UPSC Daily Current Affairs| Prelim Bits 19-03-2025

Heatwaves in India

Why in News?

India Meteorological Department (IMD) warns that many parts of India continued to swelter for the upcoming days due to heatwaves.

- A heatwave is basically a period of ***unusually high temperatures*** over a place.
- The threshold to declare a heatwave depends on the temperatures normally seen in that area in that time of the year.
- **Criteria -** According to the IMD, a heatwave is declared when the maximum temperature of a station reaches
    - At least 40 degree C or more for plains and
    - At least 30 degree C or more for hilly regions.
- **Based on Departure from Normal**
    - A heatwave is when the departure is 4.5 degree C to 6.4 degree C, and
    - A severe heatwave is declared when the departure is more than 6.4 degree C.
- **Based on Actual Maximum Temperature**
    - A heatwave exists when the maximum temperature is greater than 45 degree C, and
    - A severe heatwave when the temperature is over 47 degree C.
- If above criteria met at least in 2 stations in a Meteorological sub-division for at least two consecutive days and it declared on the second day.
- **Supportive meteorological factors -** High humidity, high wind speed, duration of heat wave events.
- **Prevalence** - Heatwaves in India occur ***mainly from March to June*** and in some cases, July.
- **Heatwave-prone areas –**
    - Northwest plains- Rajasthan, Punjab, Haryana, Delhi,
    - Parts of central India - Madhya Pradesh, Chhattisgarh), and
    - The eastern and peninsular regions- Uttar Pradesh, Bihar, Jharkhand, West Bengal, Odisha, coastal Andhra Pradesh, Telangana, and Vidarbha in Maharashtra.



- **Heat Index –** Combination of air temperature and relative humidity, it measures of how hot it really feels *when relative humidity* is factored in with the actual air temperature.

References

1. The Indian Express - What is a heatwave?
2. IMD - FAQs

Subacute Sclerosing Panencephalitis (SSPE)

Why in News?

Subacute Sclerosing Panencephalitis (SSPE) remains a serious health concern in Lucknow and Uttar Pradesh due to low measles vaccination coverage.

- SSPE was a progressive and ***fatal brain disorder*** that appears years after a person contracts measles.
- **Causes**
  - Normally, the measles virus does not cause brain damage. However, an abnormal immune response to measles or, possibly, certain variant forms of the virus may cause severe illness and death.
  - This response leads to brain inflammation (swelling and irritation) that may last for years.
- **Symptoms**

    - Cognitive decline, leading to difficulty and understanding, behavioral changes, such as increased irritability and personal shifts;
    - Seizures and muscle jerks resembling epilepsy;
    - Motor impairment affecting coordination and walking and gradual loss of SSPE, though some treatments can slow its progression.
- **Diagnosis**-Diagnosis involves a combination of clinical evaluation, electroencephalography (EEG), imaging studies (CT or MRI), cerebrospinal fluid examination, and measles serologic testing.
- A brain biopsy may be indicated when CSF serology is negative or equivocal.
- **High-risk groups -** Males are more often affected than females. The disease generally occurs in children and adolescents.
- **Prevention –** Timely measles vaccination.
- **Treatment –** There is ***no permanent*** cure for SSPE. Treatment focuses on managing symptoms and slowing the progression of the disease.
- **Prevalence** - SSPE has been reported in all parts of the world, but in western countries it is a *rare disease*. Very few cases are seen in the United States.

Government Initiatives to eliminate Measles
• **Intensified Mission Indradhanush (IMI)** - India is conducting rounds of IMI 5.0, focusing on identifying and vaccinating all unvaccinated and under-vaccinated children up to five years of age. • Measles & Rubella (MR) vaccine is part of Universal Immunisation Programme (UIP)

References

1. Times of India - Subacute Sclerosing Panencephalitis (SSPE)
2. Medlineplus - Subacute sclerosing panencephalitis

Draft National Code against Age Fraud in Sports 2025 (NCAAFS-2025)

Why in News?

The Ministry of Youth Affairs and Sports has put in the public domain the Draft National Code against Age Fraud in Sports (NCAAFS) 2025 for inviting comments/suggestions from the general public and stakeholders.

- It Addresses Age Fraud, Protects Genuine Athletes and Uphold Sports Integrity.
- **Aim**
    - Ensure fair competition by preventing age fraud, which compromises the integrity of sports.
    - Implement a robust verification system for age determination through a centralized database.
    - Introduce strict penalties for athletes, coaches, and officials found guilty of falsifying age records.
    - Enhance transparency and accountability in sports governance by aligning with international best practices.

