UPSC Daily Current Affairs| Prelim Bits 16-04-2025

Atmospheric River

Prelims – *Indian and world Geography, Physical geography.*

Mains (GS I) – *Salient features of world's physical geography.*

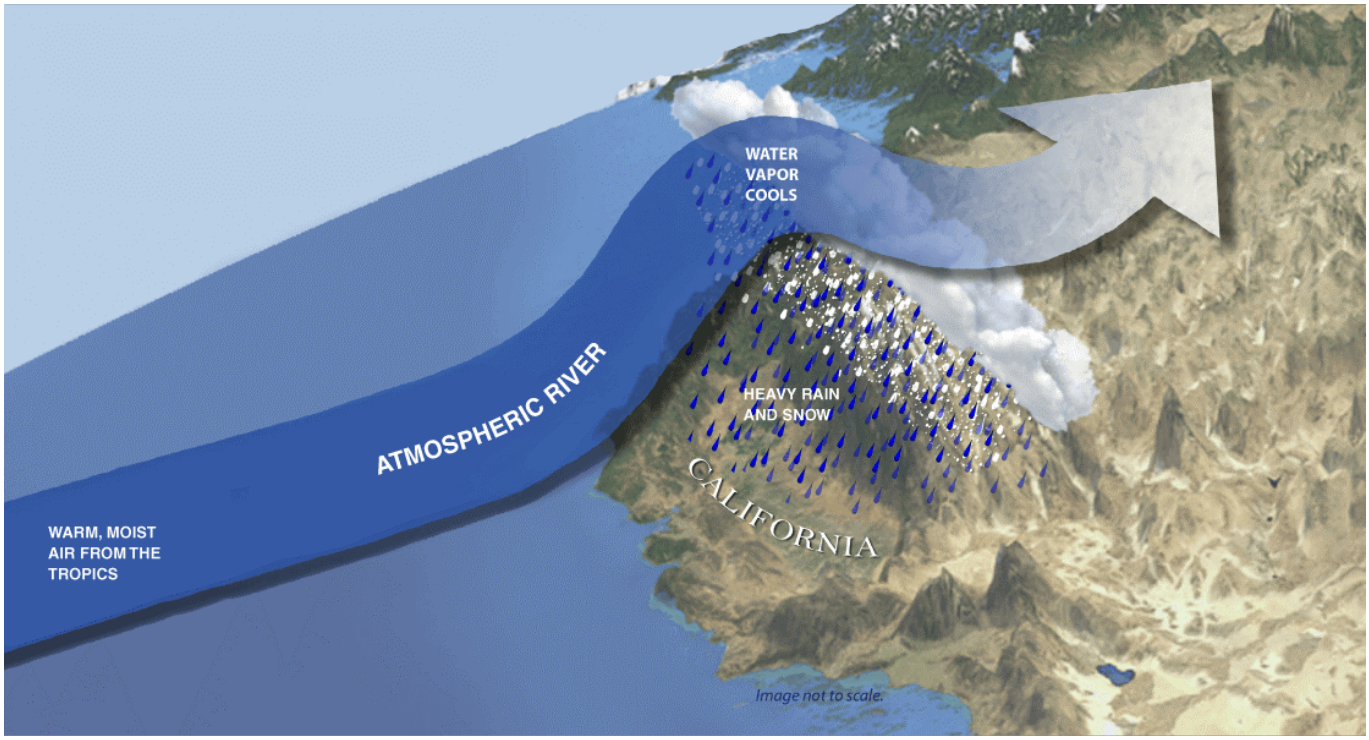
Why in news?

Recently United States witnessed heavy rain, strong winds and severe thunderstorms due to a type of storm known as an atmospheric river.

- **Atmospheric rivers** – They are a ***narrow, fast-moving band of moisture and wind*** like a river in the sky.
- It transport large amounts of water vapour.
- **Occurrences** – They occur all over the world but *most common in the mid-latitudes.*
- **Formation** – They form when large-scale weather patterns create narrow channels of intense moisture transport.
- They ***start over warm water*** typically tropical oceans, and are and guided towards the coast *by low-level jet streams* ahead of cold fronts of extratropical cyclones.

