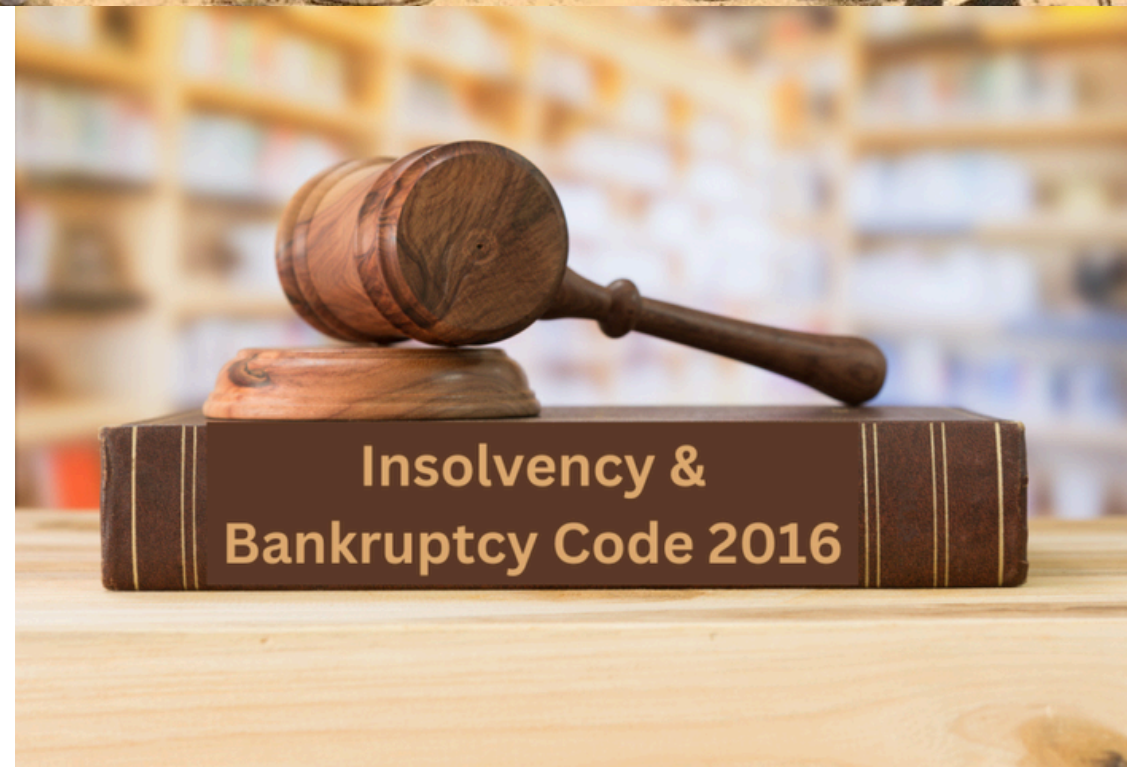
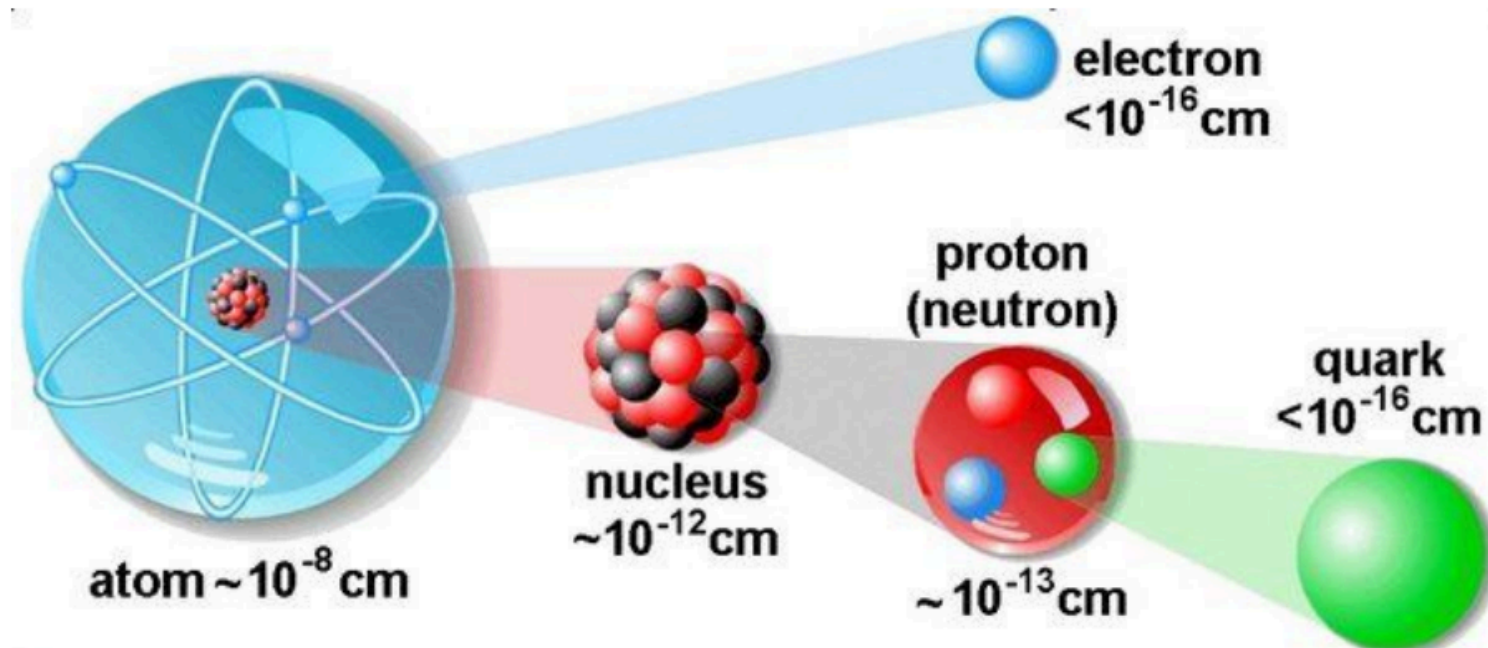
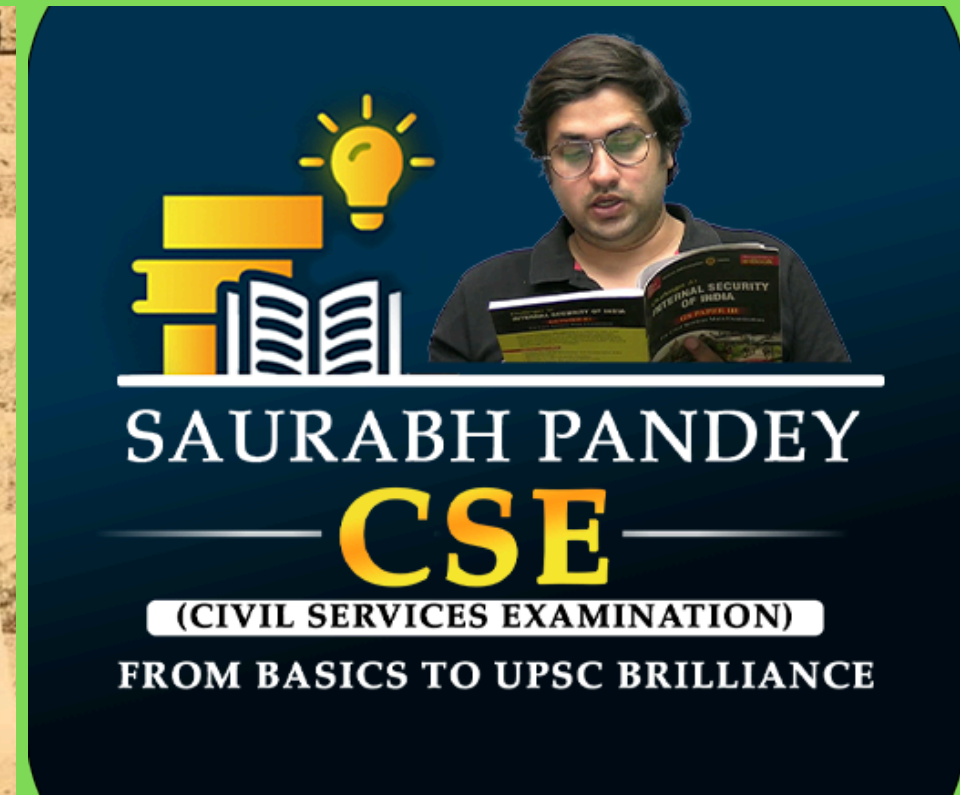


DAILY CURRENT AFFAIRS COMPILATION

OCTOBER 2024

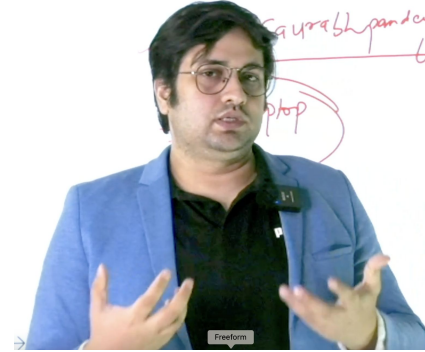
By Saurabh
Pandey Sir



Topics - MINDS MAPS included (Daily current affairs)-- 1st October 2024



- **Supreme Court Rescues Student's Admission**
- **Pobitora Wildlife Sanctuary**
- **The First Rocky Planet Orbiting a White Dwarf**
- **India's Nuclear Energy Sector Expansion**
- **Elderly Population Challenge**
- **Key Concepts in Gender Theory**
- **Marburg virus**
- **Mains**



By saurabh Pandey



THE HINDU

Topic → Supreme Court Rescues Student's Admission

Overview

The Supreme Court intervened to help a student, who missed the admission deadline for IIT Dhanbad due to financial constraints.

The Chief Justice emphasized the importance of education and fairness in opportunities.

Key Points:

Student Profile: Atul Kumar, son of a daily wager, represents a Scheduled Caste community.

Fee Issue: Missed ₹17,500 fee payment deadline affected his admission.

Judicial Action: The Supreme Court exercised its extraordinary powers under Article 142 to ensure admission.

Free range



Wild set: One-horned rhinos grazing in the Pobitora Wildlife Sanctuary in Morigaon district of Assam on Monday. Assam's Kaziranga National Park and other wildlife sanctuaries are all set to welcome visitors for the new season from Tuesday. RITU RAJ KONWAR

Topic → Pobitora Wildlife Sanctuary

Overview of Pobitora Wildlife Sanctuary

Location: Assam, India 🌍

Established: 1987

Size: 38.8 square kilometers

Notable Species: One-horned rhinoceros 🦏

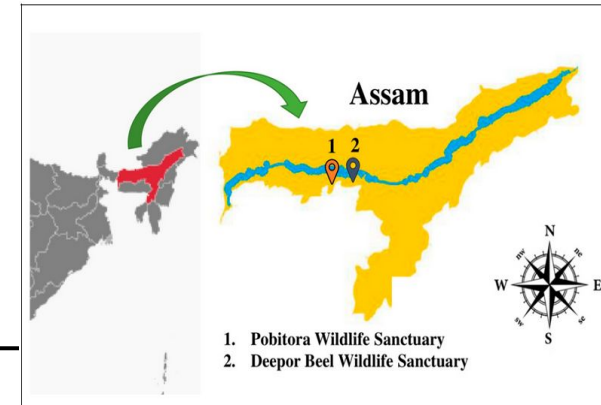
The Pobitora Wildlife Sanctuary is known for its high density of the Indian rhinoceros and diverse flora and fauna.

Features

Biodiversity

Flora: Grasslands, wetlands 🌾

Fauna: Various bird species (over 200)



— Topic→ The First Rocky Planet Orbiting a White Dwarf




Overview of the Discovery


Rocky Planet: First of its kind detected orbiting a white dwarf star 

Significance: Provides insight into Earth's potential future as the Sun evolves 

Distance: Approximately 4,200 light-years from Earth 

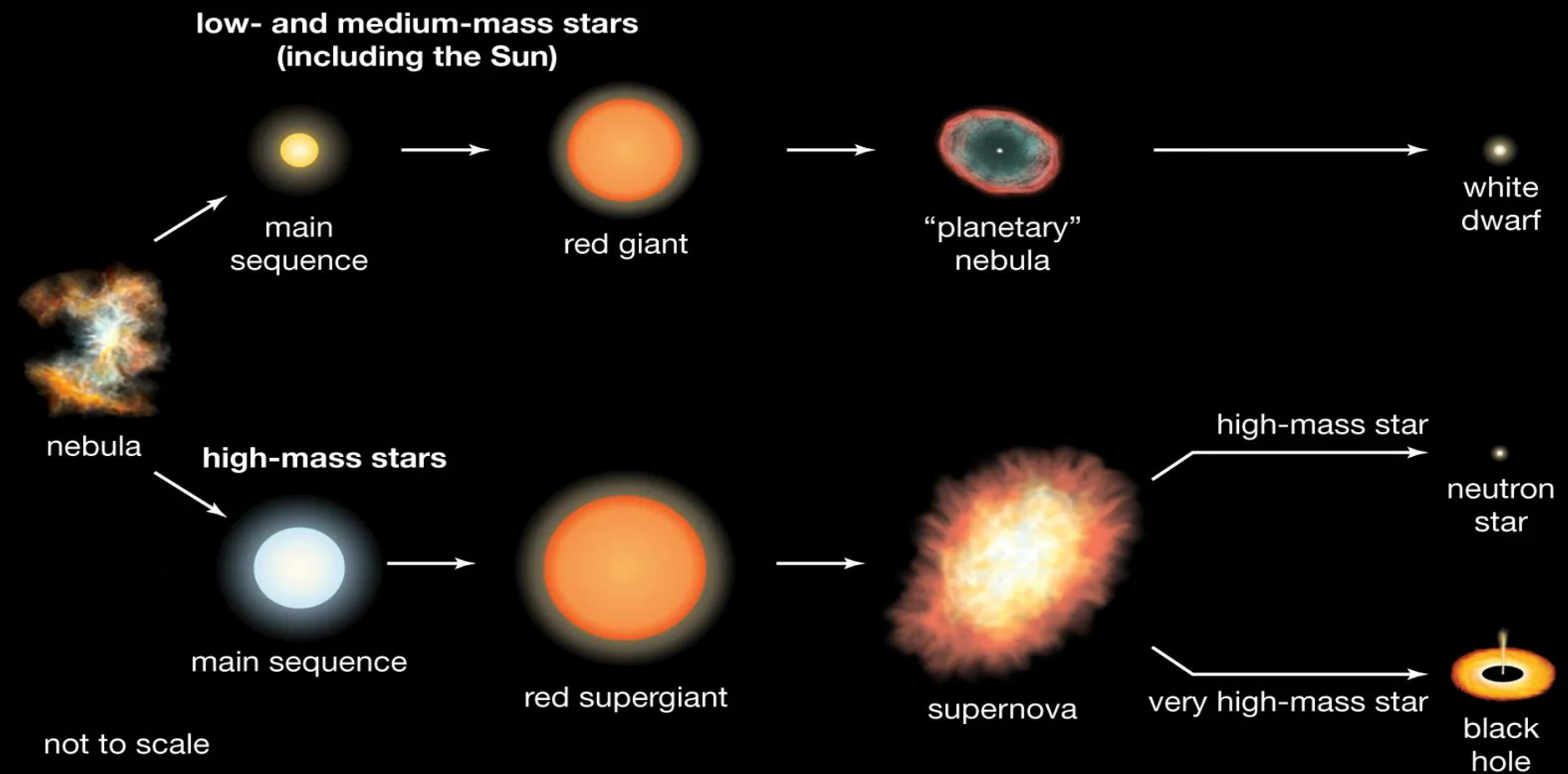
Key Findings:

Planet Mass: About 1.9 times that of Earth 

Current Condition: A cold and desolate world, potentially a glimpse into Earth's fate 

The white dwarf began as a star, one or two times the mass of the Sun, and is now about half its original mass. This discovery hints at what could happen to Earth billions of years from now.

Stellar evolution



Planetary Characteristics

Habitable Zone: Originally in a zone where liquid water could exist




Current Orbit: Now at 2.1 times the distance of Earth from the Sun



Implications for Earth:

Future of Earth: May survive the Sun's death, but in a frigid state



Astronomical Predictions: Sun expected to evolve into a red giant and then a white dwarf in about 8 billion years 

Overview of India's Nuclear Energy Sector

Government Initiative: Expansion announced in Union Budget FY 2024-25

Goals:

500 GW of non-fossil fuel-based energy by 2030 🌱

Partnerships with private sector for research & development

The initiative aims to enhance India's energy generation capacity while focusing on decarbonisation efforts.

Goal: Achieve 500 Gigawatts of non-fossil fuel-based energy generation by 2030.

Focus: Partnerships with the private sector for research and development of Bharat Small Reactors (BSR) and Bharat Small Modular Reactors (BSMR).

Key Challenges:

- Regulatory uncertainty

- Involvement of private sectors


- Legislative restrictions

- Safety and liability concerns

Key Legislative Framework

Atomic Energy Act, 1962:

- Central government control over atomic energy production

- Recent Supreme Court ruling on private sector licensing restrictions 

Civil Liability for Nuclear Damage Act, 2010 (CLNDA):

- Challenges to constitutionality pending in court

- Implications for regulatory certainty in investments

Challenges:

- Regulatory uncertainty from AEA

- Need for comprehensive legislation

- High standards of liability for nuclear infrastructure ⚠️

Opportunities:

- Potential for \$26 billion investments

- Enhanced roles for private partners in nuclear technology

- Growing interest in Small Modular Reactors (SMRs)

Implications for Private Participation

Public-Private Partnerships:

- Structure to align with existing laws

- Transparency under the Right to Information Act (RTI)

Higher Standards of Liability:

- Risks associated with nuclear technology_____

- Compensation laws under CLNDA

500 GW Non-Fossil Fuel Energy by 2030

Private Sector Collaboration

Regulatory Challenges

Safety and Liability Concerns

Research and Development

Bharat Small Reactors (BSR)

Bharat Small Modular Reactors (BSMR)

— Topic → Elderly Population Challenge



Overview

Global Concern: Rising share and longevity of the elderly population in India and China.

Opportunity: Transform challenges into opportunities through suitable reforms.

Key Points

Health care consumption rising to \$7 billion.

Significant health issues among the elderly (chronic ailments, limitations, low life satisfaction).

Multi-sectoral interventions needed (health, social, economic, digital).

Global Concern



Significant Share: India and China have a large elderly population.

Longevity: Rising life expectancy is a contributing factor.



Healthcare Consumption

Estimated Cost: \$7 billion spent on elderly healthcare in India.

Chronic Ailments: Many elderly suffer from long-term health issues.

Life Satisfaction: Generally low among the elderly.



Reform Initiatives

Comprehensive Reforms Needed: Focus on preventive, promotive, curative, and rehabilitative care.

AYUSH System: Utilization of traditional medicine systems.



Economic Opportunities

Silver Economy Value: ₹73,082 crore, with growth potential.

Consumer Segment: Elderly becoming a major market segment.



Digital Inclusion

Enhancing Literacy: Need to improve digital skills among the elderly.

Access to Services: Ensures they can utilize various schemes.

Financial Security

Innovative Schemes: Development of insurance products and financial solutions.

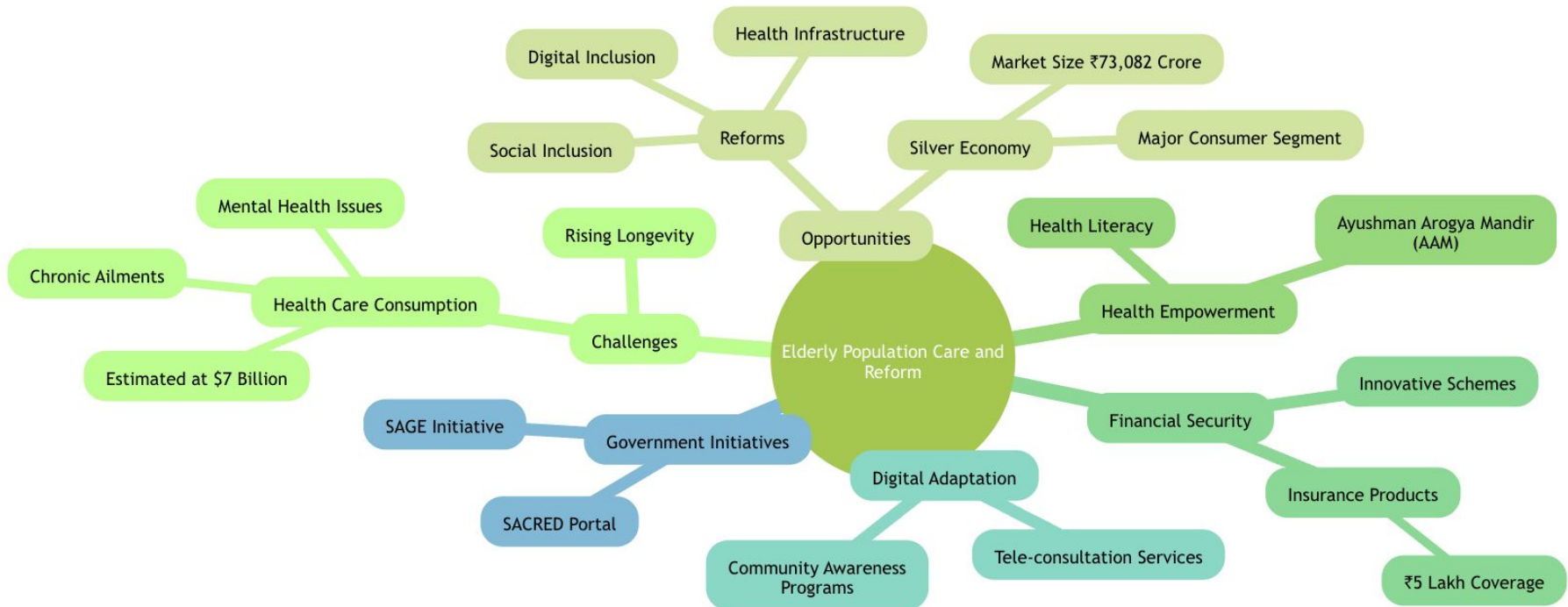
Economic Burden: Alleviating financial stress for the elderly.

Social Inclusion


Peer Support Groups: Establishing networks for the elderly.


Community Awareness: Raising awareness about elderly needs.


Summary: The increasing elderly population in India and China presents both challenges and opportunities. Comprehensive reforms in healthcare, economic support, and digital inclusion are essential to enhance their quality of life.




Topic→ Key Concepts in Gender Theory

 Judith Butler's Influence: Introduced the concept of gender performativity in "Gender Trouble" (1990), challenging fixed notions of gender identity.

 Social Construction of Gender: Gender is constructed through repeated actions and discourse, not a stable identity linked to biological sex.

 Critique of Essentialism: Butler critiques gender essentialism, arguing that gender roles are socially imposed, not innate.

 Cultural Variability: Gender norms vary over time and cultures, as seen in changing color associations and behavior expectations.



— Influence on Movement: Iris Marion Young's essay shows societal norms dictate physical comportment, with girls expected to be more restrained.

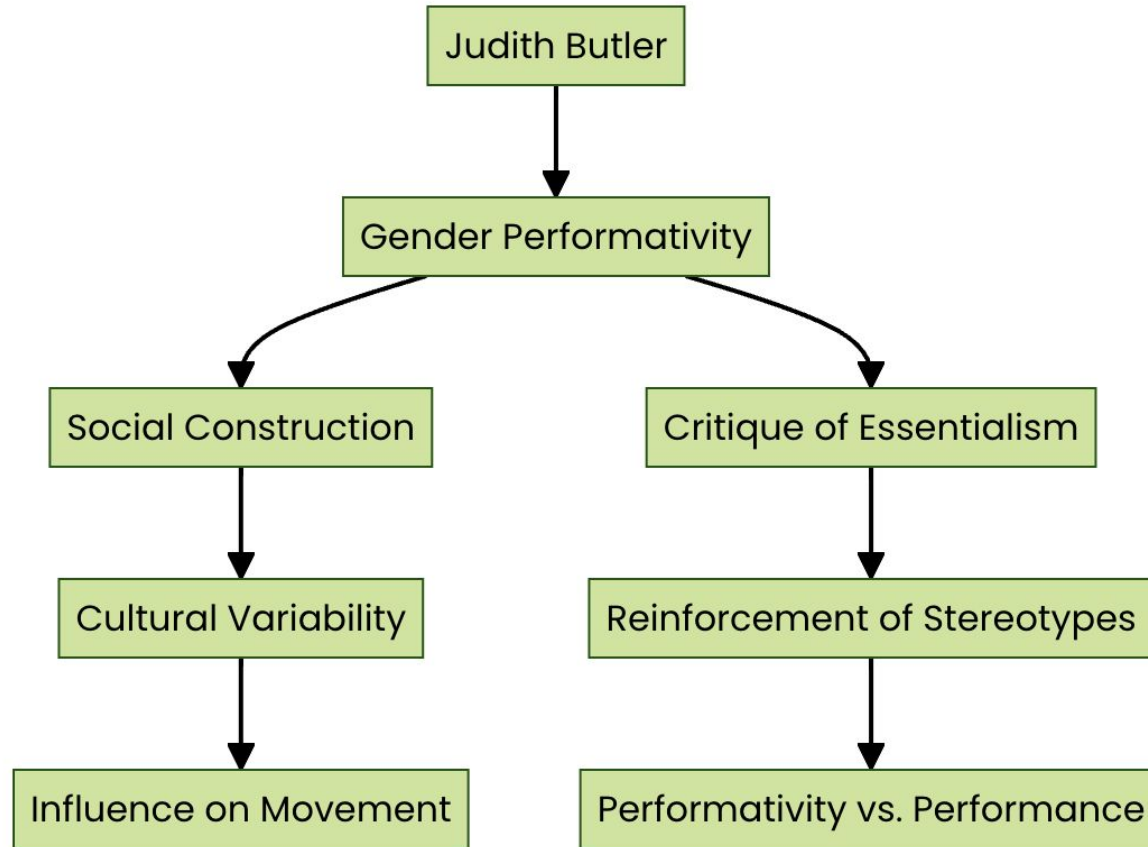


Performativity vs. Performance: Gender performativity is an unconscious enactment of norms, distinct from conscious role-playing.



Reinforcement of Stereotypes: Societal expectations shape gender expression, seen in how children are socialized through toys and behaviors.

Summary: Judith Butler's work on gender performativity challenges traditional views of gender as a fixed identity, emphasizing its social construction through repeated actions and norms.



— Topic → Marburg virus



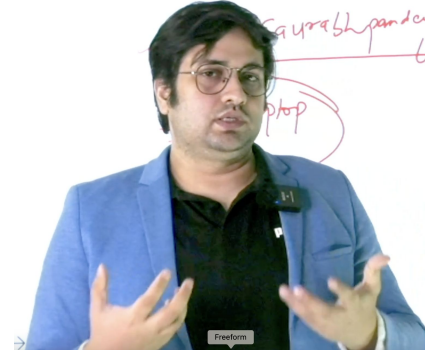
- Marburg virus is the causative agent of Marburg virus disease (MVD), a disease with a case fatality ratio of up to 88%, but can be much lower with good patient care.
- Marburg virus disease was initially detected in 1967 after simultaneous outbreaks in Marburg and Frankfurt in Germany; and in Belgrade, Serbia.
- Marburg and Ebola viruses are both members of the Filoviridae family (filovirus).
- Though caused by different viruses, the two diseases are clinically similar. Both diseases are rare and have the capacity to cause outbreaks with high fatality rates._____

-
- Two large outbreaks that occurred simultaneously in Marburg and Frankfurt in Germany, and in Belgrade, Serbia, in 1967, led to the initial recognition of the disease.
 - The outbreak was associated with laboratory work using African green monkeys (*Cercopithecus aethiops*) imported from Uganda.
 - Subsequently, outbreaks and sporadic cases have been reported in Angola, the Democratic Republic of the Congo, Kenya, South Africa (in a person with recent travel history to Zimbabwe) and Uganda.
-

Topics - MINDS MAPS included (Daily current affairs)-- 3rd October 2024



- **Fluorescent Nanodiamonds**
- **Brazil's coast eroding faster**
- **Rule 3(1)(b)(v) --I>> information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 (IT Rules).**
- **China and Vietnam**
- **Special status in LADAKH**
- **Japan's Bond Market Crisis**
- **Mains**




By saurabh Pandey





·Topic-- >>Fluorescent Nanodiamonds: A Quantum Leap in Technology




Overview


 Fluorescent Nanodiamonds (FNDs): Nanometre-sized diamonds crafted from carbon nanoparticles, formed under extreme conditions of high temperature and pressure.

 Stability and Safety: FNDs are stable under light exposure and non-toxic, making them ideal for imaging and sensing applications.

 Superior Fluorescence: With a fluorescence lifespan exceeding 10 nanoseconds, FNDs surpass quantum dots in stability during extended irradiation.


Innovative Applications


 Levitating and Spinning: Achievements at Purdue University include levitating and spinning FNDs in a vacuum, opening doors to sensor applications and fundamental research.

‘
 Advanced Sensor Capabilities: Levitated FNDs exhibit sensitivity to acceleration and electric fields, beneficial for high-value industries and strategic sectors.

— Enhanced Properties



 Doping Techniques: Incorporating nitrogen to create nitrogen vacancy (NV) centres enhances FNDs' electrical, magnetic, thermal, and optical properties.

 Quantum Superposition: FNDs with NV– centres hold the potential for macroscopic quantum superposition of electrons, linking theoretical and applied physics.

Application of FNDs

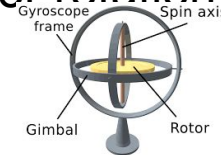


💡 **Irradiation Effects:** FNDs (fluorescent nanodiamonds) emit light of various colors when irradiated with lasers, akin to a tiny disco party.

📈 **Sensor Applications:** Levitated FNDs are sensitive to acceleration and electric fields, making them valuable for sensors in high-value industries.

🌀 **Gyroscope Development:** The Berry phase effect from rotation in FNDs could lead to advancements in gyroscope technology for rotation sensing.

A gyroscope is a device used for measuring or maintaining orientation and angular velocity



🔬 **Doping for Enhancement:** FNDs can be doped with nitrogen to improve their electrical, magnetic, thermal, and optical properties, creating nitrogen vacancy (NV) centers.



Quantum Superposition Potential: FNDs with negatively charged NV centers (NV⁻) may enable the production of macroscopic quantum superposition of electrons.





Impact on Physics: Despite their small size, FNDs have significant implications for both theoretical and applied physics.


Summary: FNDs exhibit unique optical properties and potential applications in sensing and quantum technologies, driven by their atomic structure and doping capabilities.

Topic→ Brazil's coast eroding faster



 Coastal Erosion: Global warming and river silting have led to significant coastal erosion in Atafona, destroying 500 houses, including a four-story building.

 Rising Sea Levels: The sea level around Atafona has risen by 13 cm over the past 30 years and is projected to rise another 16 cm by 2050.

 Inland Ocean Advance: Coastal areas like Atafona could see the ocean advance up to 150 meters inland in the next 28 years.

 Biodiversity Threat: The Amazon River's strength has diminished due to severe drought, allowing saltwater to intrude and threatening local biodiversity and fishing communities._____

— 🌴 Beach Recovery Efforts: Ponta Negra beach has lost 15 meters of sand in two decades, prompting local government to import sand for recovery.

📊 IPCC Findings: The Intergovernmental Panel on Climate Change reports that sea levels are rising at an accelerated rate, now at 0.48 cm per year, more than double the rate from 1993-2002.

🌍 Widespread Impact: Atafona's situation is part of a broader trend affecting numerous beachside communities along Brazil's extensive coastline.

Summary: Coastal erosion and rising sea levels due to global warming are devastating communities in Brazil, threatening biodiversity and prompting costly recovery efforts.

Topic-> Rule 3(1)(b)(v) --I>> information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 (IT Rules).



Overview

Intermediaries' Obligations 🏢

Identify misinformation

Prevent hosting/displaying such information

Consequences of non-compliance: loss of safe harbour 🛡️

Key Issues

Free Speech Concerns 📢

Potential for censorship

Chilling effect on expression

Balance between misinformation control and free speech rights

Legal Framework

IT Act, 2000

Section 79: Safe harbour provisions

Exemption from liability for third-party content

Government's Position

Regulatory Justification

Claims of non-coerciveness

Right to regulate misinformation

No constitutional protection for false information

Bombay High Court Opinions

Justice G.S. Patel: Rule deemed ultra vires

Justice Neela Gokhale: No direct threat to free speech

Tie-breaking opinion emphasizing safe harbour importance

Implications for Intermediaries

Challenges Faced

Hobson's choice for intermediaries

Risk of prioritizing business safety over user rights

Impact on user-generated content

Alternatives and Recommendations

Less Intrusive Measures

Explore alternative methods for misinformation management

Enhance user education on content sharing

Topic-- China and Vietnam



🇻🇳 Vietnamese President To Lam's Visit: The visit to China aims to strengthen political trust and revive historical ties between Vietnam and China, particularly the Mao Zedong-Ho Chi Minh comradeship.

🌐 Strategic Context: The visit occurs amid U.S. and Philippine efforts to engage Vietnam against China in the South China Sea, highlighting geopolitical tensions.

🤝 Joint Statement: Vietnam and China issued a joint statement to enhance their strategic partnership and support each other's political systems, emphasizing a "shared future."

📈 Economic Ties: In 2023, bilateral trade reached \$171.9 billion, with China being Vietnam's largest import market and second-largest export market, showcasing deepening economic interdependence.



Agreements Signed: During the visit, 14 agreements were signed covering various sectors, including infrastructure and healthcare, to solidify their strategic partnership.



Bamboo Diplomacy: Vietnam is pursuing a balanced foreign policy, engaging with multiple powers (U.S., India, Russia, Japan) while managing its relationship with China amid territorial disputes.




Cultural Connections: Vietnam views India as a partner for cultural and historical ties, while China is seen as an ideological ally, indicating a complex web of relationships in the region.


Summary: President To Lam's visit to China aims to strengthen Vietnam-China ties amid geopolitical tensions, marked by significant economic agreements and a shared ideological commitment.





Topic -- Special status in LADAKH





 **Sonam Wangchuk's Detention:** Climate activist Sonam Wangchuk was detained while leading protests for Ladakh's inclusion in the Sixth Schedule of the Indian Constitution.


 **Demands for Autonomy:** The protests also aimed to secure greater autonomy for Ladakh, similar to demands raised in Arunachal Pradesh and Manipur.

 **Asymmetrical Federalism:** India practices asymmetrical federalism, where certain states and regions have more autonomy than others, unlike symmetrical federations like the U.S. or Australia.

—  Historical Context of Tribal Rights: Tribal populations in India were historically _____ autonomous until British colonial policies restricted their rights to forest lands and traditional lifestyles.

 Tribal Rebellions: Discontent among tribal communities led to several rebellions against British rule, including the Kol rebellion, Santhal revolt, Munda Rebellion, and Bastar rebellion.

 Government of India Act, 1935: This act established 'excluded' and 'partially excluded' areas, granting legislative power to Governors in certain regions, primarily in the northeast.

 Special Provisions: The Sixth Schedule of the Constitution provides special provisions for the governance of tribal areas, aimed at preserving their rights and autonomy

History of Fifth and Sixth Schedules



Background: Tribal autonomy pre-British rule

Colonial Impact:

British laws restricted tribal rights

Resulted in tribal rebellions: Kol, Santhal, Munda, Bastar 

Government of India Act, 1935:

'Excluded' and 'Partially Excluded' areas established

Fifth Schedule

Definition: Scheduled areas declared by the President

Criteria: Tribal population density, compactness, economic factors

Current States: 10 States with scheduled areas 🌍

Tribes Advisory Councils (TAC):

- Composed of tribal MLAs

- Advise on welfare of Scheduled Tribes

—Sixth Schedule



Definition: Tribal areas in Assam, Meghalaya, Mizoram, Tripura

Autonomous District Councils (ADC):

Composition: 30 members (4 nominated by Governor)

Powers: Land management, law-making, local governance 

Focus Areas: Education, health, infrastructure

Special Provisions for Northeastern States

Articles: 371A to 371H cover various states

Key Features:

Protection of local customs

Committees for Tribal and Hill areas

Special responsibilities of Governors

— Need for Further Reforms

Challenges:

Autonomy often theoretical, subject to Central government approval

Need for clear guidelines to enhance autonomy

Constitutional Amendment: 125th bill pending for ADC powers

Demands for Inclusion:

Arunachal Pradesh and Manipur in Sixth Schedule

Ladakh's inclusion in focus

Forest Rights Act, 2006: Need recognition and enforcement 🌳

Topic -- Japan's Bond Market Crisis



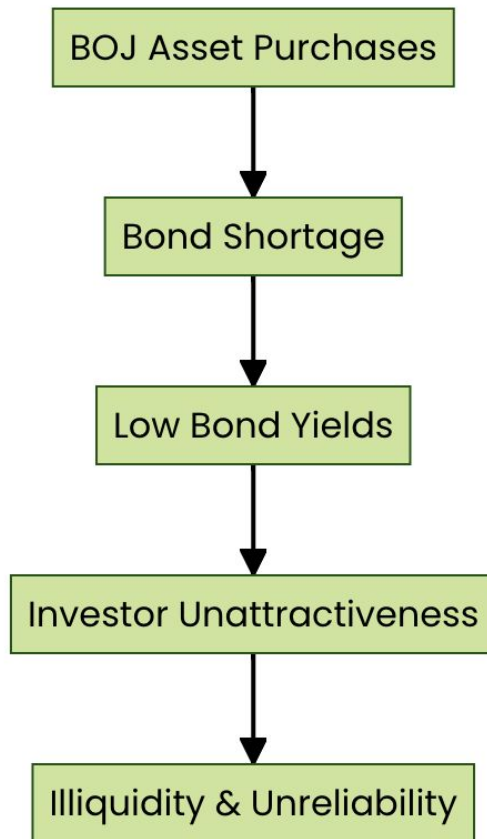
Market Value: Japan's bond market is valued at a staggering \$9 trillion.





BOJ's Role: The Bank of Japan (BOJ) has become the primary owner of the national debt, with a balance sheet surpassing the country's \$4 trillion economy and five times larger than the U.S. Federal Reserve's relative to GDP.




Impact on Yields: The BOJ's extensive asset purchases have kept bond yields low, making them less attractive to investors and causing illiquidity and unreliability as interest rate benchmarks.



 **Normalization Efforts:** As the BOJ attempts to normalize its balance sheet, the revival of trading in the bond market remains slow and challenging.

 **December Test:** A critical test is anticipated in December when 10-year futures contracts will be linked to a government bond tranche 95% owned by the BOJ, complicating derivatives settlement.

 **Hedging Difficulties:** The scarcity of bonds in the open market will impede investors' ability to hedge against rising rates, affecting trading and government bond auctions.





Market Distortions: Bond shortages are causing distortions in the derivatives market, negatively impacting investors aiming to settle short positions in futures.

Summary: Japan's bond market is grappling with significant challenges due to the BOJ's asset purchases, complicating trading and hedging strategies for investors

Bond Shortages

Derivatives Market Distortions

Negative Impact on Investors

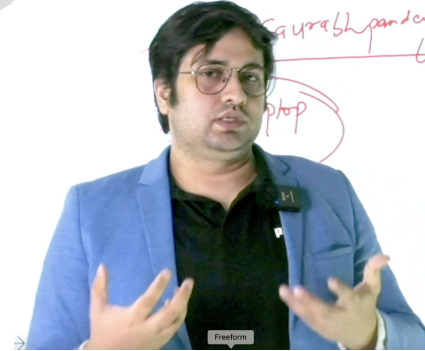
Challenges in Settling Short Positions



Topics - MINDS MAPS included (Daily current affairs)-- 4th October 2024



- Garba Dance
- Samagra Shiksha
- THE MUSI RIVER
- Marathi as classical language
- Agriculture scheme merger
- Sickle cell disease
- Stem cell therapy and T1D
- India and Italy relation
- Swachh Bharat Mission (SBM)
- Chagos Archipelago
- Mains



By saurabh Pandey



Target Mains -2025/26 -

Q ‘Recognition of linguistic diversity is the only way to prevent from marginalities’ Discuss

**Connect with sir
9057921649**

**send your answer - Saurabh pandey
upsc telegram channel**



Festive spirit: A dancer performs *garba* on the first day of Navratri at the Sports Club in Ahmedabad, Gujarat, on Thursday. The nine-day festival began on Thursday and will go on till October 12. VIJAY SONEJI

Topic → Garba Dance

Overview of Garba Dance

Origin: Traditional folk dance from Gujarat, India.

Significance: Celebrated during Navratri festival.

Style: Energetic, circular dance patterns.

Cultural Context

Navratri Festival:

Nine nights of worship and dance.

Celebration of Goddess Durga.



— **Topic-- > Samagra Shiksha**





Comprehensive Education Program: Samagra Shiksha covers the entire school education spectrum from pre-school to class 12, aiming for equitable learning outcomes.


It subsumes the three Schemes of Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and Teacher Education (TE) and was launched in 2018.





Alignment with National Policies: The program supports the implementation of NEP 2020 and the RTE Act, focusing on early childhood education and foundational literacy.

 **Increased Funding:** Enhanced budget allocations are tied to learning outcomes, with specific grants for libraries and infrastructure improvements in schools.

 **Digital Education Initiatives:** The scheme promotes ICT labs, smart classrooms, and digital portals like DIKSHA to enhance teaching and learning experiences.

—  Teacher Capacity Building: Emphasis on improving teacher quality through enhanced training and support for Teacher Education Institutions.

 Focus on Gender and Inclusion: Initiatives to empower girls, support children with special needs, and ensure equitable access to education for all.

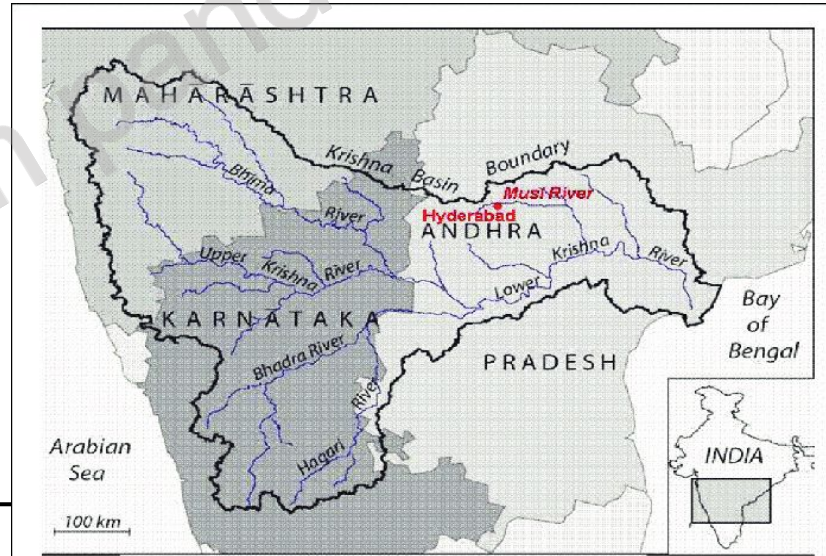
 Sports and Skill Development: Integration of sports into the curriculum and vocational skills training from an earlier stage to promote holistic development.

