collaboration with Singapore's Ministry of Defence.
- The dialogue addresses a comprehensive agenda that reflects the region's security landscape.

- This includes both traditional security concerns, such as territorial disputes and military collaboration, and non-traditional issues like terrorism, cybersecurity, and climate change.
- The format of the dialogue features open general assembly sessions for broad discussions and closed-door meetings for more focused negotiations, fostering mutual understanding and cooperation among participants.

Reference

The Hindu | Shangri-La Dialogue

One Liners 31-05-2025

History, Art and Culture

Hindi Journalism Day 2025

On May 30, 2025, India observes Hindi Journalism Day, commemorating nearly two centuries of vernacular media's democratic, awareness, and cultural contributions.

• **Historical Roots -** The day marks the 1826 launch of 'Udant Martand' by Pt. Jugal Kishor Shukla from Kolkata. As India's first Hindi newspaper, it faced challenges but inspired a mass awakening despite ceasing publication after 79 editions.

• **Significance -** Hindi journalism has disseminated information, preserved Indian languages, empowered non-English speakers, and held authorities accountable, playing a pivotal role in informing and mobilizing public opinion.

• **Thriving Today** - Hindi journalism thrives across print and digital platforms, with major newspapers like Dainik Jagran and Amar Ujala commanding massive readerships, especially in the Hindi heartland.

• **Commemorative -** Events on May 30, 2025, include seminars, awards, workshops, and tributes, reflecting on sector challenges and achievements while highlighting issues like press freedom and digital disruption.

• **Role in Strengthening Democracy** - Hindi journalism remains indispensable to India's democracy, empowering citizens by providing news in a familiar language, fostering civic participation, and serving as a vital source of information in regions with limited English literacy.

Goa Celebrates 39th Statehood Day on May 30

Goa, known for its beaches and vibrant culture, celebrates its 39th Statehood Day on May 30, marking nearly four decades as a full-fledged Indian state.

• **Journey** - From Colony to Union Territory After over 450 years of Portuguese rule, Goa was liberated in December 1961 by Indian armed forces (Operation Vijay) and became a Union Territory with Daman and Diu.

• **Achieving Full Statehood** - On May 30, 1987, Goa achieved full statehood, becoming India's 25th state, recognizing its unique linguistic, cultural, and historical identity.

• **Significance of the Day** - Goa Statehood Day commemorates its integration into the Indian Union, honoring resistance against colonial rule and promoting awareness of Goan history, culture, and national contributions.

Polity & Governance

Savarkar Petition Dismissed

The SC recently dismissed a petition seeking protection for V.D. Savarkar's name under the Emblems and Names (Prevention of Improper Use) Act, 1950.

• **Act's Purpose -** This regulatory legislation, enforced since September 1, 1950, prevents commercial or improper use of national emblems, names, and symbols of public significance or national institutions.

• **Nodal Authority -** The Central Government is the nodal authority, empowered to amend the Schedule and issue rules.

• **Key Objectives -** It aims to prohibit misuse of names/emblems associated with national institutions, protect the dignity of symbols and historic personalities, and maintain decorum in commercial branding.

• **Prohibition & Scope -** Section 3 prohibits using specified names/emblems for business, trade, patents, or advertising without Central Government permission. It applies across India and to Indian citizens abroad.

• **Registration Ban & Penalty -** Section 4 bans registration of companies, trademarks, or patents with protected names/emblems. Misuse carries a fine up to ₹500 (Section 5).

• **Dynamic Schedule -** The Act's dynamic Schedule includes protected items like the Indian National Flag, Mahatma Gandhi's name, and Rashtrapati Bhavan.

Battery Aadhaar Unveiled

At the Battery Summit 2025, Tata Elxsi, in collaboration with Tata Motors, Tata AutoComp, and IIT Kharagpur, launched the Battery Aadhaar initiative to key government stakeholders.

• **Battery Aadhaar** - is a digital identification system for batteries, leveraging secure, blockchain-backed technologies to ensure full traceability throughout their lifecycle.

• **Developmented** - Spearheaded by Tata Elxsi's MOBIUS+ platform.

• **Objective** - is to assign unique digital IDs to batteries, enabling safe use, regulated reuse, and efficient disposal, aligning with national and global compliance like the EU Battery Regulation.

• **Features** - MOBIUS+ integrates blockchain for tamper-proof data, tracking manufacturer details, usage history, and material content. It automates regulatory reporting and supports circular economy models.

• **Significant Impact** - The initiative prevents unsafe battery reuse, enhances India's battery supply chain visibility, and promotes eco-conscious innovation within the EV ecosystem.

• **Green Tech Leadership** - Battery Aadhaar strengthens India's commitment to sustainability, supporting the National Electric Mobility Mission Plan (NEMMP) and fostering green tech leadership.

AA Scheme Rules Eased

The government has eased Advance Authorisation (AA) Scheme rules, allowing duty-free benefits for exporters even if goods shipped before licence issuance, provided the Bill of Entry is filed post-licence date**.**

• **AA Scheme -** It's a foreign trade policy initiative by DGFT, enabling duty-free import of inputs for manufacturing export products.

• **Scheme's Aim -** To reduce input costs for exporters, boosting the global competitiveness of Indian goods**.**

• **Key Features -** It permits duty-free import of raw materials, packaging, and fuel. Exports must adhere to Standard Input-Output Norms (SION), and eligibility extends to manufacturer and merchant exporters.

• **Recent Relaxation -** Previously denied, duty exemption is now permitted if the Bill of Entry is filed *after* licence issuance, regardless of shipment date.

• **Impact & Restriction -** This removes ambiguity, streamlines Customs clearance, and boosts exporter confidence. However, it excludes restricted or canalised goods without special DGFT approval.

