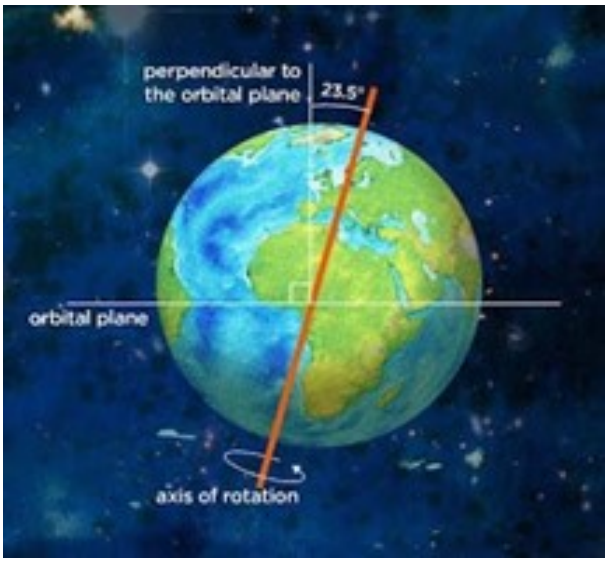
UPSC Daily Current Affairs | Prelim Bits 26-11-2024

Changes in Tilt of Earth's Axis

Researchers recently discovered that Earth's axis has tilted by 31.5 inches due to excessive groundwater extraction.

- **Axial tilt –** It is the ***angle between the planet's rotational axis and its orbital axis.***
- A planet's orbital axis is perpendicular to the ecliptic or orbital plane, the thin disk surrounding the sun and extending to the edge of the solar system.
- **Earth's axial tilt –** It is about ***23.5 degrees.***
- Due to this axial tilt, the sun shines on different latitudes at different angles throughout the year which causes the seasons.
- It is also known as the ***obliquity of the ecliptic.***



- **Axial Precession**- Its axis appears stable but wobbles very slowly, like a spinning top.
- It takes *Earth's axis about 26,000 years to complete a circular "wobble."*
- It is also known as axial precession which is influenced by the distribution of mass across the planet.

Recent Findings

- **Groundwater extraction -** The study reveals that excessive groundwater extraction has caused a significant shift in Earth's rotational pole.
- It is estimated that humans have *pumped out around 2,150 gigatons of groundwater* largely for irrigation and for their use.
- Between 1993 and 2010, the Earth's pole drifted approximately 80 centimeters eastward due to groundwater depletion.

- It has contributed to a sea level rise of about 0.24 inches and altered the distribution of Earth's mass, leading to the drift of the rotational pole at a rate of 4.36 centimeters per year.
- The redistribution of groundwater from aquifers to oceans has affected the polar motion.

Polar Motion is the movement of Earth's rotational axis relative to its crust. When Earth rotates on its spin axis an imaginary line that passes through the North and South Poles, it drifts and wobbles.

- It has a larger impact on polar drift than climate-related factors such as ice sheet melting.
- **Regional Impact -** Western North America and northwestern India have significant groundwater extraction.
- These mid-latitude areas influence polar drift due to their geographical location and the volume of water extracted.
- **Current Shift -** Earth's tilt is *not enough to affect weather patterns or seasons immediately.*
- The continued groundwater depletion could have long-term climatic impacts.

References

1. National Geographic| Earth axis tilted by 35 inches
2. NASA| Earth axis tilted by 31.5 inches
3. India Today| Earth axis tilted by 31.5 inches
4. NDTV| Earth axis tilted by 31.5 inches

National Mission on Natural Farming (NMNF)

Recently, the Union Cabinet has launched a scheme National Mission on Natural Farming (NMNF) under the Ministry of Agriculture & Farmers' Welfare.

- **Aim –** To promote natural farming practices, rooted in traditional agricultural knowledge.
- It is a ***Centrally Sponsored Scheme***.
- **Ministry -** Ministry of Agriculture & Farmers Welfare.
- Farmers will engage in chemical-free farming, utilizing local livestock and diversified crop systems.
- This approach not only aligns with local agro-ecological principles but also encourages the use of location-specific technologies.
- The mission aims to provide safe and nutritious food for all while supporting farmers in reducing the input cost of cultivation and dependency on externally purchased inputs.
- NMNF is launched as a shift to scientifically revive and strengthen agriculture practices towards sustainability, climate resilience and healthy food for farmer families and consumers.

- **Implementation -** It will be implemented in 15,000 clusters across Gram Panchayats that express willingness to participate.
- The mission aims to ***reach 1 crore farmers*** and initiate natural farming practices on 7.5 lakh hectares of land.
- Special attention will be given to areas where natural farming is already practiced.
- **Bio-input Resource Centres -** To facilitate this transition, the government plans to establish 10,000 Bio-input Resource Centres (BRCs).
- These centers will provide farmers with easy access to ready-to-use natural farming inputs.
- Around 2000 NF Model Demonstration Farms shall be established at Krishi Vigyan Kendras (KVKs), Agricultural Universities (AUs) and farmers' fields.
- It shall be supported by experienced and trained Farmer Master Trainers.
- **Training -** The willing farmers will be trained in Model Demonstration Farms on the natural farming package of practices, and preparation of natural farming inputs.
- Around 18.75 lakh trained and willing farmers will prepare inputs like Jeevamrit, and Beejamrit by using their livestock or procuring from bio-input resource centres.
- They will be provided with a simple certification system and dedicated common branding to provide access to market their natural farming produce.
- Real-time monitoring of progress will be done through an online portal.