Summary: Samagra Shiksha is a comprehensive educational initiative aimed at improving school effectiveness and inclusivity from pre-school to class 12, with a strong focus on quality, digital education, and gender empowerment.

Topic→ THE MUSI RIVER



- The Musi River is a major tributary of the Krishna River in the Deccan Plateau, flowing through Telangana, India. The river's historical name is Muchukunda.
- Hyderabad stands on the banks of the Musi River, which divides the historic Old City from the new city
-



Topic -- Marathi as classical language



The Union Cabinet approved classical language status for Marathi, Bengali, Assamese, Pali, and Prakrit.



The demand for classical status for Marathi has been pending since 2013, with approval coming just before the Maharashtra Assembly elections.



The approval for Bengali coincides with Durga Puja, the largest festival in West Bengal.



India previously recognized six classical languages: Tamil, Telugu, Malayalam, Kannada, Sanskrit, and Odia.



Tamil was the first language to receive classical status in 2004, followed by Sanskrit in 2005.

Summary: The Union Cabinet has granted classical language status to five languages, including Marathi and Bengali, with significant cultural implications and political timing

Criteria For Classical Language Status



For a language to be recognised as 'classical', it must meet the following criteria:

- The language must have a recorded history of 1500 to 2000 years.**
 - The language must possess ancient texts considered valuable by generations of speakers.**
 - Texts of knowledge, particularly prose works along with poetry, as well as evidence from epigraphy and inscriptions.**
 - The classical language and its literature may differ from their modern forms or may not have a continuous connection with the later versions or derivatives.**
-


Full List of Classical Languages in India





- Tamil: 2004
 - Sanskrit: 2005
 - Telugu: 2008
 - Kannada: 2008
 - Malayalam: 2013
 - Odia: 2014
 - Marathi: 2024
 - Pali: 2024
 - Prakrit: 2024
 - Assamese: 2024
 - Bengali: 2024
-


Topic-- Agriculture scheme merger



 **Merger of Schemes:** The Union Cabinet has merged all Central agriculture schemes into two new schemes: Pradhan Mantri Rashtriya Krishi Vikas Yojana (PMRKVY) and Krishonnati Yojana (KY).

 **Financial Allocation:** The total projected expenditure for these schemes is ₹1,01,321.61 crore, with a Central share of ₹69,088.98 crore and a State contribution of ₹32,232.63 crore.

 **Focus Areas:** PMRKVY will promote sustainable agriculture with ₹57,074.72 crore, while KY will address food security and self-sufficiency with ₹44,246.89 crore.

 **Implementation Strategy:** Both schemes will be implemented through State governments, allowing for comprehensive strategic planning and streamlined approval processes.



National Mission on Edible Oils: The Cabinet approved the National Mission on Edible Oils - Oilseeds (NMEO-Oilseeds) with a budget of ₹10,103 crore to boost domestic oilseed production from 39 million tonnes to 69.7 million tonnes by 2030-31.

The scheme Mission Organic Value Chain Development for North Eastern Region (MOVCDNER), a component under the KY, is being modified by adding an additional component namely MOVCDNER- Detailed Project Report (MOVCDNER-DPR), which will provide flexibility to the North Eastern states to address critical challenges.

The PM-RKVY comprises of the following schemes:

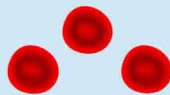
- i. Soil Health Management**
 - ii. Rainfed Area Development**
 - iii. Agro Forestry**
 - iv. Paramparagat Krishi Vikas Yojana**
 - v. Agricultural Mechanization including Crop Residue Management**
 - vi. Per Drop More Crop**
 - vii. Crop Diversification Programme**
 - viii. RKVY DPR component**
 - ix. Accelerator Fund for Agri Startups**
-

— **Topic-- > Sickle cell disease**



- sickle cell disease — also called sickle cell anemia — is a group of inherited disorders that affect hemoglobin , the major protein that carries oxygen in red blood cells.
 - Normally, red blood cells are disc-shaped and flexible so they can move easily through the blood vessels.
 - In sickle cell disease, red blood cells are misshaped, typically crescent- or “sickle”-shaped due to a gene mutation that affects the hemoglobin molecule.
 - When red blood cells sickle, they do not bend or move easily and can block blood flow to the rest of the body.
-

Sickle cell disease

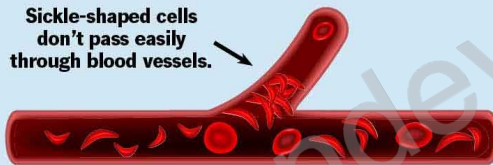


Normal red blood cells are round and flexible.



In sickle cell disease, red blood cells stiffen, changing shape into sickles (crescent-shaped).

Sickle-shaped cells don't pass easily through blood vessels.



Sickle cell disease symptoms include:

Frequent pain episodes.



Pain affects your child's chest, back, legs and arms most often.

Swelling and inflammation of their joints.

Painful swelling of their hands and feet.



Anemia, causing fatigue, paleness and weakness.



Jaundice (yellowing of skin and whites of eyes).

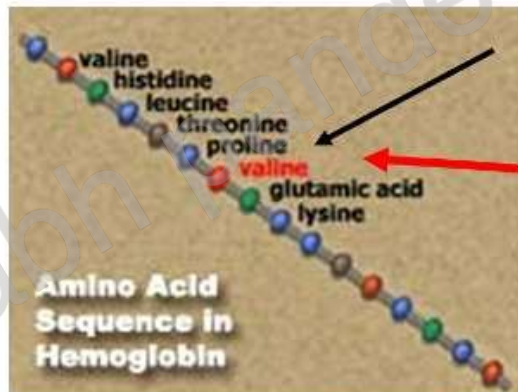


Hemoglobin & Sickle Cell Disease



Hemoglobin: a protein in red blood cells that transports oxygen via 4 binding sites. There are 2 α chains & 2 β chains.

Hemoglobin S: a variant of the protein that causes sickle cell disease.




A mutation changed the amino acid glutamine in the 6th position of the β chain to valine. When oxygen levels are low, the altered hemoglobin molecules bond together and distort the shape of the red blood cells creating abnormal sickle-shaped cells.

— **Topic→ Stem cell therapy and T1D**





 **Stem Cell Therapy:** A cutting-edge development in regenerative medicine aimed at curing Type 1 diabetes (T1D) by regenerating insulin-producing beta cells.


 **Successful Case:** A woman in China regained insulin production after receiving a transplantation of reprogrammed stem cells, marking a significant milestone in diabetes management.

 **First Breakthrough:** This case represents the first successful instance of regenerating functional insulin-producing cells through stem cell therapy.

 **Ongoing Trials:** Other trials related to stem cell therapy for T1D are currently underway, indicating ongoing research in this area.

 **Understanding T1D:** Type 1 diabetes is an autoimmune condition where the immune system destroys insulin-producing beta cells, necessitating lifelong insulin dependence.

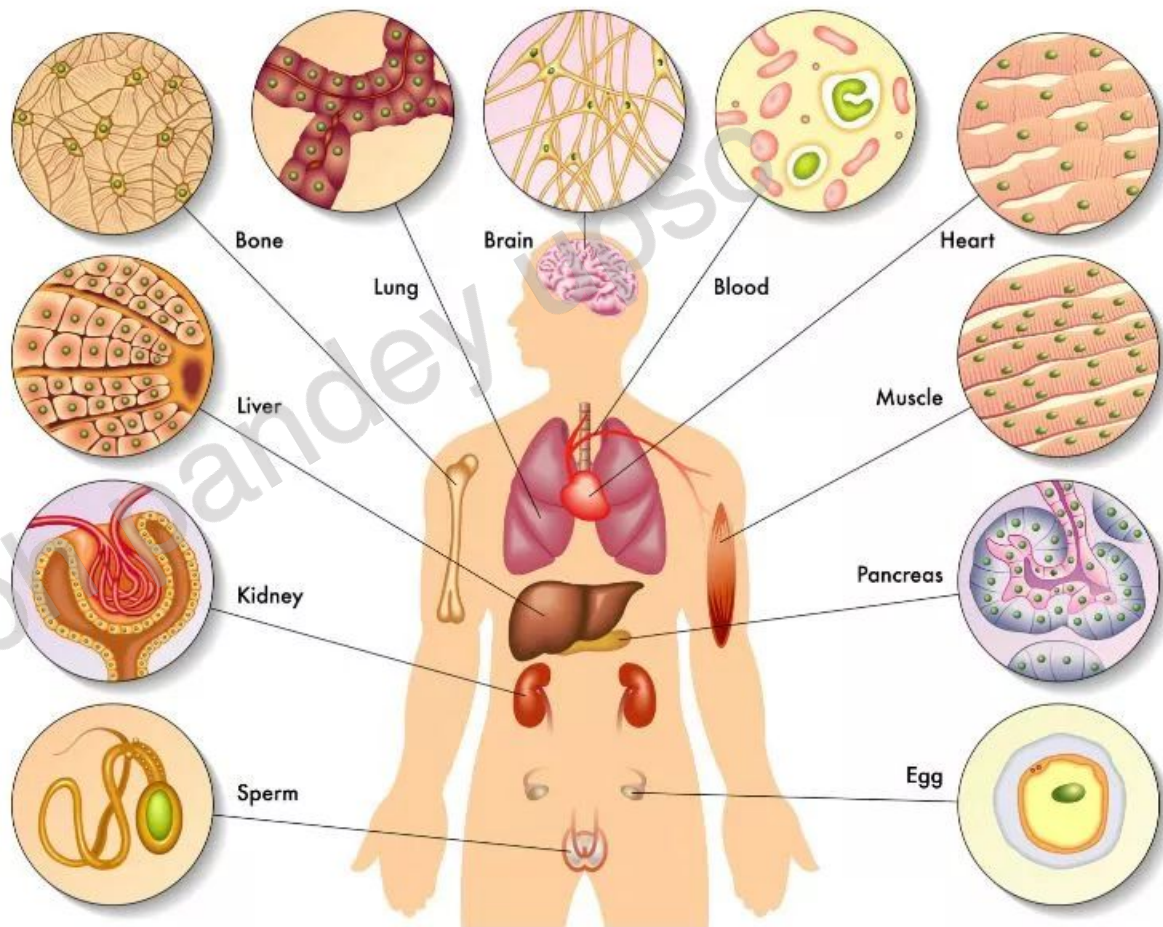
 **Current Management:** Traditionally, T1D has been managed solely through insulin therapy, contrasting with type 2 diabetes, which may involve oral medications.

 **Future Implications:** The advancements in stem cell therapy could revolutionize the treatment landscape for diabetes, potentially reducing reliance on insulin therapy.

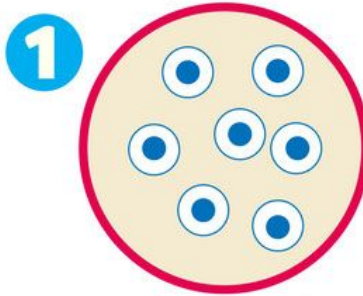
Summary: Stem cell therapy shows promise as a revolutionary treatment for Type 1 diabetes, with a recent successful case in China marking a significant breakthrough.

What Are Stem Cells?

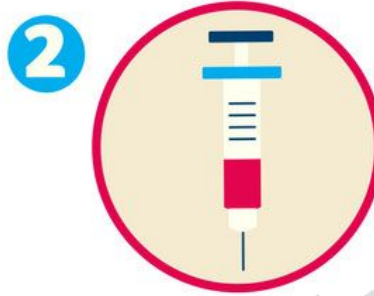
Stem cells are undifferentiated cells with the capacity to both differentiate and multiply into the 200 cells types that form a human being.



Six stages of stem cell therapy



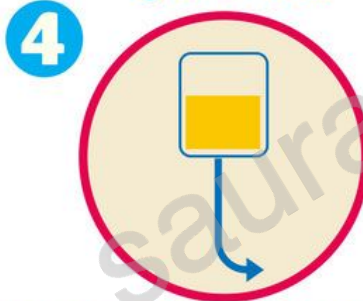
1
Stem cells moved from bone marrow to blood stream using chemotherapy and synthetic growth factor



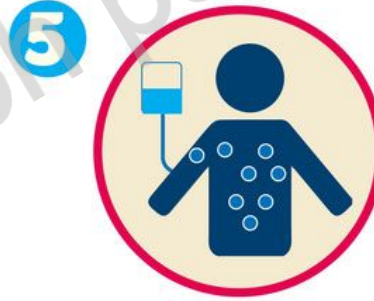
2
Machine collects blood and separates out stem cells



3
Stem cells frozen ready to return to body later



4
More chemotherapy used to fully or partially wipe out bone marrow and immune system




5
Stem cells returned to body using a drip




6
Body recovers over a period of 3-6 months, sometimes longer


Topic→ India and Italy relation

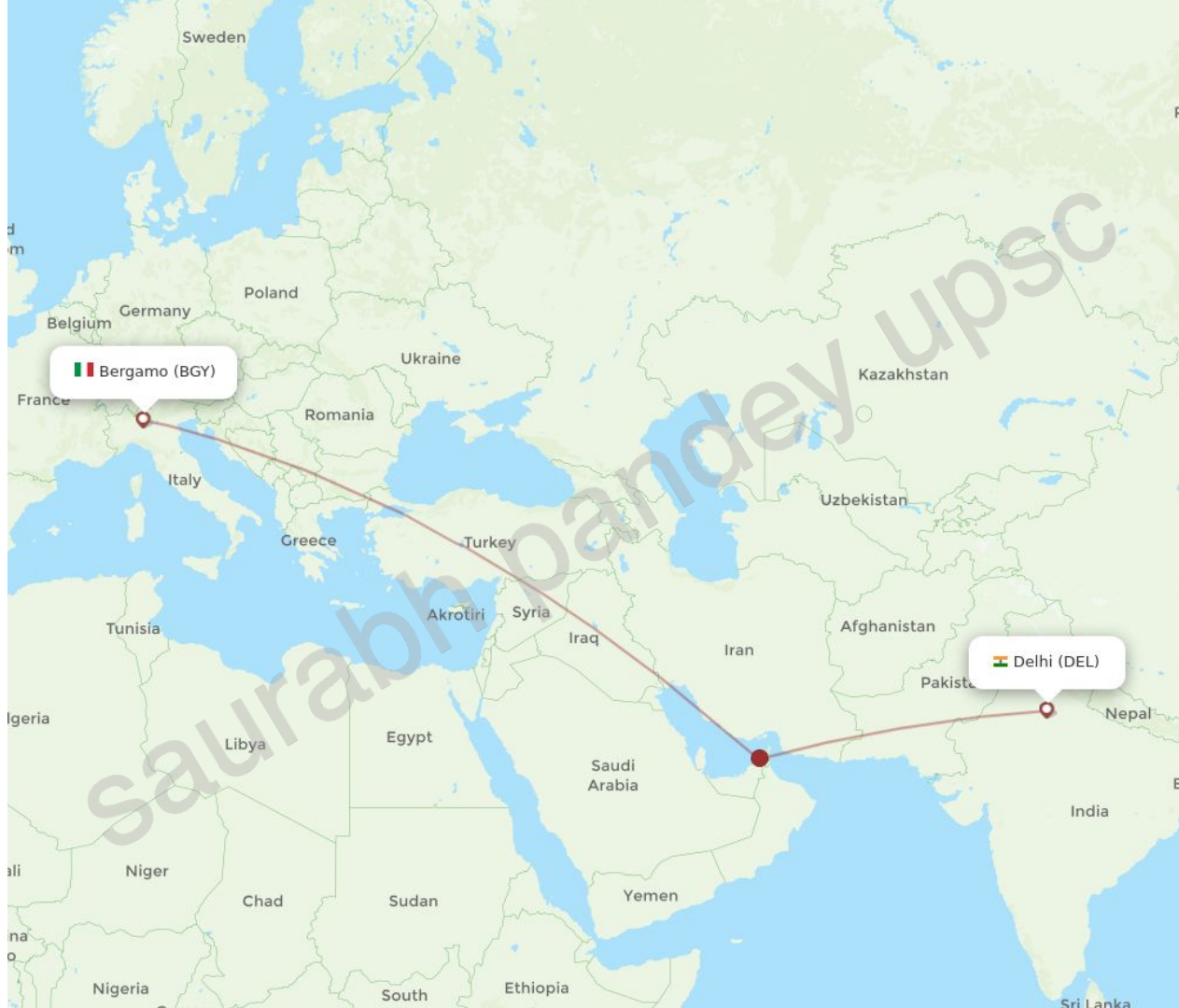


 Indo-Mediterranean Importance: Italy and India face shared challenges and opportunities in the Indo-Mediterranean Sea, crucial for global trade and digital connectivity.

 Italy's Export Ranking: Italy is the sixth largest exporter globally, highlighting its significant role in international trade.

 Digital Connectivity Initiatives: The Blue-Raman submarine data cables will connect Genoa and Mumbai, enhancing digital infrastructure.

 Increased Naval Commitment: Italy has bolstered its security and defense efforts in the Indian Ocean and West Asia, contributing to various naval operations and initiatives.





Naval Presence in India: Italy has increased its naval presence, with ships like ITS Francesco Morosini visiting Mumbai and the Italian Carrier Strike Group stationed in Goa.





Cultural Exchange Plans: An 'Italy village' is planned in India to promote cultural, fashion, and culinary events, alongside conferences and exhibitions.




Humanitarian Efforts: The Italian Navy's ITS Cavour is involved in humanitarian missions, including surgeries for children with facial malformations through 'Operation Smile'.


Summary: Italy and India are enhancing their collaboration in the Indo-Mediterranean region through increased naval presence, digital connectivity, and cultural exchange, while addressing shared security challenges.


 **Defence Agreement:** Italy and India signed a defence agreement in October 2020 to enhance cooperation in various fields.


 **Military Cooperation Group:** Regular discussions, such as the Italy-India Military Cooperation Group meeting in March, strengthen bilateral defence ties.

 **Defence Production:** Italian companies like Leonardo and Fincantieri rank among the top arms producers globally, contributing to India's defence production.

 **Indian Ocean Partnership:** Italy views India as a key partner for development in the Indian Ocean Region, promoting Africa in international forums.

 **Mattei Plan:** Italy's Mattei Plan aims to invest €5.5 billion in Africa, focusing on sustainable projects in countries like Egypt, Ethiopia, Kenya, and Mozambique.

—  IMEC Support: Italy supports the India-Middle East-Europe Economic Corridor (IMEC) as a means to foster long-term prosperity amid regional conflicts.

 Sustainable Development: The partnership aligns with India's 'Make in India' initiative and aims to address the growing needs of the Indian armed forces.

Summary: Italy and India are enhancing their defence cooperation through a new agreement, focusing on joint production and sustainable development initiatives in Africa and the Indian Ocean Region.



Italy is home to the second largest Indian diaspora in the EU.



Italy is considered a reliable economic and defense partner for India.



Italy ranks as the second largest manufacturing country in Europe.



Italy plays a significant role in security as a member of the EU and NATO.



The relationship between India and Italy is rooted in a long history of cultural exchange.



People-to-people ties continue to inspire integration and business success.



The bonds between the two nations are strengthened through shared stories and experiences.



What is the status of the Swachh Bharat Mission 2.0?

What are the various health and environmental risks arising from legacy waste dumpsites?

Sreeparna Chakrabarty

The story so far:

India has more than 3,000 legacy waste dumpsites, with 2,424 of them having a waste load of more than 1,000 tonnes. The Central government launched the legacy waste management project as part of the Swachh Bharat Mission (SBM) 2.0 in October 2021, for a period of five years till 2026. However, more than halfway through the time period, only 471 out of the 2,424, that is 19.43% of dumpsites have been completely remediated.

What are legacy waste dumpsites?

Legacy waste dumpsites are dumpsites that contain solid waste that have been collected and stored for years in an unscientific and uncontrolled manner. Municipal solid waste generation in India is estimated to be around 1,50,000 tonnes per day, according to the State of India's Environment 2023 report. With almost no installed facility in India for handling solid

waste, the municipal corporations, municipal councils and *nagar* (city) panchayats have traditionally opted for creating man-made garbage hills.

These dumpsites originally developed on the outskirts of the cities. However, with the expansion of cities, these sites are now often found in the heart of cities on barren land or in landfills. According to estimates of the Union Housing and Urban Affairs Ministry, approximately 15,000 acres of prime real estate is buried under nearly 16 crore tonnes of legacy waste across the country.

What are the health hazards?

Legacy waste dumpsites can pose a number of health hazards for citizens. Exposure to emissions from hazardous waste can irritate the mouth and throat. Inhaling methane from landfills can cause nausea, vomiting, and loss of coordination. Ragpickers who work at landfills can develop skin allergies from years of exposure to waste. People who live near landfills may be prone to

developing tuberculosis, asthma, diabetes, depression, cholera, malaria, and other diseases. They are also a source of greenhouse gas emissions, such as methane and carbon dioxide.

What is the Swachh Bharat Mission?

The Swachh Bharat Mission (SBM) or Clean India Mission is a country-wide campaign launched by the Central government on October 2, 2014 to eliminate open defecation and to create Open Defecation Free (ODF) villages. The mission aimed to achieve an “open-defecation free” India by October 2, 2019 coinciding with the 150th birth anniversary of Mahatma Gandhi through the construction of toilets.

In 2021, the Government launched its second edition – the five-year Swachh Bharat (Clean India) Mission-Urban 2.0 (SBM-U 2.0), committing to making all cities “garbage-free cities” by 2026, while maintaining ODF status across 4,372 Urban Local Bodies (ULBs). It also has a vision of 100% source segregation, door

to door collection and scientific management of all fractions of waste, including safe disposal in scientific landfills. The SBM 2.0 aims to remediate all legacy dumpsites and convert them into green zones. The mission has also made provisions for scientific landfills to dispose of untreated inert waste and process rejects, in order to prevent fresh dumpsites being created.

Action plans amounting to ₹3,226 crore of Central Share (CS) assistance on remediation of legacy waste dumpsites has been approved so far. An advisory has also been issued to the States/Union Territory administrations on landfill reclamation. As per financial norms of centrally sponsored schemes, State/ UT governments are required to put in a matching share from their own side, while disbursing the funds to respective ULBs.

What has been the progress so far?

According to the dashboard of the Swachh Bharat Mission website, as on September 24, out of the 2,424 dumpsites, 471 sites have been remediated, remediation in 1,226 has been approved and is on-going, and 727 sites have been untouched. As far as area is concerned, of the total 17,039.71 acres, 27 % has been reclaimed and 73% is yet to be reclaimed.

Among States, Tamil Nadu has the maximum area reclaimed from dumpsites at 837 acres (42%). Gujarat is the best performing State with 75% area (698 out of 938 acres) of landfills reclaimed.


THE GIST


▼ The Swachh Bharat Mission (SBM) or Clean India Mission is a country-wide campaign launched by the Central government on October 2, 2014 to eliminate open defecation and to create Open Defecation Free (ODF) villages.


▼ In 2021, the Government launched its second edition – the five-year Swachh Bharat (Clean India) Mission-Urban 2.0 (SBM-U 2.0), committing to making all cities “garbage-free cities” by 2026.


▼ Exposure to emissions from hazardous waste can irritate the mouth and throat. Inhaling methane from landfills can cause nausea, vomiting, and loss of coordination.


— **Topic-- Swachh Bharat Mission (SBM)**


 **Launch Date:** The Swachh Bharat Mission (SBM) was launched on October 2, 2014, by the Central government to eliminate open defecation.


 **ODF Goal:** The mission aimed to achieve an "open-defecation free" India by October 2, 2019, coinciding with Mahatma Gandhi's 150th birth anniversary.

 **SBM 2.0:** In 2021, the SBM-U 2.0 was launched, focusing on making cities garbage-free by 2026 and maintaining ODF status across 4,372 Urban Local Bodies (ULBs).

 **Waste Management Vision:** The mission includes 100% source segregation, door-to-door collection, and scientific management of waste, including remediation of legacy dumpsites.

 Financial Commitment: ₹3,226 crore has been approved for the remediation of legacy waste dumpsites, with states required to match funding.

 Progress Statistics: As of September 24, 2023, 471 out of 2,424 dumpsites have been remediated, with 27% of the total area reclaimed.

 Top Performers: Tamil Nadu reclaimed the most area (837 acres), while Gujarat has the highest percentage of area reclaimed (75%).

Summary: The Swachh Bharat Mission aims to eliminate open defecation and improve waste management in India, with significant progress reported in reclaiming dumpsites.

Topic-- Chagos Archipelago

The U.K. and Mauritius have reached a historic political agreement regarding the U.K.-U.S. military base on Diego Garcia.



The agreement aims to restore Mauritian sovereignty over the Chagos archipelago, including Diego Garcia.



A treaty is being developed to formalize the political agreement, ensuring the base's status is legally secure for the first time in over 50 years.



Both nations are committed to finalizing the treaty and supporting legal instruments as quickly as possible.



India has welcomed the agreement, viewing it as a significant step towards the decolonization of Mauritius and supporting its sovereignty claims.



Negotiations for this deal began in 2022, involving 11 rounds with the previous government and 2 rounds with the current government.



India emphasizes its commitment to maritime safety and security in the Indian Ocean region, in partnership with Mauritius.

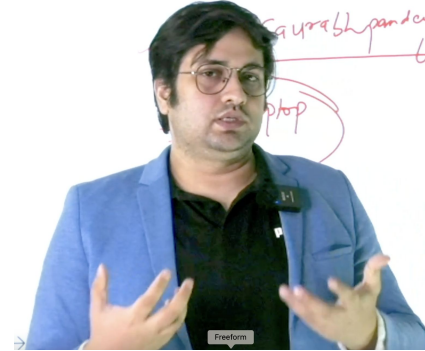
Summary: The U.K. and Mauritius have reached a significant political agreement to secure the U.K.-U.S. military base on Diego Garcia while restoring Mauritian sovereignty over the Chagos archipelago.



Topics - MINDS MAPS included (Daily current affairs)-- 5th October 2024



- **Landslide in kerala**
- **India -Srilanka Relation**
- **Monsoon forecasting**
- **What is Liquefied Natural Gas mean?**
- **Mains**



By saurabh Pandey



Target Mains -2025/26 -


Q Essay - topic - The empires of the future will be the empires of the mind. (Mains 2024)


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**send your answer - Saurabh pandey
upsc telegram channel**


Topic→ Landslide in kerala



 **Landslides in Wayanad:** On July 30, 2023, landslides struck the villages of Mundakkai and Chooralmala in Wayanad, Kerala, resulting in 231 deaths and 41 missing individuals as of October 4.

 **Geography:** Kerala is bordered by the sea to the west and the Western Ghats to the east, with settlements spread from the coastline to hill slopes.

 **Settlement Patterns:** It is unique in India for having human settlements along its entire coastal line, despite the frozen forest boundary and encroachments for development.

 **Infrastructure Issues:** Development activities, including roads and infrastructure, have been constructed without consideration for natural drainage and slope stability._____



Increasing Disasters: The state is experiencing a rise in the frequency and intensity of disasters, particularly floods and landslides, across its three geographic zones.




Coastal Erosion: Over 250 km of Kerala's 590 km coastline has been affected by coastal erosion, alongside issues from sea surges.





Flood Vulnerability: Lowlands and midlands are prone to flooding, with areas around Vembanad lake inundated every monsoon.





Climate Change Impact: The 2018 floods were labeled the 'floods of the century' by the World Meteorological Organization, linked to climate change.


—  **Geography of Wayanad:** Wayanad is located east of the Western Ghats, characterized by deep gorges and ravines, with rivers like Sharavati and Chaliyar originating from this region.

 **River Flow:** Both the Sharavati and Chaliyar rivers flow across the Western Ghats and empty into the Arabian Sea, despite the easterly tilt of the Wayanad-Mysore plateaus.

 **Landslide Incidences:** Wayanad has experienced recurring landslides, with reported tremors and fractures following these events, indicating a correlation between seismic activity and landslides.


 **Need for Scientific Analysis:** There is a call for a scientific re-evaluation of landslide causative factors, focusing on parameters like slope, soil thickness, rainfall, and land use changes.


—  **Landslide Susceptibility Mapping:** Global research suggests creating detailed landslide inventory and susceptibility maps to identify vulnerable zones and improve monitoring for timely warnings.


 **Climate Change Impact:** Rapid warming of the Arabian Sea has increased the risk of extreme weather events, including floods and cyclones, with a notable rise in sea surface temperatures over the last century.


 **Cyclone Ockhi:** In 2017, Kerala was severely impacted by Cyclone Ockhi, marking one of the most significant cyclonic storms in recent history for the state


Steps needed

 **Need for Paradigm Shift:** Disaster management practices are currently reactive and top-down, necessitating a shift towards a proactive and comprehensive approach.

 **Sendai Framework:** This framework provides guidelines for disaster risk reduction, emphasizing the shared responsibility between the State and other stakeholders like local governments and communities.

 **Disaster Risk Zones:** Kerala should establish disaster risk zones based on physical and social criteria, utilizing a permanent database aligned with watershed boundaries.

—  **Community Participation:** Engaging local communities in creating disaster risk maps is crucial, leveraging past experiences like the People's Plan Campaign for effective community-based disaster management.

 **Bottom-Up Approach:** A community-driven approach can enhance communication, reduce conflicts, and integrate disaster risk management into local development.

 **Quadruple Helix Model:** Collaboration among community organizations, academia, government, and industry is suggested to strengthen disaster risk management efforts.


 **Investment in Resilience:** Emphasizing the need for investment in disaster risk reduction to build resilience and improve preparedness for effective disaster response.

Topic→ India -Srilanka Relation



 **India's Support for Sri Lanka:** Dr. Jaishankar reaffirmed India's commitment to assist Sri Lanka's economic rehabilitation, focusing on tourism, investment, energy services, and the dairy industry.


 **Financial Aid:** India has provided nearly \$4 billion in support to Sri Lanka during its financial crisis two years ago, as acknowledged by Sri Lankan officials.


 **Energy Initiatives:** Ongoing India-backed projects include energy production, fuel supply, solar electrification, and health development, aimed at enhancing economic sustainability in Sri Lanka.

 **Tourism Collaboration:** Discussions included expanding Indian tourist inflow to Sri Lanka, which is vital for the island's economy. _____



would not be used against India's security interests, addressing regional security matters.

 **Political Aspirations:** India supports the aspirations of all communities in Sri Lanka, including Tamils, for equality and justice, emphasizing the need for the implementation of the 13th Amendment and Provincial Council elections.

 **Fishermen's Release: Dr. Jaishankar raised concerns about detained Indian fishermen in Sri Lanka, advocating for their release and addressing the issue of heavy fines imposed on them.**

Summary: Dr. Jaishankar's visit to Sri Lanka focused on economic support, energy initiatives, tourism collaboration, and addressing security and fishermen's issues, while emphasizing the need for political inclusivity_____

Topic→ Monsoon forecasting



Southwest Monsoon Success: India's southwest monsoon ended with 8% more rainfall than expected, with accurate forecasts from the IMD since July.



Northeast Monsoon Significance: The northeast monsoon, which follows the southwest monsoon, is crucial for regions like Tamil Nadu and Andhra Pradesh, providing about 11% of India's annual rainfall.



Post-Monsoon Forecast: The IMD predicts this year's post-monsoon rainfall to be about 12% above the historical average, indicating a potentially favorable agricultural season.



Agricultural Impact: The northeast monsoon significantly influences rice and maize productivity, with historical data showing decreased agricultural output during deficient years.



Variability of Rainfall: The northeast monsoon exhibits a rainfall variation of nearly 25%, leading to extreme weather patterns, including severe floods and droughts.



Historical Events: Notable past events include the 2015 Chennai deluge and the 2019 water shortage, highlighting the northeast monsoon's potential for disaster.

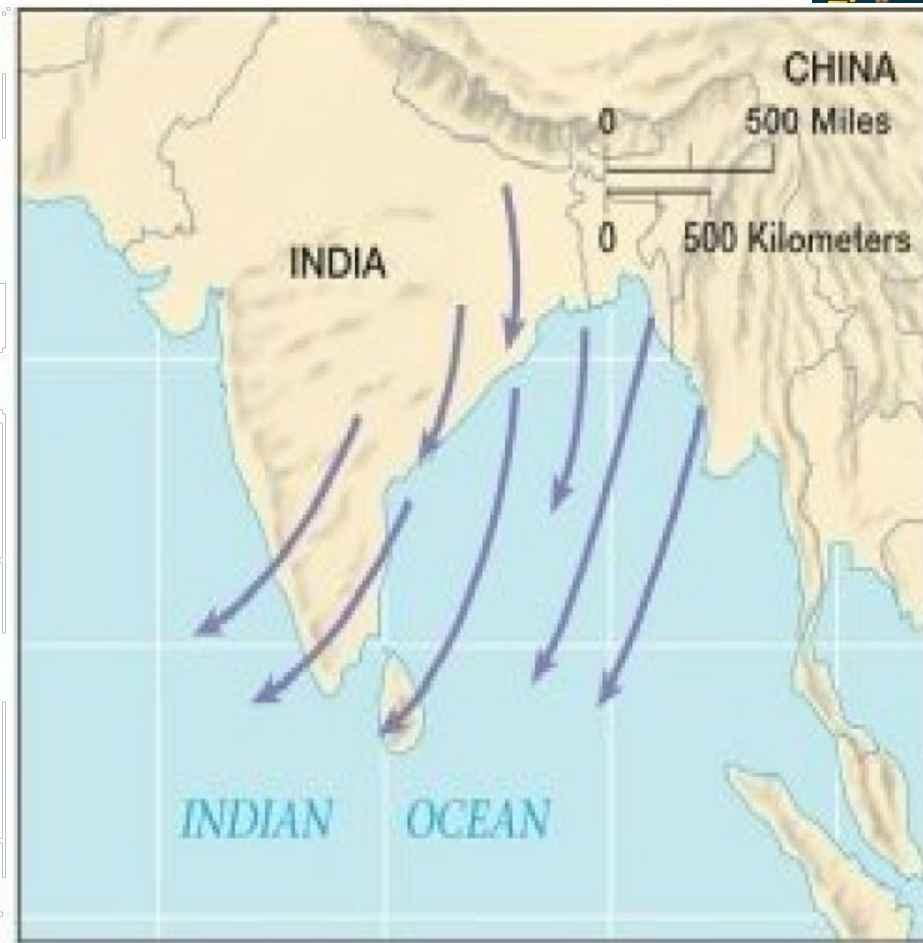


Need for Improved Forecasting: Enhanced forecasting systems are now in place, but there is a call for more focus on urban flooding impacts and disaster management strategies due to climate change uncertainties.

Summary: India's monsoon season shows promising rainfall patterns,
with the northeast monsoon playing a critical role in agriculture and



Summer



Winter



Activists from climate action group Ocean Rebellion take part in a performance using liquid natural gas in London on Friday. Their aim is to expose how many companies are 'hoodwinking International Maritime Organisation delegates by falsely claiming LNG is a green fuel'. AFP

— Topic→ What is Liquefied Natural Gas mean?

1.1 Definition

Liquefied natural gas primarily consists of methane (approximately 90% composition). The process of deep refrigeration (approximately -162°C) is used to liquefy natural gas into LNG, making it easier to store and transfer to the point of use. In various regions of the world, **LNG** is currently recognized as a clean and environmentally friendly fuel, widely utilized.

1.2 What does liquified natural gas look like?



Colorless, odorless, lightweight, and readily soluble in air, liquefied natural gas has a flame temperature of roughly 1880°C when burnt.

When compared to gasoline and oil, LNG has the advantage of being able to totally burn without leaving any residue, which makes machinery and equipment safer, reduces wear and tear, necessitates less maintenance, and extends life.

LNG has 2.4 times the capacity of **compressed natural gas (CNG)** once it has been liquefied. At typical circumstances (1 atm, 15 °C), LNG only takes up around 1/600th of the total volume of natural gas.

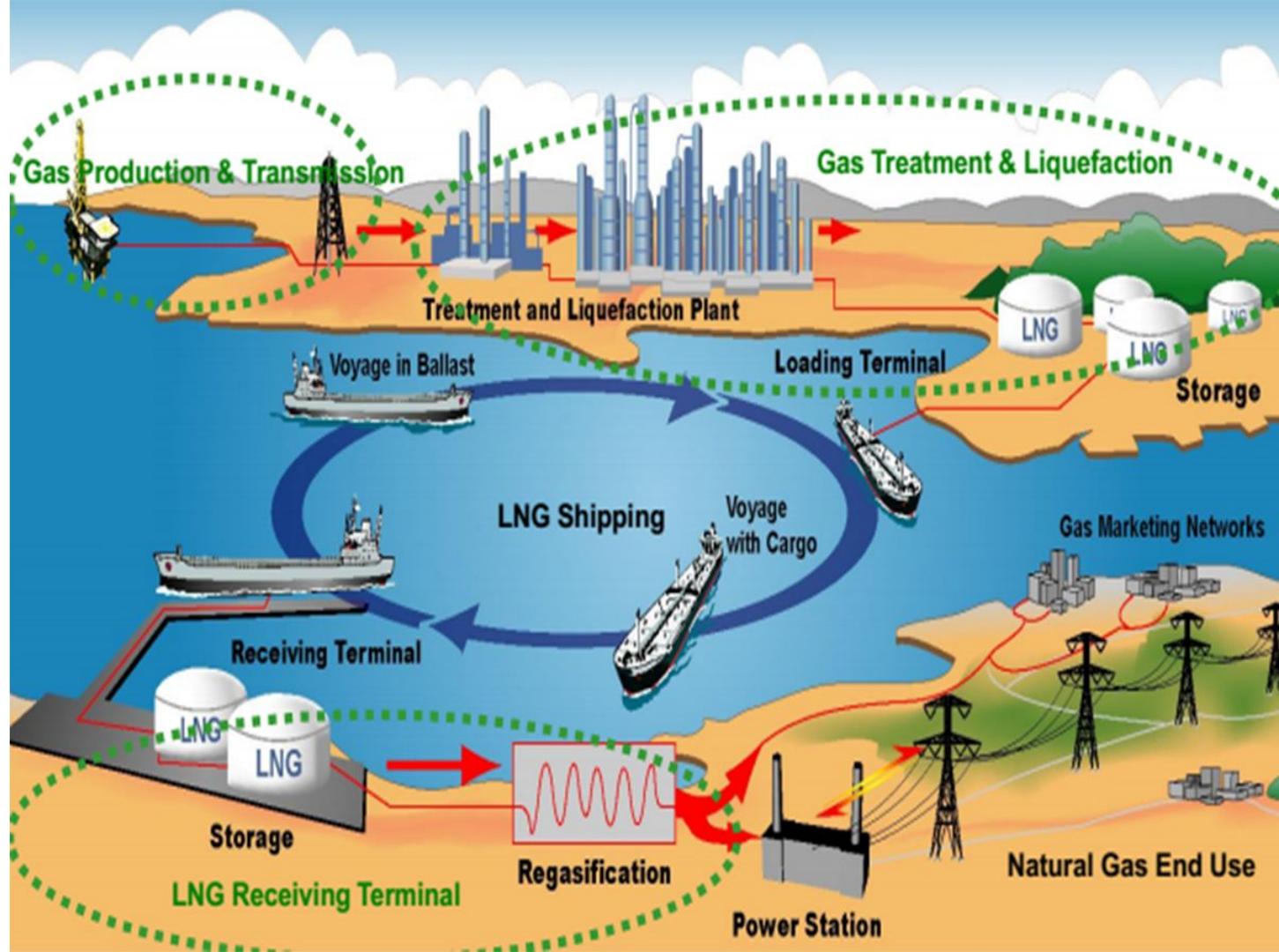
1.3 How is liquified natural gas produced?



Natural gas will first be transported to refineries following extraction in order to be cleaned and processed before being converted into liquefied natural gas (LNG). Non-hydrocarbon substances are eliminated during this process, most often Carbon Dioxide and Hydrogen Sulfide.

The natural gas will be cooled to a temperature of -162 degrees Celsius to cause it to liquefy once all impurities have been eliminated.

Liquefied natural gas (LNG) will then be poured into storage tanks with unique construction to stop leakage.



the following are some of the most widespread uses for LNG in life and business:

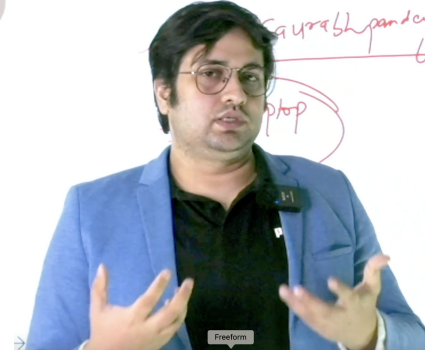


- Using LNG as a substitute for coal in thermal power stations' combustion chambers.
 - Using LNG as a combustion fuel for heating and drying systems in homes and food processing facilities.
 - Using LNG in the transportation sector as a substitute for gasoline and diesel.
 - Using LNG as a clean energy source for residences or homes in isolated or island locations, etc.
 - Using LNG as fuel in heavy sectors including ceramics, metallurgy, and brickmaking...
-

Topics - MINDS MAPS included (Daily current affairs)-- 7th & 6TH October 2024



- **Dodd Alathur Excavation**
- **New Ultrasound Technique for Cancer Detection**
- **GOLD**
- **Two Narratives in the Israel-Hamas Conflict**
- **Cochin port**
- **Dry Port Development**
- **Lake Uru Uru, Bolivia**
- **→ Doukhobor**
- **Mains**



By saurabh Pandey



Kazakhstan - first Nuclear Power station

Halari Donkeys 🐴

Salt Pans

Plant response towards Warming

Oysters

Hepatocellular carcinoma

The coyote

Excavations commence at Doddalathur megalithic burial site in Hanur taluk

The Hindu Bureau

MYSURU

A team of history and archaeology scholars and students from the University of Mysore have embarked on an excavation of megalithic burial sites in Chamarajanagar district.

The excavations are being conducted at Doddalathur village, located in a small valley formed by the Male Mahadeshwara Hill ranges in Hanur taluk of Chamarajanagar district, in association with the Mythic Society, Bengaluru.

V. Shobha, Chairperson of the Department of Studies in Ancient History and Archaeology, University of Mysore, who is involved with the project, said that to the west of the village was a small hillock and in



A megalithic burial site near Hanur in Chamarajanagar district will be excavated for research and further studies. SPECIAL ARRANGEMENT

the adjacent fields were hundreds of burials of the megalithic period which corresponded to the Iron Age. The burials consisted of circles made of large boulders and hence the name “megalithic”. Since iron technology came into use during this period, it was also known as Iron Age, and in South India,

this period had been broadly placed in the time bracket of 1200 BC to 300 CE, said Ms. Shobha.

She pointed out that Doddalathur megalithic burial site was discovered by C. Krishnamurti of the Archaeological Survey of India in 1961.

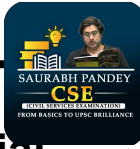
The site once had more than 1,000 burials, accord-

ing to the local villages but many had vanished in recent years owing to expansion of agriculture and cultivation activities, settlement and land development projects, Ms. Shobha added. But the site had potential for excavation as a majority of the burials are still intact despite disturbances, she said.