International Relations and Issues

International Day of Potato 2025: "Shaping History, Feeding the Future"

On May 30, 2025, the world observes the second International Day of Potato, highlighting its global impact on food security, culture, and sustainable agriculture.

• **A Crop with Andean Roots** - Originating over 7,000 years ago in the Andes, the potato was domesticated by Indigenous communities, who cultivated diverse heirloom varieties.

• **Global Journey and Impact -** Introduced to Europe during the Columbian Exchange, the potato became a cornerstone of modern agriculture and food security, despite tragedies like the Irish Potato Famine.

• **FAO's 80th Anniversary** - This year's observance coincides with FAO's 80th anniversary, reaffirming its mission to fight hunger and promote sustainable agriculture.

• **Global Staple for Food Security** - Grown in over 150 countries, the nutrient-rich, climate-resilient potato feeds billions, significantly contributing to food security, employment, and income.

• **Challenges** - Challenges include production constraints, biodiversity loss, and value chain strengthening.

• **Opportunities** - lie in empowering women and family farmers to secure the potato's future in sustainable development.

Environment

Nurdles

On May 27, Thiruvananthapuram's coast was inundated with nurdles following the May 25 sinking of the MSC ELSA 3, carrying hazardous materials.

• **Nurdles -** Are 1-5mm plastic pellets (polyethene, polypropylene, polystyrene, PVC) used as raw material, classified as primary microplastics.

• **Environmental Threat** - Ingested by marine life, nurdles cause blockages. An estimated 230,000 tonnes pollute oceans annually, harming ecosystems and coastal communities.

• **Past Incidents** - Notable spills include Hong Kong (2012) and Durban (2017), causing severe ecological damage and highlighting transport risks.

• **Composition & Recycling** - Kerala's nurdles are primarily Low-Density Polyethene (LDPE) and High-Density Polyethene (HDPE). LDPE's recycling difficulty complicates waste management.

• **Cleanup and Prevention** - Strategies involve manual cleanups, floating booms, improved packaging, rapid response, and strict regulatory enforcement to prevent future spills.

• **Ongoing Concerns** - The Kerala incident underscores the persistent threat of plastic waste, raising concerns for biodiversity-rich regions as plastic production increases.

Security

Red teaming

Launched in May 2025, **Operation Sindoor** marked a significant shift in India's military strategy, notably through its innovative use of "red teaming" in planning.

• **Red teaming** - Is a military strategy where a dedicated group simulates adversary tactics to critically evaluate operational plans and anticipate enemy reactions. In India, it's called **'Vidur Vakta'**.

• **Red Teaming in Action -** For the first time, a five-officer **red team** was embedded in **Operation Sindoor's** planning, challenging strategies and evaluating potential enemy responses.

• **Background and Objective -** The operation responded to a terrorist attack in Pahalgam, targeting nine Pakistan-based terror camps of groups like Jaish-e-Mohammed and Lashkar-e-Taiba.

• **Precision Strikes Utilized -** Operation Sindoor deployed advanced assets, including Rafale jets with SCALP missiles and AASM Hammer bombs, along with BrahMos cruise missiles, for precision strikes.

• **Future of Red Teaming -** Following its success, the Indian Army plans to formalize and expand the **'Vidur Vakta'** program over the next two years, enhancing in-house strategic expertise.

Science

India's First Gene-Edited Sheep

Sher-e-Kashmir University of Agricultural Sciences and Technology (SKUAST-Kashmir) has successfully produced India’s first gene-edited sheep, boasting a 30% increase in muscle mass.

• **What It Is -** This genetically modified lamb has an edited myostatin gene, which naturally regulates muscle growth, developed by SKUAST-Kashmir.

• **Technology Used -** The project utilized the Nobel Prize-winning CRISPR-Cas9 gene editing technique, adhering to international biosafety protocols, ensuring no foreign DNA insertion.

• **Features -** The sheep exhibits 30% higher muscle mass, similar to European breeds. It is non-transgenic, increasing regulatory acceptance, and the technology can be extended for disease resistance and improved reproduction.

• **Significance for Livestock -** This achievement offers a blueprint for enhancing meat yield and quality in Indian sheep, boosting the livestock sector and positioning India in advanced genome editing research.

• **Future Implications -** It aligns with India's evolving biotech policy and supports sustainable livestock farming by increasing productivity per animal, building on SKUAST's past success with cloned Pashmina goat, 'Noori'.
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Miscellaneous

Kami Rita Sherpa: Everest Record Breaker

Recently, a 55-year-old Kami Rita Sherpa summited Mount Everest for the 31st time, extending his own record. Leading an Indian Army team, his achievement highlights Sherpa mountaineering expertise.
• **Sherpas -** are a Tibetan ethnic group from the Himalayas, renowned for their mountaineering skills. The term "Sherpa" is also used for delegates facilitating discussions at summits.
• **Kami Rita's Legacy** - Nicknamed the "Everest Man," Kami Rita first climbed Everest in 1994 and has scaled it annually since, showcasing remarkable professionalism and skill.
• **Everest Climbing Eligibility -** Climbers must be over 18, complete recognized mountaineering courses, demonstrate fitness, and have high-altitude experience. The Nepal Tourism Board regulates applications.
• **Sherpas' Vital Role** - Sherpas are crucial to expeditions, providing terrain and weather knowledge, enhancing climber safety, and contributing significantly to mountaineering success.
• **Challenges and Sustainability** - Everest climbing presents challenges like extreme weather and altitude sickness. Kami Rita advocates for sustainable practices amidst environmental concerns from increased mountain traffic.



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