Natural Farming (NF)
• It is a chemical-free farming that involves local livestock integrated natural farming methods, diversified crop systems • It follows local agroecological principles rooted in local knowledge, location-specific technologies and is evolved as per the local agroecology. • **Benefits -** Build & maintain healthy soil ecosystems. • Promote biodiversity and encourage diverse cropping systems. • Enhance resilience as suitable to the local agroecology. • **Benefits to farmers -** Reduce input cost of cultivation and dependency on externally purchased inputs. • Rejuvenating soil health, fertility & quality and building resilience to climate risks like waterlogging, flood, drought, etc. • Reduce health risks from exposure to fertilisers, pesticides, and provide healthy & nutritious food for the farmers' family.

References

1. PIB| National Mission on Natural Farming (NMNF)
2. The Hindu| National Mission on Natural Farming (NMNF)

Dunlin

Recently, the International Union for Conservation of Nature (IUCN) of Red list has updated the status of Dunlin from Least Concern to Near Threatened species spotted during Kerala Bird Race.

- It is a fully migratory circumpolar breeder found along the coast.

- **Scientific name** - Calidris alpine.
- It is a ***small, plump shorebird*** with droopy bill.
- It is often in *large flocks on mudflats and beaches*, sometimes mixing with other shorebirds.
- A group of Dunlin are known as a *flight, fling, or trip.*
- **Appearance –** Medium sized sandpiper with a slightly down curved black bill, long black legs and feet, and a black beak that droops slightly at the end, and a dull brown-gray color.
- **Unique Feature -** Summer breeding season have a large black belly spot and orange feathers on their back.
- Winter and nonbreeding season all are white with a gray back and head.



- **Size -** 16 to 22 cm with a wingspan of 33 to 40 cm.
- **Habitat –** Breeding season live in ***coastal tundra areas***, and in winter live along mudflats, estuaries, marshes and coastlines.
- **Distribution –** It is a migratory species that nests around the world's arctic regions.
- Dunlin nest in subarctic and arctic tundra, usually in wet areas with slight ridges and ponds.
- **Diet -** Feed in wet marshes and mudflats and eat mainly invertebrates, including insects, snails, worms, and crustaceans.
- It uses its wide, slightly downturned beak to hunt for food in the mud.
- **Breeding –** Summer breeding in the arctic and subarctic regions, and winter along both coasts of the United States and Mexico.
- **Conservation Status** – **IUCN** - Near Threatened
- **Threats –** Habitat loss caused by
    - Wetland draining
    - Global warming
    - Invasive plants particularly at migration staging and wintering areas, and
    - Vulnerable to Avian Influenza.

References

1. SNZCBI| Dunlin
2. eBird| Dunlin
3. ABC| Dunlin

Reang tribe

Recently, Tripura's Reang community has demanded the government to grant recognition to their language and declare a holiday on Hojagiri Day.

- **Reang** – They are the ***2nd largest numerous sub-tribe*** of Tripuris after the old Tripuri clan.
- The Reangs are found in Tripura, Mizoram, and Assam.
- **Origin -** They come first from the Shan State of upper Burma (now Myanmar) in different waves to the Chittagong Hill Tracts and then to the Southern part of Tripura.
- They belong to ***Indo-Mongoloid racial*** stock and are still a nomadic tribe.
- **2 Major Clans -**
  - **Meska -** It is divided into 7 subgroups or Dofa.
  - **Molsoi –** It is subdivided into 6 groups.
- **Language –** It has an affinity of Austro-Asiatic groups under the Tibeto-Burman family.
- It is known as ***"Kaubru"*** which has a tonal effect of the Kuki language though broadly it is the Kok-Borok dialect.
- **Cultivation –** They are primarily an agriculturist tribe and maintain their livelihood involving Hilltop Jhum Cultivation.
- Food gathering activities like collection of jungle fruits, leaf, plants, fishing in stagnant water in hill slopes, hunting of wild animals and birds.
- **Religious belief -** Hindus and most of their deities are akin to gods and goddesses of Hindu faith.
- They are also *followers of Vaishnavism* and believe in spirits and existence of soul.
- They have faith in different deities like Buraha, Bonirao, Songragma, Jampira, Lampra and female deities like Mwtaikotorma, Tuibuma, Mailoma, and Ganga.
- **Marriage system -** Traditionally are endogamous and *do not marry outside their community.*
- The village council chief is known as "RAI" permits Divorce and Widow Marriage.
- **Dance -** ***Hozagiri dance*** is performed during the Hojagiri Festival, which is celebrated to worship the ***goddess Lampra*** for a good harvest.
- It is performed exclusively by young women, with melodious tune of flute which is most attractive throughout the country and abroad.