Superintending Archaeologist C.B. Patil (retd.), ASI, is the co-director of the excavation, and the project hopes to throw more light on the megalithic-iron age culture in the hilly regions of southern Karnataka.

Another purpose is to provide field training to the students of archaeology. The excavations, which began on October 3, will continue for two months.

Topic→ Dodd Alathur Excavation



 A team from the University of Mysore is excavating megalithic burial sites in Chamarajanagar district.

 The excavation site is located in Doddalathur village, nestled in a valley formed by the Male Mahadeshwara Hill ranges.

 The burials date back to the Iron Age, approximately between 1200 BC and 300 CE, characterized by circles of large boulders.

 The site was initially discovered in 1961 by C. Krishnamurti from the Archaeological Survey of India and once had over 1,000 burials.

 Many burials have been lost due to agricultural expansion and land development, but many remain intact for excavation._____

Megalithic

Overview of Megalithic Structures

Definition: Large stone constructions often used for ceremonial, religious, or burial purposes.

Locations: Found globally, particularly in Europe, Asia, and Americas.
Historical Significance: Reflects ancient civilization's engineering and cultural practices.

Archaeological Findings:

Burial Sites: Studies show diverse burial practices, such as in Spain's Megalithic Necropolis of Panoría.

Social Structures: Evidence of gender roles and social organization from findings in burial sites.

Cultural Importance:

Religious Significance: Many megalithic structures served as places of worship.

Cultural Heritage: Represents the identity and history of ancient peoples.

Technological Insights:

Engineering Feats: Advanced techniques used in construction, predating modern scientific understanding.

Materials: Exploration of stone types and sourcing methods used in construction.

Topic → New Ultrasound Technique for Cancer Detection



Overview of the Technique

Ultrasound Method: Converts tissue to droplets released into the blood.

Components: Bubbles containing **RNA**, **DNA**, and **proteins**.

Usage: Identifies types of cancer.

Current Cancer Detection Methods

Traditional Biopsy:

Involves a large needle to extract tissue.

Considered the gold standard.

Ultrasound Imaging:

Converts sound waves into images.

Used for taking pictures of internal organs.

Advantages of the New Technique

Noninvasive: Reduces patient discomfort compared to biopsies.


Real-time Diagnostic: Quick identification of cancer types.

Potential for Broader Detection: Could improve screening effectiveness.


Saurabh pandey upsc


Topic → GOLD





 **Gold's Characteristics:** Gold is a precious metal with the atomic number 79 and the Latin name 'aurum', symbolized as Au on the periodic table.


 **Jewellery and Investment:** It is widely recognized for its use in jewellery and as a form of investment.

 **Industrial Use:** Approximately 10% of gold produced globally is utilized in various industries due to its desirable properties, including being corrosion-resistant and a good conductor of electricity.

 **Global Production:** South Africa was the leading gold producer since the late 19th century, but currently, China holds the title, with Ghana also being a notable producer.

 **Chemical Properties:** Gold is resistant to strong nitric acid and can dissolve in aqua regia, a mixture of nitric and hydrochloric acids, as well as in some alkaline solutions and mercury._____

 **Nobel Prizes:** Each Nobel Prize awarded from October 7 will feature a medal made of electrum, an alloy of gold and silver, plated with 24-carat gold.

 **Extraction Locations:** Gold nuggets are typically found in mountainous regions with quartz veins, and the cost of extraction varies based on location.

Summary: Gold is a valuable metal known for its use in jewellery, investment, and industry, with unique chemical properties and significant global production trends.

Topic→ Two Narratives in the Israel-Hamas Conflict



Israel's Perspective 🌐

Establishment of new status quo: *Occupation without consequences*

Shift to an *existential war* against terror post-Hamas attack

Objectives:

Destroy Hamas 💣

Release hostages

Military actions:

Increased attacks on Gaza

Death toll of over 41,000 Palestinians

Displacement of nearly entire Gaza population

Delink Palestinian militarism from occupation

Arab Perspective

- Belief that the Palestine issue has lost *geopolitical currency*
- Formalizing relationships with Israel
- Perception of Hamas's attack as a disruption of the status quo
- Concerns over lack of peace and stability until the Palestine question is addressed

U.S. Strategy

- Aim to bring Sunni Arabs and Israelis closer
 - Reshape West Asia and isolate Iran
 - Reaction to Hamas attack triggering wider regional conflict
-

Three-Tier Regional War



Bottom Tier:

Target: Hamas in Gaza

Objectives:

Destruction of Hamas

Hostage negotiations

Middle Tier:

Focus on Hezbollah

Prevent rocket launches into Israel

Top Tier:

Weakening Iran

Strategic reshaping of West Asia

Octopus Doctrine



Israel's multi-tiered strategy:

Bottom tier: Focus on Gaza

Middle tier: Push back Hezbollah from the border

Top tier: Weaken Iran and its influence

Comparison of Iran to the head of an octopus, with its militias as tentacles

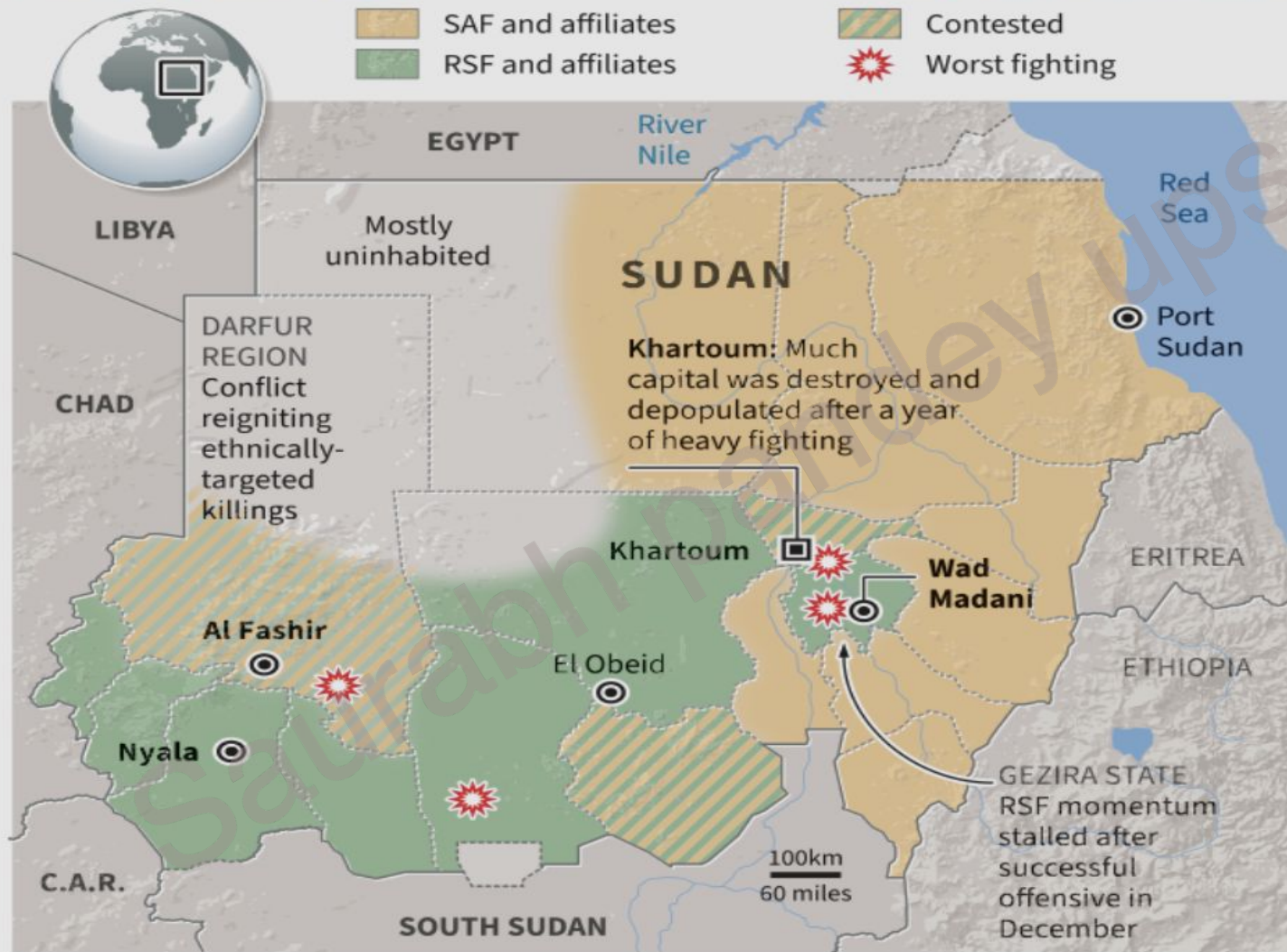
Challenges

Achieving military objectives in Gaza

Ongoing conflict with Hezbollah and its support for Hamas

Complexity of addressing Iran's influence in the region







Cancellations Impacting Cochin Port: A wave of ship cancellations threatens Cochin Port during the cruise season due to the Red Sea crisis.



Alternative Routes: Shipping lines are opting for longer routes around Africa to avoid the strait of Bab al-Mandab, where Houthi attacks have occurred.



Previous Season's Losses: Last season, 10 vessels canceled their visits to Cochin Port, affecting the port's revenue from cruise tourism.



Financial Implications: The cruise season typically generates significant income for local businesses, with potential losses of ₹15-20 lakh in ship handling charges and ₹1 crore from canceled overland tours.



Impact on Employment: Extended shipping routes lead to longer contracts for crew members, causing delays in employment for new seamen.




Rising Freight Costs: The geopolitical crisis has caused a spike in shipping freight rates, negatively affecting global maritime trade.



Tourism and Economic Effects: The cancellations not only impact cruise lines but also local tourism, affecting guides, tour operators, and taxi services.

Summary: The ongoing Red Sea crisis is causing significant ship cancellations at Cochin Port, leading to financial losses and employment issues in the cruise and maritime sectors.

 **Dry Port Development:** Telangana is set to establish dry port facilities to enhance logistics services for its industries.

 **Public-Private Partnership:** The dry port will be developed in collaboration with private entities, as stated by a senior official from the Telangana Industrial Infrastructure Corporation (TGIIC).

 **Customs Efficiency:** Exporters will be able to complete all customs formalities at the dry port, leading to time and cost savings.

 **Export Routes:** Currently, exports from Telangana are routed through ports in Tamil Nadu and Andhra Pradesh, highlighting the need for local facilities.

A dry port is an inland terminal that is meant to provide connectivity to a sea port by rail or road, thus serving as trans-shipping hub for sea cargo. An exporter can complete all customs formalities at the dry dock, saving time and cost



Logistics Park Proposal: A 1,400-acre multi-modal logistics park near Nalgona was approved in July 2021, aimed at boosting logistics capabilities.



Logistics Sector Growth: Telangana's logistics sector is growing at an annual rate of 12%, driven by the state's industrial strengths in various sectors.



Future Plans: The current government plans to expedite the dry port project and is exploring additional dry port setups to facilitate exports.

Summary: Telangana is advancing plans to establish dry port facilities to enhance logistics and export efficiency, with a focus on public-private partnerships and infrastructure development.



Topic → Lake Uru Uru, Bolivia

Environmental Issues and Restoration Efforts

Pollution: Various sources indicate that Lake Uru Uru is heavily polluted with waste, primarily plastics.

Cleanup Initiatives: Local communities, particularly indigenous women, are leading efforts to clean the lake.

Flamingo Habitat: The lake serves as a habitat for flamingos and other wildlife, which are affected by pollution.

Overview of Doukhobor

Faith: A pacifist Christian sect.

History: Exiled from Russia centuries ago.

Current Status: Facing potential extinction, especially in Georgia.

Key Themes

Cultural Heritage:

Unique traditions.

Language preservation.

Community Challenges:

Declining population.

Loss of cultural identity.

Historical Context:

Internment and reparation issues in British Columbia. _____

Historical struggles in Georgia.

News Highlights:

Doukhobor faith nearing disappearance in Georgia.
Criticism of reparation plans for internment victims in Canada.
Ongoing reflections and stories from surviving members.

Future Considerations

Preservation Efforts:

Community initiatives to maintain cultural identity.
Educational programs on Doukhobor history.

Advocacy:


Legal support for surviving members.
Awareness campaigns about Doukhobor contributions.

Topic-- Kazakhstan - first Nuclear Power station



 Kazakhstan held a referendum on building its first nuclear power station to increase power generation capacity.

 As the world's leading uranium producer, Kazakhstan is looking to expand its energy resources.

 The new power station is proposed to be located on the shores of Lake Balkhash, with China, France, Russia, and South Korea as potential builders.

 The country has a sensitive history with nuclear power, having experienced around 450 Soviet-era nuclear tests that exposed 1.5 million people to radiation.

 Opponents of the nuclear project express concerns about potential environmental disasters, but their ability to campaign has been limited due to arrests.

Summary: Kazakhstan's referendum on its first nuclear power station reflects its ambitions to enhance energy capacity, despite historical sensitivities and opposition concerns.

Overview of Halari Donkeys

Origin: Indigenous to Gujarat, India

Significance: Known for their milk and traditional uses

Conservation Status: Endangered breed

Key Aspects of Halari Donkeys

Milk Production:

- High value: ₹7,000 per litre

- Growing demand for donkey milk

Cultural Importance:

- Celebratory events like "Godh Bharai" (baby shower)

- Community awareness programs

Conservation Efforts:

- Initiatives to protect the breed

- Meetings held for conservation strategies

Market Trends



Donkey Milk Market:

- Increasing interest in health benefits

- Potential for commercial dairy setups

Research and Development:

- Studies on donkey milk benefits

- Collaboration with agricultural scientists for AI in breeding

Challenges

Endangerment:

- Risk of extinction due to low population

Market Awareness:

- Need for public education on benefits

Topic→Salt Pans and Dharavi Redevelopment Project

Overview

Salt Pans: Ecologically important areas for salt cultivation

Ecological Role: Natural defense against flooding, sponge for rain absorption

Flora & Fauna: Home to diverse species

salt Pans

Ecological Importance 🌿

Salt marshlands

Low-lying coastal areas

Absorb rainwater

Functions 💧

Natural flood defense


Support intertidal activities

Habitat for diverse flora and fauna


Topic-- Plant response towards Warming



Stomata Function: Microscopic pores on leaves, called stomata, regulate water loss and carbon dioxide intake for photosynthesis and growth.

 **Heat Damage Mitigation:** Widening stomatal pores help minimize heat damage to plants in response to rising global temperatures.

 **Research Findings:** University of California San Diego researchers identified two pathways plants use to manage increased temperatures, published in *New Phytologist*.

 **Complex Measurement Challenges:** Scientists faced difficulties in understanding stomatal responses due to the intricate relationship between temperature and humidity (vapor pressure difference).

⚙️ Novel Approach: Researchers developed a method to maintain constant vapor pressure difference while increasing temperature, allowing for clearer analysis of stomatal responses.

🧪 Genetic Mechanisms: The study revealed that drought hormones, carbon dioxide sensors, and temperature-sensitive proteins play significant roles in stomatal responses to heat.

💧 Dual Response Pathways: Under extreme heat, plants can bypass normal carbon dioxide sensor responses and utilize a secondary pathway to cool down through increased transpiration.

Summary: Researchers have uncovered how plants adapt their stomatal responses to rising temperatures, revealing complex mechanisms that regulate water loss and carbon dioxide intake

Topic--Oysters



 Oysters once created extensive reefs along much of Europe's coastline, which have been destroyed over a century ago.

 New research is based on historical documents from the 18th and 19th centuries.

 European flat oysters formed large reefs consisting of both living and dead shells.

 These reefs provided a habitat that supported rich biodiversity.

 Evidence of these reefs was found from Norway to the Mediterranean.

 The reefs covered at least 1.7 million hectares, an area larger than Northern Ireland.

 The destruction of these ecosystems has significant implications for marine biodiversity.

Summary: Oysters once created vast reefs across Europe, supporting rich biodiversity, but these ecosystems have been largely destroyed over the past century.










Diabetes and obesity increase risk of liver cancer relapse

Hepatocellular carcinoma, a type of liver cancer associated with hepatitis infections, is known to have a high recurrence rate after cancer removal. A study revealed that the risk of recurrence after two years postoperatively was approximately 1.5 times higher in the case of comorbid obesity and 1.3 times higher in the case of diabetes mellitus. In addition, the risk of recurrence after five years postoperatively was 3.8 times higher in the case of comorbid obesity and two times higher in the case of comorbid diabetes alone.


Topic → Hepatocellular carcinoma




-  Hepatocellular carcinoma is a type of liver cancer linked to hepatitis infection.
-  The cancer has a high recurrence rate after surgical removal.
-  After two years, the recurrence risk is 1.5 times higher in patients with comorbid obesity.
-  The recurrence risk is 1.3 times higher in patients with diabetes mellitus after two years.
-  After five years, the recurrence risk is 3.8 times higher in patients with comorbid obesity.
-  The recurrence risk is two times higher in patients with diabetes alone after five years.
-  Comorbid conditions significantly impact the recurrence rates of hepatocellular carcinoma.

Summary: Hepatocellular carcinoma has a high recurrence rate post-surgery, significantly influenced by comorbid obesity and diabetes

Topic → The coyote

 Species Information: The coyote (*Canis latrans*) is a canine species native to North America, also known as the American jackal, prairie wolf, or brush wolf.

 Conservation Status: It is listed as "least concern" by the International Union for Conservation of Nature due to its wide distribution and abundance.

 Urban Adaptability: Coyotes are highly adaptable and have successfully expanded into urban environments, with sightings in cities becoming common.



— 🦴 Physical Characteristics: Males weigh between 8 to 20 kg (18 to 44 lb) and females between 7 to 18 kg (15 to 40 lb), with fur color varying from light gray to red or fulvous.

🐾 Social Structure: Coyotes exhibit flexible social organization, living in family units or loose packs of unrelated individuals.

🍌 Diet: Primarily carnivorous, their diet includes deer, rabbits, rodents, and occasionally fruits and vegetables.

🔪 Threats and Hybrids: Humans pose the greatest threat to coyotes, followed by cougars and gray wolves; they can also hybridize with gray wolves and eastern/red wolves, creating "coywolf" hybrids.

Summary: The coyote is a versatile and adaptable North American canine species, recognized for its ecological role, varied diet, and social structures, while facing threats primarily from humans



Target Mains -2025/26 -

Q Identity based polarisation across world will bring change in social life as well . Explain

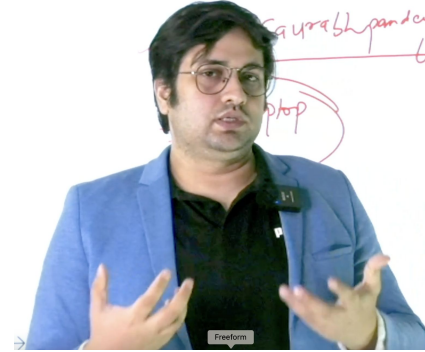
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Topics - MINDS MAPS included (Daily current affairs)-- 8TH October 2024



- Noble prize in medicine 2024
- MiRNA
- India And Maldives
- BRCA Gene
- Connectome
- Indian Diplomacy
- Active and Passive Mutual Fund
- UN Report - water cycle
- Mains



By saurabh Pandey



Target Mains -2025/26 -

Q Indian foreign policy is about balancing of “bilateral and multilateral” interest . Examine

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Topic → Nobel Prize in Medicine 2024

Overview of the 2024 Nobel Prize in Medicine

Awarded to Victor Ambros and Gary Ruvkun

Recognized for their groundbreaking work on the discovery of microRNA

Significance in understanding gene regulation and its implications in various diseases.

- **Ambros is best known for his discovery of the role of microRNAs in gene regulation, which has significantly advanced our understanding of developmental biology and disease mechanisms, influencing therapeutic strategies.**

Ruvkun is renowned for his groundbreaking work on microRNAs and their role in gene expression, which has significantly advanced our understanding of genetic regulation and its implications for various diseases, including cancer and neurodegenerative disorders.

: What is MicroRNA?

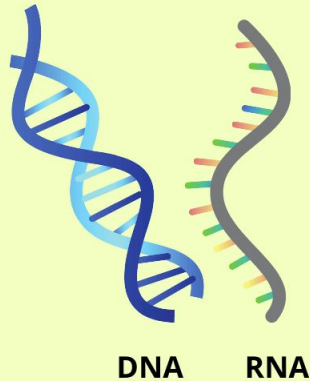
- **Definition and Function:** MicroRNAs (miRNAs) are small, non-coding RNA molecules, typically 20-24 nucleotides long, that play a crucial role in regulating gene expression by binding to complementary sequences on target messenger RNAs (mRNAs), leading to their degradation or inhibition of translation.
- **Biogenesis Process:** The biogenesis of miRNAs involves transcription from DNA into primary miRNA (pri-miRNA), which is then processed by the enzyme Drosha into precursor miRNA (pre-miRNA) and subsequently cleaved by Dicer into mature miRNA, ready for incorporation into the RNA-induced silencing complex (RISC).

-

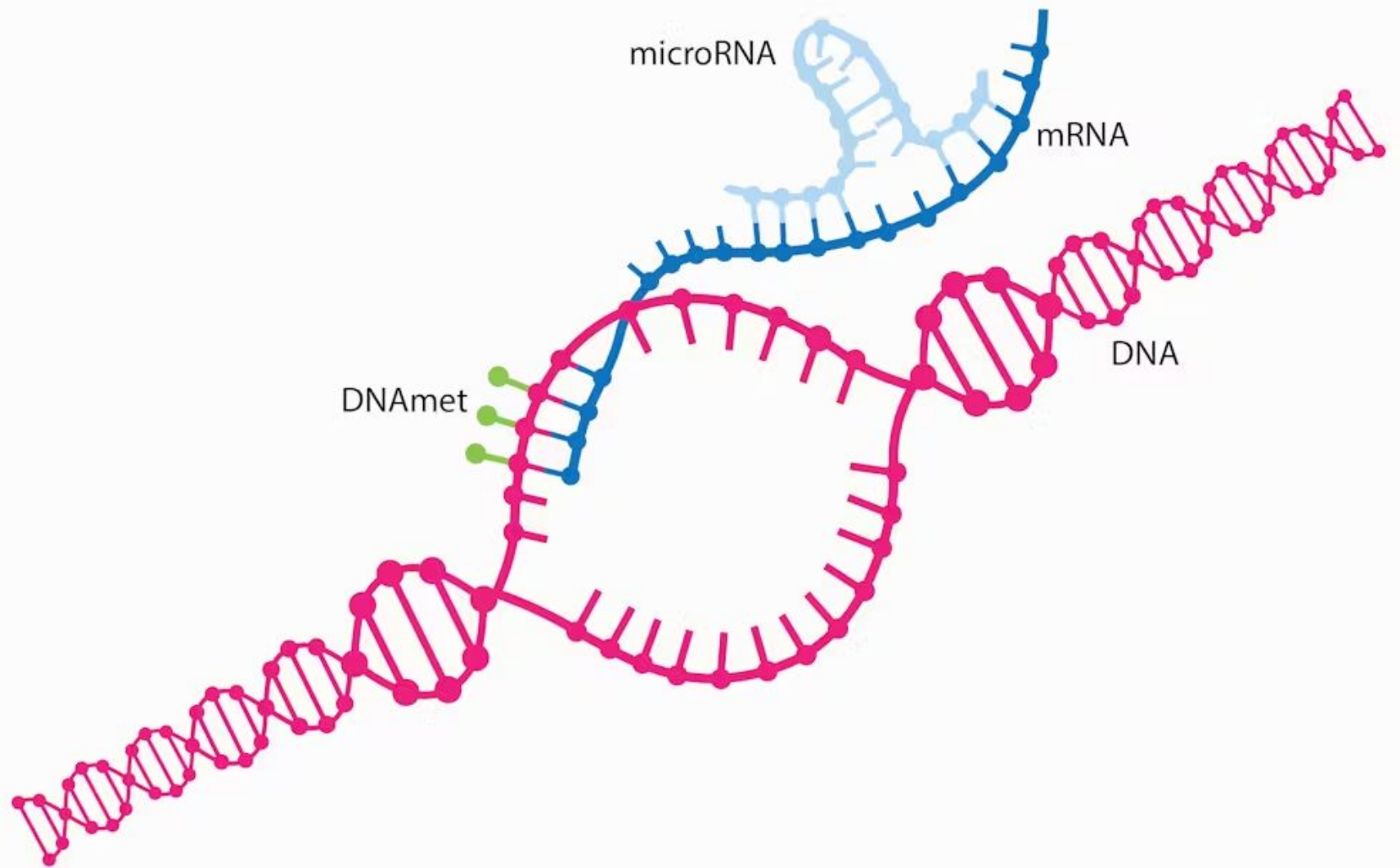
Ribonucleic acid (RNA) is a molecule found in most living organisms and viruses that plays a key role in turning DNA instructions into proteins.

What Is RNA?

RNA or ribonucleic acid is a biological polymer that codes and decodes genetic information. DNA codes for RNA and RNA codes for proteins.



- Most RNA is a single-stranded molecule.
- RNA forms a single helix, a loop, a straight molecule, or a twisted shape.
- Types of RNA include messenger RNA (mRNA), transfer RNA (tRNA), and ribosomal RNA (rRNA).
- The bases in RNA are adenine (A), uracil (U), guanine (G), and cytosine (G).
- Some organisms contain RNA, but no DNA.



-
- **Role in Cellular Processes:** miRNAs are integral to various cellular processes, including development, differentiation, proliferation, and apoptosis, and their dysregulation is associated with numerous diseases, including cancer, cardiovascular diseases, and neurological disorders, highlighting their potential as therapeutic targets.
-

Mechanism of Gene Regulation



- **MicroRNA Functionality:** MicroRNAs regulate gene expression by binding to specific mRNA targets, leading to either mRNA degradation or translational repression, thereby influencing various biological processes such as development, cell differentiation, and response to stress, and playing a critical role in maintaining cellular homeostasis and preventing disease.

Implications of the Discovery

Applications in Medicine

- **MicroRNA Therapeutics:** The discovery of microRNAs has led to innovative therapeutic strategies, including the development of microRNA mimics and inhibitors. These approaches aim to restore normal gene expression patterns in diseases such as cancer, offering potential for targeted treatments that could improve patient outcomes significantly.


- **Diagnostic Tools:** MicroRNAs serve as promising biomarkers for various diseases, enabling early detection and monitoring of conditions like cancer and cardiovascular diseases. Their presence in bodily fluids allows for non-invasive diagnostic tests, enhancing the ability to personalize treatment plans based on individual molecular profiles.

— **Topic→ India and Maldives**





Key Agreements and Initiatives


 **Currency Swap Agreement:** India signed a \$750 million currency swap agreement with the Maldives to help address its foreign currency issues.


 **SAARC Currency Swap Framework:** The agreement includes \$400 million and ₹3,000 crore (\$357 million), valid until 2027.

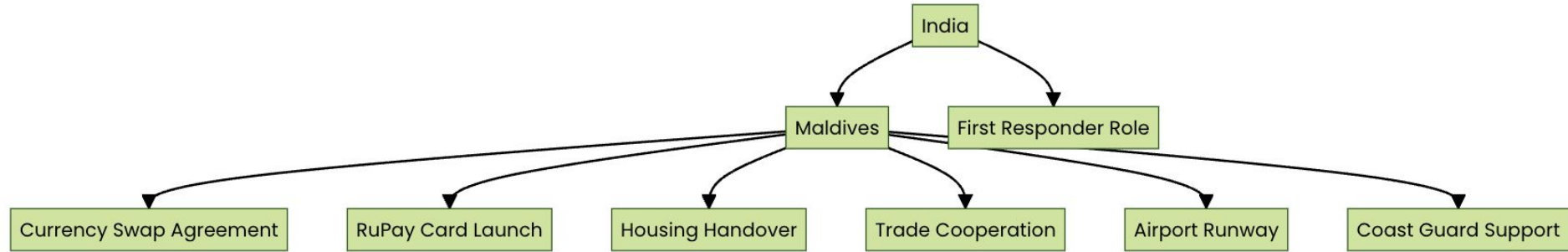
 **RuPay Card Launch and Housing:** Agreements include the launch of the RuPay card in the Maldives and the handover of 700 houses built with Indian assistance.

-  **Trade and Security Cooperation:** Both nations aim to enhance cooperation in trade, including a Free Trade Agreement, and have released a vision statement for a comprehensive economic and maritime security partnership.

 **Airport Runway Inauguration:** A jointly constructed runway for an international airport at Hanimadhoo island was inaugurated.

 **Coast Guard Ship Refit:** India will support the Maldives in refitting a Coast Guard ship at an Indian facility without deploying personnel to the Maldives.

 **India as "First Responder":** Prime Minister Modi emphasized India's role as a "First Responder" for the Maldives, highlighting historical support during crises.




Summary: India and the Maldives have strengthened their economic ties through a significant currency swap agreement and various cooperative initiatives, while addressing tourism and security concerns.

·Topic → **BRCA Genes and Cancer Risk**




BRCA Genes Cancer Risk Population Variance Genetic Testing
Targeted Therapies CRISPR Technology Spectrum of Risk


Overview of BRCA Genes

 BRCA Genes: The discovery of BRCA1 and BRCA2 in the 1990s marked a significant advancement in understanding hereditary cancer syndromes, particularly those affecting breast and ovarian tissues.


Cancer Risk Associated with BRCA Mutations

 Cancer Risk: Mutations in these genes greatly increase the risk of developing cancers such as breast and ovarian in women, and prostate and male breast cancer in men. There are also elevated risks for other types of____ cancer.

Population Variance in BRCA Mutations


 Population Variance: Approximately 1 in 400 people carry BRCA mutations. This prevalence is higher among Ashkenazi Jews, with a rate of 1 in 40, due to historical genetic bottlenecks and founder effects.

Importance of Genetic Testing


 Importance of Testing: Genetic testing for BRCA mutations is crucial for early detection of cancer risk, enabling personalized prevention strategies through surveillance and targeted therapies.

Advances in Targeted Therapies




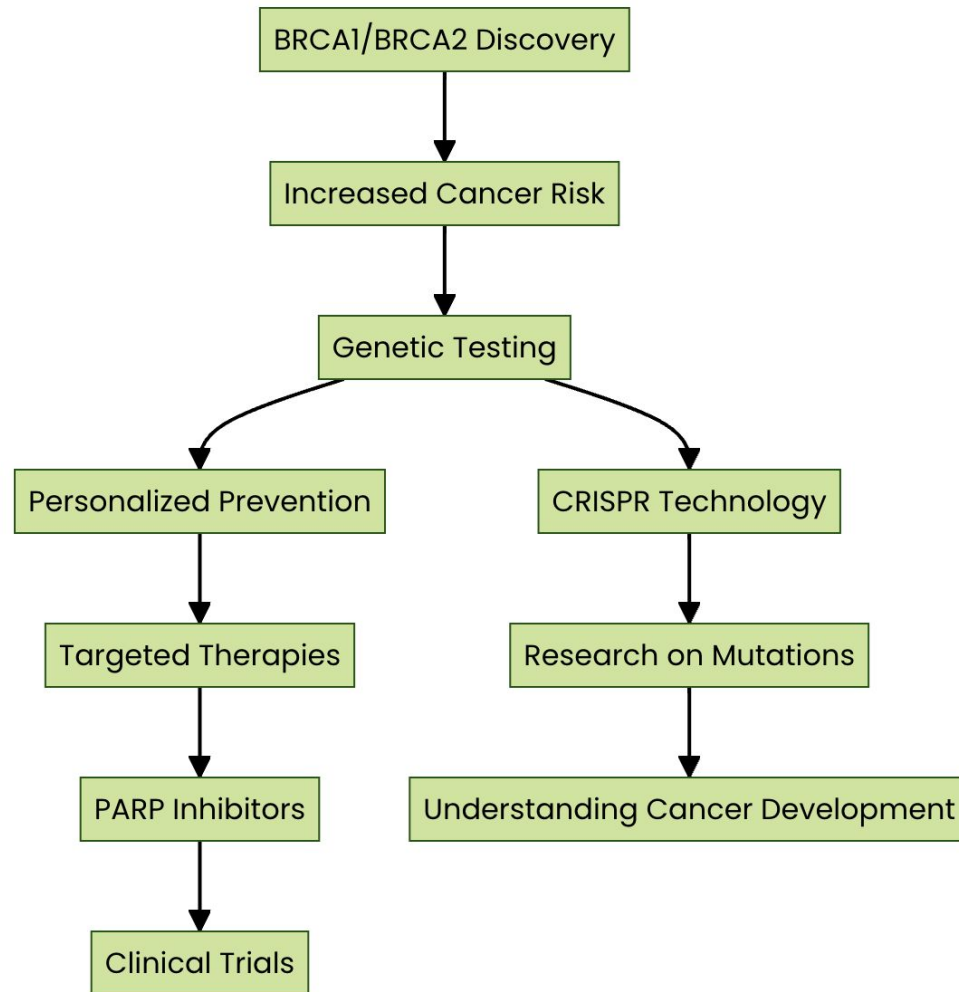
 Targeted Therapies: PARP inhibitors are emerging as effective treatments for BRCA-related cancers, showing promising results in clinical trials, especially when used with platinum-based chemotherapy.

Role of CRISPR Technology

 CRISPR Technology: The use of CRISPR technology has advanced the study of BRCA genes, allowing for the creation of specific mutations to better understand their role in cancer development and treatment responses.

Expanding Spectrum of Genetic Risk

 Spectrum of Risk: Recent studies have identified over 3,000 genetic variations in the RAD51C gene, which can significantly increase the risk of breast and ovarian cancer, underscoring the complexity of genetic risk factors.



Overview of Connectome

Definition: Mapping of neural connections in the brain 

Significance: Understanding brain functions and behaviors

Applications: Neuroscience, AI, cognitive science

Recent Advances

Fruit Fly Connectome

Entire fruit fly brain mapped in detail 

Insights into neural wiring

Potential implications for human brain mapping

Key Concepts

Connectomics: The study of connectomes and their functions

Neural Networks: How neurons connect and communicate

Effectome: Understanding behavioral outcomes from neural wiring

Future Directions

Human Connectome Project: Mapping the human brain's connectome

AI and Connectomes: Using connectome data to enhance AI models

Medical Applications: Insights into brain disorders and treatments

—Topic→ India's Participation in the Quad Leaders' Summit and Its Diplomatic Implications



Overview of the Quad Leaders' Summit

Date & Location: September 21, 2024, Wilmington, Delaware, U.S.

Key Participants:

Prime Minister Narendra Modi (India)

President Joe Biden (U.S.)

Prime Ministers of Japan and Australia

Objective:

Strengthen security cooperation among *four leading maritime democracies* in the *Indo-Pacific*.

Ajit Doval's Diplomacy

Significant Meeting:

Doval's trip to Russia for BRICS NSA meeting.

Personal meeting with President Vladimir Putin.

Talks with Chinese Foreign Minister Wang Yi.

Purpose:

Address military standoff with China at the Line of Actual Control (LAC).

Maintain India's strategic interests amid U.S. engagement.

Quad's Strategic Goals



Creation of a Consortium:

Counter revisionist challenges to global order.

Enhance collective security and diplomatic ties.

Significance of Russia:

Russia's opposition to the Quad.

Need to balance relations with Russia while engaging with U.S.

India's Role as a Peace Maker

Doval's Reputation:

Known for imaginative and persuasive diplomacy.

Peace Initiatives:

Conveying India's Ukraine peace plan to Putin.

Engaging in dialogue with global leaders (e.g., Emmanuel Macron).

Strategic Autonomy:

India positioning itself as a mediator in global conflicts.

Russia-China Ties:

Deepening economic and military cooperation.

Implications for India's security and foreign policy.

Western Perception:

India viewed as indifferent to global issues post-Ukraine conflict.

Need to reset engagement terms with both the U.S. and Russia.

Historical Context

India-Russia Relations:

Long-standing military and strategic partnership.

Rebalancing:

Shift away from nostalgia of past alliances.

Need for pragmatic diplomacy in current geopolitical landscape.

Conclusion

Implications for the Future:

The Quad summit could redefine India's diplomatic stance.
Potential to enhance India's role as a global peace facilitator
while navigating complex relationships with Russia and China.

Topic→Introduction of MF Lite



SEBI MF Lite passive funds AMCs market liquidity

Overview of MF Lite Framework



Launch Date: SEBI introduced the Mutual Funds Lite (MF Lite) framework on September 30 to boost passively managed schemes.

Key Features



Lower Risk: These funds are considered less risky as they track benchmark indices like BSE Sensex or Nifty50, mimicking their performance.



Relaxed Eligibility: The framework reduces eligibility criteria for Asset Management Companies (AMCs), requiring a minimum net worth of ₹35 crore for operating passive funds.



Governance Changes: The oversight role of trustees is minimized, with AMCs assuming more responsibility for daily operations, while still managing conflicts of interest.



Focus on Costs and Tracking: Emphasizes Total Expense

Ratio (TER) and tracking error as key success factors for passive schemes, moving away from traditional metrics.



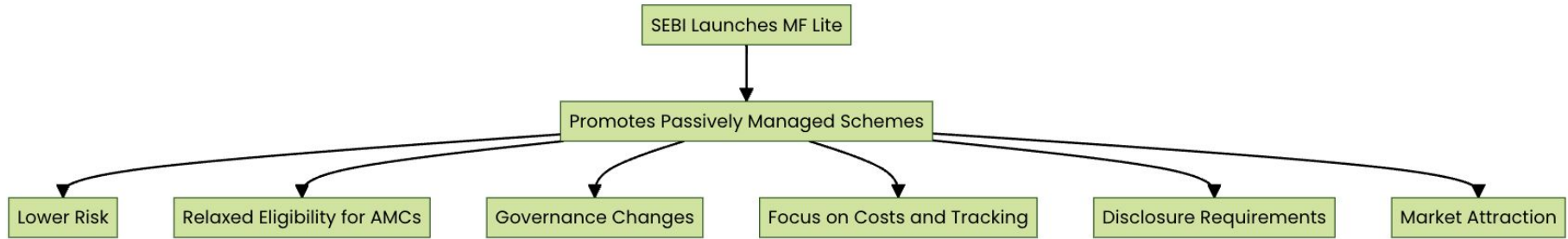
Disclosure Requirements: SEBI mandates that the scheme information document (SID) must include the name of the underlying benchmark and other relevant details for investors.



Market Attraction: The relaxed framework is expected to attract both existing and new players into the passive mutual fund industry, enhancing market liquidity.

Summary

SEBI's new MF Lite framework aims to facilitate the entry of new players into the passive mutual fund sector by introducing relaxed regulations and focusing on lower risks and costs.



About Active vs Passive Mutual Fund



Overview

Active Funds: Managed by professionals, aim to outperform market indices.

Passive Funds: Track a market index, designed for long-term investment.

Key Comparisons

Performance:

Active funds might outperform in volatile markets 🌀.

Passive funds offer consistent returns over time 📈.

Fees:

Active funds typically have higher fees 💰.

Passive funds generally have lower expense ratios 🏷️.

Management Style:

Active: Hands-on approach with research and analysis 🔍.

Passive: Automated tracking of indices ⌚.


Market Trends



Growth of Passive Investing:

Increasing popularity due to lower costs and ease of use .

Performance of Active Funds:

Recent challenges in outperforming passive funds in various market conditions .

Investor Considerations

Risk Tolerance:

Active funds may suit risk-tolerant investors seeking higher returns .

Passive funds may suit conservative investors seeking stability .

Investment Goals:

Active for short-term objectives; Passive for long-term growth .

Topic→ Climate Change: Distress Signals of Water Cycle



Overview of Water Cycle Distress Signals

Increasingly intense floods and droughts  

Climate change making water cycle unpredictable 

Heavy toll on lives, ecosystems, and economies 

"Water is the canary in the coalmine of climate change." - Celeste Saulo

Key Findings

Driest rivers in over 30 years 

Largest glacier mass loss in half a century 

Currently, 3.6 billion people lack sufficient access to fresh water, projected to rise to 5 billion by 2050.

Impacts of Climate Change



Floods

Extreme rainfall events increased

Damage to infrastructure and ecosystems

Droughts

Prolonged dry conditions


Increased evaporation rates

Water Cycle Changes

Erratic and unpredictable patterns

More moisture held in warmer atmosphere

Future Projections

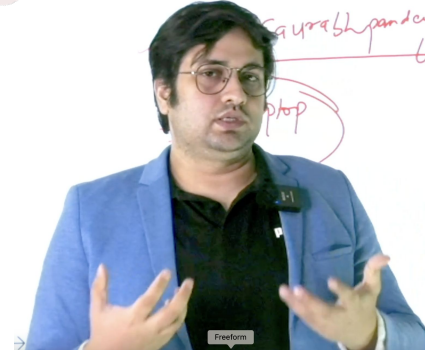
Growing problems of too much or too little water 

Increased risk of water-related disasters

Topics - MINDS MAPS included (Daily current affairs)-- 9TH October 2024



- **PSLV C-37 Mission**
- **Nobel Prize in Physics 2024: Hopfield & Hinton**
- **India Eliminates Trachoma as a Public Health Problem**
- **70th National Film Awards Overview**
- **Transcription Factors**
- **Discovery of Carbon Dioxide on Pluto's Moon Charon**
- **Energy Transition: Lessons from the UK's Coal Phase-Out**



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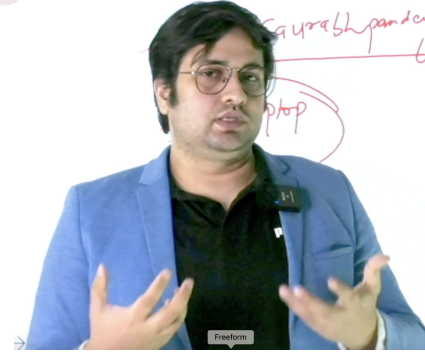


THE HINDU

Topics - MINDS MAPS included (Daily current affairs)-- 9TH October 2024



- Indian Textile and Apparel Sector: A Vision for 2030
- Global Digital Compact (GDC) Overview
- El Alfalfal Zone
- Ocean24 Strategic Exercise
- Mains



By saurabh Pandey



Target Mains -2025/26 -

Q Indian foreign policy is about balancing of “bilateral and multilateral” interest . Examine

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Topic→PSLV C-37 Mission

Key Highlights

Launch Date: February 15, 2017

Main Payload: Cartosat-2D

Total Satellites: 104 (including 103 co-passengers)

Re-entry Date: October 6, 2024

The PSLV-C37 mission set a record by launching 104 satellites in a single mission, showcasing ISRO's capabilities in space technology and satellite deployment.

Mission Details

Re-entry Location: North Atlantic Ocean 

Tracking Agency: U.S. Space Command (USSPACECOM)

NORAD ID: 42052

Orbit Characteristics:

Initial Orbit: 470x494 km

Decayed Orbit: 134x148 km

Monitoring Agency: ISRO System for Safe and Sustainable Space Operations Management (IS4OM)

WHAT IS NORAD ID ??