Extratropical cyclones *are also called wave cyclone or mid-latitude cyclone or temperate cyclones.*

- **Characteristics –** It can vary in size and strength
  - **Width** - 402-606 km
  - **Length** - Can exceed 1600 km



*The "**Pineapple Express**" is one of the strongest known atmospheric rivers, carrying moisture from tropical Pacific near Hawaii to the North American west coast.*

- **Impact** – While providing essential rainfall, it can also cause,
  - Flooding
  - Mudslides
  - Hurricane-like conditions
  - Property damage

According to the National Oceanic and Atmospheric Administration (NOAA), when atmospheric rivers pass over land they can cause conditions similar to those of hurricanes with intense and rapid rainfall, cyclone force winds, and significantly increased wave heights.

Impact of Climate Change on Atmospheric River

- **High moisture retention** – With global temperatures soaring, *more water is evaporating* into the air.
- As warmer air can hold more water vapour for every 1°C rise in average temperature, the *atmosphere can hold about 7% more moisture.*
- **Increase in intensity** – More moisture can lead to increase in precipitation intensity, which ultimately causes severe flooding across the world.
- **More frequent atmospheric river** – NASA's 2018 study projected atmospheric rivers becoming significantly longer and wider, leading to more frequent atmospheric river conditions.

Reference

The Indian Express| Atmospheric River

Leptobrachium Aryatium

Prelims (GS I) – *Current events of national and international importance| General issues on Environmental ecology, Bio-diversity and Climate Change.*

Mains (GS III) – *Conservation.*

Why in News?

Leptobrachium aryatium, a new-to-science frog recorded from Garbhanga Reserve Forest on the southwestern part of Guwahati bordering Meghalaya.

- **Genus** – Leptobrachium.
  - It comprising a group of stocky frogs with broad heads, relatively short hind limbs, and distinctively coloured eyes, currently consists of 38 species.
  - It is widely distributed across Southern China and India to islands of the Sunda Shelf and the Philippines.
- **Nomenclature** –Named to honour Arya Vidyapeeth College's enduring contribution to education and science.
- **Appearance –** It has fiery orange-and-black eyes, a unique reticulated throat pattern, and a smooth, rhythmic call at dusk.
- **Distinction -** Scientific analysis of its appearance, DNA, and call patterns confirmed that this was a previously unknown species.



Garbhanga Reserve Forest

- It is located ***southwest of Guwahati***, near the Assam-Meghalaya border.
- The forest is dominated by evergreen and deciduous trees, bamboo groves, and medicinal plants.

- **Notable species -** Hoolock Gibbon, Leopards, Elephants, Deer species (barking deer and sambar deer), Various reptiles and amphibians (Rare frogs, snakes, and monitor lizards).
- **Threats –** Poaching, Timber smuggling, and illegal mining.

Reference

The Hindu | Leptobrachium aryatium

Archaeological Excavation in Dwaraka

Prelims – *History of India and Current events of national importance.*

Mains (GS I) – *Indian Heritage and Culture.*

Why in news?

The Archaeological Survey of India's (ASI) Underwater Archaeology Wing has launched a new research expedition examining both onshore and offshore sites at Dwarka and Beyt Dwarka in Gujarat.

- **Present study** – It is being conducted by a 9-member team of the *Underwater Archaeology Wing (UAW)* of the ASI.
- **Coverage** – It includes both *onshore and offshore expedition* at ***Dwarka and Beyt Dwarka in Gujarat***
- It is planned to cover an expanded area in Okhamandal city in Gujarat.
- **Focus areas**
  - Archaeological explorations
  - Identification of potential sites and places
  - Scientific study involving diving operations
  - Search and collection of archaeological remains, their proper documentation and study

Previous Studies of Dwaraka	Research & its Findings
2025 Investigation at South of Gomati Creek (eastern side of Dwarka)	• **Aims** - Inspecting earlier explored areas and examine their present condition. • To identify probable areas for further investigations and study.
2005-07 Investigation	• It included both offshore and onshore exploration. • **Findings** – It revealed *clusters of submerged remains*. • It includes ancient *sculptures, stone anchors*, and other objects of historical importance.

