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Current Affairs - 19 October 2024

WHAT CAN INDIA DO TO END THE SCIENCE NOBEL DROUGHT?

The Nobel Prize season highlights a stark reality: since its inception in 1901, only 12 individuals of Indian origin have been awarded the Prize, with just five being Indian citizens.

Notably, **Dr. C.V. Raman stands out as the only Indian laureate in the science category**, receiving Nobel in Physics in 1930 for the discovery of the Raman Effect. The 94-year gap since this achievement **raises concerns about India's scientific recognition on the global stage.**



Reasons Behind India's Poor Performance in the Nobel Prize Science Category:

- **Limitations in research:**
 - **Inadequate basic research:** There is insufficient focus on fundamental research, hindering innovation.
 - **Low public funding:** Public funding for R&D in India is **~0.7% of its GDP**, which is significantly lower than countries like the US (which spends ~3% of its GDP on R&D), and even behind other BRICS nations.
- **Excessive bureaucracy:** A bureaucratic framework stifles creativity and slows down the research process.
- **Decay of university research capabilities:** Many universities struggle to maintain research standards, further limiting potential breakthroughs.
- **Diminished pool of researchers:** India has approximately five times fewer researchers per capita compared to the global average, significantly reducing its chances of producing Nobel-worthy candidates.
- **Selection process is highly selective:**
 - Among the publicly disclosed nominations, six Indian scientists stand out: Meghnad Saha, **Homi Bhabha**, SN Bose (Physics), GN Ramachandran, T Seshadri (Chemistry), and Upendranath Brahmachari (Medicine).

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- All were nominated multiple times, yet none secured the award.
- Several prominent scientists have been overlooked entirely. **For example, Jagadish Chandra Bose** (who pioneered wireless communication) and **KS Krishnan** (a co-discoverer of the Raman scattering effect).
- **Western dominance:**
 - The overwhelming majority of Nobel Prizes in sciences have been awarded to researchers from the **US and Europe**.
 - Out of the 1,100+ laureates in these categories, a mere handful hail from Asia, Africa, or South America, with Japan leading the non-Western countries.

Strategies to Enhance India's Scientific Landscape:

- **Emphasise upon STEM education:**
 - To foster groundbreaking research, India must redirect its focus from the current engineering rush to **fundamental scientific education**.
 - **Address brain drain:**
 - Indian-origin scientists, such as **Hargovind Khorana, Subrahmanyan Chandrasekhar, and Venkatraman Ramakrishnan**, received Nobel prizes in their respective fields.
 - **However, they conducted their groundbreaking work abroad and were not Indian citizens at the time of their awards.**
 - **Bolster research capabilities:**
 - **Increased investment** (both public and private) in scientific research and infrastructure, and creating a supportive ecosystem for innovative research, are crucial for fostering Nobel-worthy discoveries.
 - **Foster international collaborations:**
 - India should promote global partnerships by encouraging young scientists to intern with top research groups worldwide.
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WHAT IS THE SOCIETY FOR WORLDWIDE INTERBANK FINANCIAL TELECOMMUNICATION (SWIFT) SYSTEM?



It is a member-owned cooperative that provides safe and secure financial transactions for its members.

- **Establishment:** It was founded in 1973 by 239 banks from 15 countries.
 - SWIFT is a network that banks use to communicate with each other securely, mainly to give instructions for transferring funds between accounts.
 - SWIFT is the largest and most streamlined method for international payments and settlements.
 - SWIFT works by assigning each financial organization a unique code with either eight or 11 characters, known as a bank identifier code, or BIC.
 - By standardizing communication protocols, SWIFT ensures that financial institutions can reliably conduct cross-border transactions, reducing the risks and inefficiencies associated with international banking. Although SWIFT is crucial to global financial infrastructure, it's not a financial institution.
 - SWIFT does not hold or transfer assets but facilitates secure, efficient communication between member institutions. It transmits essential details such as the recipient's account information and transfer amount.
 - Headquartered in La Hulpe, Belgium, the system is overseen by the central banks of the G10 countries, the European Central Bank, and the National Bank of Belgium.
 - Its shareholders represent around 3,500 member organisations.
 - SWIFT shareholders elect a board of 25 directors who govern the organisation and oversee management of the SWIFT system.
 - Because membership in SWIFT allows countries to easily conduct international financial transactions, exclusion from SWIFT is an economic sanction that can be used against countries whose actions are condemned by the global community.
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WHAT ARE NEXT GENERATION MISSILE VESSELS (NGMV)?