- The **Satellite Catalog Number (SATCAT)**, also known as **NORAD Catalog Number**, **NORAD ID**, **USSPACECOM object number**, is a sequential nine-digit number assigned by the **United States Space Command** (USSPACECOM), and previously the **North American Aerospace Defense Command** (NORAD), in the order of launch or discovery to all artificial objects in the orbits of Earth and those that left Earth's orbit.
- For example, catalog number 1 is the **Sputnik 1 launch vehicle**, with the **Sputnik 1** satellite having been assigned catalog number 2

Overview

Awarded: John Hopfield & Geoffrey Hinton

Contribution: Foundational discoveries in Machine Learning and Artificial Neural Networks (ANNs)

Significance: Impact on everyday AI applications like ChatGPT

Contributions and Impact



Contribution: They made foundational discoveries in Machine Learning and Artificial Neural Networks (ANNs).



Significance: Their work has significantly impacted everyday AI applications, including ChatGPT.



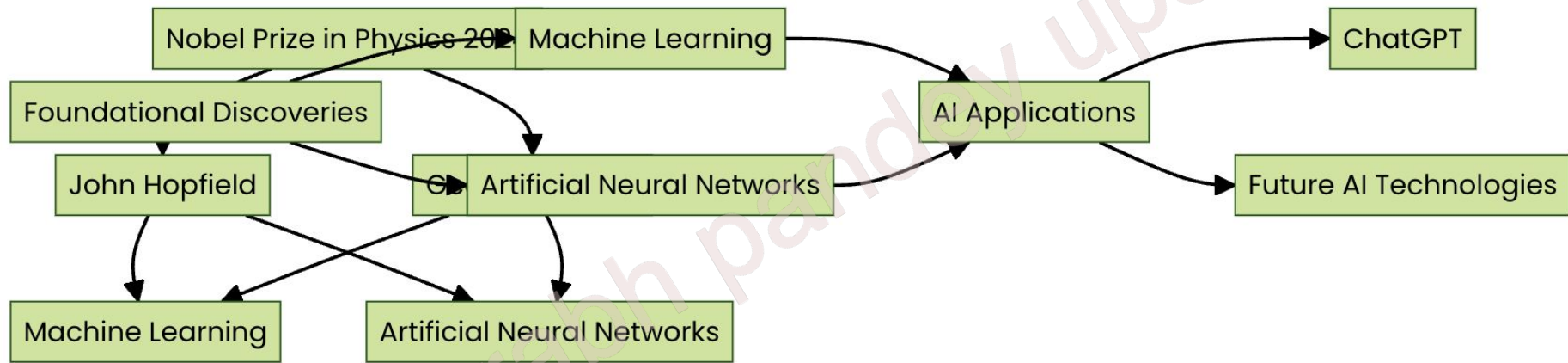
Field: Their contributions are pivotal in the field of artificial intelligence.




Legacy: Their discoveries continue to influence modern AI research and development.





Future: Their research paves the way for advancements in AI technologies.



Artificial neural networks (ANNs) and machine learning.

 ANNs Functionality: These networks are designed to emulate the functioning of animal brains, with interconnected neurons processing information akin to biological systems.

 Interdisciplinary Roots: The evolution of ANNs is influenced by fields such as statistical physics, neurobiology, cognitive psychology, and artificial intelligence.

 Hopfield Network: Introduced in 1982, it can denoise images by minimizing the system's magnetic energy upon activation.



Boltzmann Machine: Popularized by Hinton and Sejnowski, it is utilized for cognitive tasks and data classification by minimizing energy functions.



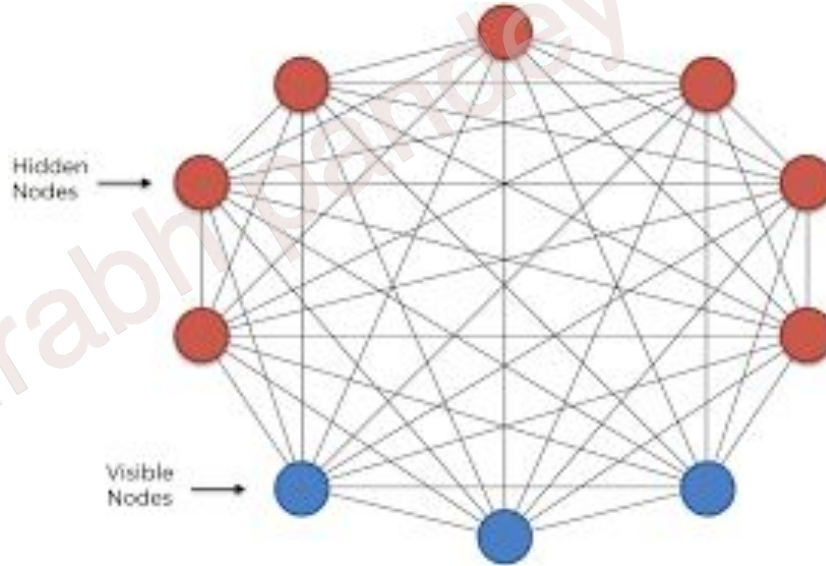
AI Advancements: The theoretical groundwork laid by the laureates and other researchers has significantly propelled advancements in AI.



Challenges in India: The country faces hurdles in scientific research due to low funding and bureaucratic inefficiencies, risking missed technological opportunities.

What is BOLTZMANN MACHINE ??


A Boltzmann machine is a type of neural network that consists of interconnected neurons capable of making stochastic decisions. It was invented by Geoffrey Hinton and is used to learn internal representations of input.



—Topic→ India Eliminates Trachoma as a Public Health Problem




Recognition by WHO

 The World Health Organization (WHO) has acknowledged India's success in eliminating trachoma as a public health issue.

 Trachoma is a bacterial infection that primarily affects the eyes.

India's Achievement

 India is the third country in the Southeast Asia Region to reach this significant milestone.

 The announcement was made by Saima Wazed, WHO Regional Director for South-East Asia, on Tuesday.

Factors Contributing to Success



The achievement is credited to strong government leadership and the dedication of healthcare workers, including ophthalmologists.



Collaboration with partners was crucial for effective surveillance, diagnosis, and management of trachoma.

Public Health Progress



This accomplishment underscores India's advancement in public health initiatives.

Strong Government Leadership



Healthcare Worker Commitment



Effective Surveillance



Diagnosis and Management



Elimination of Trachoma



WHO Recognition

Trachoma

Definition: Trachoma is a bacterial eye infection that can lead to blindness.

Causes: Caused by *Chlamydia trachomatis*.

Symptoms: Eye irritation, discharge, and visual impairment.

Topic→70th National Film Awards Overview



Highlights of the Awards



President Droupadi Murmu presented the awards to the winners.



Mithun Chakraborty was honored with the Dadasaheb Phalke Lifetime Achievement Award for 2022.



Gender Representation: Only 15 out of 85 awardees were women, emphasizing the need for more women-led initiatives in the film industry.



Best Feature Film: "Aattam" (The Play)



Best Non-Feature Film: "Ayena" (Mirror)

Saurabh Pandey UPSC



Best Actor Awards:

Male: Rishab Shetty for "Kantara"

Female: Nithya Menen for "Thiruchitrambalam"



Best Music Director: A. R. Rahman for background music in "Ponnyin Selvan-Part 1"



Best Book on Cinema: "Kishore Kumar: The Ultimate Biography"

Summary: The 70th National Film Awards celebrated significant achievements in Indian cinema, with a focus on gender representation and notable winners across various categories.

Topic→ Transcription Factors

Definition: Proteins that bind to DNA and regulate transcription from DNA to RNA 

Function: Control the rate of transcription and influence gene expression

Importance: Key for understanding genetic instructions and cellular functions



This NASA image released in 2015 shows Pluto's moon Charon just before the New Horizons spacecraft made its closest approach in July that year. Scientists using the James Webb Space Telescope have detected carbon dioxide on the frozen surface of Pluto's biggest moon, Charon, for the first time, research revealed on October 1 this year. The discovery, along with hydrogen peroxide, is hoped to shed light on how icy worlds formed and evolved. NASA/AFP

— **Topic→>Discovery of Carbon Dioxide on Pluto's Moon Charon**————



Overview of the Discovery

Date of Discovery: October 2023

Location: Pluto's largest moon, Charon

Instruments Used: James Webb Space Telescope (JWST)

Key Findings:

- Detection of carbon dioxide (CO₂)

- Presence of hydrogen peroxide (H₂O₂)

- Insights into the formation and evolution of icy worlds

Significance:

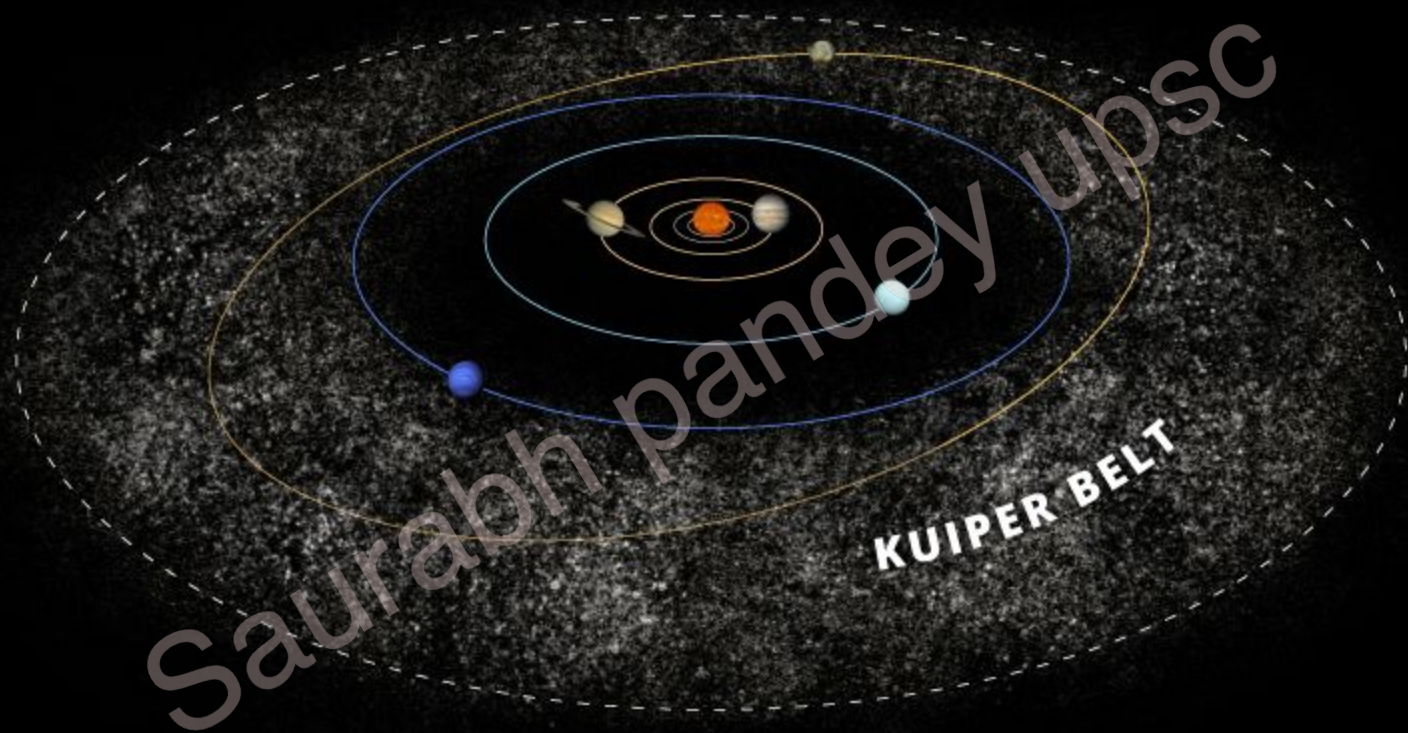
Helps understand the chemical composition and geological processes of Charon.

Provides clues about the solar system's origins and the Kuiper Belt.————

What is Kuiper Belt??

The Kuiper Belt is a doughnut-shaped region of icy bodies extending far beyond the orbit of Neptune.

It is home to Pluto and Arrokoth. Both worlds were visited by NASA's New Horizons spacecraft.



Sunset for the U.K.'s coal-fired power, lessons for India



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@SAURABHPANDEY

The shuttering of Britain's last coal-fired power plant, in Nottinghamshire, is a milestone and indicates the hastening of an ongoing paradigm shift in energy production globally. But this has by no means been a frictionless transition, as it has been portrayed in much of the press. There have also been calls to replicate the United Kingdom's coal phase-out globally. While Britain's experiment could hold good for a few developed economies, a far more tailor-made approach would be required for developing and least-developed nations.

Britain's coal phaseout must also not be viewed as beginning with its 2015 Paris pledge to bring down unabated coal-fired power to zero by 2025. It must largely begin with the disastrous Great Smog of London of 1952, leading to the enactment of environmental legislation such as the 1956 Clean Air Act and other protracted processes over a 70-year period, which included geo-political, environmental, economic and social pressures. The discovery of natural gas in the North Sea in 1965 and the desire to move away from coal imports from the Soviet Union at the height of the Cold War, as depleting domestic reserves made mining uneconomical, thereby jacking up costs of coal-fired energy production, collectively hastened the transition away from coal, which began almost 60 years ago. The subsequent forced closures of about 20 mines in the mid-1980s by the Margaret Thatcher government, despite a year-long miners' protest, led to blight and inter-generational poverty that some parts of the erstwhile coal-reliant regions of the U.K. continue to face. This is not to undermine the urgency with which nations must work toward drastically reducing their carbon emissions over the next two decades, but to appreciate and emphasise the vastly different trajectories and plans required to reach this goal.

Let us consider comparing India with the U.K.'s trajectory to achieving net zero emissions. At the 2021 Glasgow COP, India and China stood out seeking an amendment to the final declaration and having the phrase 'phasing down' and not 'phasing out' of coal introduced. India pledged to achieve net zero emissions by 2070 and meet half its energy needs from renewables by 2050.

Cumulative emissions

India is the third largest carbon emitter, behind the United States and China, emitting about 2.9 gigatons in 2023, far ahead of the U.K.'s 384 million metric tonnes in the same year. But India's population is over 20 times that of the U.K. Moreover, India's per capita emissions were at 2 tonnes in 2023, less than half the global average of 4.6 tonnes and almost a third of the U.K.'s 5.5 tonnes in the same year.

An analysis by Carbon Brief that considered historical emissions of nations between 1850 and 2024 (till the closure of the Nottinghamshire plant), took into account their carbon footprint as colonial powers. This put the U.K. at fourth place, with emissions touching 10.4 billion tonnes,



Kunal Shankar

which Carbon Brief said was 'more than most countries ever produced from all sources'.

Britain built the earliest known public coal-fired power plant in 1882 in the heart of London near Fleet Street. Coal became the mainstay in Britain, powering homes, industries and businesses for well over half a century until the mid 1960s. Coal employment peaked in 1920, employing 1.2 million miners at about 3,000 mines nationwide. About a 100 small coal-fired power plants dotted the landscape at this time, supplying power to nearby towns and industrial areas. And, Britain dominated coal exports in the early 20th century accounting for 30% of global exports in 1913. The U.K.'s peak thermal power consumption was in the 1950s and 1960s, when 90% of energy was generated by coal, before steadily shifting to natural gas, nuclear and, more recently, wind and solar.

India's coal story

India's first coal mine, the Raniganj coalfield, straddles present-day West Bengal and Jharkhand. While it was established as early as in 1774 by the British East India Company (and this is why historical CO₂ emissions matter), this led to large-scale coal extraction from much of India's eastern and central States of Jharkhand, West Bengal, Odisha, Chhattisgarh and Madhya Pradesh. India's first coal-fired power plant was the Hussain Sagar Thermal Power Station, established in 1920 in Hyderabad, during the Nizam's rule. It powered the twin cities of Hyderabad and Secunderabad well into the early 1980s. But it was not until 1956, when the Trombay power station near Mumbai was commissioned, that thermal power was truly heralded as India's mainstay. Moreover, the average age of India's coal-fired power plants is about 12 years, meaning they have a few decades before they could be decommissioned. While India has exported coal to neighbouring Myanmar and Sri Lanka, it has largely used its reserves for domestic power production. Of late, it has even been importing coal as power demand has been steadily rising.

India is yet to reach its peak coal production and consumption, which is expected between the years 2030-35, about 80 years since Britain reached this spot. About 70% of its energy output is currently from coal, accounting for 218 GW of installed capacity. It has more than 350 operational mines and about 120 new ones have been planned. A study by Global Energy Monitor

estimates that these mines provide direct employment to almost 3,40,000 miners. This is likely an under-estimation as many from the agriculture sector are seasonal workers at mines. A Council on Energy, Environment and Water (CEEW) study estimates that India's thermal power plants employ about 4,00,000, people, again a likely under-estimation as informal employment at thermal power plants is high. This means that at its peak, about 10 years from now, the coal sector is likely to provide employment to well over a million people, which is about how

many miners alone worked in Britain more than a century ago.

Moreover, Britain's per capita energy consumption was almost three times India's in 2022, and this is despite the Russia-Ukraine war-induced energy austerity, and even as the world was at the tail end of the COVID-19 pandemic.

Having made the case that a direct comparison on coal phase-out between the two countries cannot be made, there are lessons that India could learn from the U.K.'s transition particularly in the past decade, and also ensure it does not make the mistakes Britain made in the 1980s and 1990s.

Britain's transition

After committing to phasing out coal by 2025, when Britain had already reduced its use to a fifth of its energy needs, it pursued a holistic transition of not just the workforce of the sector but also the regions and communities that depended on it. Retraining programmes focused on sectors that required skills similar to those in coal mining and power generation such as engineering, heavy machinery operation and maintenance. This was mixed with early retirement and redundancy payments; new education and apprenticeship programmes, and community and regional redevelopment of historically coal-dependent regions, or impetus to set up new industries in their place. The sighting of renewable energy projects, particularly offshore wind farms close to major coal producing regions such as the North Sea off Yorkshire, and repurposing the existing grid infrastructure to transmit wind energy along with remodelling old coal-fired power plants for other forms of energy generation such as biomass in Drax, have helped alleviate some of the fears of job loss and economic slowdown. This is not to say concerns do not remain, but the gradual decline in coal, with growing awareness about climate change, and transparent, fixed timelines to transition, enabled Britain's coal phase-out. Outliers remain, like the protests at the now shuttered Talbot steel plant as the Tata-owned facility attempts to shift from coking coal to electric furnaces, but this might likely be a temporary closure.

While India has set itself a sufficient timeline of 45 more years to attain net zero emissions, there has already been a steady and impressive growth in renewables capacity. But coal-fired energy use also has risen, and the country must begin working on fixing timelines on plant decommissioning, regional redevelopment programmes, and retraining of miners and power plant workforces, bearing in mind that India's historically coal-dependent regions are some of the poorest in the country, and have workers who have largely transitioned from agriculture to mining. Only a holistic, transparent, and early forward planning approach, would hasten a transition that is inclusive and just.

India could learn from the U.K.'s transition, ensuring that it does not make the mistakes Britain made

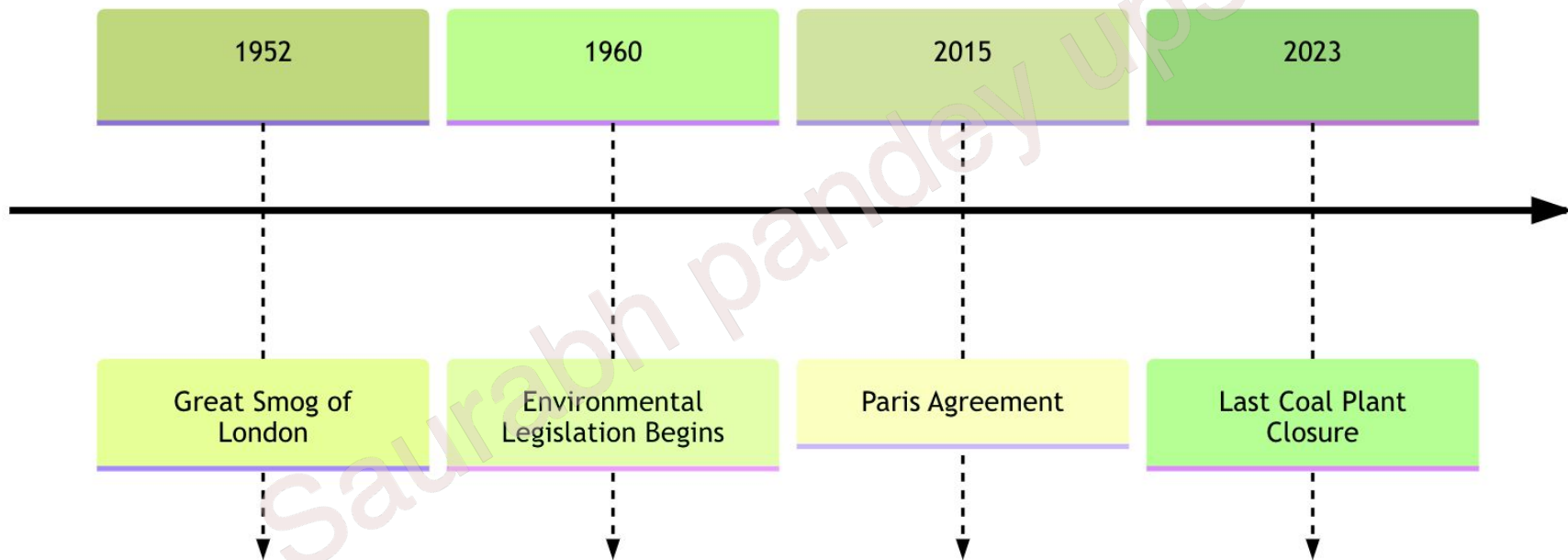
Topic->> Energy Transition: Lessons from the UK's Coal Phase-Out

Britain's Shift from Coal

The closure of the last coal-fired power plant in Britain marks a significant shift in global energy production.

This transition highlights the complexities of moving away from coal.

Britain's Coal Phase-Out



Calls for a global replication of the UK's coal phase-out must consider the unique needs of developing nations.

Tailored approaches are necessary for these countries.

Historical Context

The UK's journey began before the 2015 Paris Agreement, rooted in events like the Great Smog of London in 1952.

Subsequent environmental legislation played a crucial role.

India's Path to Net Zero

India, the third-largest carbon emitter, aims for net zero emissions by 2070.

The country's reliance on coal contrasts with the UK's historical trajectory.—

Comparison Chart:

Country	Net Zero Target	Coal Dependency
UK	Achieved	Low
India	2070	High

Historical Emissions Analysis

The UK has a substantial carbon footprint due to its colonial past. Emissions total 10.4 billion tonnes since 1850.

Transition Strategies

The UK's transition involved retraining programs and community redevelopment.

These are lessons India could adopt for a just transition in coal-dependent regions.

Future of India's Coal Sector ⚡



- India's coal sector is expected to peak in production and consumption between 2030-35.
- A significant workforce remains reliant on coal mining and power generation.
- Historical data on UK's emissions
- India's energy policies and targets
- Global energy transition reports

Summary: The closure of Britain's last coal-fired power plant signifies a complex transition in energy production, offering valuable lessons for India as it navigates its own coal reliance and aims for net zero emissions by 2070.

Topic→>Indian Textile and Apparel Sector: A Vision for 2030



Growth Target

Objective: Achieve a total business of \$350 billion annually by 2030.

Job Creation: Generate 3.5 crore jobs in the sector.



Current Market Size

Valuation: Industry valued at \$153 billion in 2021.

Domestic Business: Contributed \$110 billion.

Global Share: Holds a 5.4% share in global textile exports.



Employment Impact

Workforce: Employs approximately 105 million people, both directly and indirectly.



Export Challenges

Issues: Geopolitical tensions, high raw material prices, and a 10% import duty on cotton.

Competitiveness: These factors have led to a decline in export competitiveness.



Manufacturing Decline

Tamil Nadu: Closure of nearly 500 textile mills.

Tiruppur: Experienced a 40% drop in business in FY23.



E-commerce Shift

Adaptation: Industry is moving towards direct retailing through e-commerce.

Focus: Increasing emphasis on sustainability and comfort wear.



Investment Needs

Requirement: A \$100 billion investment needed by 2030.

Purpose: Enhance production capacities and meet growth targets.

Summary

The Indian textile industry is targeting substantial growth by 2030, aiming to overcome challenges such as export declines, high raw material costs, and a shift towards e-commerce and sustainability.

Growth and Challenges Overview:



— Topic→ Global Digital Compact (GDC) Overview



Definition: Non-binding diplomatic instrument for digital technology governance.

Goal: Harness and regulate digital technologies for the common good.

Background: Builds on previous UN compacts focusing on sustainability and migration.

Key Components

Collaborative Project: Emphasizes human oversight and global cooperation.

Panels Established:

Independent International Scientific Panel on AI.
Global Dialogue on AI Governance.

Goals of the GDC

Close Digital Divide: Inclusive participation in the digital economy.

Access to Data: Improve data accessibility and governance.

Digital Public Goods: Promote open-source software, open data, and AI models.

Challenges and Concerns



Openness in Partnerships: Limited by contractual obligations.

Self-Regulation of Tech Companies: Ineffectiveness of self-regulation.

Data Governance Risks: Potential for abuse without strong privacy laws.

Corporate Power: Increased influence of corporations over governance.

UN's Role and Challenges

Wishful Statements: Simplistic views on complex issues.

Data as Oil: Acknowledgment of data's value and implications for governance.

SDGs Alignment: Linking digital goals with Sustainable Development Goals.

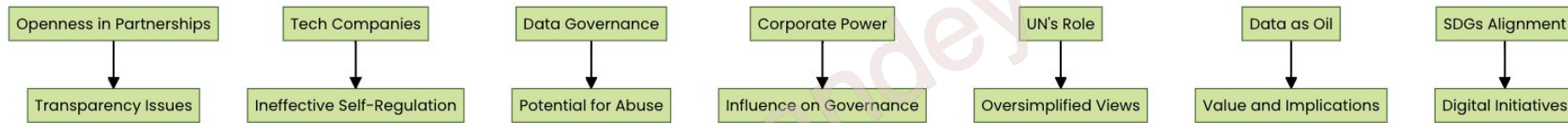
Conclusion

Complex Global Governance: Requires collaboration beyond singular entities.

Capacity Building: Potential for significant outcomes with serious commitment from member states.



Conceptual Overview:



One-liner Summary

The text explores the challenges of governance in the digital era, focusing on corporate influence, data governance, and the necessity for international collaboration.

Surviving scarcity



A drone view shows goats eating from a pile of discarded vegetables delivered by an NGO in Chile to farm animals in water-scarce areas, at 'El Alfalfal' zone, on the outskirts of Santiago. REUTERS

Overview

El Alfalfal: A prominent agricultural area focused on alfalfa farming.

Climate Impact: Hotter weather and drought conditions affecting irrigation and crop yield.

Water Usage: Significant water consumption for alfalfa production, raising sustainability concerns.

Key Themes

Farming Techniques: Innovations in irrigation and crop management.

Economic Factors: The impact of water scarcity on local economies.

Environmental Concerns: Sustainability of alfalfa farming amid climate change.

— **Alfalfa (*Medicago sativa*), also called lucerne, is a perennial flowering plant in the legume family Fabaceae. It is cultivated as an important forage crop in many countries around the world**



The United States and Argentina are the world's largest alfalfa-producing countries, but significant land area is devoted to alfalfa in Australia, South and North Africa, Southern Europe, Chile, Mexico, Canada, China, and the Middle East.

Topic-- > Ocean24 Strategic Exercise



Overview

Definition: A joint military exercise involving naval and air forces from Russia and China.

Purpose: To enhance military cooperation and challenge US influence in the Pacific region.

Key Components

Participants:

Russia

China

Types of Exercises:

Naval Drills: In the Sea of Japan and other strategic locations. _____

Air Exercises: Joint operations involving air forces.

Objectives

Military Readiness: Improve coordination and readiness of forces.

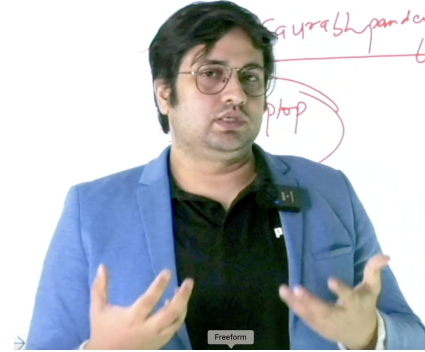
Strategic Positioning: Strengthen presence in the Pacific to counterbalance US-led coalitions.

Political Messaging: Showcase strength and unity between Russia and China.

Topics - MINDS MAPS included (Daily current affairs) -- 11th October 2024



- Nobel Prize in Literature
- Bonedi Bari Pooja
- Tele MANAS
- Chagos Islands: A Historical and Cultural Overview
- Hybernemia
- World Development Report 2024:
- OpenSAFELY:
- Barra da Tijuca Beach
- Mains



By saurabh Pandey



THE HINDU

Topic → Nobel Prize in Literature



The 2024 Nobel Prize in Literature has been awarded to South Korean writer Han Kang for her impactful poetic prose.



This marks a shift from recent Eurocentric winners, highlighting a broader recognition of global literary voices.




Han Kang is celebrated for her innovative contemporary prose, addressing themes of historical trauma and the fragility of human life.




Her works often explore women's struggles against patriarchy, violence, and grief, as well as historical injustices.



Her breakthrough novel, "The Vegetarian," was first published in Korean in 2007 and translated into English in 2015, winning the Man Booker International Prize in 2016.

 "The Vegetarian" tells the story of Yeong-hye, a woman whose decision to stop eating meat leads to violent family reactions, reflecting themes of independence and obsession.

 The narrative has drawn comparisons to Kafka's nightmarish storytelling style, emphasizing its psychological depth.

Summary: Han Kang, a South Korean author, has won the 2024 Nobel Prize in Literature for her profound and innovative writing that tackles complex themes of trauma and human experience.

Topic→ Bonedi Bari Pooja

Cultural Significance 🎉

Represents traditional Bengali heritage

Spiritual observance for Durga Puja

Historical Context 🏛️

Originated in Kolkata's heritage homes


Celebrated by prominent families (Bonedi Baris)

Modern Celebrations 🌿

Blends tradition with contemporary themes

Engages local communities

Topic → Tele MANAS

 **Tele MANAS Service: The Tele Mental Health Assistance and Networking Across States (**Tele MANAS**) program**, initiated in 2022, will soon include Lakshadweep and Puducherry, providing a 24x7 telemental health facility.

Summary: The Tele MANAS program is expanding to include Lakshadweep and Puducherry, providing essential mental health support with a focus on common issues like sleep disturbances and anxiety.

—Topic→ Chagos Islands: A Historical and Cultural Overview



Chagos Islands Overview

The Chagos Islands consist of seven atolls.

Peros Banhos is the northernmost atoll, located 300 miles from the Maldives' Addu Atoll.



Historical Claim

A letter from a Maldives Sultan in 1560 indicates that Peros Banhos Atoll was recognized as belonging to the Sultan of Maldives.



Geographical Connection

The Chagos Islands and the Maldives share historical ties. Navigational routes link them to the Malay Peninsula.



Navigation History



Arab navigator Ahmad Ibn Majid documented routes from FoaLhavahi to FoaMulak, connecting the Maldives to the Malay Peninsula.



Royal Heritage

French traveler Vincent le Blanc recounted a story of FoaLhavahi being ruled by the King of Achen in Sumatra.
Historical ties to the Maldives' FoaMulak.



Colonial Influence

The Chagos Islands were uninhabited until the late 1700s.
Slaves from Zanzibar were brought to populate them.

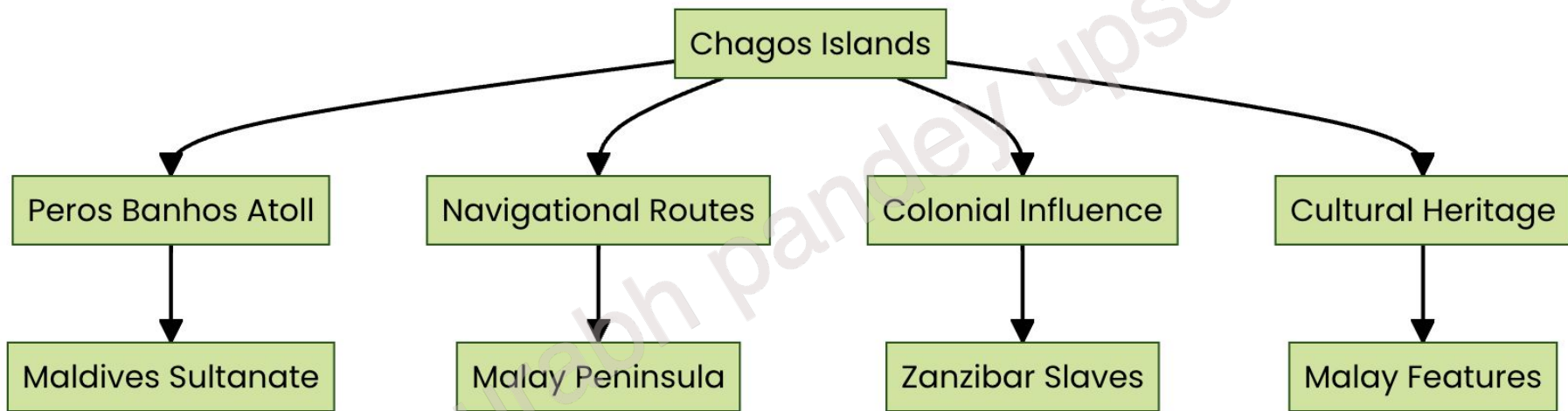
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Cultural Influence


Many inhabitants of the Maldives Atoll of FoaMulak exhibit Malay features and heritage.


Reflects the islands' historical connections





-  **African Influence:** The Maldives experienced a notable African presence due to the sultans bringing slaves from Africa, significantly impacting the population in Male by the mid-1800s.


 **Chagos Sovereignty:** The control of the Chagos islands was shaped by British-French conflicts, with the islands remaining under UK jurisdiction by 1965.

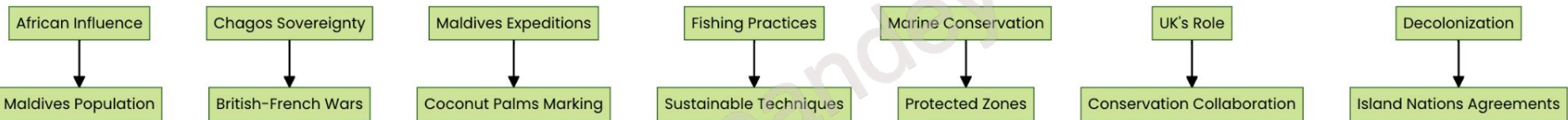
 **Maldives Expeditions:** In the late 1930s, expeditions led by Ahmed Naseem's father were sent by the Sultan of the Maldives to the Chagos islands to mark coconut palms.

 **Fishing Practices:** The Maldives has a history of using the Peros Banhos Atoll for fishing, focusing on sustainable methods that reduce bycatch.

 **Marine Conservation Concerns:** The Indian Ocean faces rapid depletion of fish stocks due to industrial fishing, with the Maldives and Chagos being the only fully protected areas.

 **UK's Role in Conservation:** The UK is praised for its efforts in protecting Chagos and is encouraged to work with the Maldives for continued conservation.

 **Decolonization Lessons:** Decolonization should involve agreements among Indian Ocean island nations to preserve the protected status of the Chagos archipelago.



Summary: This content highlights the historical African influence in the Maldives, the geopolitical dynamics of the Chagos islands, sustainable fishing practices, and the critical role of marine conservation in the Indian Ocean.

Topic → Hypernatremia

Overview of Hypernatremia

Definition: Elevated sodium levels in the blood.

Causes:

- Dehydration

- Excessive sodium intake

- Diabetes insipidus

Encephalopathy: A broad term for brain dysfunction, typically manifesting as altered mental status.

Systemic Inflammatory Response Syndrome (SIRS): A systemic inflammatory state affecting the whole body, often in response to infection or trauma.

Key Concepts

Pathophysiology: Understanding the underlying mechanisms of both conditions.

Diagnosis: Identifying symptoms and diagnostic tests.

Treatment Options: Current medical interventions and therapies.

Research Trends: Latest studies and findings.

— Topic → World Development Report 2024: Overcoming the Middle-Income Trap



Key Insights from the Report




Middle-Income Trap: The report highlights the challenge of the "middle-income trap," where economic growth slows as countries' incomes rise, particularly when per capita income reaches 11% of that of the U.S.





Stagnation Statistics: Over the past 34 years, only 34 middle-income economies have successfully transitioned to higher income levels, defined by per capita incomes between \$1,136 and \$13,845.




3i Approach: The "3i" approach—investment, infusion of global technologies, and innovation—is emphasized as crucial for escaping the—middle-income trap.

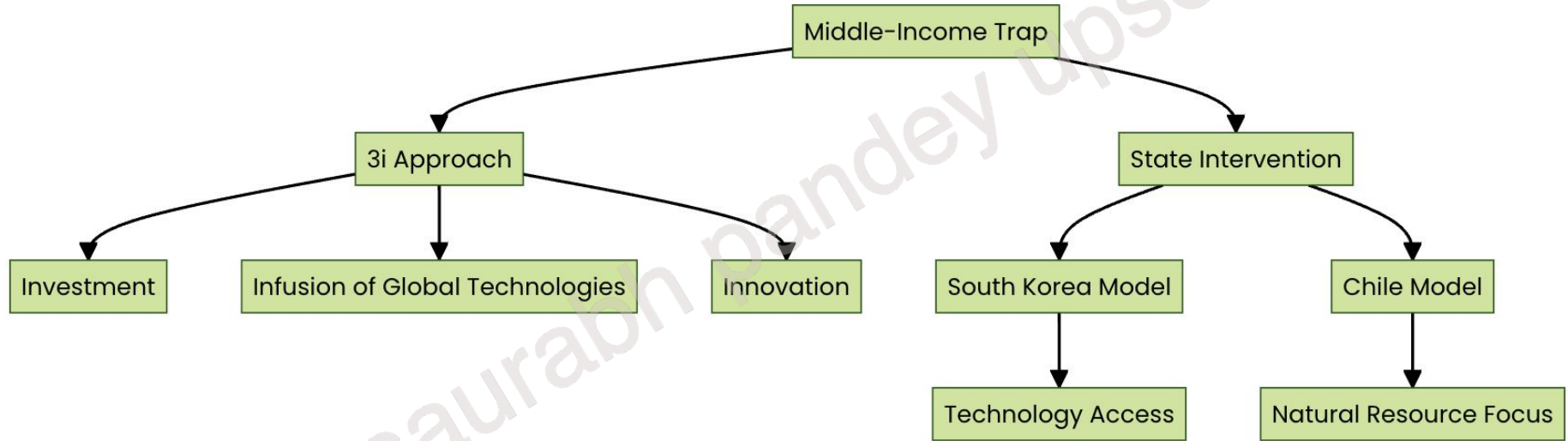
-  **Role of the State:** Successful economic transitions often involve significant state intervention, as demonstrated by countries like South Korea and Chile, where governments have directed private sector activities and supported key industries.

 **South Korea's Model:** South Korea's state intervention model rewarded successful companies with technology access while allowing underperforming firms to fail, fostering a disciplined economic environment.

 **Chile's Success:** Chile's strategic state intervention in natural resource sectors, such as the salmon industry, underscores the importance of government support in achieving economic growth.

 **Lessons for India:** The South Korean model suggests that India should adopt a neutral state role, ensuring benefits are performance-based and encouraging innovation among local businesses.

Strategic Approaches to Overcome the Middle-Income Trap:



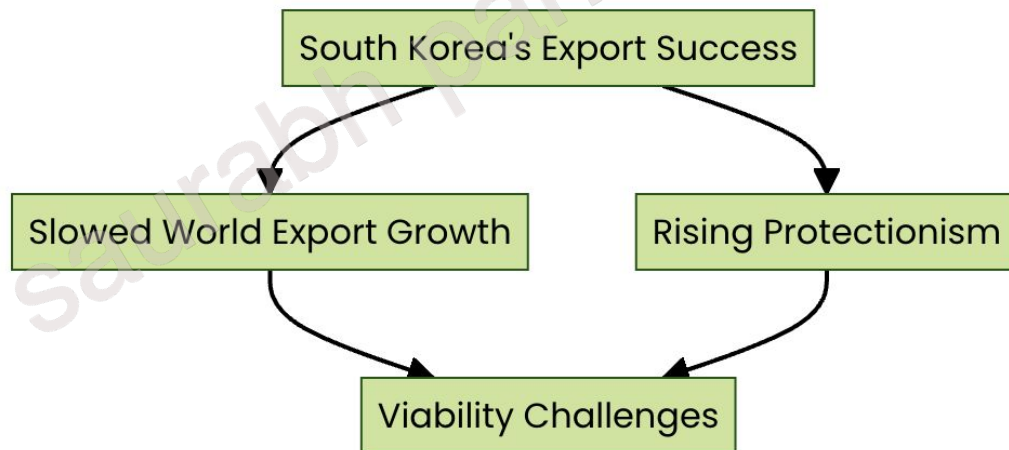
Economic Challenges and Global Shifts

Global Economic Shifts Deindustrialization Stagnation in India Wage Disparity Democracy vs. Growth
Billionaire Influence Economic Participation

Global Economic Shifts

- **South Korea's manufacturing export success** is no longer viable due to **slowed world export growth** and rising **protectionism**.

Global Economic Dynamics:





Deindustrialization 🏭

- Many countries, including **India**, are experiencing '**premature deindustrialization**', leading to a decline in manufacturing's income share at lower GDP levels.

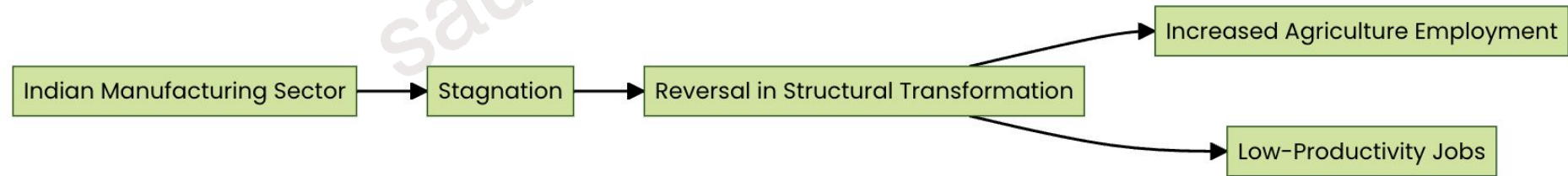
Deindustrialization Impact:



Stagnation in India 🏢

- The **Indian manufacturing sector** has stagnated, with a reversal in **structural transformation**.
- Resulting in increased employment in **agriculture** and **low-productivity jobs** post-pandemic.