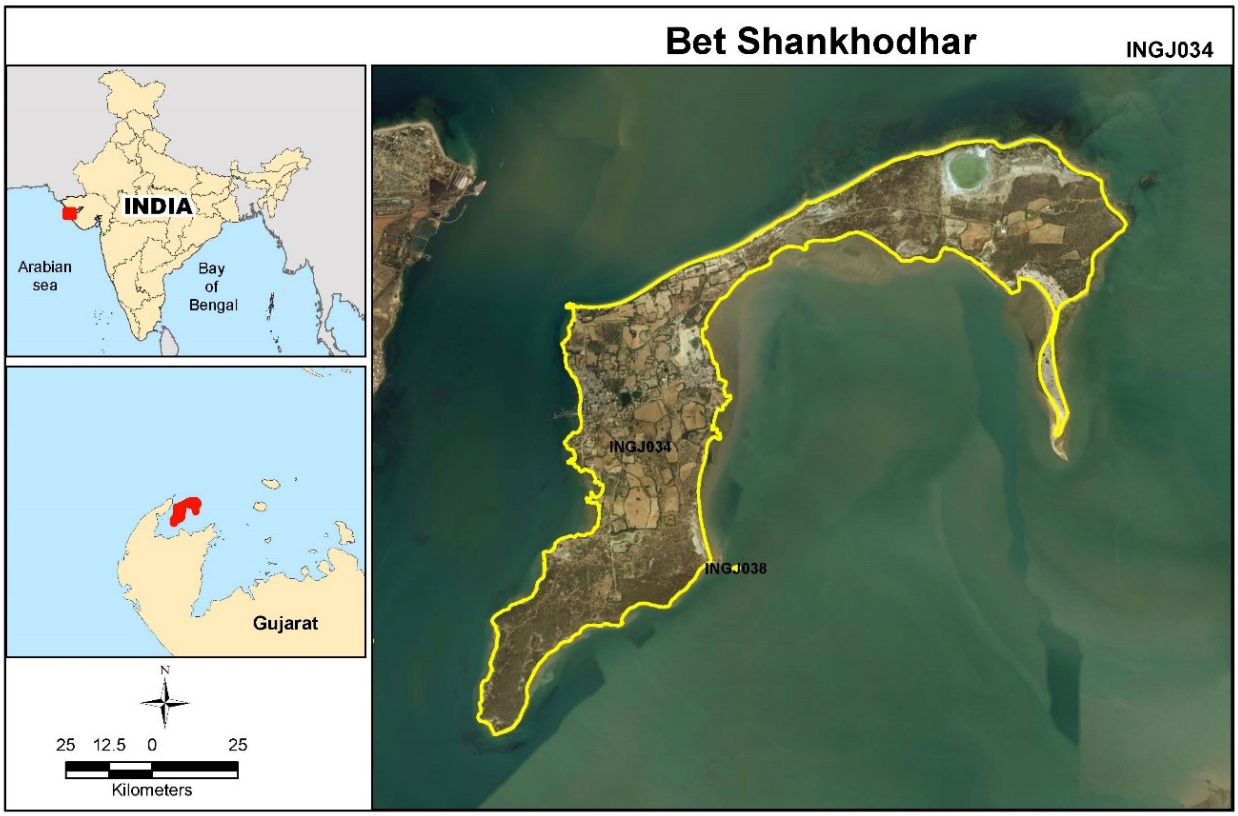
2007 Excavation near Dwarkadhish Temple	• **Findings** – A deposit of about 10 metres having 26 layers was excavated. • Antiquities recovered includes iron objects, beads, copper objects, rings, etc. • Besides, *potteries* recovered during the excavation were also examined and studied thoroughly.

Quick Facts

- **Dwaraka** – It is located on the western tip of the Kathiawar Peninsula and is one of the 4 Char Dhams, India's holiest sites.

  ***Char Dhams** are considered the most important Hindu pilgrimage sites in India they are Rameswaram, Puri, Dwarka, and Badrinath.*

- **Beyt Dwarka –** It is an *island off Gujarat's coast*, believed to be Lord Krishna's ancient home.
- It is also known as Bet Shankhodhar due to its resemblance of Shankh shape.



- **Dwarkadhish temple (Jagat Mandir)**- It is located in Dwarka and is believed to have been established over 2500 years ago by Lord Krishna's great-grandson, Vajranabh.
- It is situated at the *junction of the Gomti River and the Arabian Sea*.
- It was honored by Adi Shankaracharya, the 8th century Hindu theologian and philosopher.