- **Features of NCAAFS 2025**
- **Mandatory Age Verification & Digital Locking -** All athletes must submit 3 mandatory documents during the registration process to prevent any future manipulations.
- **Medical Examination for Age Discrepancies-**Medical examinations will utilize the TW3 method, MRI scans, and general physical and dental examination.
- Further, AI-based bone assessments to accurately determine an athlete's age will be done in pilot phase.
- Any disputes arising from these examinations may be appealed through ***designated appellate medical panel*** for further review.
- **Uniform Penalties for Violations -** Strict penalties will be enforced for age fraud violations.
- Athletes found guilty on the first violation will face a 2-year ban from all competitions, along with forfeiture of any titles or medals won.
- A second violation will result in a ***lifetime ban*** and initiation of legal proceedings under the penal code.
- Coaches and other officials found guilty will also face suspension and debarment from their roles.
- **Whistle-blower Mechanism -** A secure and confidential platform will be created for stakeholders to report cases of age fraud anonymously.
- Additionally, a *reward system* will be implemented to encourage and incentivize whistle-blowers to come forward with genuine reports.
- **Amnesty Program for Self-Disclosure -** A one-time amnesty window of 6 months will be provided, allowing athletes to voluntarily declare their correct age without penalties.
- **Two-Tier Appellate Mechanism -** A two-tier appellate mechanism will handle disputes related to age determination.
- Athletes dissatisfied with initial medical examination findings may first appeal to the Regional Appellate Panel.
- If still unsatisfied, athletes may approach the *Central Appeals Committee (CAC).*
- **Role of Integrity/Compliance Officers -** Integrity/Compliance Officers will be appointed by the National Sports Federations (NSFs) for each competition, and are responsible for ensuring strict adherence to the provisions of the Code.
- **Dedicated National Database -** Portal linked with the National Sports Repository System (NSRS) will be established to securely store all age verification data of athletes.
- **QR-Enabled ID Cards -** Following successful verification, athletes will receive ID cards embedded with QR codes.
- **Public Accountability & Transparency-** A robust monitoring framework will be established to ensure effective implementation of the Code.
- The Ministry of Youth Affairs and Sports will oversee compliance by requiring NSFs and the Sports Authority of (SAI) to regularly submit detailed compliance reports.
- It will be applicable to all athletes, coaches, officials, administrators, and support personnel involved in recognized
    - National Sports Federations (NSFs),
    - Sports Authority of India (SAI),
    - Sports Control Boards managed by Central Government departments and Central

Public Sector Undertakings (PSUs) and
    - NGOs, NSPOs, public/private agencies, and institutions promoting sports development.
- The draft NCAAFS provides that States/UTs may *either adopt this policy or use this as a model framework* to develop their own policy for promoting uniformity nationwide.

References

1. PIB - NCAAFS-2025
2. The Indian Express - NCAAFS, 2025

Lithium

Why in News?

Prime Minister's recent visit to the United States culminated in the launching of a collaborative initiative focused on recovering and processing critical minerals, notably lithium.

- It is a soft, ***silvery-white alkali metal*** and the lightest solid element.
- **Symbol** – Li
- **Atomic number** - 3

> *The Nobel Prize in Chemistry 2019 was awarded to John B. Goodenough, M. Stanley Whittingham, and Akira Yoshino for the development of lithium-ion batteries*

- **Lithium Triangle** – Major lithium reserves are concentrated in South America's Lithium Triangle.
- It encompasses areas such as ***Bolivia, Argentina and Chile.***
- **Leading producer -** Australia, extracting lithium from hard-rock spodumene deposits.
- **Largest importer -** Specifically lithium carbonate - China.
- **Largest consumer –** China.
- **Lithium deposits in India** – Reasi (Jammu & Kashmir) and Mandya (Karnataka), with exploration ongoing in Rajasthan, Chhattisgarh, Jharkhand and Himachal Pradesh.
- **Lithium in Medicine** – Used for mood stabilization and reduction in manic symptoms.
- Thus, it acts as an effective treatment for *mood disorders* like acute mania and bipolar disorder.
- **Other uses of lithium -** In addition to its role in psychiatry, lithium is indispensable in battery technology, nuclear energy, ceramics and lubricants.
- It plays a crucial part in ***carbon neutrality*** by enabling renewable energy storage.

India's Lithium Deals

• **India – Argentina** - India's state-owned Khanij Bidesh India Ltd (KABIL) signed an agreement with Argentina's Catamarca Minera Y Energética Sociedad Del Estado (CAMYEN) for lithium exploration and development.
• **India –Australia -** India has also signed agreements with Australia to secure lithium resources.
• **India – U.S. -** India is part of the U.S.-led Minerals Security Partnership (MSP), which aims to diversify critical minerals supply chains.
• India is also in talks with countries like Chile and Bolivia, which form the "lithium triangle" with Argentina.