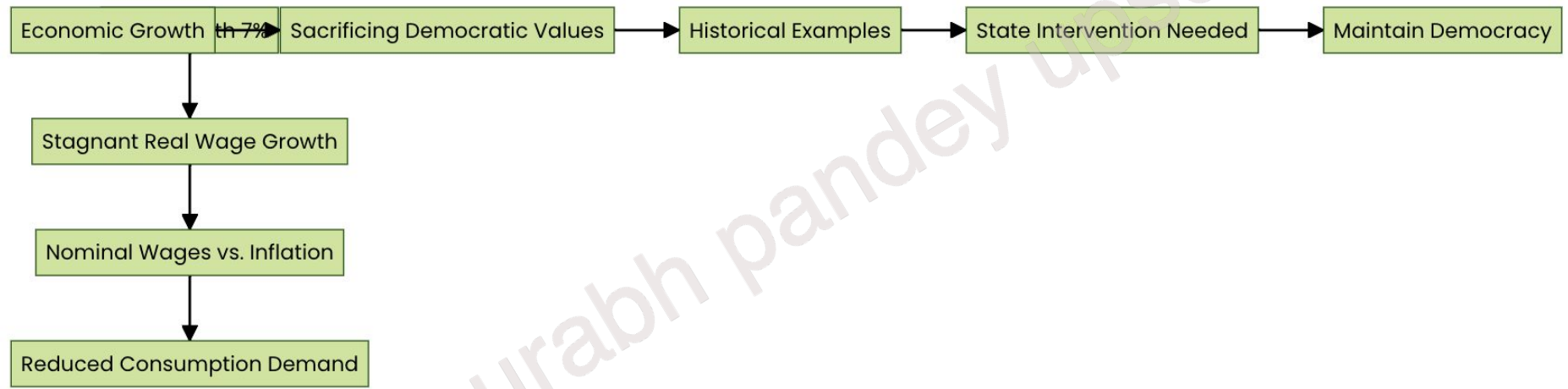
Stagnation in India:



Wage Disparity

- Despite a reported **GDP growth** of around 7%, **real wage growth** for workers has stagnated.
- **Nominal wages** fail to keep pace with **inflation**, leading to reduced **consumption demand**.

Wage Disparity Analysis:



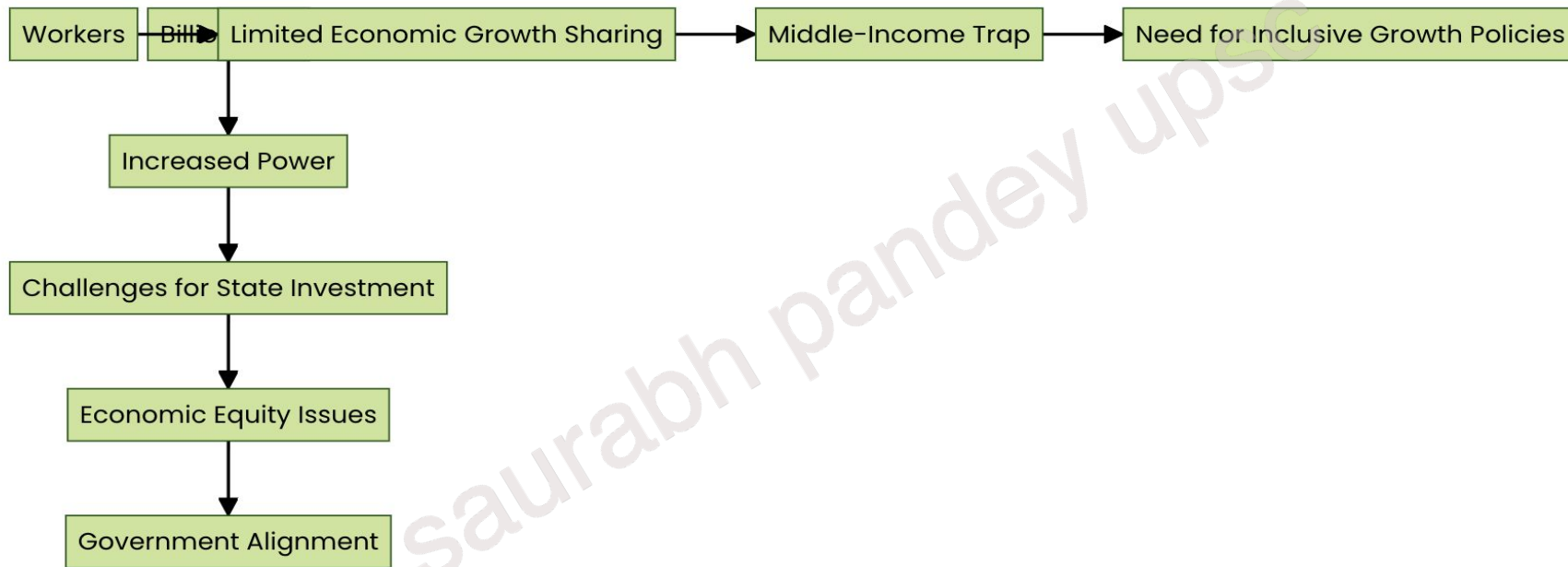
Democracy vs. Growth

- Historical examples from **South Korea** and **Chile** highlight the dangers of sacrificing **democratic values** for economic growth.
- Emphasizing the need for **state intervention** without compromising democracy.

Billionaire Influence 💰

- The increasing power of **billionaires** in India poses challenges for **state investment** and economic equity.
- They are perceived to be closely aligned with the **government**.

Billionaire Influence:




Economic Participation 🔄


- The inability of workers to share in **economic growth** hinders the potential to escape the **middle-income trap**.
- Necessitating policies that promote **inclusive growth**.


— Topic → OpenSAFELY: A Revolution in Health Data Access

Overview of OpenSAFELY

 **OpenSAFELY Platform:** Developed by Ben Goldacre's team, it provides access to health records of around 58 million people in the U.K., ensuring individual privacy.

NHS Health Records

 **Comprehensive Records:** The NHS maintains detailed health records for every British citizen from birth to death, with a history spanning over 70 years.

 **Digital Adoption:** Since 1996, 96% of doctors have been using electronic records.

Data Privacy and Security



Privacy Concerns: Past data leaks have reduced public trust in the NHS, emphasizing the need for secure data management.

Leadership and Innovation



Ben Goldacre's Contribution: As a professor at the University of Oxford and director of the Bennett Institute for Applied Data Science, Goldacre has been pivotal in health data research.

Functionality and Transparency




OpenSAFELY's Functionality: Researchers can submit queries using dummy data, ensuring patient privacy.



Research Transparency: All submitted code is publicly accessible, preventing unethical practices and ensuring consistent analysis.

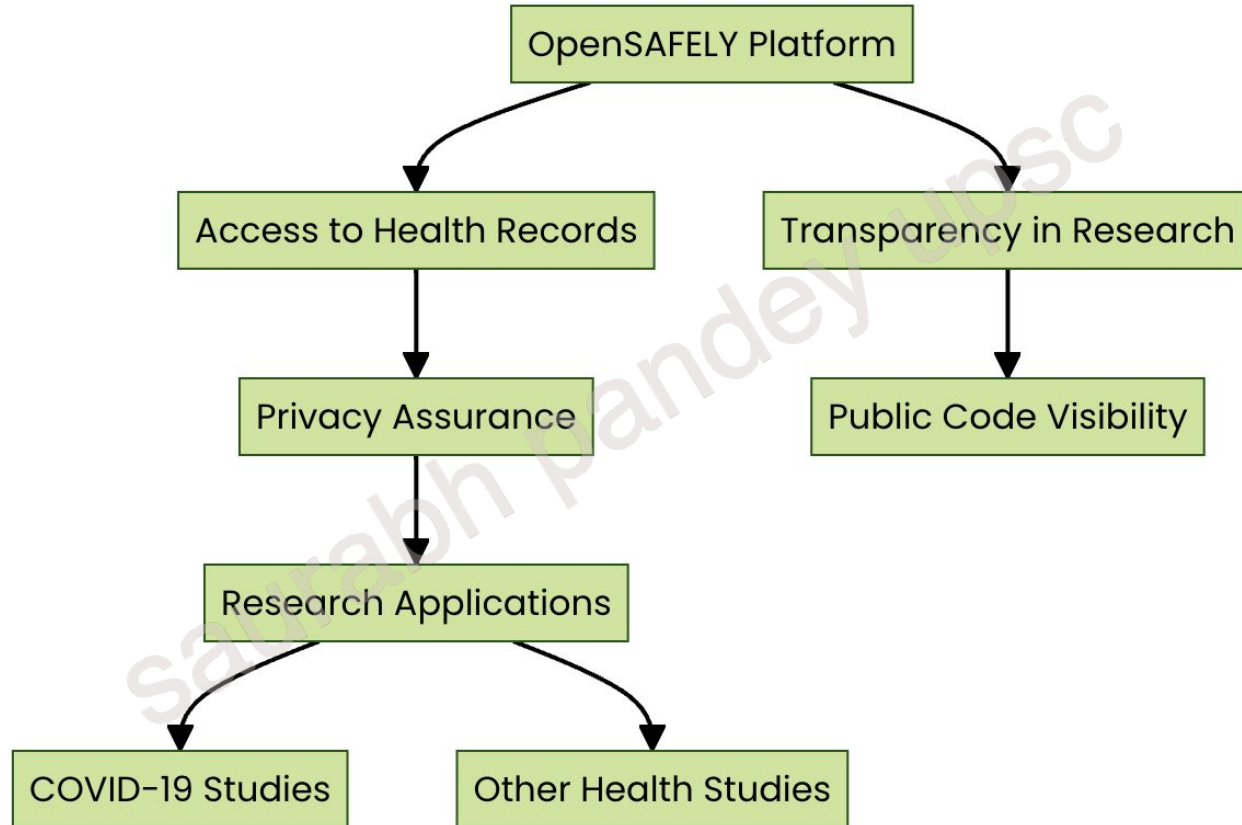
— Impact and Applications

 **Significant Research:** The platform has been instrumental in COVID-19 research and other health studies, showcasing its potential for large-scale data privacy and transparency.

Summary

OpenSAFELY is a pioneering platform that facilitates secure access to NHS health records for research, prioritizing privacy and transparency.

Conceptual Overview:





Mysterious death: A drone view shows workers removing the remains of a humpback whale from the Barra da Tijuca beach in Rio de Janeiro, Brazil on Wednesday. A team of biologists has been deployed to determine the cause of death, according to an official. REUTERS

— Mapping → Barra da Tijuca Beach in Rio de Janeiro



Overview

Location: Barra da Tijuca, Rio de Janeiro, Brazil

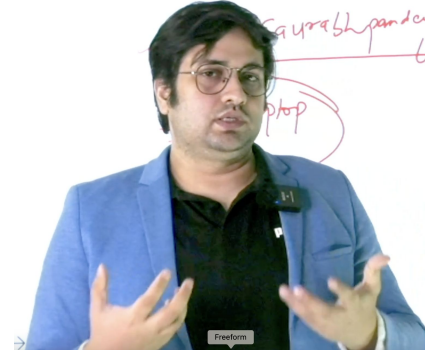
Features: Long sandy beach, vibrant nightlife, water sports, and restaurants

Attractions: Natural beauty, cultural experiences, and recreational activities

Topics - MINDS MAPS included (Daily current affairs) -- 11th October 2024



- **Banni Festival**
- **Aurora**
- **Precision Medicine:**
- **Monte Carlo**
- **Gold Mining in Ghana**
- **Quad Meeting**
- **Right to Information (RTI) Act:**
- **X-band Radar**



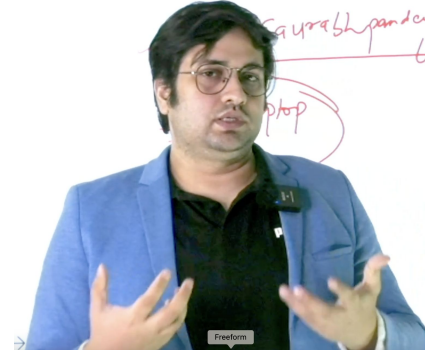
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Topics - MINDS MAPS included (Daily current affairs)-- 14th October 2024



- **NCP Symbol Dispute**
- **What are hurricanes?**
- **Bacteriophage**
- **Oropouche Virus (OROV)**
- **Antarctica WARMING**
- **Nobel Prize in Medicine: Discovery of MicroRNA**
- **Nobel Prize 2024: Celebrating Pioneers in Artificial Neural Networks**
- **Nobel Prize in Chemistry 2024: Advancements in Protein Research**
-



By saurabh Pandey



Overview

Cultural Significance: Traditional celebration in Kurnool, Andhra Pradesh.

Activities: Stick fighting, community gatherings, and rituals.



Topic → Aurora



Aurora Sightings: Recent auroral sightings in Ladakh featured reddish and greenish lights, validating space weather monitoring efforts.



Recent Events: The latest aurora appeared on October 10-11, following previous sightings in May and November 2023.



Monitoring Technology: All-sky cameras from the Indian Institute of Astrophysics in Bengaluru captured the auroras throughout the night.



Expert Validation: Dibyendu Nandi from CESSI stated that these sightings boost confidence in predicting extreme space weather events that could disrupt satellite services.



Solar Activity: The occurrence of auroras in lower-latitude regions like

- Ladakh indicates heightened solar activity, particularly from coronal mass ejections (CMEs).

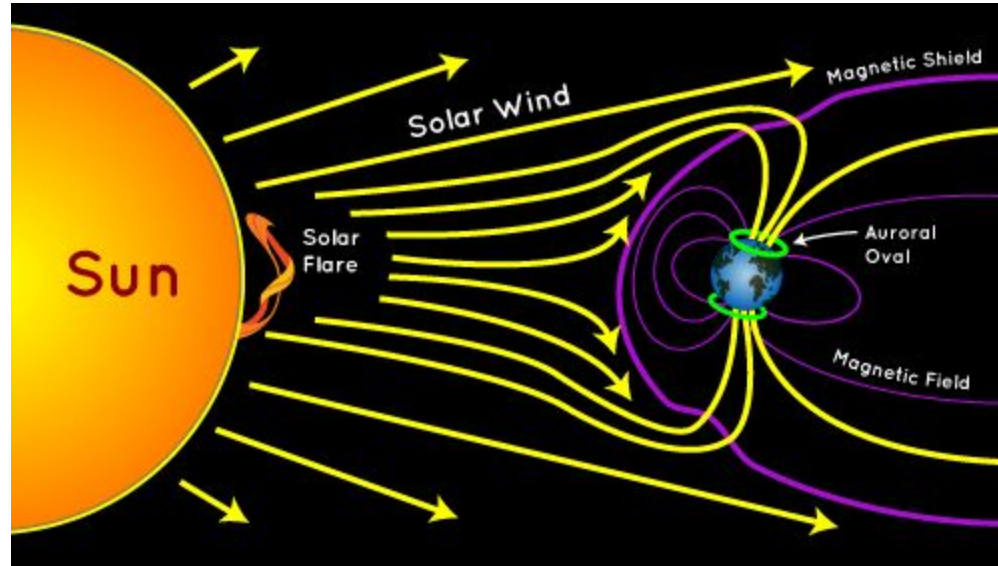


Solar Cycle: The sun's activity cycle, which affects aurora occurrences, typically lasts 11 years, with predictions indicating a peak in 2024.



Geographical Context: Auroras are typically seen in far-northern regions, near or within the Arctic Circle, making their appearance in Ladakh notable.

Summary: Recent auroral sightings in Ladakh validate space weather monitoring efforts and indicate heightened solar activity, with predictions of a peak solar cycle in 2024



Solar Phenomena and Auroras




Overview of Solar Activity


- ☀️ The Sun emits heat, light, and energy along with small particles.
- 🛡️ Earth's magnetic field acts as a shield, protecting us from most of the Sun's energy and particles.
- 🌀 Solar activity includes a constant solar wind and occasional solar storms like coronal mass ejections.

Coronal Mass Ejections and Their Impact

- 🌌 Coronal mass ejections release large bubbles of electrified gas traveling at high speeds through space.
 - 🌈 When these solar storms reach Earth, particles can enter the atmosphere at the poles, creating stunning auroras.
-

Auroras Across the Solar System

 Auroras are not exclusive to Earth; they can occur on any planet with an atmosphere and magnetic field, such as Jupiter and Saturn.

 Different gases in Earth's atmosphere produce various colors in auroras: oxygen emits green and red, while nitrogen glows blue and purple.

Summary

The Sun's energy and particles, influenced by solar storms, create beautiful auroras on Earth and other planets with atmospheres and magnetic fields.

Topic→ Precision Medicine: A New Era of Personalized Healthcare



Overview

Precision Medicine: Tailoring medical treatment to individual characteristics.

Key Technologies: Genomics, gene editing, mRNA therapeutics.

Importance of the Human Genome Project

Laid the foundation for genomics.

Enabled targeted diagnosis and treatment.

Role of Genomics

Major impact on:

Cancers 🧡

Chronic diseases

Immunological disorders

Cardiovascular diseases ❤️

Emerging Technologies



Gene Editing: Corrects genetic mutations.

mRNA Therapeutics: Used in rapid vaccine development.

Success Stories

Gene Therapy: Restoring vision via genetic mutation correction.

Stem Cell Transplantation: Reversing diabetes in individuals.

Recent Advances

COVID-19 Vaccines: Developed rapidly using mRNA technology, awarded Nobel Prize 🏆.

Organ-on-Chips Technology

Microfluidic Devices: Mimic human organs for drug testing.

Benefits: More accurate predictions of drug efficacy.



Definition of Biobank: A biobank is a repository for biological samples (blood, DNA, cells, tissues, organs) and their genetic data, collected from consenting individuals for research purposes.



Importance of Diversity: For precision medicine to be effective, biobanks must be large and diverse to ensure benefits extend beyond a small section of society.



Recent Research Findings: Researchers recently identified individuals with an undiagnosed rare genetic disorder using biobank data, comparing it to diagnosed cases, with findings published in *Nature Communications* on August 29



Role in Precision Medicine: Biobanks play a crucial role in advancing precision medicine by providing essential data for research and therapy development.

Topic→ Monte Carlo



Definition: The Monte Carlo method is an algorithm that estimates distributions by repeatedly sampling elements randomly.



Example: In a bag with marbles of different colors, repeatedly drawing and recording colors helps estimate their distribution.



Repetition: The accuracy of the Monte Carlo method improves with the number of samples taken.



Computational Power: Monte Carlo methods can handle complex samples, like those from the Large Hadron Collider, using significant computing power but allowing parallel processing.



Applications: This method is used in various fields, including aerodynamics, power plant design, quantum mechanics, engineering, computer graphics, AI, and finance.



Origin: The method is named after a casino in Monaco, inspired by physicist Stanislaw Ulam's uncle's gambling habits.






Advantage: The main advantage of Monte Carlo methods is their ability to estimate probabilities in complex scenarios where traditional methods are impractical.

Summary: The Monte Carlo method is a versatile algorithm for estimating distributions through repeated random sampling, with applications across various scientific and engineering fields.



An artisanal miner searches for gold using a metal detector at an illegal mining site in the Prestea-Huni Valley Municipal District, Western Region, Ghana, in August this year. Hundreds of people marched through Ghana's capital, Accra, on Friday in a peaceful protest against unlicensed gold mining, known locally as "galamsey," calling on authorities to act against the dangerous and environmentally damaging practice. REUTERS

Topic→Gold Mining in Ghana

- Ghana is Africa's largest gold producer 
 - Significant contributor to the country's economy 
 - Challenges include illegal mining and environmental issues 
 - unlicensed gold mining, known locally as "galamsey,
-

Topic→Quad Meeting and Geopolitical Dynamics



Prime Minister Modi's Visit

Event: In September 2023, PM Narendra Modi participated in a crucial Quad meeting in the U.S.

Participants: Australia, India, Japan, and the U.S.

Wilmington Declaration

Outcome: The Quad nations released the 'Wilmington Declaration'.

Purpose: Implicitly aimed at containing China's influence in the Indo-Pacific region.

Deteriorating India-China Relations

Current Status: Relations between India and China are worsening.

Conflict Zones: Ongoing stalemates in border regions like Galwan and increased tensions in Ladakh.

Military Preparedness



India's Actions: Enhancing military capabilities along the China-India border.

Upgrades: Induction of long-range firearms, heavy artillery, and advanced munitions.

China's Confidence

Defense Budget: China remains confident due to its larger defense budget.

Strategic Response: Likely to respond strategically to India's alliances.

Need for Vigilance


India's Strategy: Leaders must remain cautious and observant of China's reactions.


China's Tactics: Known for unpredictable strategies.


Geopolitical Implications


Regional Security: The Quad's actions and India's military enhancements indicate a shift in regional security dynamics.

China's Assertiveness: Particularly concerning China's assertive behavior.

 **Cautious Diplomacy:** India should approach its relations with China and Quad partners carefully to avoid provoking China.

 **Xi Jinping's Nationalism:** Xi Jinping has signaled a shift towards aggressive nationalism in China, contrasting with previous leadership under Deng Xiaoping.

 **Border Claims:** China has longstanding territorial claims over parts of India, but these are not viewed as existential threats by China.

 **Quad Concerns:** China's perception of India's involvement in the Quad as a U.S.-led coalition heightens its sense of threat, more so than border skirmishes.



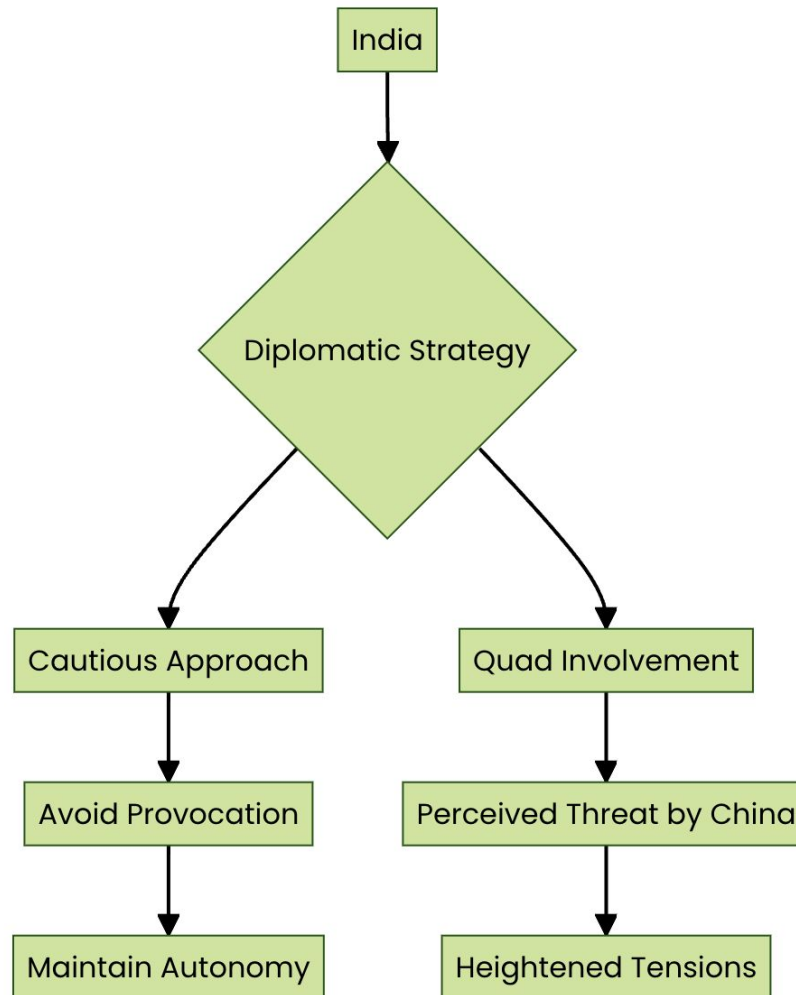
Strategic Nuance: India's strategic community has historically understood and navigated China's complex psyche, but recent shifts may be misinterpreted by China.



Avoiding Misinterpretation: India must avoid sending signals that could be construed as alignment with the West against China to prevent escalating tensions.



Future Relations: India's future should not hinge on countering China's ambitions or supporting U.S. strategies against it.



Topic→Right to Information (RTI) Act: Challenges and Impact



Empowering Legislation



The Right to Information (RTI) Act, enacted in 2005, empowers Indian citizens to hold the government accountable and expose corruption.


Backlog Crisis




Defunct Information Commissions: Many commissions are either non-functional or understaffed.

Over 4 lakh pending appeals and complaints across India.


— **Lack of Accountability** ---

 Impunity Culture: Despite potential penalties, 95% of cases are not acted upon, fostering impunity among information officers.

Supreme Court Intervention


 Highlighting Vacancies: The Supreme Court notes that unfilled vacancies undermine the RTI Act's effectiveness, making it nearly useless.

Regressive Amendments

 Weakened Autonomy: Recent amendments have reduced the autonomy of information commissions.

Expanded Exemptions: More personal information is now exempt, limiting access.

Threats to RTI Users

 **Safety Concerns:** Nearly 100 RTI users have been killed, with many facing threats and false accusations, as per Transparency International India.

Impact on Democracy



Redistributing Power: The RTI Act enhances democratic engagement.
Erosion Threat: Its weakening poses a significant threat to democracy in India.

Summary: The RTI Act, while empowering citizens, faces severe challenges due to backlogs, lack of accountability, regressive amendments, and threats to users, jeopardizing its role in democracy.

Topic→ X-band Radar Installation in Wayanad, Kerala



Overview of Recent Events



Devastating Floods and Landslides: In July 2024, Kerala's Wayanad district experienced severe floods and landslides, resulting in over 200 fatalities.



X-band Radar Installation: The Union Ministry of Earth Sciences has approved the installation of an X-band radar in Wayanad to enhance environmental monitoring.

Radar Functionality

Definition: Radar stands for 'radio detection and ranging.'

Purpose: Utilizes radio waves to measure distance, velocity, and characteristics of objects.



Weather Radar

Type: Doppler radar is commonly used in meteorology.

Function: Tracks cloud movement and predicts weather patterns.

Doppler Effect

Description: Change in frequency of waves as the source moves relative to the observer.

Importance: Crucial for determining cloud speed and direction.

Pulse-Doppler Radar

Measurement: Measures rainfall intensity.

Method: Emits pulses and analyzes the frequency of their reflections.



X-Band Radar

Frequency: Operates at 8-12 GHz.

Capability: High-resolution imaging of smaller particles like rain droplets.

Limitation: Shorter range due to higher frequency.



Application in Wayanad

Purpose: Monitors soil particle movements for landslide warnings.

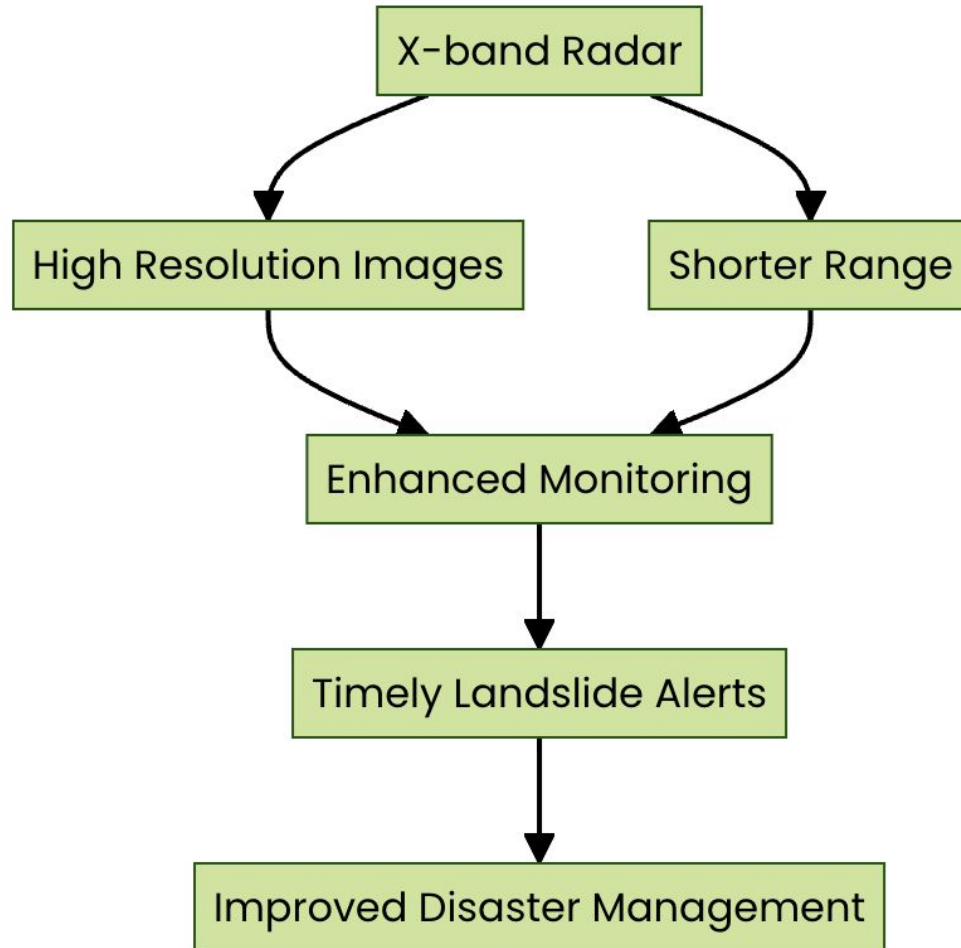
Feature: Samples rapidly for real-time data.

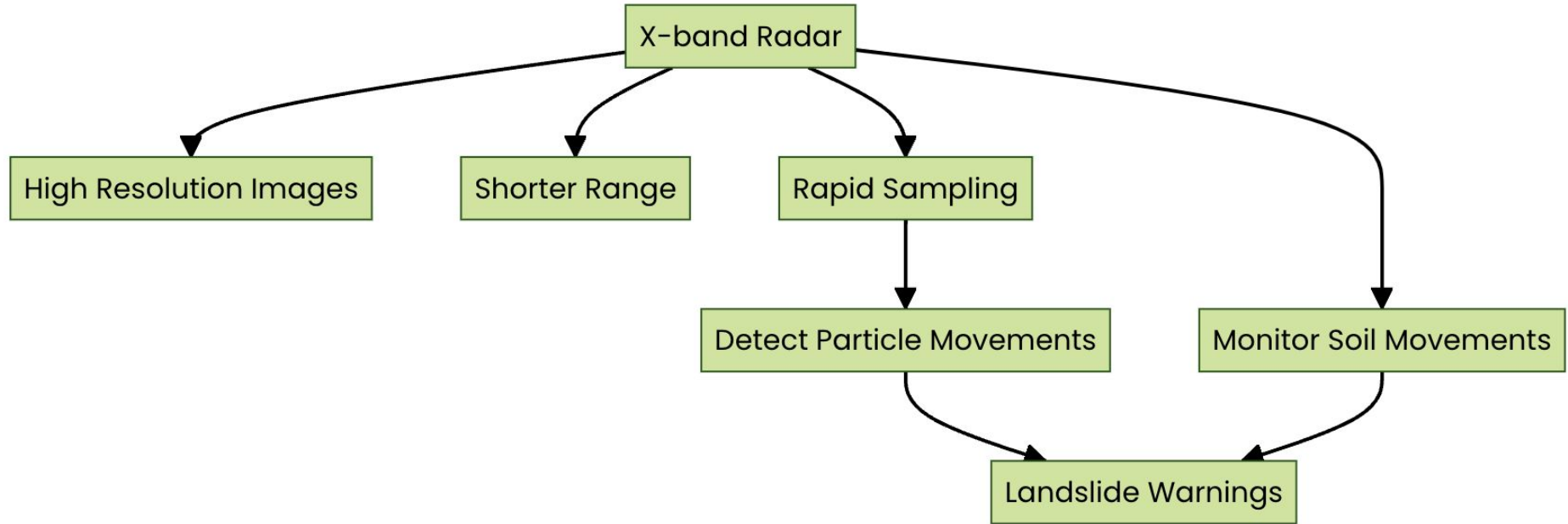


High Temporal Sampling

Advantage: Enables detection of quick changes in particle movements.

Summary: Radar technology, particularly Doppler and X-band radars, is essential for weather monitoring and environmental safety, with applications like landslide warnings in Wayanad.







India's Radar History: The India Meteorological Department (IMD) began using radar for weather applications in the early 1950s, with the first X-band radar installed in 1970.




Radar Upgrades: In 1996, IMD replaced 10 outdated X-band radars with digital versions, enhancing storm detection capabilities.





Radar Types: India employs both X-band (for wind and storm detection) and S-band radars (for long-range detection), with the first S-band radar installed in 1970.



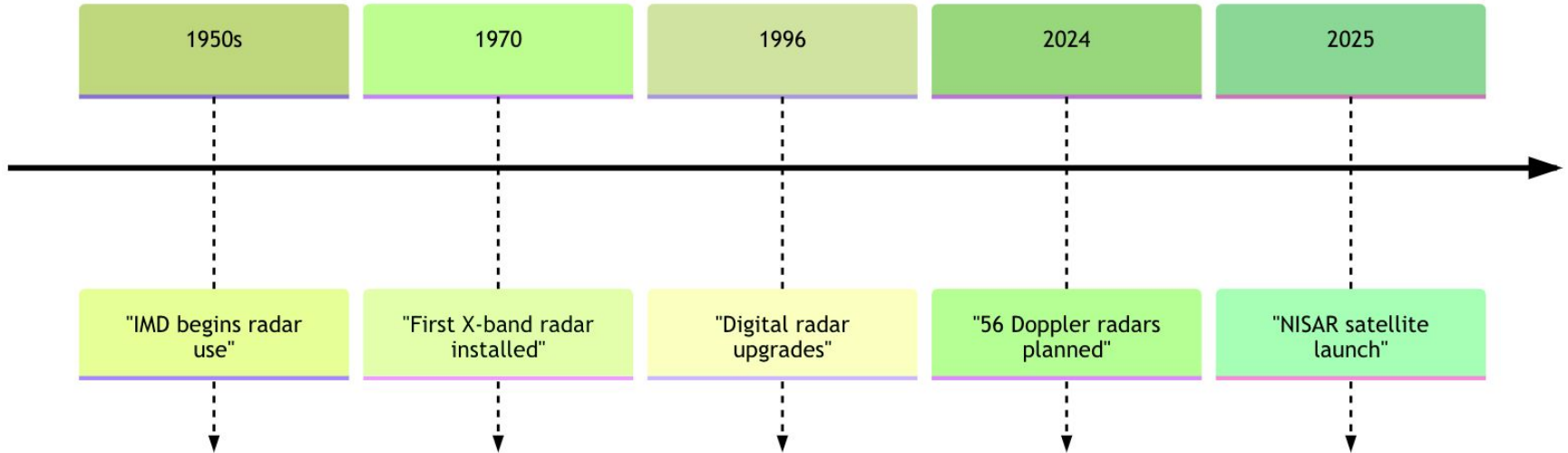
Future Expansion: By September 2024, India plans to add 56 Doppler radars, supported by the ₹2,000-crore 'Mission Mausam' initiative to upgrade meteorological infrastructure.

 NISAR Satellite: NASA and ISRO are developing the NISAR satellite, which will utilize L-band and S-band radars to create high-resolution maps of Earth's landmasses.

 NISAR Launch Details: The NISAR satellite is expected to launch in 2025 aboard an ISRO GSLV Mk II rocket, with a total cost of \$1.5 billion, primarily funded by NASA.

 Environmental Monitoring: NISAR will track and record changes in Earth's natural processes, contributing to environmental monitoring and research.

India's Radar Development



Topic → NCP Symbol Dispute and Supreme Court Plea



Supreme Court Plea

Sharad Pawar of the NCP has approached the Supreme Court to prevent the Ajit Pawar faction from using the 'clock' symbol in the upcoming Maharashtra assembly polls.



Symbol Allotment Process

Political symbols are allocated by the Election Commission of India (ECI) based on the Symbols Order.

These symbols are crucial for voter recognition, especially in a largely illiterate population.





NCP Split

The NCP experienced a split in July 2023.

The Ajit Pawar faction claimed support from 41 out of 53 MLAs.

The ECI recognized this faction as the real NCP in February 2024.



Past Symbol Freezes

The ECI has previously frozen symbols during disputes, such as:

AIADMK's 'two leaves'

Shiv Sena's 'bow and arrow'

Supreme Court's Role



The Supreme Court in Sadiq Ali versus the ECI (1971), laid down the 3-test formula for determining which faction is to be recognised as the original political party. These are the aims and objectives of the party; its affairs as per the party's constitution that reflect inner party democracy; and majority in the legislative and organisation wings

The Supreme Court has established a three-test formula for recognizing political factions:

- Focus on party aims
- Adherence to the constitution
- Legislative majority



Call for Internal Democracy



Experts advocate for institutionalizing internal democracy within political parties through regular elections.

Suggestion that the ECI should not oversee these processes to avoid entanglement in party politics.

Summary: The NCP's internal conflict over symbol recognition has led to a Supreme Court plea, highlighting the complexities of party politics and the need for internal democracy.

Topic → What are hurricanes?

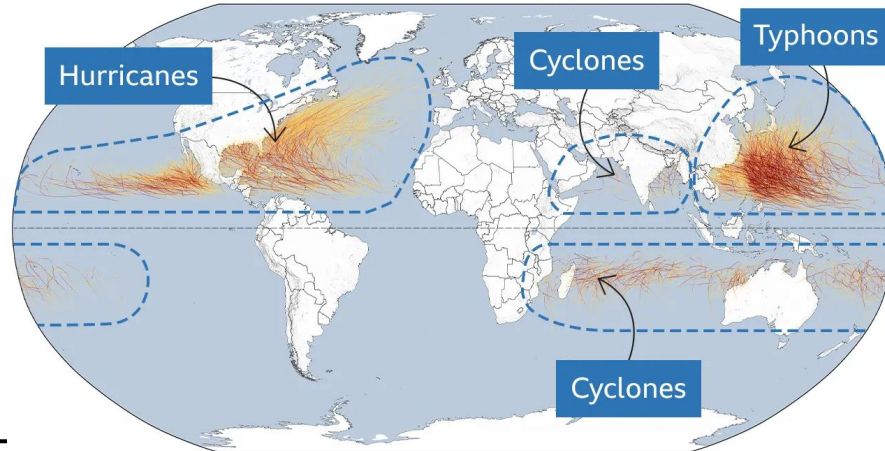
Hurricanes are powerful storms which develop in warm tropical ocean waters.

In other parts of the world, they are known as cyclones or typhoons. Collectively, these storms are referred to as "tropical cyclones".

Where do tropical cyclones take place?

Historic tropical cyclones tracks, 1842-2023

— Category 5 — Cat. 4 — Cat. 3 — Cat. 2 — Cat. 1



How do hurricanes form?



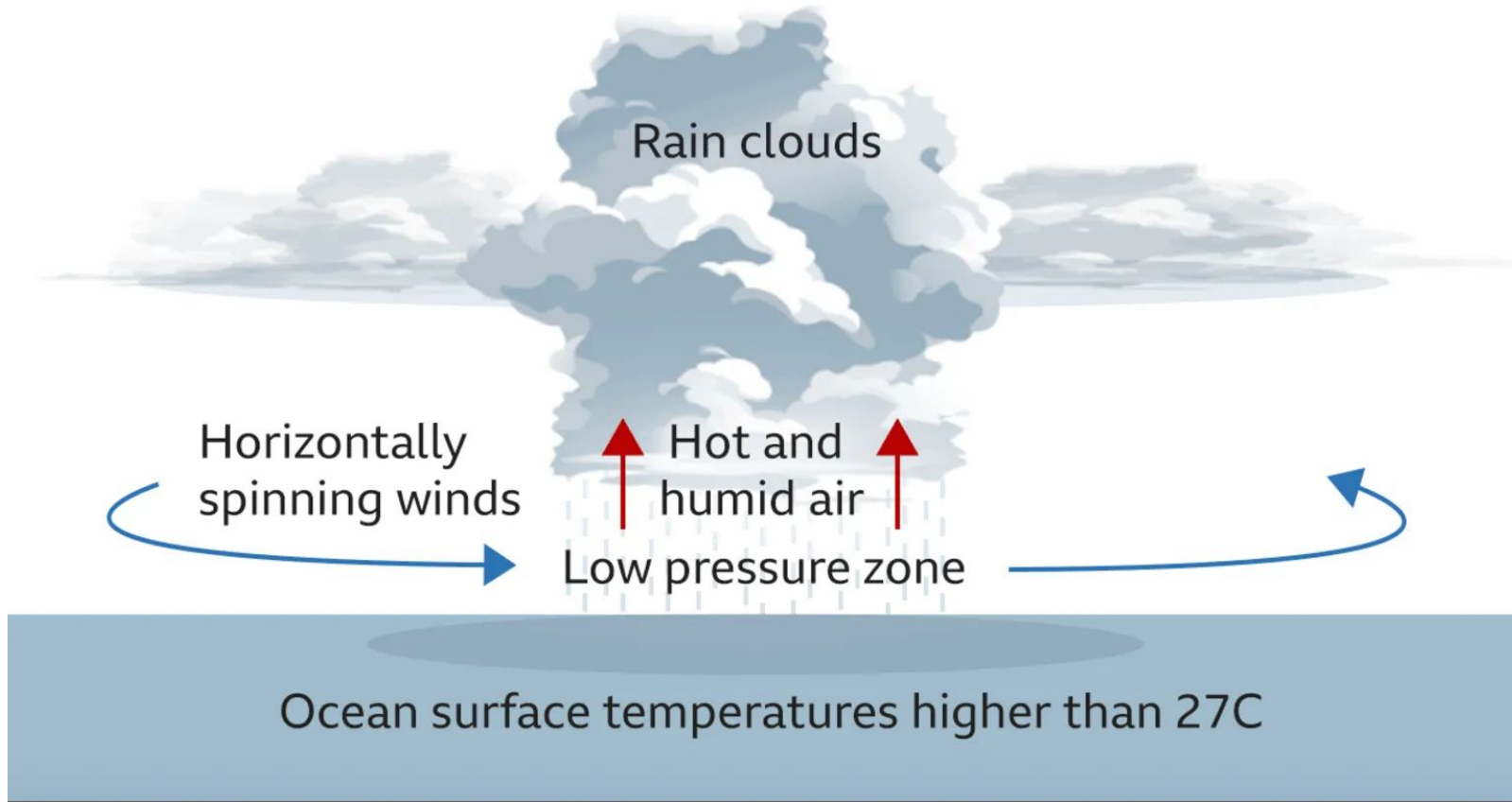
Hurricanes, typhoons and cyclones begin as atmospheric disturbances - such as, for example, a tropical wave, an area of low pressure where thunderstorms and clouds develop.

As warm, moist air rises from the ocean surface, winds begin to spin. The process is linked to how the Earth's rotation affects winds in tropical regions just away from the equator.

For a hurricane to develop and keep spinning, the sea surface generally needs to be at least 27C to provide enough energy, and the winds need to not vary much with height.

If all these factors come together, an intense hurricane can form, although the exact causes of individual storms are complex.