- The original structure was destroyed by Mahmud Begada in 1472 and rebuilt in the 15th-16th century.

In 2024 Prime Minister inaugurated Sudarshan Setu bridge which is the country's longest cable-stayed bridge of 2.32 km, on the Arabian sea connecting Beyt Dwarka island to mainland Okha in Dwarka district.

Reference

The Hindu| Dwarka Underwater Expeditions

Amarnath Temple

Prelims – *History of India and Current events of national importance.*

Mains (GS I) – *Indian Heritage and Culture.*

Why in News?

The Amarnath Yatra will be held open soon which is organised only once a year and is conducted with tight security arrangements.

- The Amarnath temple in ***Jammu and Kashmir*** is dedicated to Lord Shiva in the linga form.
- The linga is located on Amarnath mountain, in a cave at a height of 3,888 m, and is blocked by snow most of the year.
- **Discovered by -** It is believed to have been discovered by ***ancient Sage Bhrigu***.
- **Hindu Myth** - Amarnath derives its name from the revelation of the secret of immortality (amaratva in Sanskrit) by Lord Shiva to his consort, Goddess Parvati.
- The cave is known as Amarnath because it is the site where the 'amar katha,' the story of immortality, was shared.
- Additionally, the location is referred to by other names such as *Amaresha and Amareshvara.*
- The linga at Amarnath is regarded as ***swayambhu,*** indicating that it emerged naturally without human intervention.
- **Geographical Features** - The linga is classified as a stalagmite, which forms from mineral deposits accumulating as water drips from the cave ceiling.
- As these water droplets freeze, they create the icy shivling. Consequently, Lord Amarnath is also affectionately known as Baba Barfani.
- The glaciers in the *Lidder Valley*, where the temple is situated, are believed to form concealed water channels that lead to the cave, serving as the source of the water.
- The Shivalinga experiences changes in size by the lunar cycle, reaching its largest form during the full moon in the month of Shravan (approximately in August).
- This ice lingam is thought to represent Lord Shiva, embodying his immortality and his ability to transcend time.

- **Related literary works - Kalhana's Rajtarangini,** written in the 12th century CE, mentions Amarnath at least twice.
- The significance of the place is narrated in an ancient work called ***Amreshwar Mahatamya.***

Reference

The Indian Express | Amarnath Temple

Saras Mk2 Aircraft

Prelims – *General Science.*

Mains (GS III) – *Science and Technology Developments.*

Why in News?

The Saras Mk2, an updated version of an India-designed civilian aircraft, is set to test-fly in December 2027

- Saras Mk2 is a 19-passenger, ***versatile civilian aircraft,*** upgraded version of Saras MK 1.
- It is the first Indian multi-purpose civilian aircraft in the light transport aircraft category.
- **Aim** - It enhances regional ***air travel throughout India***, particularly targeting tier-2 and tier-3 towns that have limited airport facilities.
- **Developed by -** CSIR–National Aerospace Laboratories (CSIR–NAL) under the Ministry of Science and Technology.
- **Manufacturing assistance** - Hindustan Aeronautics Limited (HAL).
- **Objective -** To foster domestic civilian aircraft production, decrease reliance on imports, and support the UDAN (Ude Desh ka Aam Naagrik) initiative for improved regional air connectivity.
- **Speed –** Maximum cruise speed of 500kmph and stall speed of 180kmph.
- **Weight –** 7.5 tons.
- **Endurance –** 6 hours with a service ceiling of 29,000ft.
- **Key Features**
    - **Enhanced Model -** An upgraded version of the original 14-seater Saras, which first took to the skies in 2004, featuring redesigned aerodynamics and optimized engine placement.
    - **Versatile Applications** - Capable of functioning as a commuter aircraft, air ambulance, or for charter services in remote areas.
    - **Indigenous Components -** Avionics provided by Genesis, with brake and environmental systems developed internally by CSIR–NAL; composite wings are also produced in-house.
    - **Twin Prototype Strategy -** Two aircraft will be constructed to expedite certification processes and reduce developmental delays.
    - **Digital and Modular Architecture** - Features a CSIR-NAL-developed aircraft

computer, allowing for future integration of automation and AI enhancements.