- The NGMVs would be heavily armed war vessels incorporating **stealth, high speed, and offensive capability** being built for the **Indian Navy**.
- **Six NGMVs are being built** by government-run **Cochin Shipyard Limited (CSL)** at a cost of Rs 9,805 crore.
- The **delivery** of ships is **scheduled to commence from March 2027**.
- The **primary role** of the ships would be to **provide offensive capability against enemy warships**, merchantmen, and land targets.
- These ships will be capable of conducting **Maritime Strike Operations and Anti Surface Warfare Operations** and would be a potent instrument of sea denial for enemy ships, especially at choke points.
- In a defensive role, these ships would be employed for Local Naval Defence operations and seaward defence of Offshore Development Area.
- **Features:**
 - The **core of the NGMV propulsion system** is the **LM2500, a marine gas turbine, manufactured by** the American engine manufacturer **General Electric**. LM2500 is engineered to unleash superior power while meeting stealth requirements.
 - With a top speed of 35 knots (64 kmph), these vessels carry an **array of anti-surface weapons**.
 - The CSL will equip the vessels with **loitering munitions, unmanned vehicles**, and other guided weapons to add to its firepower.
 - The NGMVs' **primary weapon** is anticipated to be the **BrahMos supersonic cruise missile**, capable of striking targets at long ranges.



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MERA HOU CHONGBA FESTIVAL



- It is an annual festival observed in order to strengthen the cordial bond between the indigenous communities **living in hills and valley people**.
 - It is only a festival wherein both hills and valley indigenous communities are observed together in the State
 - This festival has been celebrated right from the time of Nongda Lairen Pakhangba in the first Century C.E.
 - Every year, in the month of Mera, which falls in **September/October**, this festival is celebrated, in which all the **village Chiefs or Khullakpas** and peoples from the surrounding hill areas fully take part
 - The royal palace officials share the same dias as the multiple village chiefs from communities such as Mao, Kabui, Zeme, Kom, Liangmei, and many more.
 - The main function of Mera Hou Chongba festival is the **exchange of gifts between the King and village Chiefs** and performance of cultural shows and sports.
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WHAT ARE TROJAN ASTEROIDS?



- Trojan asteroids are a class of asteroids that **occupy a stable Lagrange Point** in a planet's orbit around the sun.
 - These are usually found around **Lagrange Point L4 or L5 points** which makes them gravitationally stable.
 - These are thought to be **remnants of the primordial material** that formed the outer planets.
 - Their orbit around the sun is similar to the orbit of the planet they are associated with.
 - These were discovered by German astrophotographer **Max Wolf** in 1906, but they were named so later.
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- They have **unusual orbits**, remain **gravitationally stable** for long periods of time and studying them can provide useful insights into the evolution of the solar system.

What are Lagrange points?

- A Lagrange point is a position in space where the **gravitational pull of two large masses precisely equals** the centripetal force required for a small object to move with them.
 - These points in space can be used by spacecraft to reduce fuel consumption needed to remain in position.
 - The Lagrange points are named in honour of **Italian-French mathematician Joseph-Louis Lagrange**, and there are five of them: **L1, L2, L3, L4, and L5**.
 - The L1 point of the Earth-Sun system affords an uninterrupted view of the Sun.
 - It is currently home to the Solar and Heliospheric Observatory Satellite SOHO.
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RBI BARS 4 NBFCs FROM GIVING LOANS

- The RBI has barred four non-banking finance companies (NBFCs) from sanctioning and disbursing loans. These four NBFCs are: Asirvad Micro Finance Ltd (backed by Manappuram Finance), Arohan Financial Services Ltd, DMI Finance (supported by Mitsubishi), and Navi Finserv (founded by Flipkart co-founder Sachin Bansal).
- The action was based on violations related to their pricing policies, including excessive interest charges that did not adhere to RBI regulations.
- While RBI has no upper limit on loan interest rates, it mandates transparency, which these NBFCs failed to comply with.