– Basic ingredients of a hurricane



- Hurricanes Helene and Milton – which have devastated parts of the south-east United States – have bookended an exceptionally busy period of tropical storms.
 - In less than two weeks, five hurricanes formed, which is not far off what the Atlantic would typically get in an entire year.
 - The storms were powerful, gaining strength with rapid speed.
 - It was thought that exceptionally warm Atlantic temperatures – combined with a shift in regional weather patterns – would make conditions ripe for hurricane formation.
-

- the total number of tropical storms – which includes hurricanes but also weaker storms – has been around average, and less than was expected at the start of the year.
 - Across the Main Development Region for hurricanes - an area stretching from the west coast of Africa to the Caribbean - sea surface temperatures have been around 1C above the 1991-2020 average, according to BBC analysis of data from the European climate service.
 - Atlantic temperatures have been higher over the last decade, mainly because of climate change and a natural weather pattern known as the Atlantic Multidecadal Oscillation.
-

- __ The recipe for hurricane formation involves a complex mix of ingredients beyond sea temperatures, and these other conditions were not right.
 - Researchers are still working to understand why this was the case, but likely reasons include a shift to the West African monsoon and an abundance of Saharan dust.
 - These both hampered storm development by creating unfavourable conditions in the atmosphere.
 - But even during this period, scientists were warning that the oceans remained exceptionally warm and that intense hurricanes were still possible through the rest of the season.
-

- Warmer oceans make stronger hurricanes - and rapid intensification - more likely, because it means storms can pick up more energy, potentially leading to higher wind speeds.
 - There is also the likely development of the natural La Niña weather phenomenon in the Pacific, which often favours Atlantic hurricane formation as it affects wind patterns.
 - But further activity will rely on other atmospheric conditions remaining favourable, which are not easy to predict.
 - Either way, this season has already highlighted how warm seas fuelled by climate change are already increasing the chances of the strongest hurricanes – something that is expected to continue as the world warms further.
-

Saffir-Simpson hurricane scale explained



Category 1

Winds 74-95 mph (119-153 km/h)

Some damage and power cuts



Category 2

Winds 96-110 mph (154-177 km/h)

Extensive damage



Category 3

Winds 111-129 mph (178-208 km/h)

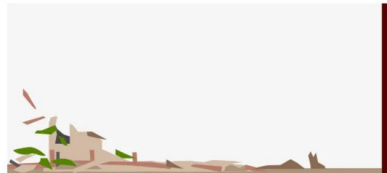
Well-built homes suffer major damage



Category 4

Winds 130-156 mph (209-251 km/h)

Severe damage to well-built homes



Category 5

Winds 157+ mph (252+ km/h)

Many buildings destroyed, major roads cut off

Is climate change affecting hurricanes?

- Assessing the precise influence of climate change on individual tropical cyclones is challenging. The storms are relatively localised and short-lived, and can vary significantly in any case.
 - But rising temperatures do affect these storms in several measurable ways.
 - Firstly, warmer ocean waters mean storms can pick up more energy, leading to higher wind speeds.
 - Record high sea surface temperatures were a key reason why US scientists forecast an above-normal Atlantic hurricane season for 2024.
 - The high temperatures are mainly due to long-term greenhouse gas emissions.
 - Secondly, a warmer atmosphere can hold more moisture, leading to more intense rainfall.
-

-
-
- Finally, sea-levels are rising, mainly due to a combination of melting glaciers and ice sheets, and the fact that warmer water takes up more space.
 - Local factors can also play a part. This means storm surges happen on top of already elevated sea levels, worsening coastal flooding.
-

Key Concepts of Bacteriophage

Definition: Bacteriophages, or phages, are viruses that infect and replicate within bacteria.

Structure: Composed of genetic material (DNA or RNA) surrounded by a protein coat.

Types:

Lytic phages: Destroy host bacteria.

Lysogenic phages: Incorporate their DNA into host genome.

Recent Developments

Targeting biofilms for effective treatment against antibiotic-resistant bacteria.

Personalized phage therapy showing positive outcomes in clinical trials.

Research on phage structural insights and their interactions with host bacteria.

Example Applications

Phage Therapy: An alternative to antibiotics, especially for resistant infections.

Biocontrol: Using phages to manage bacterial populations in agriculture and food safety.

Current Research Trends

Understanding phage adaptability and evolution in various environments.

Exploring the use of phages in gut microbiome management.

Overview of Oropouche Virus

Definition: A viral infection caused by the Oropouche virus.

Transmission: Primarily through mosquitoes and midges.

Symptoms: Fever, headache, joint pain, and rash.

Geographical Spread: Endemic to tropical regions, especially in South America.

Impact and Outbreaks

Recent Outbreaks:

- Novel reassortant Oropouche virus in Brazil.

- 2024 Oropouche outbreak reports.

Imported Cases: Rising cases in the US.

Public Health Concerns: Potential for increased transmission and outbreaks.


Prevention and Control


Preventive Measures: Use of insect repellent, protective clothing, and mosquito nets.


Public Awareness: Education on symptoms and transmission routes.


Research and Monitoring: Ongoing studies to understand the virus and its effects.


Topic- Antarctica WARMING


 Warming Trend: The Antarctic Peninsula is experiencing a warming rate that surpasses the global average, marked by an increase in extreme heat events.


 Vegetation Growth: There has been a notable expansion in vegetation cover, growing from less than 1 sq. km in 1986 to nearly 12 sq. km by 2021.

 Accelerated Greening: The greening trend has intensified by over 30% from 2016 to 2021, compared to the entire study period (1986-2021).

 Satellite Data: Satellite imagery has been instrumental in confirming the widespread and accelerating greening trend across the Peninsula.

 **Future Research:** Ongoing research is focused on understanding how deglaciated landscapes are being colonized by plants and the future implications of this process.

 **Soil Formation:** The increase in plant life contributes organic matter, aiding in soil formation and potentially supporting further plant growth.

 **Unique Environment:** The scarcity of soil in Antarctica makes the greening process particularly significant for the ecosystem.

Summary

The Antarctic Peninsula is undergoing rapid warming and a significant increase in vegetation, which is accelerating and may lead to soil formation.

Overview

🏆 The Nobel Prize for Medicine or Physiology was awarded to Victor Ambros and Gary Ruvkun on October 7 for their groundbreaking discovery of `microRNA`.

🧬 MicroRNA is a class of tiny RNA molecules crucial for post-transcriptional gene regulation. miRNAs are non-coding RNA molecules that are 21–23 nucleotides long. They are found in cells, the bloodstream, and some viruses

🔍 This discovery elucidates how different cell types develop despite having the same genetic material.

Significance of MicroRNA



The human genome encodes over one thousand microRNAs, underscoring their importance in gene regulation.



Gene regulation is vital for ensuring that only the correct genes are active in specific cell types and for adapting to changing conditions.

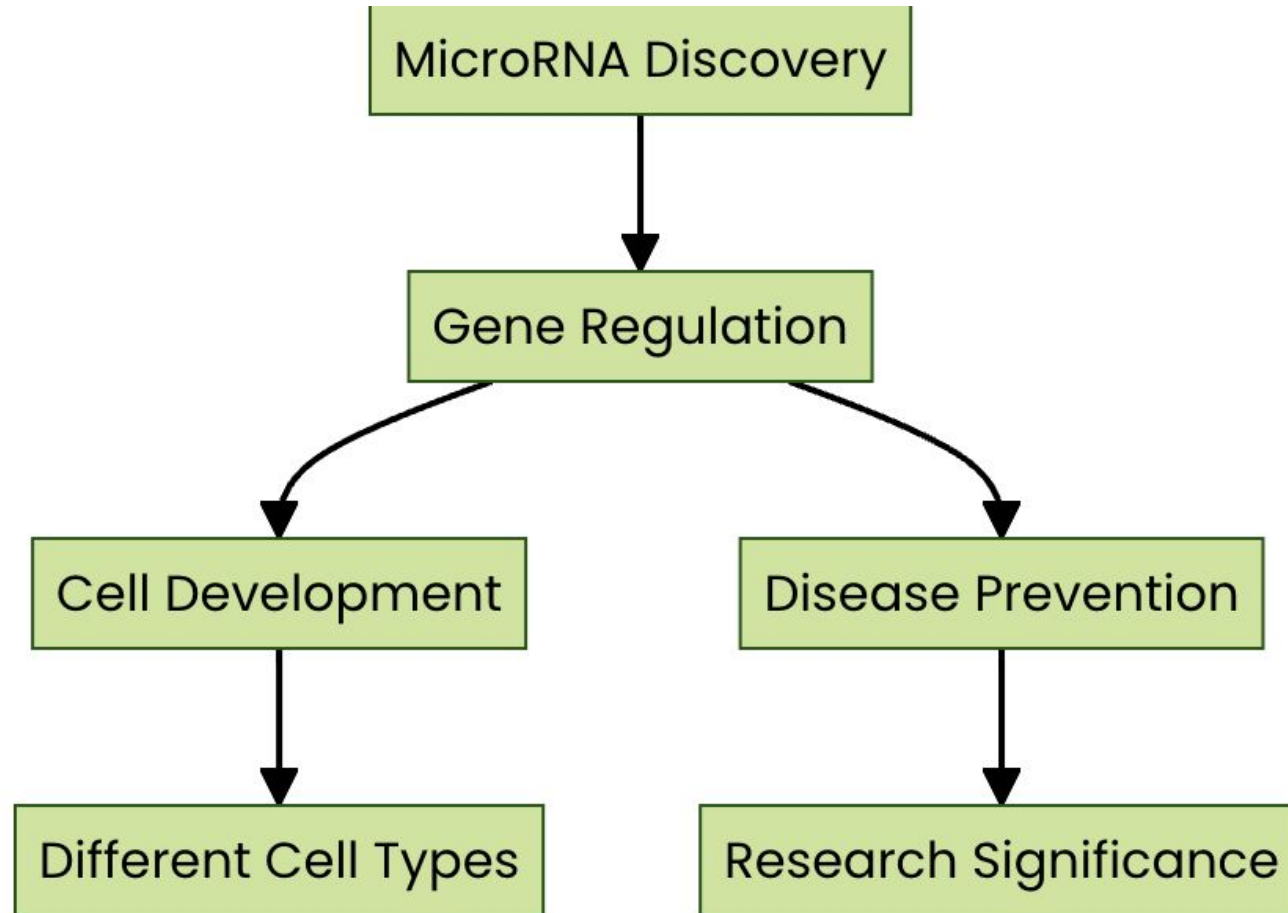


Disruptions in gene regulation can lead to serious diseases, making its understanding a critical area of research.

Impact



The discovery of microRNA marks a significant advancement in our understanding of gene regulation in multicellular organisms.



MicroRNA: A Deep Dive into Biological Functions



Advancements in MicroRNA Biology

Significant progress in understanding microRNA biology.
Identification of hundreds of microRNA genes.



MicroRNA Biogenesis Pathways

Dissection of pathways for microRNA production.
Enhanced understanding of microRNA functions.



Target Regulation

Identification of numerous microRNA targets.
Establishment of principles for gene expression regulation.



Gene Regulation Dynamics

A single microRNA can regulate multiple genes.

A single gene can be influenced by various microRNAs.

Indicates a complex regulatory network.

Role in Development

Essential for normal cell and tissue development.

Absence can lead to developmental issues.



Cancer Connection

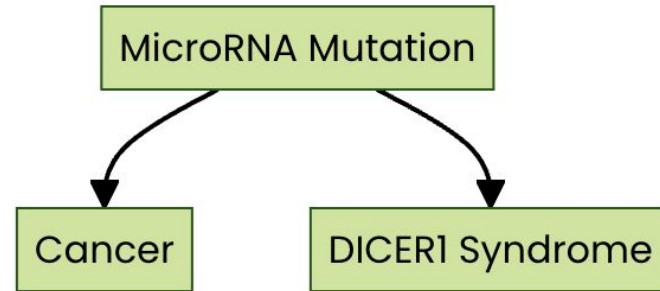
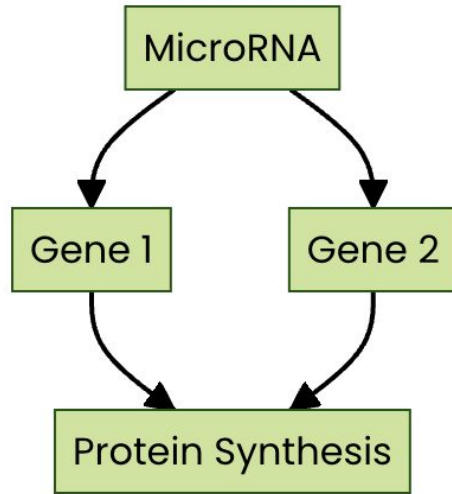
Abnormal microRNA regulation linked to cancer.

Mutations in microRNA-coding genes contribute to health conditions.



DICER1 Syndrome

- Mutations in proteins necessary for microRNA production.
 - Leads to DICER1 syndrome, associated with cancer.
 - Summary: The study of microRNAs has revealed their critical roles in gene regulation, development, and disease, including cancer and genetic disorders
-



Topic→Nobel Prize 2024: Celebrating Pioneers in Artificial Neural Networks




Key Contributions to AI


🏆 John Hopfield and Geoffrey Hinton were honored with the 2024 Nobel Prize for Physics on October 8 for their groundbreaking work in machine learning using artificial neural networks.


🌳 Their research forms the backbone of modern AI technologies, including tools like ChatGPT.

Understanding Artificial Neural Networks




 Artificial Neural Networks (ANNs) simulate the behavior of neurons in animal brains, processing input data through a network of interconnected nodes.

 Each node processes data based on predefined rules, facilitating signal transfer between nodes.

 By stacking multiple layers of nodes, deep learning is achieved, enhancing the machine's capability to execute complex tasks.

The Foundation of Modern AI

 The evolution of contemporary AI is deeply rooted in pattern recognition and is influenced by disciplines such as statistical physics, neurobiology, and cognitive psychology.

 The Nobel Prize acknowledges the importance of these foundational discoveries in shaping today's AI landscape.

Input Layer

Data Flow

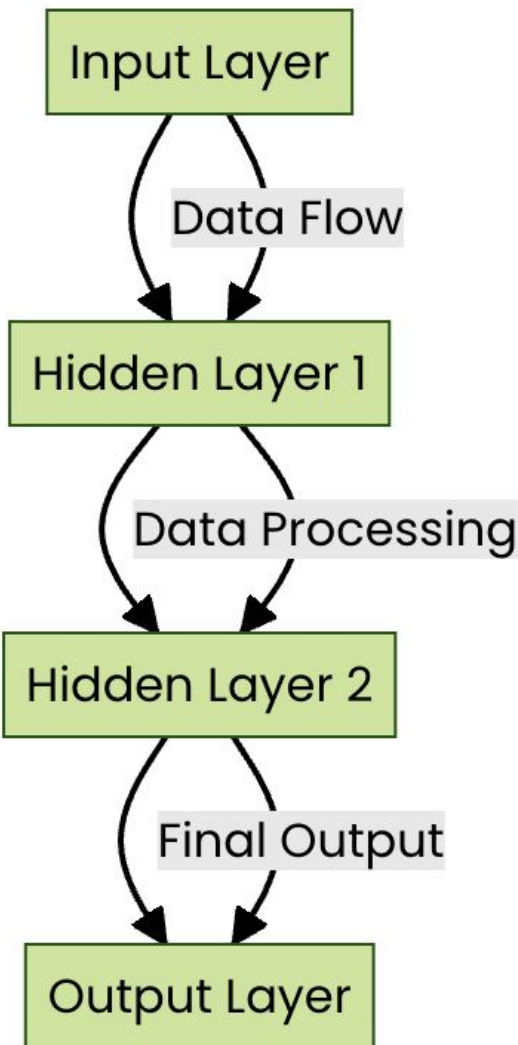
Hidden Layer 1


Data Processing


Hidden Layer 2


Final Output


Output Layer



 Evolution of Technology: ANNs have transitioned from standalone computers in the late 1980s to being integrated into cloud-based distributed networks.

 Contributors to ANN Development: Influential figures such as Hopfield and Hinton have played pivotal roles in the abstraction and transformation of ANNs.

 Complexity of Progress: The development of ANNs is marked by contributions from various teams and ideas, complicating the tracing of a direct path from early work to modern applications like ChatGPT.

 Transformers: This new form of ANN encodes and decodes information,
proving effective in tasks like object detection and recognition.



Learning Techniques: Methods such as back-propagation and long short-term memory enable ANNs to learn and retain information over time.



Concerns About AI: Hinton has expressed worries about AI systems potentially surpassing human intelligence, leading to a loss of control.



Complexity of AI Risks: The intricate nature of AI development poses challenges in fully understanding its implications and risks.

Key Developments and Concerns

Technological Evolution: From individual computers to cloud-based networks.

Influential Contributors: Hopfield and Hinton's significant roles.

Progress Complexity: Diverse contributions complicate tracing development.

Transformers: Effective in encoding, decoding, and recognition tasks.

Learning Techniques: Back-propagation and memory retention methods.


AI Concerns: Risks of AI surpassing human intelligence.


AI Risks Complexity: Challenges in understanding AI implications.


Topic → Nobel Prize in Chemistry 2024: Advancements in Protein Research





Key Highlights


 **Award Recipients:** The 2024 Nobel Prize for Chemistry was awarded to David Baker, Demis Hassabis, and John Jumper for their groundbreaking work in protein research.


 **Proteins:** Essential for all known life forms, proteins are composed of 20 different amino acids that combine in various ways.

 **Amino Acids:** These play crucial roles in structural support, biochemical reactions, muscle contraction, and cellular communication.

 **Protein-Folding Problem:** This refers to how proteins determine their correct 3D structure and fold accordingly without trial and error.

 **Protein Structures:** By the late 2010s, scientists had determined the structures of approximately 170,000 proteins, a small fraction of the estimated 200 million proteins in nature.

 **Research Progress:** Significant advancements in understanding protein structures began around 2018, enhancing research capabilities in this field.

 **Historical Context:** The first 3D models of proteins were created in 1962 by John Kendrew and Max Perutz, earning them the Nobel Prize for their pioneering work.

Overview of AlphaFold

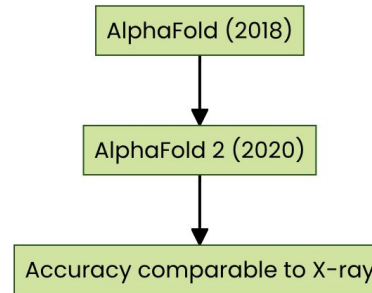


AlphaFold Overview: AlphaFold, a deep-learning model by DeepMind, was introduced in 2018 to predict protein structures.





AlphaFold 2 Launch: Released in 2020, AlphaFold 2 achieved accuracy on par with X-ray crystallography for protein structure prediction.

AlphaFold Evolution:

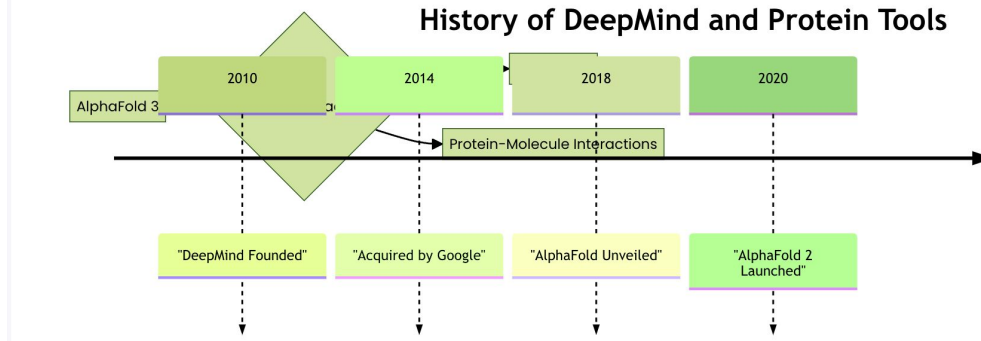


Development and Limitations

 AlphaFold 3 Development: Led by Jumper, AlphaFold 3 predicts interactions between proteins and molecules, determining 3D shapes swiftly.


 Limitations of AlphaFold: While predicting structures, AlphaFold does not explain the preference for specific structures, leaving interpretation to scientists.


AlphaFold 3 Capabilities:




Historical Context and Tools



 Historical Context: DeepMind, co-founded by Hassabis in 2010, was acquired by Google in 2014, marking AI advancements in protein research.

 Protein Design Tools: Baker's tools, using the Rosetta program since 2003, have achieved results comparable to X-ray crystallography

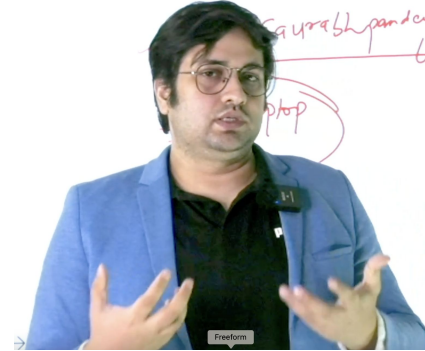
Scientific Implications

 Scientific Implications: The progress in protein folding and design underscores the synergy between AI and molecular biology, aiding hypothesis testing but necessitating human interpretation.

Topics - MINDS MAPS included (Daily current affairs)-- 15th October 2024



- **Nobel Prize in Economics:**
- **Multilateralism Advocacy and Technological Convergence**
- **Tuberculosis and Antimicrobial Resistance in India**
- **WAR AND ENVIRONMENT**
- **National Law Drafting for Gig Workers**
- **Union Rights and Collective Bargaining in India**
- **Haber Bosch Process**
- **Nile River Basin Agreement**
- **Mains**



By saurabh Pandey



Target Mains -2025/26 -

Q “Social inequality is responsible for economic inequality”.Examine

**Connect with sir
9057921649**

**send your answer - Saurabh pandey
upsc telegram channel**

— Topic→ Nobel Prize in Economics: Impact on Wealth Inequality



Key Highlights



Award Recipients: Daron Acemoglu, Simon Johnson, and James Robinson received the Nobel Prize in Economics.



Research Focus: Their work explores the influence of political and economic systems, particularly those established by European colonizers, on societal prosperity.



Global Challenge: The Nobel committee highlighted the importance of addressing income disparities between countries.



Academic Affiliations: Acemoglu and Johnson are affiliated with MIT, while Robinson is at the University of Chicago._____



— Institutional Impact: The research underscores how differences in political and economic institutions lead to varying prosperity levels among nations.



Case Study: Nogales is cited as an example where institutional differences, rather than geography or culture, explain economic disparities between the U.S. and Mexico sides.

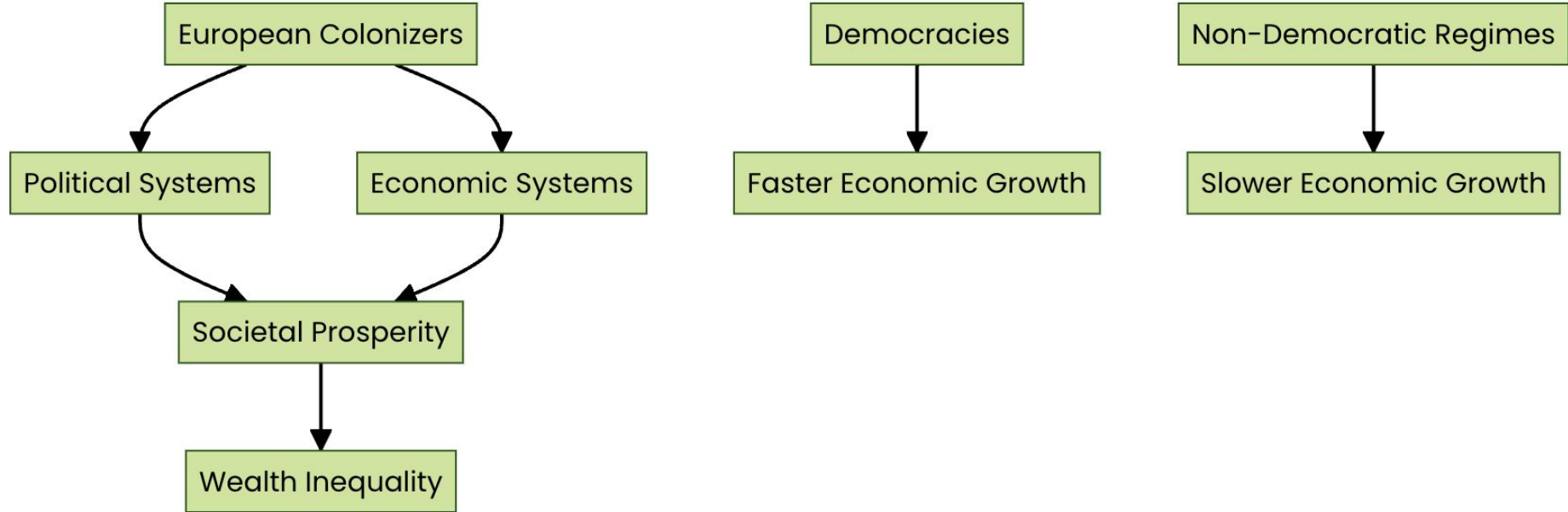


Democracy and Growth: Acemoglu pointed out that democracies generally experience faster economic growth compared to non-democratic regimes.

Summary

The Nobel Prize in Economics was awarded to three scholars for their research on the impact of political and economic institutions on wealth inequality between nations.


Conceptual Overview:





Topic→Multilateralism Advocacy and Technological Convergence





Key Highlights


 Multilateralism Advocacy: Lok Sabha Speaker Om Birla emphasized the importance of dialogue and cooperation among Parliaments for the common good at the 149th Assembly of the Inter-Parliamentary Union (IPU) in Geneva.


 Theme of Conference: The conference focused on "Harnessing science, technology and innovation for a more peaceful and sustainable future."

 Inclusive Development: Mr. Birla expressed hope that the IPU could facilitate inclusive development through shared action plans and joint efforts among Parliaments.

 **Data Privacy Protection:** He highlighted the necessity for a regulatory system to protect citizens' data privacy and ensure responsible use of artificial intelligence (AI).

 **Equitable Distribution:** Birla called for a collective effort to ensure fair distribution of the benefits derived from science, technology, and innovation.

 **Technological Convergence:** He advocated for the convergence of technological advancements and scientific research to ensure equitable sharing of benefits, referencing the One Sun, One World, One Grid (OSOWOG) initiative.

 **IPU's Historical Significance:** The IPU, established in 1889, is recognized as the first multilateral political organization and serves as a global forum for national Parliaments.

Overview

Definition: (IPU) is a global organization of national parliaments.

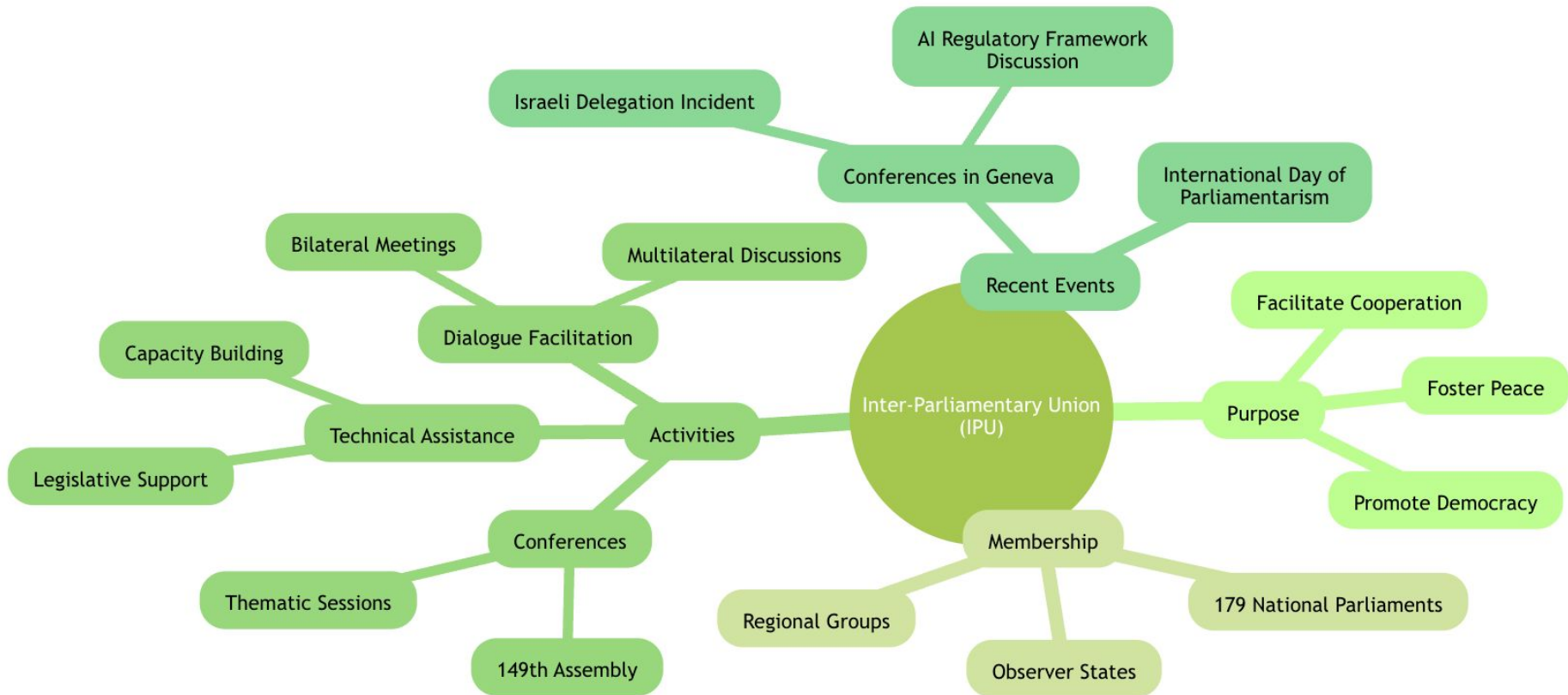
Purpose: Promotes democratic governance, cooperation, and peace.

Membership: Comprises 179 national parliaments.

History: Established in 1889 as the first international organization of its kind.

Headquarters: Geneva, Switzerland.

Activities: Organizes conferences, facilitates dialogue, and provides technical assistance.



-Topic→Tuberculosis and Antimicrobial Resistance in India



Focus on TB

Tuberculosis (TB) is a major focus in India's healthcare system. Continuous improvements are being made in diagnosis and patient tracking.



Antibiotic Resistance

Antimicrobial resistance in *Mycobacterium tuberculosis* (Mtb) is rising.

Existing antibiotics are becoming less effective against TB.



Research on Mtb

Scientists are studying Mtb to find key proteins.

The goal is to develop new drugs to effectively combat the pathogen.————



Historical Coevolution



Mtb has coevolved with humans for about 70,000 years. This coevolution has allowed Mtb to adapt and evade the human immune system.



Macrophage Interaction

Mtb thrives within macrophages, the body's first line of immune defense.

Macrophages are designed to engulf and destroy invading microorganisms.



Oxidative Stress

The immune response involves oxidative stress. This stress can damage the DNA, RNA, and proteins of microbes, leading to their dysfunction.





Nutrient Starvation


Macrophages use strategies to deprive microbes of essential nutrients.


This deprivation ultimately leads to the death of the microbes.


Summary: India is enhancing its TB management efforts amid rising antibiotic resistance, while researchers explore new drug targets due to the pathogen's long-standing coevolution with humans.


—  Mtb Protection: Mycobacterium tuberculosis (Mtb) is protected in clusters known as tubercles.


 Lipid Surrounding: These tubercles are surrounded by lipids, which help shield the bacteria.

 Respiratory Pathogen: Mtb primarily affects the lungs but can also spread to other tissues in the body.

 Dormancy: Mtb can remain dormant in host cells for several decades without causing disease or transmission.


 Ineffective Techniques: Common techniques used to combat other pathogens are ineffective against Mtb.


 Disease Spread: Despite being a respiratory pathogen, Mtb has the ability to spread beyond the respiratory system.


 Long-term Presence: Mtb can exist in a host for long periods, complicating treatment and control efforts


Topic→ **WAR AND ENVIRONMENT**



 **Destruction of Forests:** The war has devastated approximately 100,000 sq. km. of Ukraine's forests, with extensive damage from shelling and fires.

 **Innovative Warfare:** Ukrainian forces have utilized drones to set fire to trees, showcasing new methods of combat that echo historical trench warfare.

 **Endangered Species Impact:** The conflict has severely affected the population of Przewalski's horses in the Chernobyl nature reserve, complicating fire extinguishing efforts due to landmines.

 **Environmental Hazards:** Mines and unexploded ordnance pose significant threats to forest management and safety, making it perilous for those tending to the forests.



Long-term Environmental Damage: The war has led to air and water pollution, soil contamination, and a legacy of environmental destruction that could last for decades.



Illegal Logging Compounded Damage: Ongoing illegal logging practices have worsened the destruction of Ukrainian forests, alongside the war's impact.



Decades of Recovery: Experts estimate that demining and regenerating the damaged forest areas could take up to 70 years and require billions in investment.

Summary: The war in Ukraine has caused extensive environmental destruction, particularly to forests, with long-term consequences for wildlife and land safety.

Overview

Status: Endangered species 🐎

Habitat: Native to Mongolia, Kazakhstan 🌍

Importance: Key for biodiversity conservation 🌱

Physical Traits: Stocky build, short legs, and a unique dark stripe down their back ⚡

🌍 Native Habitat: Central Asian steppes



Key Initiatives



National Law Drafting: The Union Ministry of Labour and Employment is working on a national law to integrate gig workers into social security schemes, offering benefits such as health insurance and retirement savings.



Revenue Contribution: Aggregators will be mandated to contribute 1%-2% of their revenue to a social security fund dedicated to supporting gig workers.



Inclusive Definitions: The government is updating definitions of gig and migrant workers to better align with current employment realities and ensure inclusivity.



— **Worker Rights Protection:** The proposed legislation will establish a welfare board model, require registration of gig workers, and introduce dispute resolution mechanisms to safeguard their rights.



e-Shram Portal Registration: Gig workers must register on the Labour Ministry's e-Shram portal to access benefits like life and accidental insurance.



Employment Relationship Issues: The Social Security Code 2020 classifies gig workers as informal sector workers, complicating their access to institutional protections and benefits.



Need for Clarity: There is a pressing need to clearly define the employment relationship in gig work to ensure proper legal protections and integration into existing labour codes.

Summary

The Indian government is drafting a law to include gig workers in social security schemes, but challenges remain regarding their classification and rights under_____ existing labour laws.

Overview

Objective: Incorporate gig workers into social security schemes.

Key Elements:

Health Insurance 

Retirement Savings 

Aggregators' Contribution (1%-2% of revenue) 

The proposed law aims to provide a safety net for gig workers, ensuring their rights and benefits.

Key Points

Revision of definitions for gig and migrant workers

Establishment of a welfare board model

Mandatory registration of gig workers

Transparency in automated systems

Dispute resolution mechanisms

Labour Codes (2019-2020):

Merged 29 central labour laws into 4 codes:

Wage

Social Security

Industrial Relations

Occupational Safety & Health

Social Security Code 2020:

Gig workers as informal sector workers

Need for self-declaration via e-Shram portal



_Topic→Union Rights and Collective Bargaining in India

Key Aspects of Union Rights and Collective Bargaining



Supreme Court Ruling:

The Supreme Court upheld the right to form unions as a fundamental right under Article 19(1)(c) in 1989.

Allows reasonable restrictions for public order, morality, or national integrity.



Trade Union Registration:

The State is obligated to register trade unions under the 1926 Act.

Provides workers with a voice and immunity from civil and criminal actions.



Collective Bargaining Definition:

Defined as negotiations between employees and employers to determine working conditions.

Recognized in the Industrial Disputes Act.

Roots trace back to the late 18th and early 19th centuries.

Significant events like the 1918 Ahmedabad Mills strike led by Mahatma Gandhi.



Legal Framework:

Refusal of employers to engage in collective bargaining is considered an unfair labor practice under both U.S. and Indian law.



Global Recognition:


Freedom of association and the right to collective bargaining are recognized as fundamental workers' rights by the ILO and various legal frameworks worldwide.





Judicial Support:


The Indian Supreme Court emphasizes the importance of collective bargaining for achieving social justice in industrial life.

Acknowledges the historical disadvantages faced by labor._____

—  **Legal Right to Strike:** The right to strike is legally recognized under the Industrial Disputes Act, with certain restrictions in place.

 **Forms of Strikes:** Strikes can take various forms, including 'go-slow', 'sit-in-work', 'work-to-the-rule', and absenteeism, serving as demonstrations for workers' rights.

 **Supreme Court's View:** The Supreme Court views strikes as important tools for workers, emphasizing the right to demonstrate as a fundamental aspect of labor rights.

 **Restrictions on Strikes:** The 1947 Act imposes restrictions on strikes, including the requirement for notice and prohibitions during certain conditions, such as ongoing conciliation proceedings.



Trade Unions Act Provisions: The Trade Unions Act allows for the inclusion of ordinary and honorary members in unions and permits the establishment of funds for political purposes.



Political Expression: Workers have the fundamental right to free speech, which includes political expression and the ability to support candidates in elections.



Works Committee Formation: The 1947 Act mandates the formation of a 'works committee' with equal representation from employers and workers, chosen in consultation with trade unions.

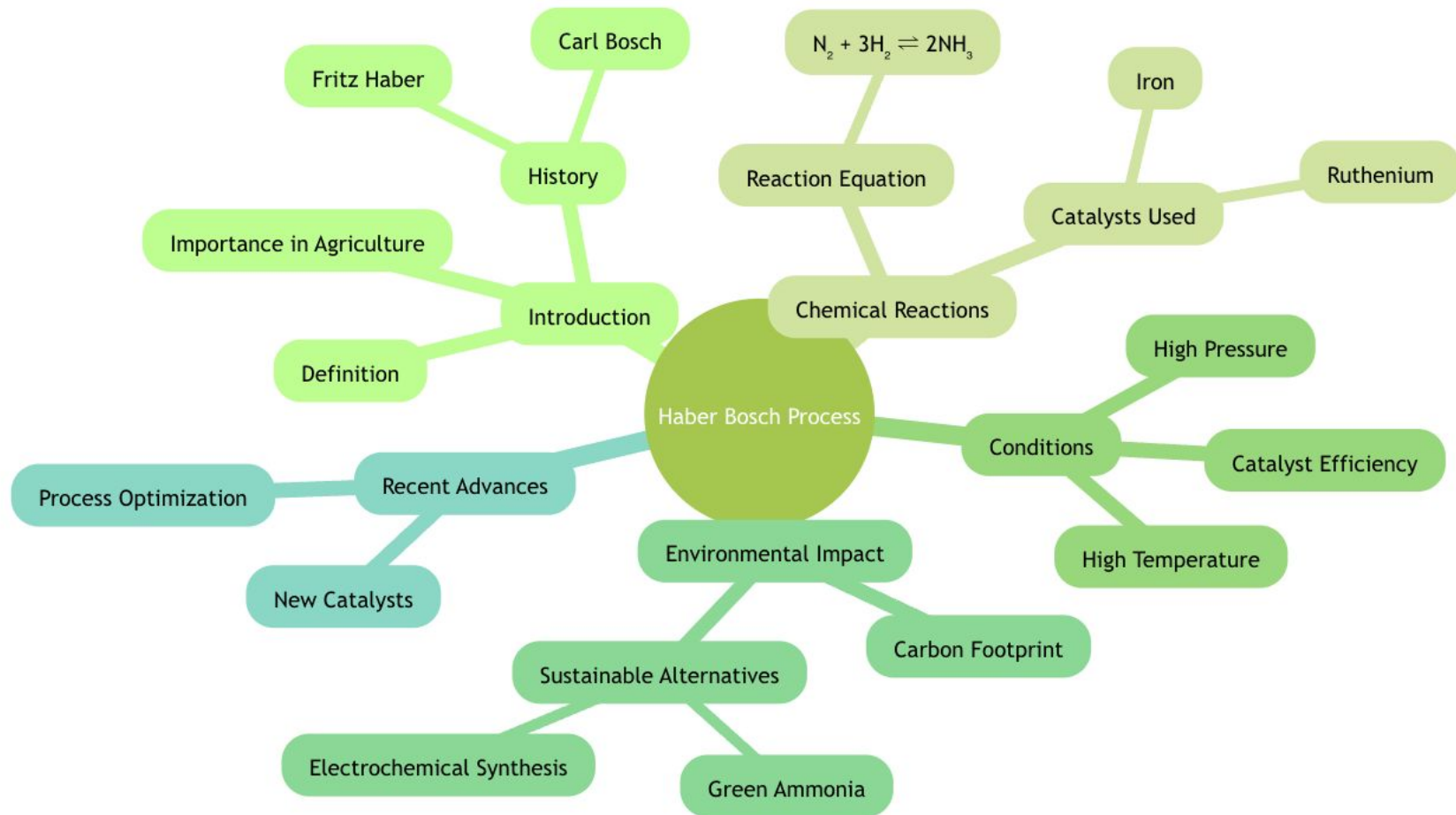
Summary: The right to strike is legally recognized with restrictions, serving as a vital tool for workers' rights, while trade unions play a significant role in political expression and representation.




Overview


The Haber Bosch Process is crucial for ammonia production. It combines nitrogen and hydrogen to create ammonia, key for fertilizers.


Figure 1.1: Mindmap





— Topic → Nile River Basin Agreement Overview


 A regional partnership of 10 countries has established an agreement on the equitable use of Nile River basin water resources.


 The agreement, known as the "cooperative framework," was confirmed by the African Union after South Sudan joined the treaty.

 Countries that have ratified the accord include Ethiopia, Uganda, Rwanda, Burundi, and Tanzania.

 Egypt and Sudan have declined to sign the agreement, while Congo abstained and Kenya has not yet submitted its ratification documents.

 The accord aims to ensure the sustainable and equitable use of the Nile River for future generations.

 The lack of ratification by Egypt and Sudan raises concerns and may lead to controversy over water resource distribution.

 Tensions have escalated due to Ethiopia's construction of a \$4 billion dam on the Blue Nile, which Egypt fears could impact its water supply.

Key Points



Regional Partnership: Involves 10 countries focusing on equitable water resource use.

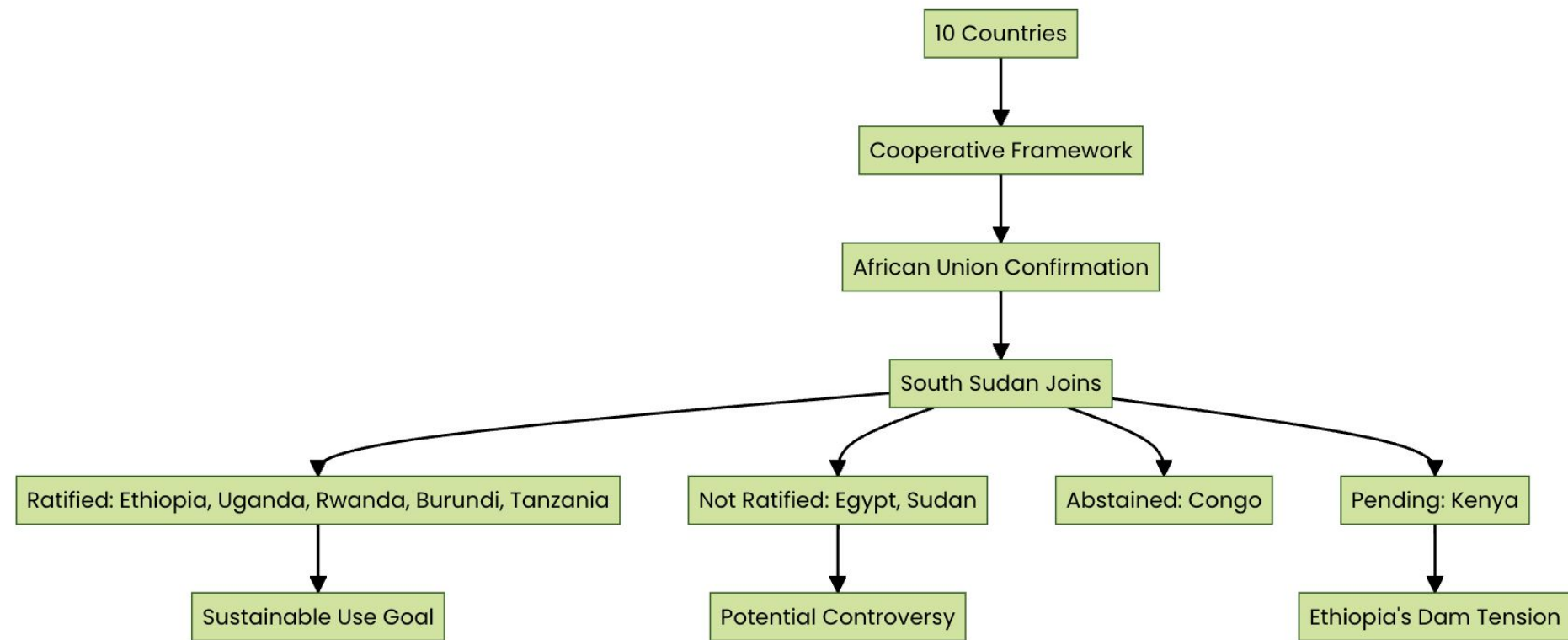
Cooperative Framework: Confirmed by the African Union, with South Sudan's participation.