- **Significance**
  - **Enhance Regional Aviation** - Facilitates air connectivity to underserved areas, in line with the government's UDAN objectives.
  - **Revitalize Civil Aviation Research and Development** - Strengthens India's role as a technology innovator in the civilian aviation sector.
  - **Decrease Foreign Dependency** - Provides a domestic alternative to imported aircraft such as the Dornier or ATR.
  - **Offer Cost-effective Aviation Solutions** - Well-suited for short-haul routes, increasing passenger capacity in low-demand markets.
  - **Foster Defence-Civil Collaboration** - The Indian Air Force has expressed interest in acquiring 15 units, promoting integration between civil and military production efforts.

Reference

The Hindu | Saras Mk2 plane

One Liners 16-02-2025

History, Art and Culture

Siachen Day: Honoring the Siachen Warriors

Recently, Siachen Day was observed on April 13th to commemorates the unwavering courage and resolve of Indian soldiers stationed in the Siachen Glacier, the world's highest battlefield.

• **Commemorating Operation Meghdoot** – This day specifically marks the anniversary of Operation Meghdoot, launched on April 13, 1984. The operation saw the Indian Army successfully secure the Siachen Glacier, preempting Pakistan's attempts to seize strategically vital locations.

• **Significance of India's Strategic Control** – Siachen Day underscores India's strategic control over the glacier, particularly the crucial Bilafond La and Sia La passes. It highlights the dedication of soldiers serving in extremely challenging conditions.

• **Background to the Historic Mission** – Operation Meghdoot was initiated in response to Pakistan's cartographic aggression and intelligence indicating their plans to capture key passes. The Indian Army's proactive operation secured India's presence in the region.

• **A Legacy of Courage and Sacrifice** – As 2025 marks the 41st anniversary, Siachen Day serves as a poignant reminder of the sacrifices and heroism of the "Siachen Warriors," inspiring generations with their indomitable spirit.

Bohag Bihu 2025: Assamese New Year Celebrations

Recently, Bohag Bihu also known as Rongali or Xaat Bihu, is Assam's vibrant spring festival and New Year, observed over seven days from April 14th to 20th.

• **Marking the Assamese New Year** – This significant festival heralds the start of the Assamese solar year, bringing with it celebrations of new beginnings and the arrival of the spring season.

• **Harvest and Agrarian Gratitude** – Primarily an agrarian festival, Bohag Bihu is a time for the farming community to express their gratitude for the recent harvest and to pray for a prosperous agricultural year ahead.

• **Cultural Significance and Unity** – The seven-day celebration is rich in colorful rituals, folk songs, traditional dances, and communal feasts, acting as a unifying force across Assamese communities and villages.

• **Spring Festival Equivalents** – Bohag Bihu shares its spirit with other Indian spring festivals like Baisakhi in Punjab, Puthandu in Tamil Nadu, Vishu in Kerala, and Pohela Boishakh in West Bengal.

• **Seven Days of Festivities** – Spanning a week, each day of Bohag Bihu holds unique cultural and agricultural importance, contributing to the overall joyous and celebratory atmosphere of the festival.

Geography

April's "Pink Moon" Illuminates the Sky

Recently, on April 12th, the first full moon of April, popularly known as the "Pink Moon," graced the night sky. This celestial event is a captivating sight for stargazers.

• **Understanding Supermoons: A Brighter, Larger Full Moon –** NASA defines a supermoon as a full moon occurring when the moon is at its perigee, its closest point to Earth in its orbit. At perigee, the full moon appears noticeably larger and brighter than usual.

• **Enhanced Size and Brightness** – Supermoons are typically about 7 percent larger and approximately 15 percent brighter than an average full moon. This difference, while noticeable, may not be dramatically apparent to casual observers.

• **The "Pink Moon" Misnomer** – Despite often being called a "Pink Moon," the supermoon's color isn't actually pink. This name originates from the Wild Ground Phlox, a species of pink wildflower that blooms in North America during the spring, around the time of the April full moon.

• **The "Paschal Moon" Connection** – In the Christian calendar, this particular full moon is also known as the Paschal Moon. Its timing is significant as it determines the date of Easter, which is celebrated on the first Sunday following the Paschal Moon.