  Hojagiri Festival is celebrated on 18-19 October.

- **Death -** They cremate their dead bedside a river or chara.
- It is done in 2 stages
  - Broksakami and

    - Kothainami.
- They are considered the ***only Particularly Vulnerable Tribal Group (PVTG)*** in the state of Tripura.

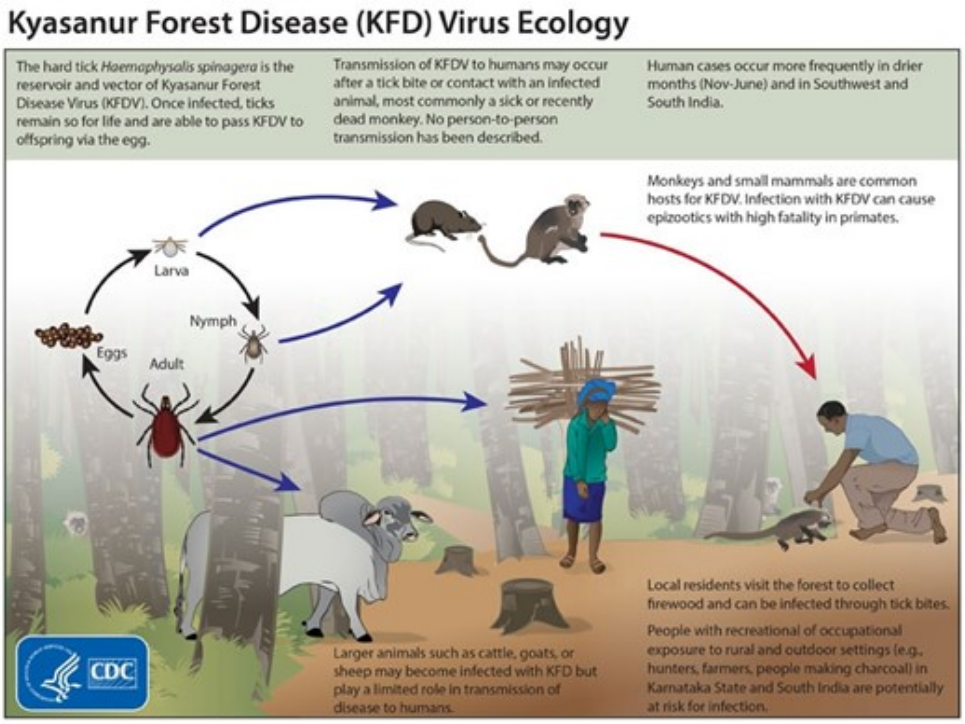
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1. Indian Express| Reang tribe
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Kyasanur Forest Disease (KFD)

Recently, Karnataka district health officials have created awareness on high alert to prevent Kyasanur Forest Disease (KFD).

- **KFD** – It is a ***tick-borne haemorrhagic fever*** of humans, caused by Kyasanur Forest Disease Virus (KFDV).
    - KFDV virus is a single-stranded, positive-sense RNA virus belonging to the family Flaviviridae.
- It is also known as ***"monkey fever"*** because monkeys are highly susceptible to the disease.
- KFD was ***first discovered in 1957*** in the Kyasanur forest area of Karnataka.
- Hard ticks (Hemaphysalis spinigera) spread the KFD virus to people and to animals, like monkeys and rodents.
- **Symptoms**
    - **1st Wave -** Sudden onset of chills, high fever, frontal headache, vomiting, diarrhea, coughing, and severe muscle pain, followed by bleeding from the nasal cavity.
    - **2nd Wave -** About 10 to 20% of patients experience including severe headache, mental disturbances, tremors, and vision problems.
- **Signs** - 3-8 days after being infected with the virus.



- **Transmission -** To people primarily occurs through tick bites or contact with infected animals.
- It can spread to livestock like cattle, goats, and sheep but livestock rarely spread tick bites to people.
- Human-to-human transmission has ***not been observed***.
- **Mortality rate** - Infected cases are estimated to be 3–10%.
- **Risk factors -** Hunters, herders, forest workers, and farmers in the Karnataka, Tamil Nadu, and Kerala states are at higher risk.
- **Treatment -** There is ***no specific treatment*** available.
- **Prevention**
    - **Vaccination –** It is an inactivated vaccine produced using formalin inactivation of the KFD virus grown in a chick embryo tissue culture.
    - About 70% of people who take this vaccine develop neutralizing antibodies.
    - **Tick bite avoidance -** It is an effective way of being safe when traveling in areas where this disease is transmitted.

References

1. The Times of India| Kyasanur Forest Disease (KFD)
2. CDC| Kyasanur Forest Disease (KFD)

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