Ratification Status: Ethiopia, Uganda, Rwanda, Burundi, and Tanzania have ratified; Egypt and Sudan have not.

Sustainability Goal: Aims for sustainable and equitable use of the Nile River.

Controversy: Egypt and Sudan's non-ratification could lead to disputes.
Ethiopia's Dam: A \$4 billion project on the Blue Nile causing tension with Egypt.

Nile River Basin Agreement Status:



Target Mains -2025/26 -

Q “Social inequality is responsible for economic inequality”.Examine

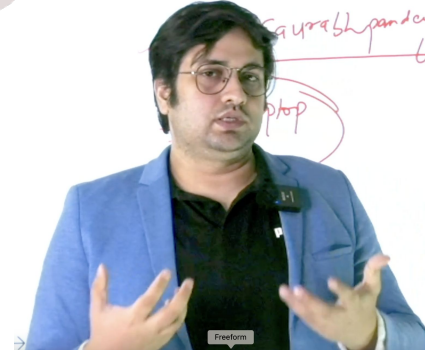
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9057921649**

**send your answer - Saurabh pandey
upsc telegram channel**

Topics - MINDS MAPS included (Daily current affairs)-- 15th October 2024



- India and U.S. Finalize \$3.5 Billion MQ-9B Drone Deal
- Coastal Trees and Climate Change Resilience
- Gondwanax paraisensis
- Nuclear disarmament Treaties
- Sustainable Development and Food Security
- World Food Day 2024: Right to Food for a Better Future
- Mains



By saurabh Pandey

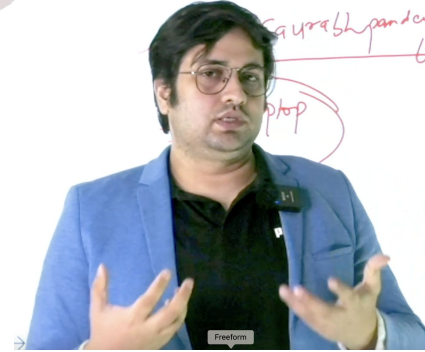


THE HINDU

Topics - MINDS MAPS included (Daily current affairs)-- 16th October 2024



- India's Agricultural Challenges and Opportunities 🌾
- 2024 Economics Nobel Prize: Understanding Institutions and Prosperity
- Container Production and Global Trade Dynamics
- BOND MARKET CRISIS
- Mains



By saurabh Pandey




THE HINDU

Topic --> India and U.S. Finalize \$3.5 Billion MQ-9B Drone Deal



Key Highlights

 India and the U.S. have concluded a significant \$3.5 billion deal for 31 MQ-9B armed HALE RPAS.

 The agreement includes:

- 15 Sea Guardians for the Indian Navy.


- 16 Sky Guardians for the Army and Air Force.


 Contracts were signed with the U.S. government and General Atomics for logistics and maintenance within India.


 The deal includes various munitions:

- 170 AGM-114R Hellfire missiles

- 310 GBU-39B/B laser bombs

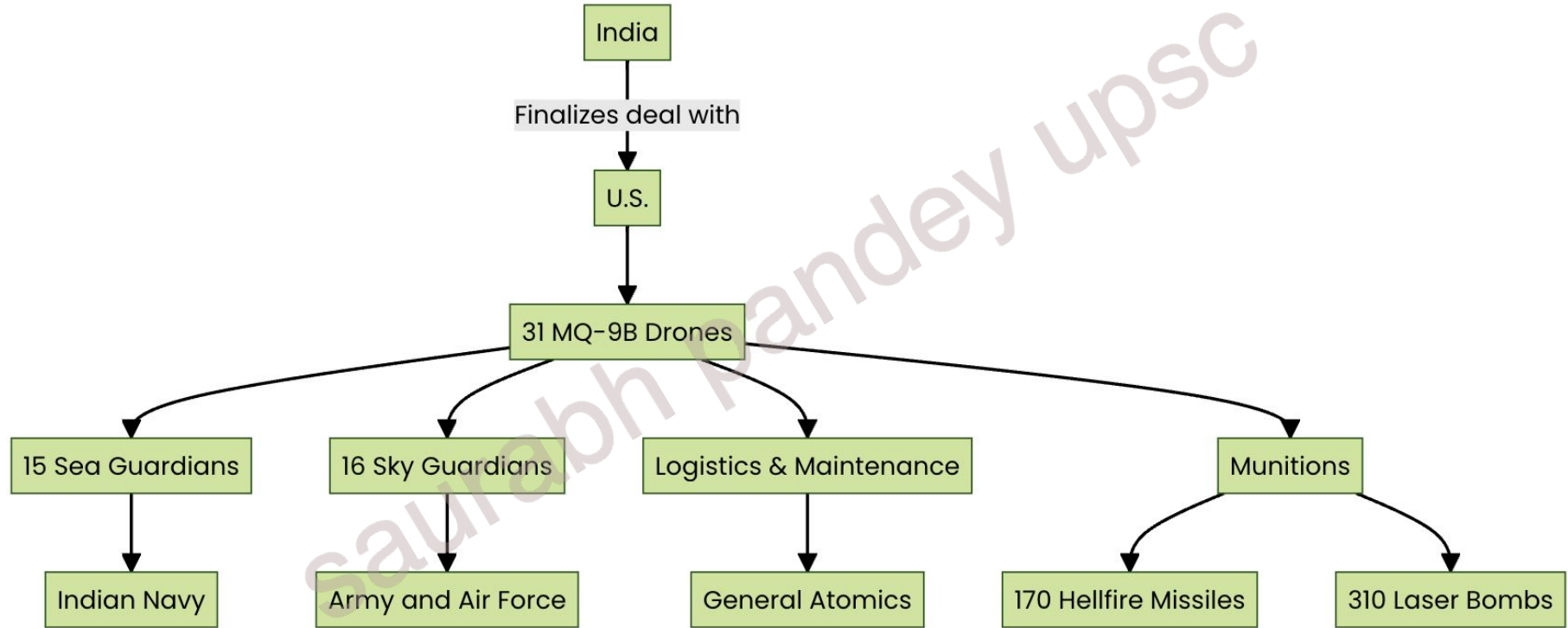
 The MQ-9B UAVs will significantly enhance India's Intelligence, Surveillance, and Reconnaissance (ISR) capabilities.

 The Sea Guardian will bolster maritime surveillance over the Indian Ocean Region, reducing reliance on P-8I aircraft.

 The MQ-9B can operate for up to 40 hours and integrate into civil airspace, featuring advanced maritime capabilities.

Summary: India and the U.S. have signed a \$3.5 billion deal for 31 MQ-9B armed drones, enhancing India's military capabilities and maritime surveillance.

Drone Deal Overview:



Understanding the Impact of Global Warming on Coastal Tree Species



Rising Sea Levels: Increased flooding in coastal areas.



Tree Growth: Effects on various tree species.



Recent Study: Research by Drexel University and Northern Arizona University.



Contradicting Previous Beliefs: Coastal flooding may enhance resilience for some species.

Key Findings from the Study



Species-Specific Responses:

American Holly (*Ilex opaca*): Thrives with increased water.

Loblolly Pine (*Pinus taeda*): Suffers from higher water levels.

Pitch Pine (*Pinus rigida*): Also negatively affected.



Environmental Factors:


Ambient temperature


Average rainfall

Soil health

Water quality


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 Dendrochronology: Analyzing tree rings to understand growth responses to climate conditions.

 Gradient-Boosted Linear Regression: Machine learning model to assess tree growth across environmental gradients.

Implications of Findings

 Adaptive Strategies: Some coastal trees may adapt better than others as conditions change.

 Future Flooding Predictions: Increased flooding expected in coastal areas by 2050.

 Global Relevance: Research methods applicable globally despite localized data.

Conservation Considerations



Importance of Coastal Vegetation: Supports livelihoods for over three billion people.



Site-Specific Mechanisms: Need for tailored conservation strategies based on local conditions.



Management Insights: Help forest managers prioritize species based on their risk levels.

BIG SHOT



▲ A palaeontologist from the Federal University of Santa Maria in Brazil displaying a fossil called *Gondwanax paraisensis* on October 9. Alongside is a contemporary fossil of *Prestosuchus chiniquensis*, a species that lived 237 million years ago. REUTERS

Topic→ Gondwanax paraisensis & Prestosuchus chiniquensis Fossils



Overview

Gondwanax paraisensis: A significant fossil discovery in Brazil.

Prestosuchus chiniquensis: Another important fossil highlighting the diversity of prehistoric reptiles.

Importance: These fossils provide insights into the rise of dinosaurs and the evolution of reptiles.

Location: Brazil, known for rich paleontological sites.

Age: Estimated to be around 237 million years old.

Key Areas of Focus

Fossil Discovery

Location: Brazil

Significance: One of the oldest fossils discovered

Research Impact: Contributions to understanding dinosaur evolution

Gondwanax paraisensis

Description: New reptile species

Morphological Features: Key adaptations for survival

Ecological Role: Insights into ancient ecosystems

Prestosuchus chiniquensis

Characteristics: Comparison with Gondwanax

Paleoecology: What the fossils tell us about their habitat

Evolutionary Significance: Relation to early dinosaurs

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Topic→ Nuclear disarmament Treaties and Agreements



Overview of Nuclear Treaties

Nuclear Non-Proliferation Treaty (NPT)

Core Objectives:

- Prevent spread of nuclear weapons
- Promote peaceful uses of nuclear energy
- Framework for international cooperation

Significance of Review Conferences:

- Assess NPT implementation
- Discuss progress and challenges

Challenges to Compliance:

- Non-compliance by states
 - Geopolitical tensions
 - Modernization of nuclear arsenals
-

Treaty on the Prohibition of Nuclear Weapons (TPNW) 🙌

Overview:

Landmark commitment to eliminate nuclear weapons

Emphasizes humanitarian impact of nuclear arms

Global Support and Challenges:

Significant international support

Reluctance of nuclear-armed states to join

Need for effective verification mechanisms

Other Significant International Agreements



Comprehensive Nuclear-Test-Ban Treaty (CTBT):

- Bans all nuclear explosions

- Establishes a global norm against nuclear testing

Strategic Arms Reduction Treaty (START):

- Reduces and limits strategic offensive arms

- Promotes transparency and trust

TPNW (Reiterated):

- Complements existing agreements

- Prohibits development, testing, and possession of nuclear weapons

Topic → Sustainable Development and Food Security



Sustainable Development Goals

Objective: Achieve zero hunger and end malnutrition by 2030.

Challenges: Conflicts, climate change, and economic downturns impede progress.

Food Insecurity

Cause: Lack of access to affordable, healthy diets.

Solution: Implement distribution mechanisms for universal food access.

Global Undernourishment

Statistics: 9.4% of the global population (757 million people) undernourished in 2023.

Regional Focus: Africa has the highest percentage of undernourished individuals (20.4%).



Regional Disparities



Asia: Largest number of hungry individuals (384.5 million).

Projections: By 2030, half of the world's hungry will be in Africa.



Gender Divide

Impact: Women are more affected by hunger.

Trend: The gender gap in hunger is narrowing.



Cost of Healthy Diets

Global Average: \$3.96 per person per day in 2022.

Variations: Significant regional differences in diet costs.

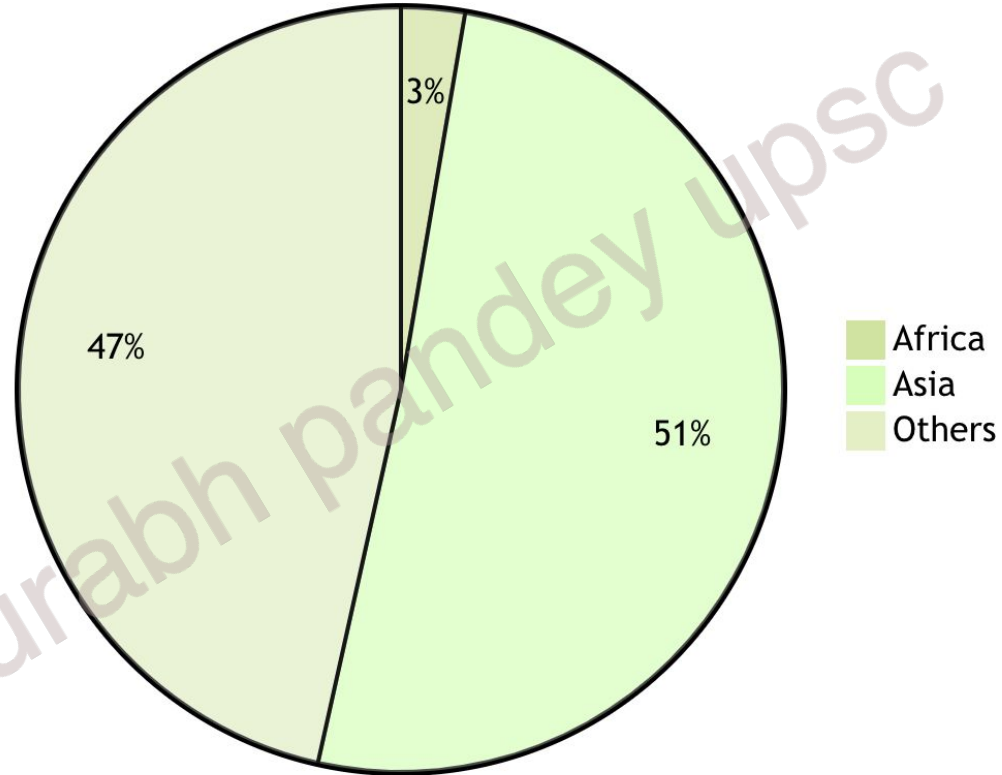


India's Food Security

Rural Impact: 63.3% of rural population unable to afford a required diet.


Need: Systemic changes in the agri-food sector are essential.


Global Undernourishment 2023





Key Issues in Indian Diets





 **Unhealthy Diets:** Indian diets are largely unhealthy, showing a significant imbalance when compared to recommended healthy diets.


 **Affordability Issues:** Healthy diets are often out of reach for low-income groups, consuming up to 60% of their daily income.

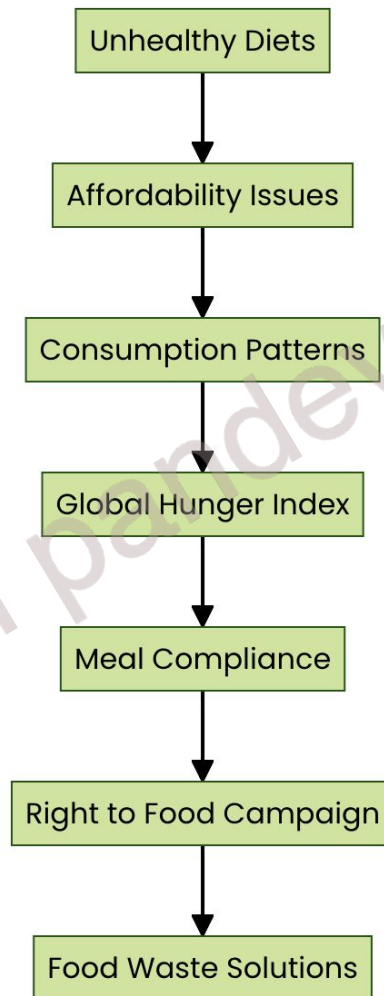
 **Consumption Patterns:** Even affluent households prefer processed foods over protein-rich options, indicating issues with availability and awareness.

 **Global Hunger Index:** India's low ranking is debated, as the index emphasizes nutrition and mortality over direct hunger.

 **Meal Compliance:** About 3.2% of Indians fail to meet the minimum requirement of 60 meals per month, underscoring food insecurity.

 **Right to Food Campaign:** Despite efforts for food security, many lack access to adequate food, highlighting the need for better distribution.

 **Food Waste Solutions:** Initiatives like food banks and reducing waste could ensure equitable food distribution and prevent hunger.



Topic → World Food Day 2024: Right to Food for a Better Future



World Food Day 2024

Celebrated on October 16, 2024.

Theme: 'Right to foods for a better life and a better future'.



Access to Food

Emphasizes the importance of safe, nutritious, and affordable food for all.

Recognized as a fundamental human right.



Hunger Statistics

FAO's 2024 report: 733 million people facing hunger.

Highlights the urgency of addressing food insecurity.



India's Food Security Journey

Transition from a food-deficient to a food-surplus nation over 60 years.

Aided by the Green Revolution and effective policies.



Nutritional Initiatives



White Revolution in milk and Blue Transformation in fisheries.
Enhanced India's agrifood system and nutrition focus.



National Food Security Act (NFSA)

Enacted in 2013.

Provides food entitlements to over 800 million citizens.

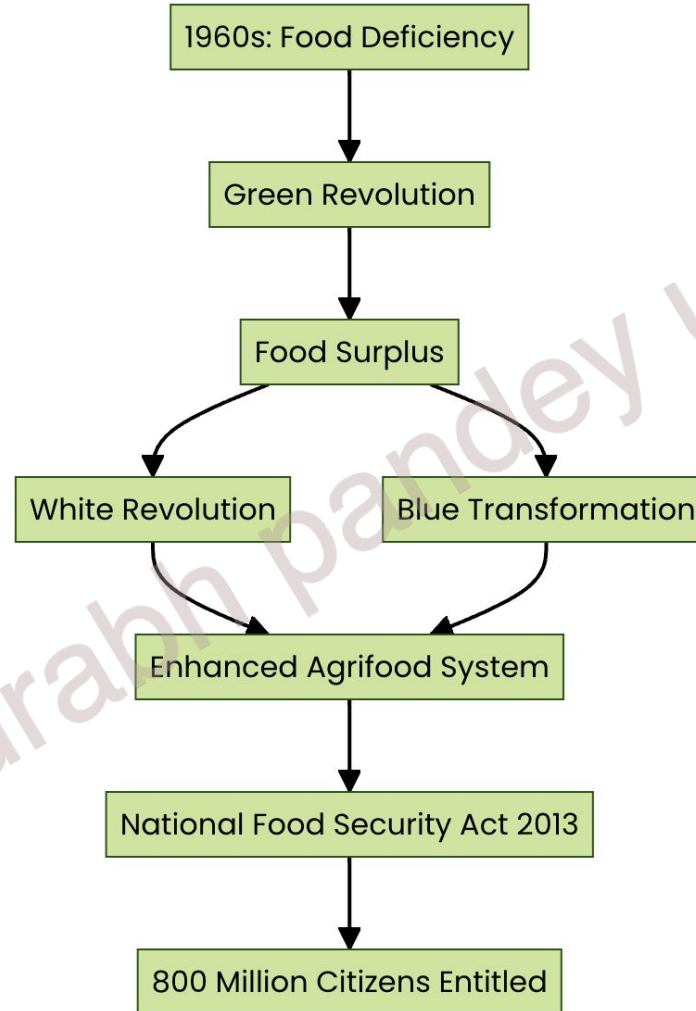
Demonstrates India's commitment to food security.



Food Safety Systems

Combines national policies with local initiatives.

Aims to prevent hunger and ensure resilience against future challenges.



Agricultural Backbone

Vital Role: India's agricultural sector is crucial, with 93.09 million agrarian households.

Small and Marginal Farmers: 82% of these households are small and marginal farmers with less than two hectares of land.

Resource Degradation

Groundwater Overuse: Excessive use of groundwater and chemical fertilizers is damaging soil health.

Need for Management: Improved water and soil management is necessary to boost agricultural productivity.



Market Access Issues

Challenges for Smallholders: Smallholder farmers face difficulties accessing markets due to infrastructure and supply chain inefficiencies.

Impact: These issues affect their income and contribute to food waste.



Climate Change Risks

Erratic Weather: Climate change leads to unpredictable weather patterns, threatening agriculture.

Sustainable Practices: Implementing sustainable practices like water conservation can enhance resilience.



Collective Responsibility



Partnerships: Collaborations between organizations and the Government of India aim to empower farmers.

Food Security: Ensuring food security for all, including non-agricultural households, is a priority.



Right to Food

Fundamental Right: Access to safe, nutritious, and affordable food is a basic human right.

Importance: This is crucial for both agricultural and non-agricultural families.



Social Safety Nets


Stabilizing Prices: Strong social safety nets and market interventions are essential.


Support for Vulnerable Populations: These measures help stabilize food prices and support vulnerable groups.


Topic→India's Agricultural Challenges and Opportunities





Key Issues in Indian Agriculture


 **Focus on Yield:** India prioritizes agricultural yield (kg/hectare) as a key metric for success, but this approach needs reevaluation.


 **Scarcity of Resources:** While land has traditionally been viewed as the most scarce resource, water, plant nutrition, and labor are also becoming limited.

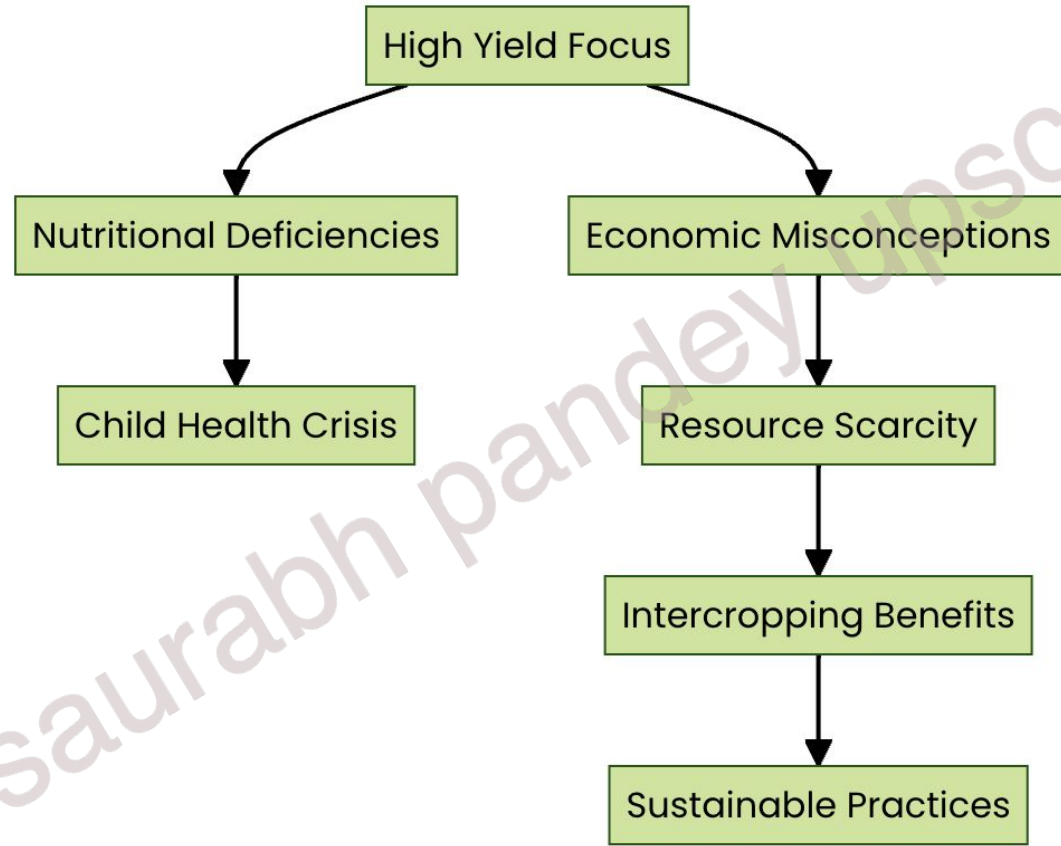
 **Nutritional Deficiencies:** The emphasis on high-yield crops has led to a decline in the nutritional quality of food, with significant drops in micronutrient levels in rice and wheat.

 **Economic Misconceptions:** Maximizing yield does not always equate to increased farmer income, especially as fertilizer efficiency has drastically declined since the 1970s.

 **Intercropping Benefits:** Studies show that intercropping can enhance overall nutritional output and profitability, suggesting a need for more diverse planting strategies.


 **Child Health Crisis:** A third of Indian children under five are stunted, and two-thirds are anaemic, highlighting the public health implications of current agricultural practices.


 **Lack of Nutritional Mandates:** Plant breeders are not required to disclose the nutritional profiles of new crop varieties, contributing to the ongoing micronutrient deficiencies.





Key Issues in Indian Agriculture



 **Biodiversity Loss:** India has lost approximately 104,000 rice varieties since the Green Revolution, leading to reduced agricultural resilience.

 **Climate Change Impact:** The focus on high-yield crops has made agriculture more vulnerable to extreme weather events like floods, droughts, and heatwaves.

 **Decline of Coarse Cereals:** The area sown with millets has decreased by 10 million hectares since the 1950s, while rice and wheat areas have increased significantly.

 **Need for Better Indicators:** Agricultural indicators should be developed collaboratively across various ministries, focusing on health, nutrition, and environmental sustainability.



Mainstreaming Metrics: Important metrics like soil health, water-use efficiency, and farm biodiversity should be integrated into agricultural assessments.



Diversity Measurement: A 'Landscape Diversity Score' should be established to assess regional crop diversity and economic resilience through income diversification.




New Agricultural Paradigm: Future agricultural success should prioritize nourishment, livelihood sustainability, and environmental protection over mere yield maximization.


Summary: The text emphasizes the need for a shift in India's agricultural focus from yield maximization to enhancing biodiversity, nutritional security, and sustainability in the face of climate change.

Topic→2024 Economics Nobel Prize: Understanding Institutions and Prosperity





Nobel Prize Awarded to U.S. Economists

 The 2024 Economics Nobel Prize was awarded to U.S. economists Daron Acemoglu, Simon Johnson, and James A. Robinson.

 Recognized for their work on understanding why some countries succeed economically while others do not.

Economic Disparities and Theories

 The richest 20% of countries are 30 times wealthier in average income than the poorest 20%.

 Theories on economic prosperity include colonialism, natural resources, intelligence, and historical accidents.

Institutions as a Key Factor



The laureates argue that the quality of economic and political institutions is the primary factor in economic divergence.



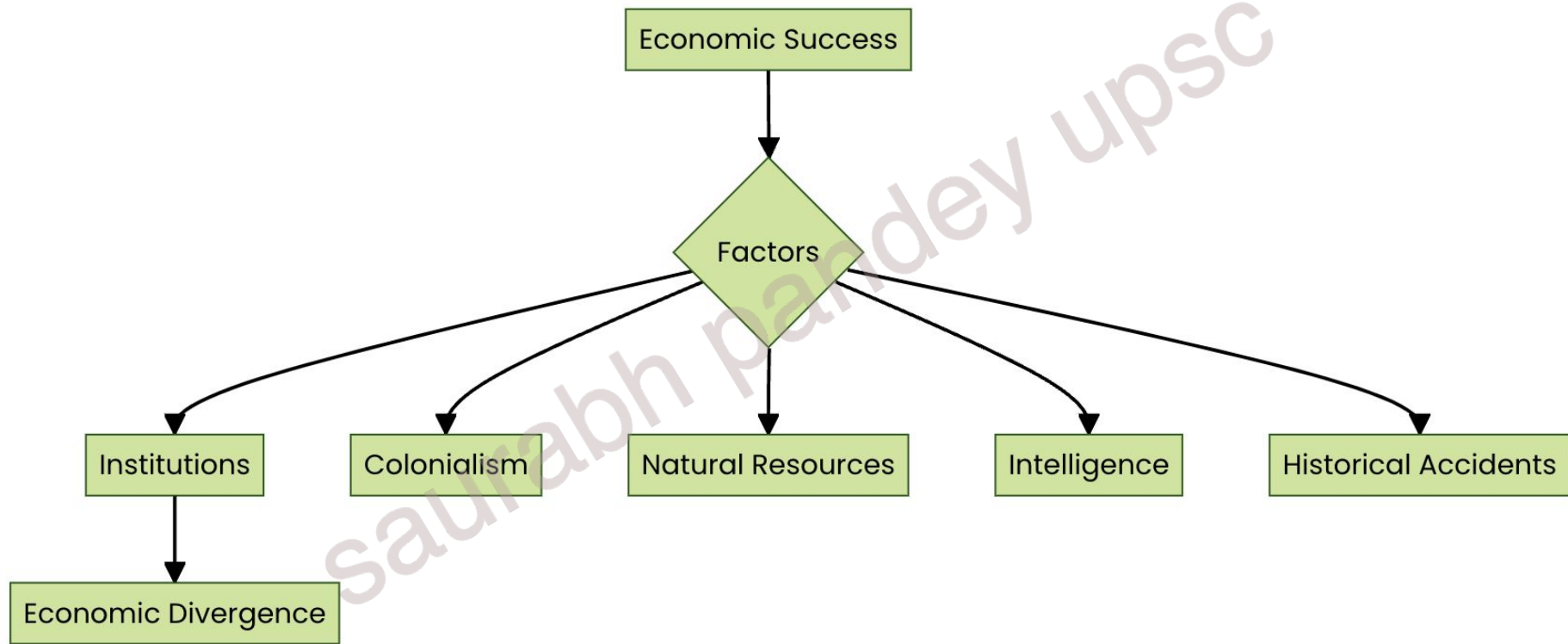
Their thesis is detailed in the book "Why Nations Fail: The Origins of Power, Prosperity, and Poverty" and a 2004 paper on institutions and long-run growth.

Contribution to Economic Understanding



Their work contributes to a deeper understanding of the fundamental causes of economic success and failure.

Conceptual Framework:



— The Importance of Quality Institutions



Understanding Institutions

Definition: Institutions are the “*rules of the game*” that define individual incentives.

Role in Economy:

Secure property rights encourage hard work 💪.

Institutions preventing expropriation lead to prosperity 🌱.

Legalized expropriation results in economic stagnation 📉

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Types of Institutions



Inclusive Institutions:

Characteristics: Secure property rights, Democracy 🗳️.

Benefits: Promote long-term economic growth and higher living standards 📈.

Extractive Institutions:

Characteristics: Insecure property rights, Lack of political freedom 🚫.

Consequences: Lead to economic degradation and poverty 💔.

Factors Influencing Institutional Quality



Cultural Influence: Institutional effectiveness is shaped by cultural context 🌍.

Rulers' Choices:

Extractive institutions provide immediate benefits to rulers.

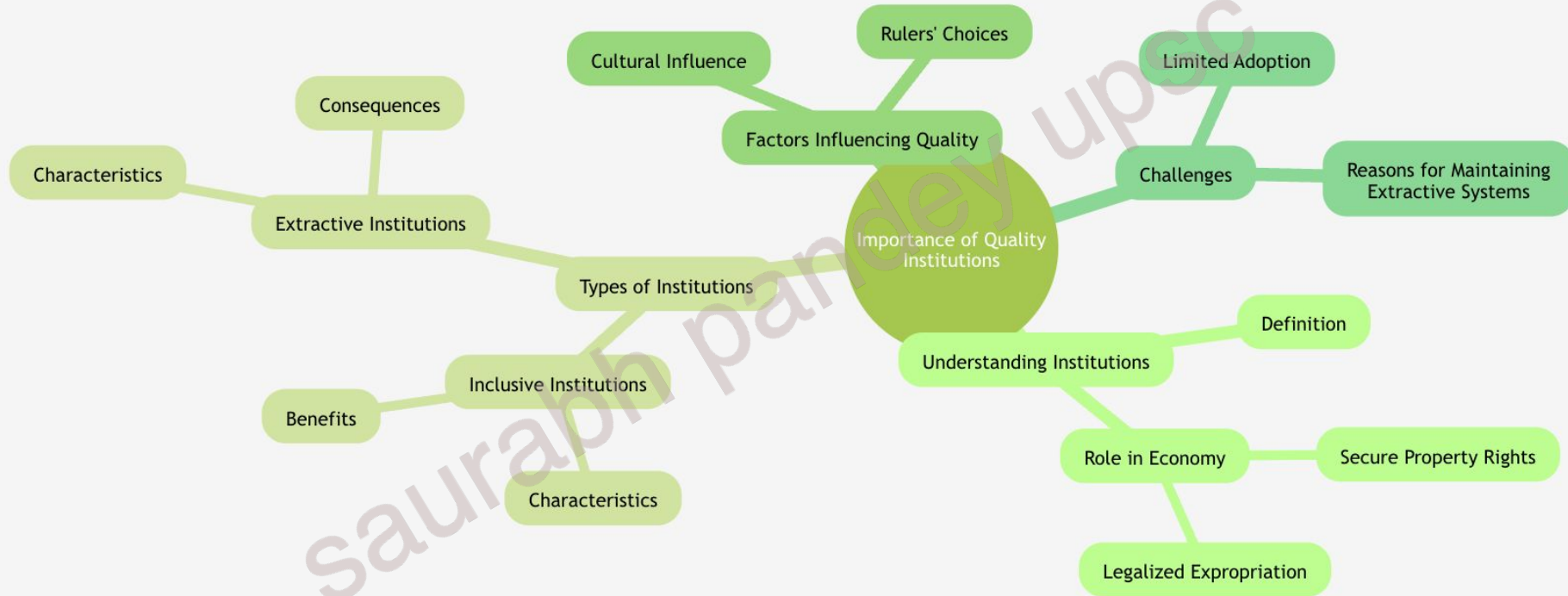
Lack of incentive for reform unless threatened by uprisings ⚔️.

Challenges in Adopting Inclusive Institutions

Reasons for limited adoption:

Rulers benefit from maintaining extractive systems 💰.

Political stability often maintained at the cost of inclusive reforms.



— Colonial Institutions and Economic Growth

Overview



Colonial Institutions: The type of institutions established by colonial powers had a profound impact on the economic trajectories of their colonies.



Extractive vs. Inclusive: Colonies with extractive institutions, like British India, faced long-term growth challenges, while those with inclusive institutions, such as the U.S., experienced sustained prosperity.



Cultural Influence: Institutions are not just economic but also cultural, shaping the "rules of the game" in society.



Rulers' Choices: Rulers often prefer extractive systems for personal gain, resisting inclusive reforms.



Resistance to Change: Change is difficult unless there is a significant threat of uprising, which can force rulers to consider reforms.



Importance of Inclusivity: Nobel laureates highlight the necessity of inclusive institutions for economic growth, though they are not widely adopted due to rulers' self-interest.

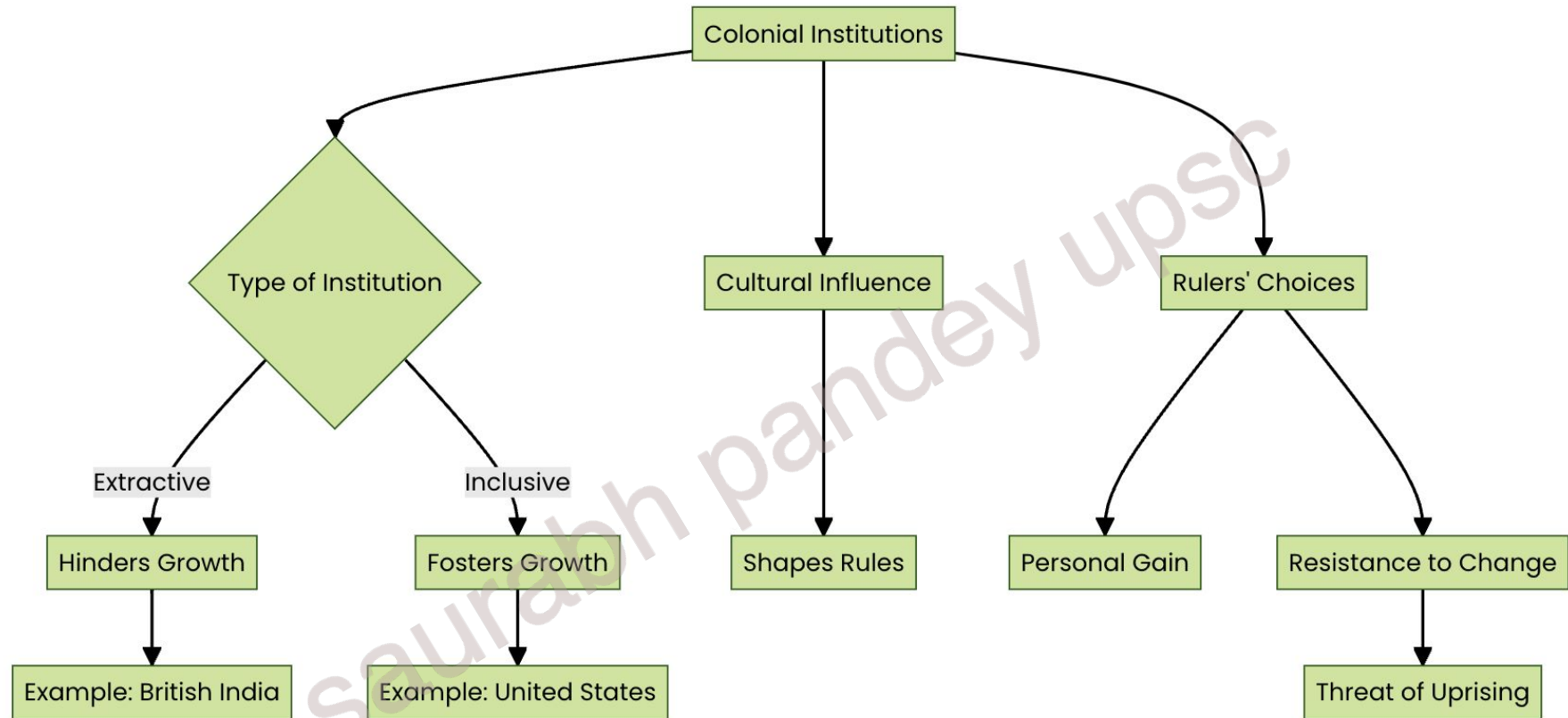
Key Insights

Economic Impact: The nature of colonial institutions has a lasting effect on economic development.

Cultural and Political Dimensions: Institutions encompass cultural norms and political structures that influence economic outcomes.

Rulers' Dilemma: The choice between extractive and inclusive institutions often reflects rulers' priorities and the pressures they face.

Conceptual Diagram:



Conclusion

- The establishment of extractive versus inclusive institutions by colonial powers significantly impacts long-term economic growth, influenced by rulers' choices and societal pressures.

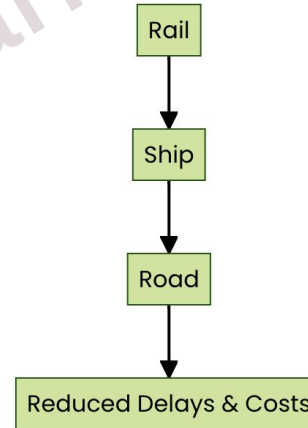


Container Importance

Revolutionized Global Trade: Containers have transformed global trade by enabling seamless transportation across rail, ship, and road.

Efficiency: They significantly reduce delays and costs in the logistics chain.

Container Impact on Trade:



India's Container Production

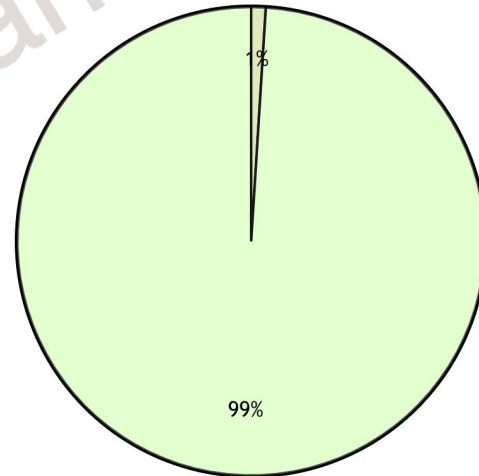


Current Production: India produces only 10,000 to 30,000 containers annually.

Demand Projection: Expected demand is 26.6 million TEU by 2028.

Production vs Demand:

Container Production



■ Current Productio
■ Projected Demanc

Cost Disparity

Manufacturing Costs: Indian containers cost \$3,500 to \$4,800, higher than China's \$2,500 to \$3,500.

Leasing Dependency: High costs lead to reliance on leasing from China.

Cost Comparison:

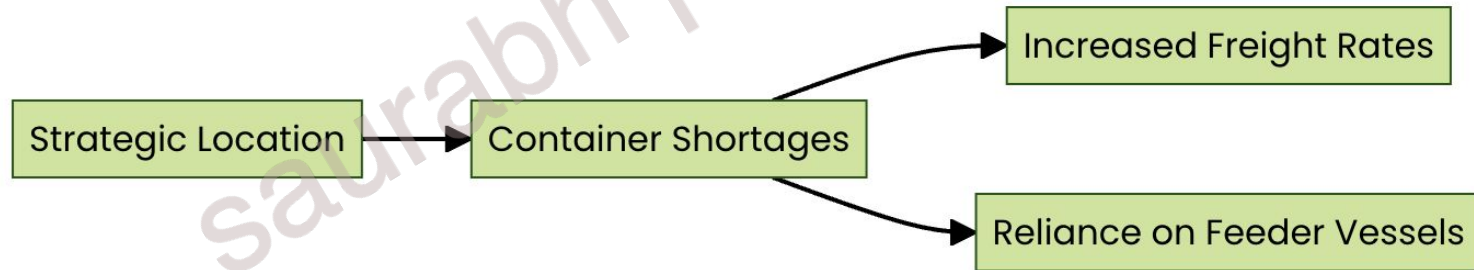
Country	Cost Range (\$)
India	3,500 - 4,800
China	2,500 - 3,500

— Port Limitations

Strategic Location: Despite strategic locations, Indian ports can't become hub ports.

Consequences: Container shortages increase freight rates and reliance on feeder vessels.

Port Challenges:





Global Trade Challenges



External Factors: Russia-Ukraine war and West Asia crises disrupt shipping routes.

Impact: These factors increase freight costs and exacerbate container shortages.

Government Initiatives

Promoting Production: Initiatives like Make In India, subsidies, and PLI aim to boost indigenous container production.