Polity & Governance

Verka's New Mascot: 'Veera' Unveiled

Recently, Milkfed Punjab, a leading Indian dairy cooperative, has introduced 'Veera' as the new mascot for its flagship brand, Verka.

• This strategic move aims to boost Verka's national and international recognition, similar to the Amul Girl's success.

• **Introducing 'Veera': The Brand Ambassador –** Veera, meaning 'brother' in Punjabi, is depicted as a smiling young Sikh boy with folded hands. He embodies Punjab's warmth, tradition, and hospitality, set to promote Verka's brand image.

• **Milkfed Punjab's Initiative** – Milkfed (Punjab State Cooperative Milk Producers' Federation), currently India's 7th largest state milk cooperative, is behind this branding effort to enhance Verka's market reach.

• **Verka: A Dominant Dairy Brand –** Verka, Milkfed's popular dairy brand, offers a wide range of products including milk, lassi, butter, paneer, curd, and flavored milk, already holding a strong market share in Punjab.

Nagaland Launches Ambitious Solar Mission

Recently, Nagaland Chief Minister Neiphiu Rio has inaugurated the Nagaland Solar Mission, a significant step towards promoting widespread adoption of rooftop solar power systems across the state.

• **Aligning with PM Surya Ghar Yojana** – This initiative is in close alignment with the central government's 'PM Surya Ghar: Muft Bijli Yojana', aiming to provide affordable and clean energy to households.

• **Substantial Subsidies for Solar Adoption** – The Nagaland Solar Mission offers attractive subsidies, covering up to 96% of the cost for 2kW solar systems and 85% for 3kW systems, making solar power significantly more accessible.

• **Financial Commitment to Green Energy** – Demonstrating its commitment to renewable energy, the state government has allocated Rs10 crore for the Nagaland Solar Mission in the financial year 2025-26.

• **Boosting Sustainable Energy in Nagaland** – This mission is expected to accelerate the transition towards sustainable energy in Nagaland, reducing reliance on conventional power sources and empowering households with clean and affordable electricity.

Environment

IISc Creates 'Venom Maps' for Russell's Viper

Recently, Researchers at the Indian Institute of Science (IISc) have developed innovative "venom maps" for the Russell's viper, a highly venomous snake species.

• **Predicting Venom Variations with Climate Data** – These unique maps utilize local climate data to predict the specific characteristics of the Russell's viper's venom across different geographical regions.

• **Aiding Clinicians in Snakebite Treatment** – The primary goal of these venom maps is to assist clinicians in selecting the most effective antivenom treatment for snakebite victims, potentially improving patient outcomes.

• **Russell's Viper: Protected Under WPA** – It's important to note that the Russell's viper is classified as protected wildlife under Schedule II of the Wildlife Protection Act (WPA), 1972 in India.

• **Towards Targeted Snakebite Therapy** – This research represents a significant step towards a more targeted and effective approach to snakebite therapy, considering the geographical variations in venom composition.

Miscellaneous

Kathak Legend Kumudini Lakhia Passes Away

Recently, Renowned Kathak dancer Kumudini Lakhia, a pioneer in group performances, passed away at 95 in Ahmedabad shortly after receiving the Padma Vibhushan. She revolutionized Kathak, traditionally a solo art form, by bringing ensemble work to the forefront.

• **The Essence of Kathak: Storytelling Through Dance** – Derived from the Sanskrit word 'Katha' (story), Kathak originated from Kathakars, ancient storytellers who narrated epics like the Ramayana and Mahabharata using music, dance, and mime.

• **Historical Journey and Evolution** – Born in North India during the Bhakti movement (8th-12th centuries), Kathak flourished in royal courts under Mughal patronage, incorporating Persian influences. Despite colonial marginalization, it was revived post-independence and recognized as a classical dance form.

• **Distinct Gharanas: Shaping Diverse Styles** – Three prominent Gharanas (schools) define Kathak: Lucknow, known for grace and expression; Jaipur, emphasizing intricate footwork and rhythm; and Banaras, balancing footwork and narrative with unique spins.