Reference

The Hindu - Lithium

Mudumal Megalithic Menhirs

Why in News?

Mudumal Megalithic Menhirs of Telangana's Narayanpet have been added to a tentative list of Unesco World Heritage Sites from India.

- The site is a significant megalithic astronomical observatory and possibly the largest megalithic-era burial site in South India.
- **Time Period -** Dating back approximately 3,500 to 4,000 years.
- It showcases an intricate and precise arrangement of boulder alignments, formations, and stone circles.
- Besides the standing stones, there are smaller stones placed in circular formations and also thousands of boulders appearing to be placed in certain alignments across an 80-acre spread of land.
- There are close to ***80 tall menhirs*** of 10 to 14 feet height, accompanied by nearly 3,000 alignment stones *related to the funerary rights* of the ancient community.
- These stones are arranged in lines or rows in a 20-25 feet gap.
- The menhirs are considered sacred by the local population, who refer to them as 'Niluralla Thimmappa' (Thimmappa of the Standing Stones)
    - One particular menhir being worshipped as ***Goddess Yellamma.***
- **Purpose -** It appears they have been designed in a manner such that they ***align with the sun*** on particular days.
- The sun's propagation can be used to *calculate the dates and calendrical events, and change of season*, etc by carefully observing the movement of the sun in relation with these monuments.
- One of the stones with a flat face present here is the earliest depiction of the night sky and a star constellation from anywhere in South Asia.
- An alignment stone here with cup-marks of 3-4 mm depressions. It has seven prominent stars. This is a depiction of *Ursa Major or Saptarshi Mandal.*
- When an imaginary line is drawn between the top stars of the rectangle Merak and Dubhe, it points to the Pole Star or North Star. This is the earliest depiction of a constellation from South Asia.

- The precise alignment of its menhirs reflects an advanced grasp of mathematics and astronomy, establishing it as a ***rare archaeo-astronomical site.***

Telangana has only one UNESCO World Heritage Site at Ramappa temple, inscribed in 2021.

- **Other properties added to India's Tentative List, 2025**
  1. Kanger Valley National Park in Chhattisgarh,
  2. Ashokan Edict Sites in multiple states,
  3. Chausath Yogini Temples in Madhya Pradesh and Odisha,
  4. Gupta Temples in multiple states, and the
  5. Palace-Fortresses of the Bundelas in Madhya Pradesh and Uttar Pradesh.
- With these additions, India now has ***62 sites*** on the tentative list.

Reference

The Indian Express - Mudumal Megalithic Menhirs

QS World University Rankings

Why in News?

The performance of Indian institutes in the QS University World Ranking System, released recently, shows that their initiatives to upgrade the research ecosystem are yielding results.

- It is a widely recognized system that ***assesses and ranks universities globally.***
- **Compiled by** - QS Quacquarelli Symonds, a higher education analytics firm, annually.
- **Launched in** – 2004.
- It helps students make informed decisions about their education.
- **Indicators**
  - Academic reputation - 40% weightage
  - Employer reputation- 10% weightage
  - Faculty/student ratio - 20% weightage
  - Citations per faculty - 20% weightage and
  - International faculty/student ratios - 10% weightage
- On popular demand from students, 3 new metrics have recently been added in listing universities around the world - International Research Network, Sustainability and Employment Outcomes.

Rankings of India's Universities

- 9 institutes in the country figure in the top 50.
- 79 Indian universities have made it to the list, up from 69 last year.
- Indian universities are particularly well represented in
  - Engineering (24 institutes),
  - Social sciences (20 institutes) and

    - Natural sciences (19 institutes).
- **Faculty Inadequacy -** The best Indian universities, in contrast, score between 10 and 20.
- Attracting an adequate number of qualified faculty and providing them with favorable working conditions has been a longstanding problem.
- In 2023, a CAG audit found that though the IITs have been recruiting faculty consistently, the pace of recruitment did not match student enrolment.
- **Global Collaborations in need -** The QS survey suggests that Indian universities could benefit from global collaborations to access a wider range of academic debates and discoveries.
- The National Education Policy too rightly emphasizes the role of cross-border collaborations.
- The government has also invited universities outside the country to set up campuses in India.
    - In 2023, IIT-Madras set up a wing in Zanzibar, Tanzania.
- Liberalize the student exchange rules between Indian and foreign universities as well as build linkages with industry.

Reference

Indian Express - QS rankings