Regulatory Warnings Ignored

- The RBI has consistently urged regulated entities to adopt fair, transparent, and reasonable pricing practices, especially for small loans.

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- Despite these warnings, usurious practices continued to surface during onsite examinations and offsite data analysis.
- NBFCs were found violating regulations on income assessment for microfinance loans, failing to comply with Income Recognition & Asset Classification (IR&AC) norms, and violating disclosure requirements on interest rates and fees.

Digital Lending

- Digital lending is the process of availing credit online.
 - It involves lending through web platforms or mobile apps, utilising technology in customer acquisition, credit assessment, loan approval, disbursement, recovery and associated customer service.
 - Its increased popularity amongst new-age lenders can be attributed to expanding smartphone penetration, credit range flexibility and speedy online transactions.
 - It includes products like Buy Now, Pay Later (BNPL), which is a financing option (or simply a short-term loan product).
 - BNPL allows one to buy a product or avail a service without having to worry about paying for it immediately.
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FORECASTING BETTER IN INDIA, COME RAIN OR SHINE

- **According to a 2021 study** by the Council on Energy, Environment and Water (CEEW), **around 40% of districts in India experience alternating climatic hazards**, meaning that regions vulnerable to flooding during the monsoon are also at risk of droughts during the dry season.
- **The Mission Mausam, a government initiative launched in 2024, aims to address these climatic hazard challenges** by expanding India's weather observation capabilities, enhancing forecasting models, and investigating innovative approaches.

The Need for Enhanced Weather Forecasting

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- The increasing complexity of India's weather patterns necessitates a robust forecasting
- While two-thirds of the population is exposed to flood risks, **only a third of those residing in flood-prone areas are covered by early warning systems.**
- In contrast, cyclone-prone regions benefit from more comprehensive early warning systems.
- **This gap in coverage underscores the urgent need for technological investments and innovative solutions** to provide timely and accurate forecasts for extreme weather events.
- **Investing in improved forecasting is essential for safeguarding lives and property** in the face of such unpredictable weather patterns.

Mission Mausam and its Objectives

- **Mission Mausam**
 - Mission Mausam is a **strategic initiative by the Indian government** aimed at significantly improving the country's capacity to deal with the increasing challenges of climate change and extreme weather events.
 - The **initiative focuses on three core objectives:** expanding India's weather observation network, enhancing weather forecasting models, and investigating weather modification techniques.
 - These **objectives are designed to address gaps in current weather monitoring capabilities and to provide more accurate, timely, and actionable weather data** to help mitigate the effects of extreme weather.

Expanding the Weather Observation Network

- This **includes the installation of additional Doppler Weather Radars (DWRs), wind profilers, radiometers, and automated weather stations.**



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- **Doppler Weather Radars are crucial for monitoring rainfall** and forecasting short-term weather changes, particularly for tracking severe weather events like thunderstorms and cyclones.
- **These additional instruments will be deployed in strategic locations**, including coastal areas prone to cyclones, urban centres facing recurrent flooding, and regions that currently have insufficient coverage.
- **By expanding the network of weather observation instruments**, ‘Mission Mausam’ aims to provide more localised and accurate weather data, allowing for better short-term forecasts and real-time monitoring of extreme weather events.

Conclusion

- **Mission Mausam represents a timely and strategic initiative by the Indian government** to bolster the country's ability to navigate the challenges posed by extreme weather.
 - **By expanding the weather observation network**, improving forecasting models, and fostering open access to data, **the mission can transform how weather information is collected, analysed, and disseminated.**
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