• **Key Elements of a Kathak Performance** – Kathak performances blend 'Nritta' (pure dance with complex footwork and spins synchronized with percussion) and 'Nritya' (expressive dance conveying emotions and stories through gestures and expressions). It is accompanied by Hindustani classical music.

• **Major Exponents of Kathak** – Key figures who shaped Kathak include Bindadin Maharaj and Birju Maharaj (Lucknow Gharana), among others, who contributed significantly to its evolution and popularization. Lakhia herself stands as a pivotal figure in its modern adaptation.

Mario Vargas Llosa: Literary Titan Passes Away

Recently, Renowned Peruvian novelist, essayist, and journalist Mario Vargas Llosa died on April 14, 2025, at 89. The 2010 Nobel laureate for Literature profoundly explored power structures and individual struggles.

• **Early Life and Influences** – Born in Arequipa, Peru, in 1936, Vargas Llosa's early life in Bolivia and his time at a Lima military academy significantly shaped his initial literary works. He later studied law and literature.

• **Groundbreaking Literary Career** – His debut novel, The Time of the Hero (1963), launched his career. Subsequent major works include The Green House, The War of the End of the World, The Feast of the Goat, and Harsh Times. He also ventured into children's literature with Fonchito and the Moon.

• **Evolution of Political Views** – Initially holding Marxist views, Vargas Llosa later embraced liberal democracy. He unsuccessfully ran for the Peruvian presidency in 1990 and was a prominent president of PEN International.

• **Lasting Legacy and Influence** – Vargas Llosa's extensive body of work, comprising over 30 novels and numerous essays translated globally, has left an indelible mark on literature and intellectual discourse in the Spanish-speaking world and beyond.

Vanajeevi" Ramaiah: Environmentalist Dies

Recently, Daripalli Ramaiah, the esteemed environmentalist known as "Vanajeevi" or "Chettu Ramaiah," passed away at 87 in Khammam district, Telangana, due to a heart attack.

• **A Lifetime of Planting Trees** – Ramaiah dedicated his life to afforestation, remarkably planting over one crore saplings across Khammam, significantly contributing to local ecosystems and combating deforestation.

• **Padma Shri Recognition** – His extraordinary efforts in environmental conservation were recognized with the prestigious Padma Shri award in 2017, a testament to his impactful work.

• **Philosophy: Humans and Nature** – Ramaiah deeply believed in the essential interdependence of human survival and a healthy environment, dedicating his life to promoting ecological awareness.

• **Inspiring Grassroots Action** – Starting as an individual, Ramaiah's dedication inspired widespread community engagement in environmental conservation, leaving a lasting legacy for future generations.

World Chagas Disease Day 2025: A Global Call to Action

Recently, World Chagas Disease Day 2025 seeks to raise global awareness about the global impact of Chagas disease, urging equitable healthcare access and long-term care.

• **The 2025 theme emphasizes** – Shared responsibility in prevention, control, and patient support.

• **Understanding Chagas Disease** - Also known as American trypanosomiasis, Chagas disease is a parasitic illness caused by Trypanosoma cruzi. It was discovered in 1909 by Brazilian physician Carlos Chagas.

• **Transmission Pathways** – The primary mode of transmission is through the bite or feces of infected triatomine bugs ("kissing bugs"). Other routes include congenital transmission, blood transfusion, organ transplant, contaminated food, and lab accidents. It's not spread by casual contact.

• **Disease Progression and Symptoms** – The acute phase may present with fever, rash, and swollen glands. The chronic phase, affecting 20-30%, can lead to severe heart, digestive, or neurological issues. Alarmingly, 70-80% remain asymptomatic.

• **Global Prevalence and Risk** – Endemic in 21 American countries, 6-7 million people are infected globally, causing 10,000-12,000 annual deaths. 100 million are at risk worldwide, with rare cases in other regions.

• **Treatment and Management** – Currently, no vaccine exists. Antiparasitic drugs like Benznidazole and Nifurtimox are effective in the acute stage. Treatment in the chronic phase is less effective but can slow progression.

• **Prevention Strategies** – Prevention focuses on vector control (eliminating triatomine bugs), mandatory blood screening in endemic regions and emerging areas, and raising crucial awareness and surveillance.

SHANKAR IAS PARLIAMENT
Information is Empowering