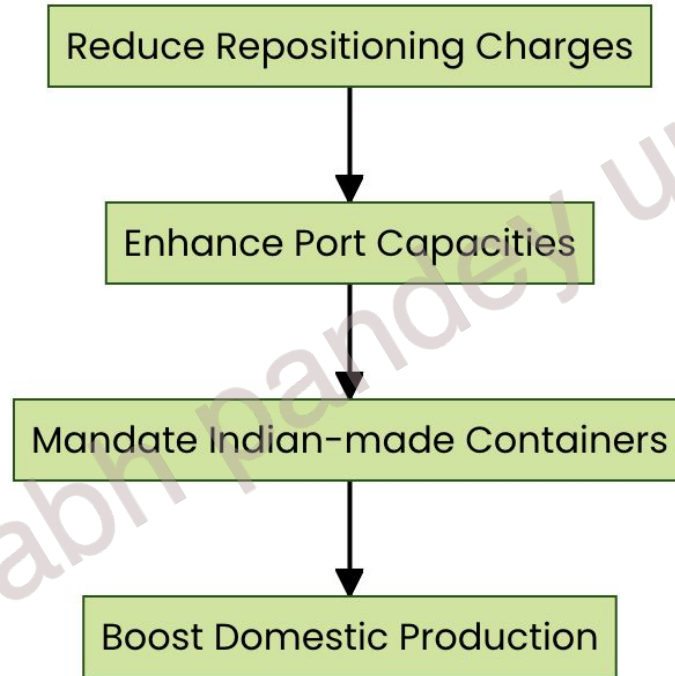


Future Measures

Proposed Solutions: Reduce repositioning charges, enhance port capacities, and mandate Indian-made containers.

Goal: Boost domestic production and market confidence.

Future Strategies:



Summary: India's container production is critically low compared to its trade growth ambitions, necessitating government intervention to enhance local manufacturing and reduce reliance on imports.

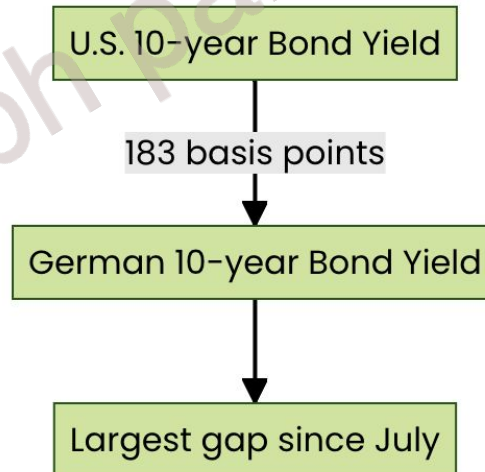
Bond Market Dynamics and Economic Outlook

Bond Markets Interest Rates Euro Zone Economy US Economy Investor Sentiment

Divergence in Bond Markets

- **Significant Gap:** The difference between U.S. and German 10-year bond yields has expanded to approximately **183 basis points**, marking the largest gap since July.

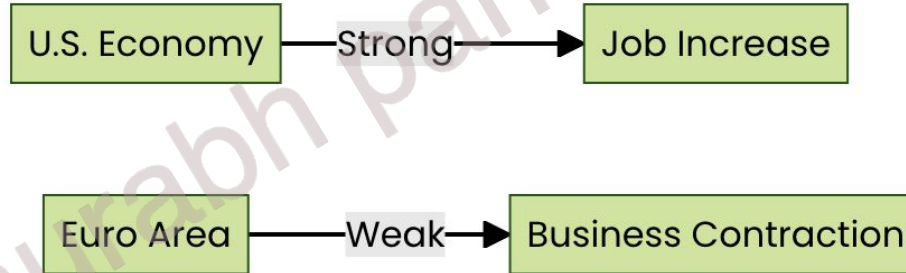
Yield Gap Analysis:



Economic Performance

- **U.S. Economy:** Demonstrates strength with a notable increase in job creation.
- **Euro Area:** Faces an unexpected contraction in business activity.

Economic Performance Comparison:





Interest Rate Expectations



U.S. Federal Reserve: Expected to slow down rate cuts after a 50-basis point reduction.

European Central Bank (ECB): Anticipated to implement its third rate cut since June



Currency Impact

Euro Decline: The widening yield gap is causing the euro to fall to its lowest level in two months, as higher U.S. bond returns attract investors.



Economic Forecasts

Germany: Projected to contract for a second consecutive year in 2024.

France: Plans to raise taxes and cut spending to reduce its budget deficit.



Future Rate Predictions

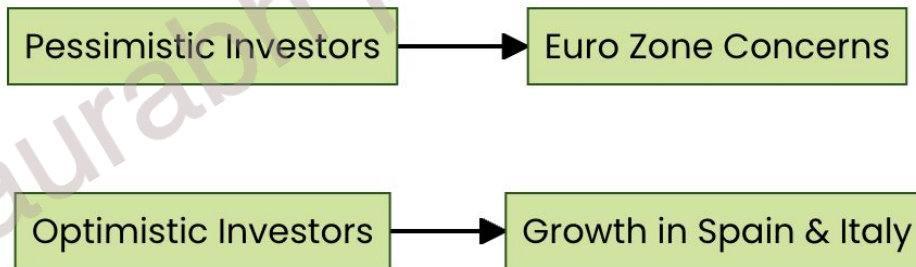


Euro Zone Interest Rates: Analysts predict a potential fall to as low as 1% next year if growth does not improve, despite current rates at 3.5%

🌐 Mixed Investor Sentiment

- **Pessimism vs. Optimism:** While some investors are pessimistic about the euro zone, others see potential growth in countries like Spain and Italy, suggesting a more nuanced outlook.

Investor Sentiment Spectrum:

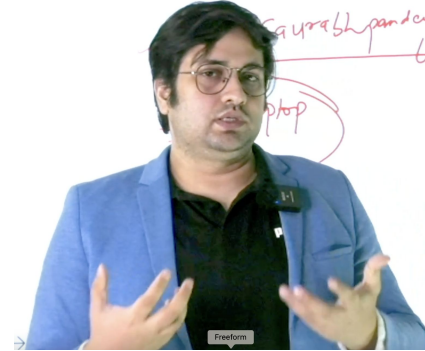


Summary: The divergence between euro zone and U.S. bond markets is expected to continue, driven by contrasting economic performances and interest rate expectations.

Topics - MINDS MAPS included (Daily current affairs)-- 17th October 2024



- **Five Eyes Intelligence**
- **Battle of Walong:**
- **Sec 6A Citizenship Act, 1955.**
- **Climate Change and Its Impact on Poor Households**
- **Understanding DNA and Protein Synthesis**
- **Jiangmen Underground Neutrino Observatory (JUNO)**
- **Global Hunger and Economic Challenges in India 2024**
- **Robot Artist Ai-Da**
- **Mains**



By saurabh Pandey



Target Mains -2025/26 -

Q “India’s Growth and prosperity depends on food, nutrition, gender, and climate change”. Discuss

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Topic → Five Eyes Intelligence



Overview

Definition: The Five Eyes (FVEY) is an intelligence alliance comprising five countries:

 Australia

 Canada

 United Kingdom

 United States

 New Zealand

Purpose: Shared intelligence and security cooperation to combat global threats.

Key Points:



History: Established post-World War II, formalized in 1946.

Function: Collects and shares intelligence, particularly signals intelligence (SIGINT).

Legal Framework: Operates under various national laws and agreements.

Current Trends:

Cybersecurity: Collaboration on cybersecurity threats and infrastructure protection.

AI Security: Joint efforts to secure AI technologies and mitigate risks.

Geopolitical Concerns: Responding to threats from nations like China and Russia.

Overview

The Battle of Walong was a significant battle during the *1962 Sino-Indian War*. It is commemorated annually to honor the bravery of Indian soldiers involved.

Key Themes

Commemoration Activities: Month-long events to honor the heroes.

Historical Significance: Understanding the context and impact of the battle.

Military Tribute: Acknowledging the valor of soldiers.

Date: Significant events from October 17 to November 14.

Honor: Tribute to the heroes of the battle.

Engagement: Involvement of military and community

Topic → Sec 6A Citizenship Act, 1955.



Judgment Date: A Constitution Bench led by Chief Justice D.Y. Chandrachud will deliver a judgment on October 17 regarding Section 6A of the Citizenship Act, 1955.



Section 6A Overview: This section was added to the Citizenship Act as part of the Assam Accord, signed on August 15, 1985, by the Rajiv Gandhi government.



Eligibility Criteria: Section 6A grants rights to foreigners who entered Assam before January 1, 1966, as "ordinarily resident," while those entering between January 1, 1966, and March 25, 1971, can only vote after 10 years.





Questioning Assam's Exclusivity: Petitioners have raised concerns about why only Assam is subject to Section 6A among border states, suggesting it has led to increased infiltration


— Topic → Climate Change and Its Impact on Poor Households in India




Key Findings from the FAO Report

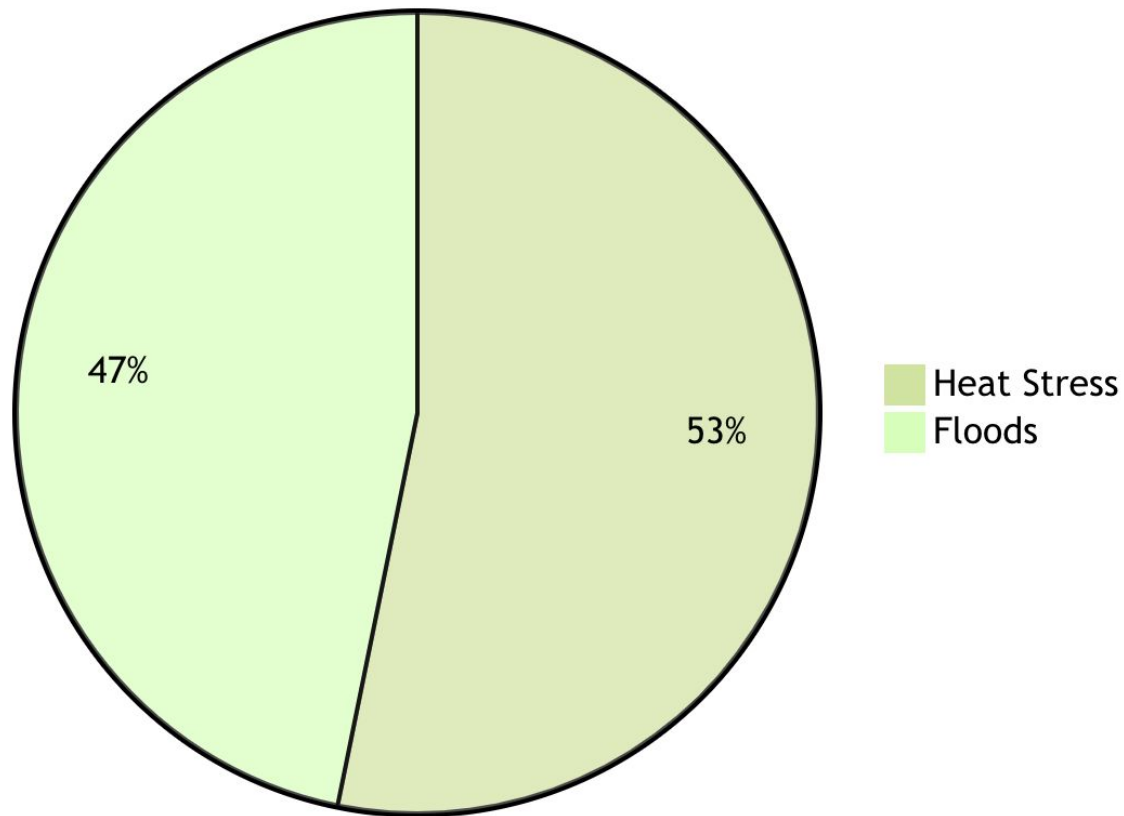
 Global Impact: Poor households worldwide lose 5% of their total income annually due to heat stress and 4.4% from floods.

 India's Vulnerability: The report highlights the adverse effects of climate change on India's farming population, especially impacting rural poor, women, and youth.

 Income Reduction: Poor households in India experience decreased on-farm income during climate stress events, prompting increased investment in agriculture.

 Structural Inequalities: The vulnerability of poor households is linked to structural inequalities, necessitating expanded social security measures

Income Loss Due to Climate Stress



Recommendations and Initiatives



Social Protection Programs: Scale up anticipatory social protection programs and improve workforce diversification to enhance off-farm employment opportunities.

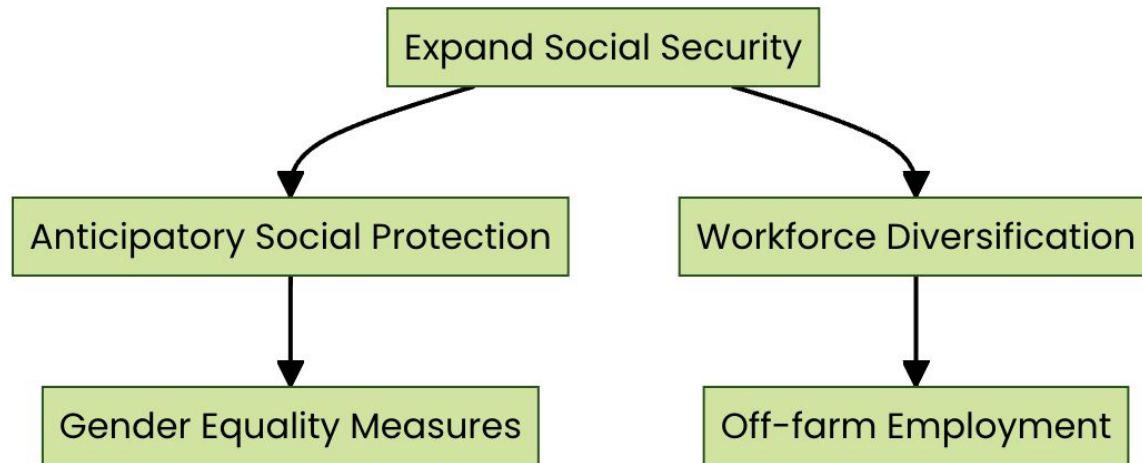


Gender Barriers: Address gendered barriers in non-farm employment to better support rural communities.



Indian Initiatives: NITI Aayog member Ramesh Chand mentioned initiatives like the National Innovations on Climate Resilient Agriculture (NICRA) and an employment guarantee scheme.

Policy Recommendations:



Summary: The FAO report reveals significant income losses for poor households due to climate stress, urging policy measures to enhance social security and employment opportunities in India.

Key Concepts in DNA and Protein Synthesis



DNA Blueprint: Each cell contains a copy of DNA, serving as the blueprint for building and maintaining the organism.



Protein Function: Proteins are produced based on DNA instructions and have specific functions, such as haemoglobin carrying oxygen.



Gene Count: Humans have between 19,000 and 20,000 genes. Each cell contains the information to produce all proteins but only expresses those necessary for its function.



Transcription Process: The creation of a messenger RNA (mRNA) copy of a gene is called transcription, occurring only in cells that require the specific protein.

For a long time, this halting of protein production, called post-transcriptional gene regulation, was thought to occur when the mRNA degrades — either on its own (due to its low stability) or aided by special enzymes that the cell makes.



— Protein Production Control: Protein production must be regulated to prevent excess, which can be wasteful and harmful to the cell.



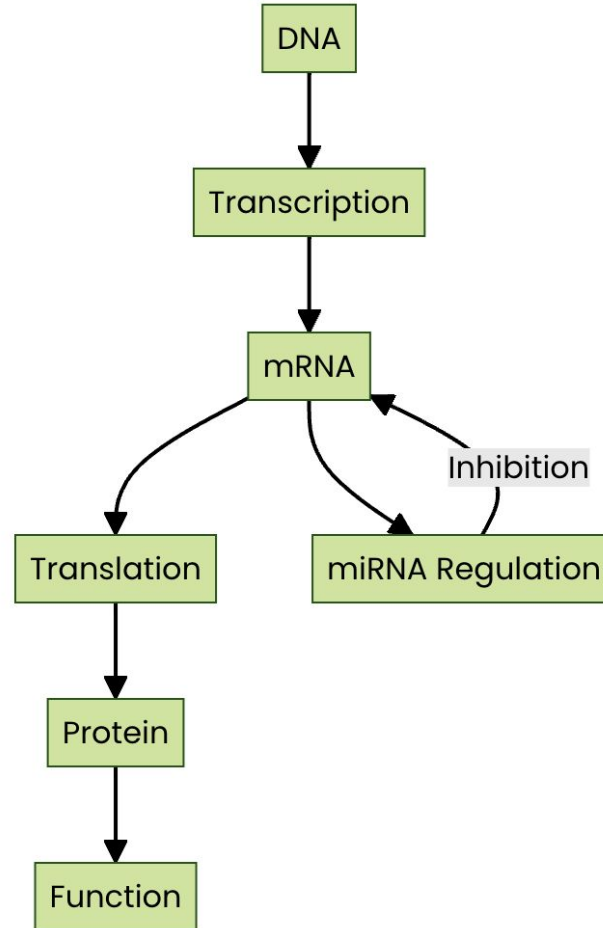
Post-Transcriptional Regulation: It was traditionally believed that mRNA degradation controlled protein production, but new research has identified microRNA (miRNA) as a regulatory mechanism.



MicroRNA Discovery: Ambros and Ruvkun discovered that miRNA can bind to mRNA, inhibiting protein synthesis.

Summary: Cells utilize DNA to produce proteins through a regulated process involving transcription and microRNA, ensuring only necessary proteins are synthesized


Protein Synthesis Process:





miRNA: A Key Player in Gene Regulation




Overview of miRNA

 **miRNA Composition:** miRNA is chemically similar to mRNA, both made of four chemical bases on a sugar-phosphate backbone, but miRNA is significantly shorter, averaging 22 bases.

 **Size Comparison:** mRNAs can range from hundreds to lakhs of bases, while miRNAs are consistently around 22 bases long.

 **Target Specificity:** The sequence of bases in miRNA is complementary to specific mRNA sequences, allowing for targeted binding and regulation of protein production.

 **Protein Production Regulation:** When miRNA binds to its target mRNA, it can either mark it for destruction or prevent it from being used as a template for protein synthesis, effectively switching off protein production.



Research Milestone: Since the discovery of the first human miRNA in 2000, thousands of miRNAs have been identified, influencing nearly 60% of human genes.

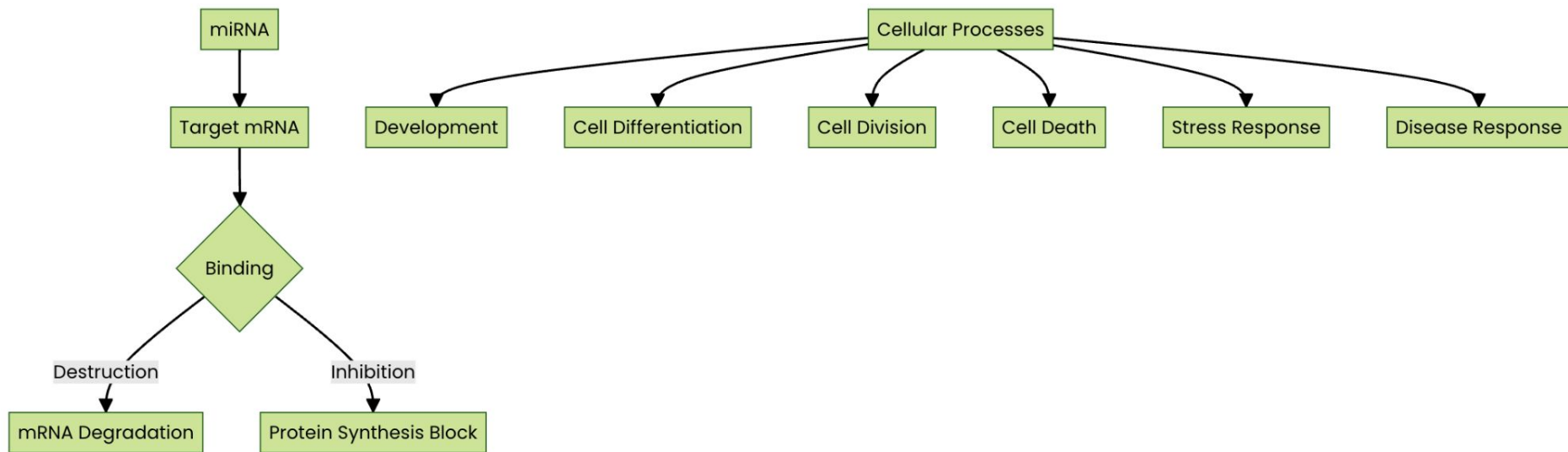



Cellular Functions: miRNAs are crucial in various cellular processes, including development, cell differentiation, division, death, and responses to stress and disease, particularly in cancer.





Therapeutic Potential: The specificity of miRNAs makes them promising candidates for targeted therapies in conditions like cancer, although their clinical research has faced challenges.


miRNA Functionality and Impact:



—  **Importance of RNA:** RNA plays a crucial role in cellular functions-and- has significant implications in medicine.

 **Early Experiments:** Initial studies in mice showed that miRNAs could inhibit lung tumor formation, indicating potential therapeutic benefits.

 **First Clinical Trial:** The first human trial of miRNA-34a occurred in 2013, but high doses led to immune responses and patient fatalities, halting the trial.

 **Advancements in Delivery:** Significant improvements in miRNA packaging and delivery have allowed for further testing against diseases like hepatitis C and various cancers.



Clinical Trials Statistics: As of the recent Nobel Prize announcement, 581

- miRNA-related clinical trials were registered in the U.S., with 215 completed and 20 terminated due to safety issues.



Nobel Prize Recognition: The Nobel Prize awarded to Ambros and Ruvkun highlights the importance of miRNAs in physiology and medicine, despite limited therapeutic applications.



Historical Context: This Nobel Prize marks the fifth recognition of RNA research, emphasizing the growing understanding of RNA's central role in cellular balance.

— Topic→Jiangmen Underground Neutrino Observatory (JUNO)



Location and Structure

Location: Situated 700m underground in Guangdong, China.

Structure: Features a 12-storey cylindrical pool of water



Cost and Timeline

Construction Cost: \$300 million.

Operational Timeline: Set to begin operations in the latter half of 2025.



Neutrino Research



Objective: Study neutrinos to understand their mass hierarchy and fundamental processes of the universe.

Data Sources: Neutrinos from nearby nuclear power plants, the Sun, and Earth's radioactive decay.



International Collaboration

Countries Involved: France, Germany, Italy, Russia, the U.S., and Taiwan.

Collaboration: Scientists from these countries are working together on the JUNO project.



Data Transmission and Analysis


Detector: 600-tonne spherical detector logs neutrino data.

Data Transmission: Data sent electronically to Beijing and collaborating institutions in Russia, France, and Italy.


Analysis: At least two independent teams analyze data for accuracy before publication.

Summary: The JUNO project in China is a \$300 million initiative set to start in 2025, focusing on neutrino research with international collaboration and advanced data analysis techniques

Undernourished Population

 India's undernourished population in 2024 is approximately 200 million, ranking it as the seventh most populous country globally.

Global Hunger Index Ranking

 India is ranked 105th in the 2024 Global Hunger Index with a score of 27.3, categorized as "serious," but could be considered "extremely alarming" based on other factors.

Economic Disparity



Despite being the fastest-growing economy at 6.8% in FY24, India's per capita income is \$2,485, significantly lower than the global average of \$13,920, highlighting income inequality.

Food Inflation



Food inflation in India more than doubled from 3.8% in FY22 to 7.5% in FY24, primarily affecting the poor, attributed to extreme weather events and low reservoir levels.

Food Production



🌾 India achieved a record food production of 332 million tonnes in 2023-24, mainly due to bumper crops in rice and wheat, despite adverse effects on pulses and vegetables.

Child Health Indicators

👶 India's infant mortality rate is 26 per 1,000 live births, with child stunting and wasting rates at 35.5% and 18.7%, respectively, indicating systemic failures in healthcare and nutrition.

Impact of Climate Change

☁️ Climate change is significantly impacting India's food security, exacerbating existing issues in health care and safety net systems.

Global Hunger Index 2024: India's Challenges and Initiatives

Overview of India's Hunger and Nutrition Status



Global Hunger Index Ranking: India ranks 105th out of 127 countries with a score of 27.3, indicating a 'serious' level of hunger.



Child Malnutrition Statistics:

- 35.5% of children are stunted

- 18.7% are wasted

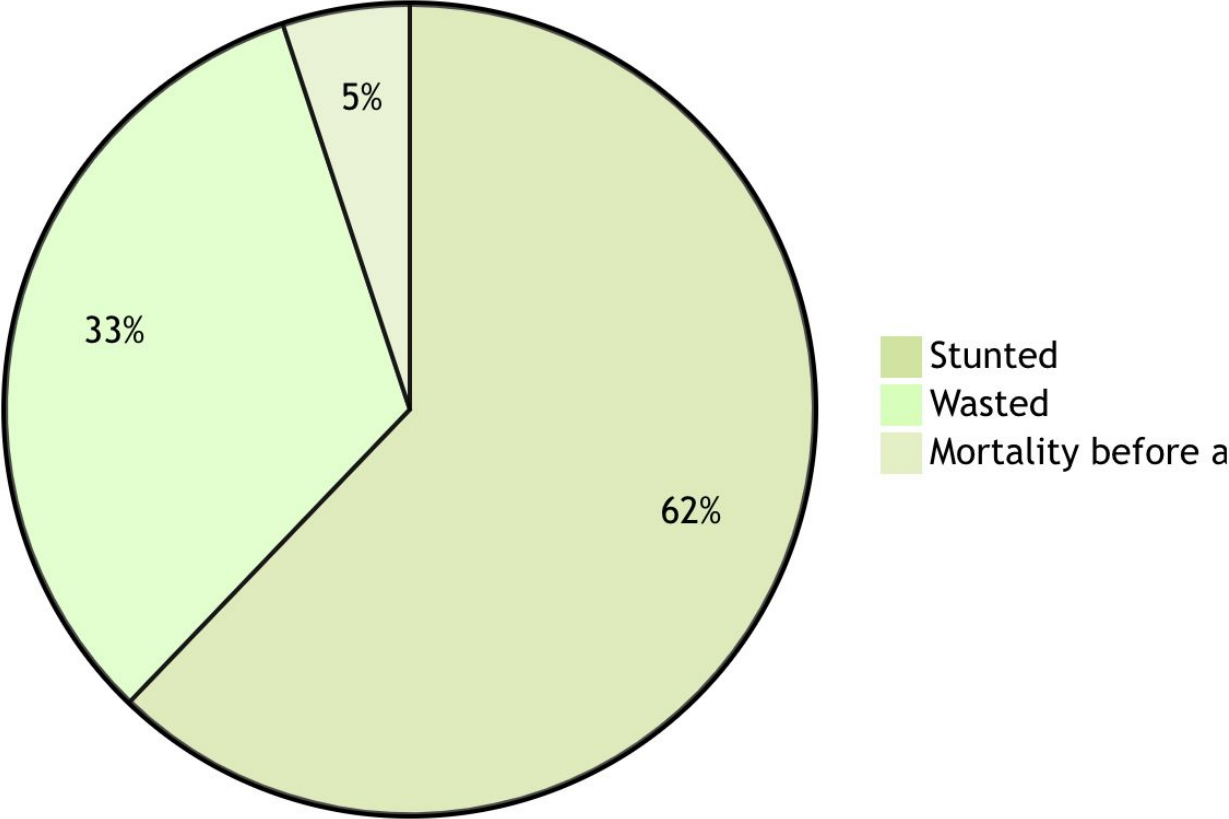
- 2.9% die before their fifth birthday

India has the highest child wasting rate globally.



Undernourishment Rate: 13.7% of the Indian population is undernourished, reflecting significant nutritional challenges.

Child Malnutrition in India



Government Efforts and Challenges



Government Initiatives:

National Food Security Act

Poshan Abhiyan



Intergenerational Undernutrition: Poor maternal nutrition affects child health, creating a cycle of undernutrition impacting future generations.

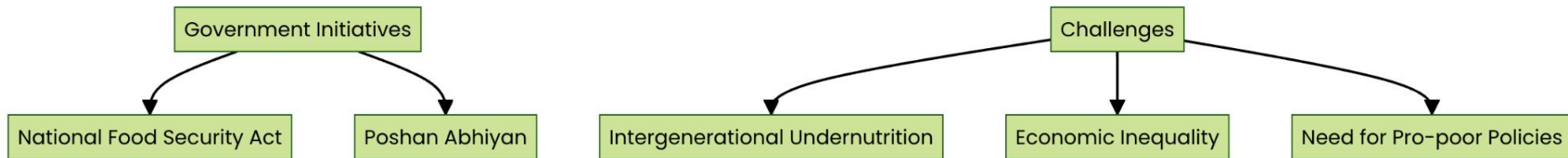


GDP and Hunger Relationship: GDP growth does not guarantee improved food security, emphasizing the need for pro-poor policies.



Need for Policy Focus: There is a call for policies that address social and economic inequalities to improve food and nutritional security.

Government Initiatives and Challenges:



Summary: The 2024 Global Hunger Index reveals serious hunger issues in India, with alarming child malnutrition rates, despite government efforts and the need for targeted policies to address underlying inequalities.

Comprehensive Strategy for Nutrition and Well-being



Multifaceted Approach



Comprehensive Strategy: Advocates for improving nutrition and well-being through diverse measures.

Access to Safety Nets



Social Programs: Emphasizes enhancing access to programs like the Public Distribution Scheme (PDS) and cash transfers.


Agricultural Investments




Diverse Food Production: Suggests investing in agriculture and promoting nutritious food production, including nutri-cereals like millets.

–Mother and Child Health




 Targeted Investments: Calls for investments in maternal and child health, alongside improvements in water, sanitation, and hygiene.


Interconnected Issues

 Holistic Approach: Highlights the need to address links between food, nutrition, gender, and climate change.

Data Collection Debate

 Controversy: Discusses the debate over data collection methods, particularly the 'Poshan Tracker' by the Ministry of Women and Child Development.

Comparability of Data

 Standardization: Researchers argue for using standardized data sources to maintain comparability of malnutrition statistics.



Robot artist Ai-Da will be the first of its kind to have a painting sold at an auction. The work, due to go under the hammer at Sotheby's next month, is a 'haunting' portrait of the English mathematician Alan Turing, considered one of the fathers of modern computing. AFP

Robot Artist Ai-Da

Overview

- Ai-Da is a humanoid robot artist.
 - Known for creating art, including portraits.
 - Represents a significant step in AI and creativity integration
-



28th dec 2022



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- A recent Comptroller and Auditor General of India (CAG) report on the update exercise of the National Register of Citizens (NRC) in Assam has flagged serious irregularities, including “haphazard development” of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.

on the Human Development Index.

However, health experts say the fact that India's fertility rate is declining due to a variety of factors, including increased literacy rates, increase in the age of marriage and so forth, should prompt measures to better anticipate, from the government, decisions to general health workers to launch campaigns on oral cancer awareness, push vaccination and screening for all girls.

What is the CAG audit report on Assam's NRC?

The report, released on December 24, says the NRC update exercise in Assam has been marred by several irregularities, including “haphazard development” of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.

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The audit flagged concerns in a compliance report of irregularities by NRC update project in Assam tabled in the Assam Assembly on December 24.

What is the NRC exercise?

• An NRC was first created in 1951 to Assam to identify those born in India and migrants from neighboring areas Pakistan, now Bangladesh.

• In 2019, the Supreme Court issued directions to the Centre and State to initiate an exercise in Assam to update the NRC register.

What are the CAG's concerns?

Click to add speaker notes

11th october 2022

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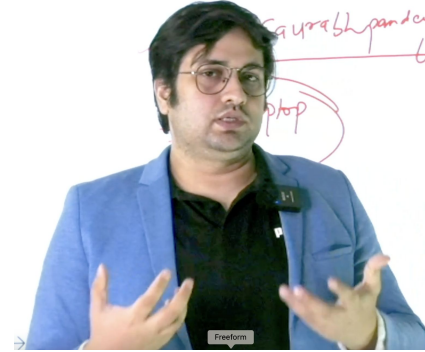
Q 5 --local bodies and urban bodies --PLZ TYPE on youtube the hindu analysis by saurabh pandey sir --11th october 2022

- The Constitution mandates that panchayats and municipalities shall be elected every five years and enjoins States to devolve functions and responsibilities to them through law.
- This is regarded as a design weakness, but on closer look, is not one.
- Given diverse habitation patterns, political and social history, it makes sense to mandate States to assign functions to local governments.

Topics - MINDS MAPS included (Daily current affairs)-- 18th October 2024



- **Supreme Court Ruling on Section 6A of the Citizenship Act**
 - **Universal Basic Income (UBI)**
 - **G-20 Summit and India's Development Challenges**
 - **Judicial Review of Marital Rape Laws in India**
 - **IR IN NEWS**
 - **Mains**
-



By saurabh Pandey



Target Mains -2025/26 -

Q “Universal basic income is not the solution for eradicating poverty’. Do You Agree??

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Topic → Supreme Court Ruling on Section 6A of the Citizenship Act



Key Highlights



Supreme Court Ruling: A Constitution Bench of the Supreme Court upheld the constitutionality of Section 6A of the Citizenship Act, 1955, with a 4:1 majority.



Citizenship for Immigrants: Section 6A allows immigrants from Bangladesh residing in Assam before January 1, 1966, to secure Indian citizenship, while those entering between January 1, 1966, and March 25, 1971, can obtain citizenship under specific conditions.



Principle of Fraternity: Justice Surya Kant emphasized that the principle of fraternity should apply universally, not selectively, to different groups in Assam.



Historical Context: The ruling is rooted in the Assam Accord of 1985, which aimed to address the issue of illegal immigration and its impact on Assam's resources.

_Key Highlights




Fraternity Principle: Justice Surya Kant emphasized the universal application of the fraternity principle across all groups in Assam.





Constitutional Interpretation: The court's interpretation suggests that fraternity necessitates coexistence among diverse backgrounds, prioritizing disenfranchised rights over community preservation.




Section 6A Overview: This section of the Assam Accord (1985) grants citizenship to immigrants from Bangladesh who entered Assam before January 1, 1966, and sets conditions for those arriving between 1966 and March 25, 1971.

 **Post-1971 Immigration:** Citizenship is denied to those entering Assam after March 25, 1971, underscoring the issue of illegal immigration.

 **Government Accountability:** Justice Kant criticized the government's failure to identify and deport post-1971 immigrants, attributing migration burdens to this negligence.

 **Inadequate Legal Framework:** The court found the legal mechanisms for identifying illegal immigrants in Assam insufficient and disproportionate to the situation's needs.

 **Judicial Oversight:** A call for a monitoring Bench by the Chief Justice of India to ensure effective implementation of immigration and citizenship laws in Assam.



Inadequate Immigration Mechanism: The court criticized the existing statutory machinery for identifying illegal immigrants as inadequate and called for better monitoring and implementation of immigration laws.



Balancing Humanitarian Concerns: Chief Justice D.Y. Chandrachud noted that Section 6A represents a balance between humanitarian considerations for immigrants and the economic and cultural impact on Assam.

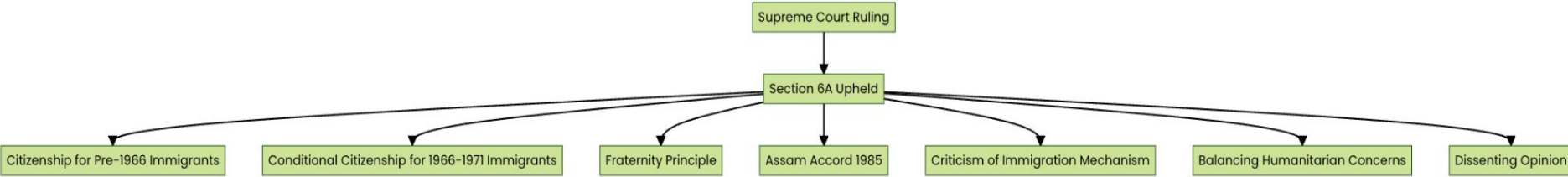


Dissenting Opinion: Justice J.B. Pardiwala dissented, declaring Section 6A unconstitutional with prospective effect, highlighting concerns over cultural preservation.

Summary The Supreme Court upheld Section 6A of the Citizenship Act, affirming citizenship for certain Bangladeshi immigrants in Assam while emphasizing the need for better immigration enforcement and balancing humanitarian and cultural concerns.



Conceptual Overview:



Topic→Universal Basic Income (UBI)



Overview of UBI

Definition: A policy where all citizens receive a regular, unconditional sum of money from the government. 💰

Purpose: To address issues like poverty and unemployment, especially in the context of automation and jobless growth. 📈


Key Themes of Discussion

Global Context

Job Growth Issues: Automation and AI contribute to job scarcity. 🤖

Youth Unemployment in India: A significant challenge that needs to be addressed. 🧒

Policy Debates in India

Replacement of Welfare Schemes: Discussion on replacing inefficient welfare programs with UBI. 

Feasibility vs. Desirability: UBI may be desirable but faces budgetary constraints. 

Components of UBI

Direct Income Transfers: A shift from targeted welfare to universal income. 

Existing Income Transfer Schemes: Current programs such as PM-KISAN and their limitations. 

— Arguments For and Against UBI



Pros:

Reduces Administrative Costs: Fewer intermediaries involved. 💰

Minimizes Inclusion Errors: Universal coverage avoids targeting issues. 🚫

Cons:

Financial Feasibility: Large transfers may not be sustainable. 📉


Criticism of Universal Benefits: Concerns about wealthier individuals receiving benefits. 🙄


Implementation Challenges

Logistical Issues: Ensuring access to cash-out points and electronic payment systems. 🏛️


State Capacity: Addressing bureaucratic delays and corruption. 🏛️

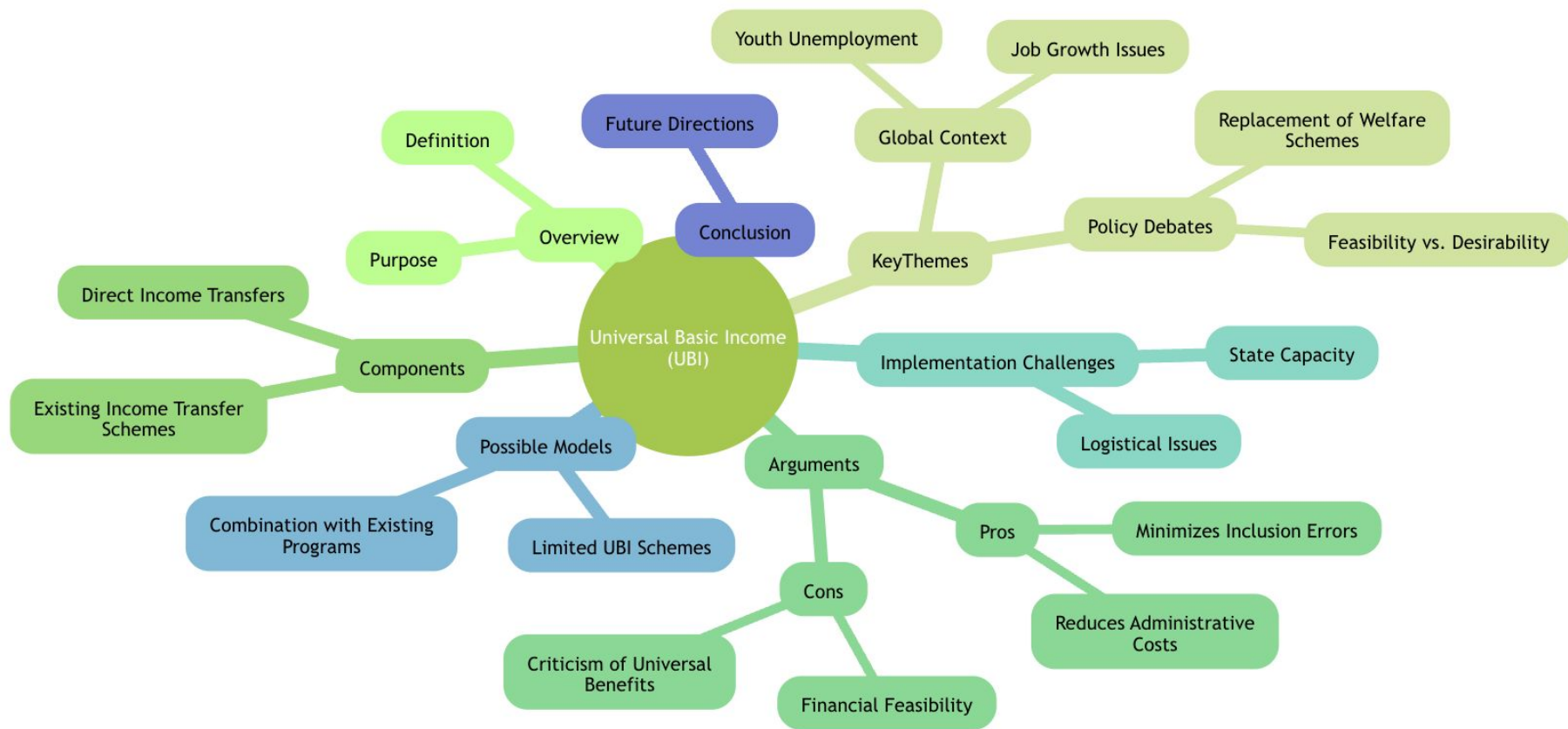
__ Possible Models

Limited UBI Schemes: Exploring modified UBI models pegged at lower GDP percentages. 

Combination with Existing Programs: Merging UBI with other safety net policies for comprehensive coverage. 

Conclusion

Future Directions: Exploring modified UBI as a potential safety net for vulnerable populations. 



— Topic→G-20 Summit and India's Development Challenges



Key Highlights



G-20 Summit: Held in New Delhi on September 9-10, 2023, focusing on the UN Agenda 2030 for Sustainable Development.



SDG Summit: Conducted at the UN on September 18-19, 2023, to assess the progress of the 17 Sustainable Development Goals (SDGs).



Human Development Index (HDI): India ranks 134 out of 193 countries with an HDI value of 0.644, indicating medium human development.



Gender Disparities: Significant gender gaps exist, with a Labour Force Participation Rate (LFPR) of 28.3% for women versus 76.1% for men, showing a 47.8 percentage point difference.



Income Inequality: The wealthiest 1% in India holds 21.7% of the income, surpassing many neighboring countries and the global average of 17.5%.



Progress Since 1990: India's HDI value rose by 48.4% from 0.434 in 1990 to 0.644 in 2022, though growth has been hampered by the COVID-19 pandemic.



Need for Policy Initiatives: Urgent research and policy measures are required to address gender gaps and income inequality to achieve the SDGs.

__ Key Themes from the Human Development Report (HDR)



Human Development Index (HDI):

Dimensions:

Long and healthy life (Life expectancy)

Knowledge (Years of schooling)

Decent standard of living (Income per capita)

Current Status:

HDI value: 0.644 (Rank 134 out of 193 countries)

Comparison:

Neighbouring countries' HDI:

Malaysia (63), Thailand (66), China (75)

__ Gender and Income Inequality Issues



Gender Development Index (GDI):

Measures disparities in human development by gender

Gender gap in Labour Force Participation Rate (LFPR):

Women: 28.3%, Men: 76.1%

Income Inequality:

Richest 1% holds 21.7% of total income

Higher than global average (17.5%) and South Asia average (19.6%)

Recommendations for Improvement

Boost Human Development Initiatives:

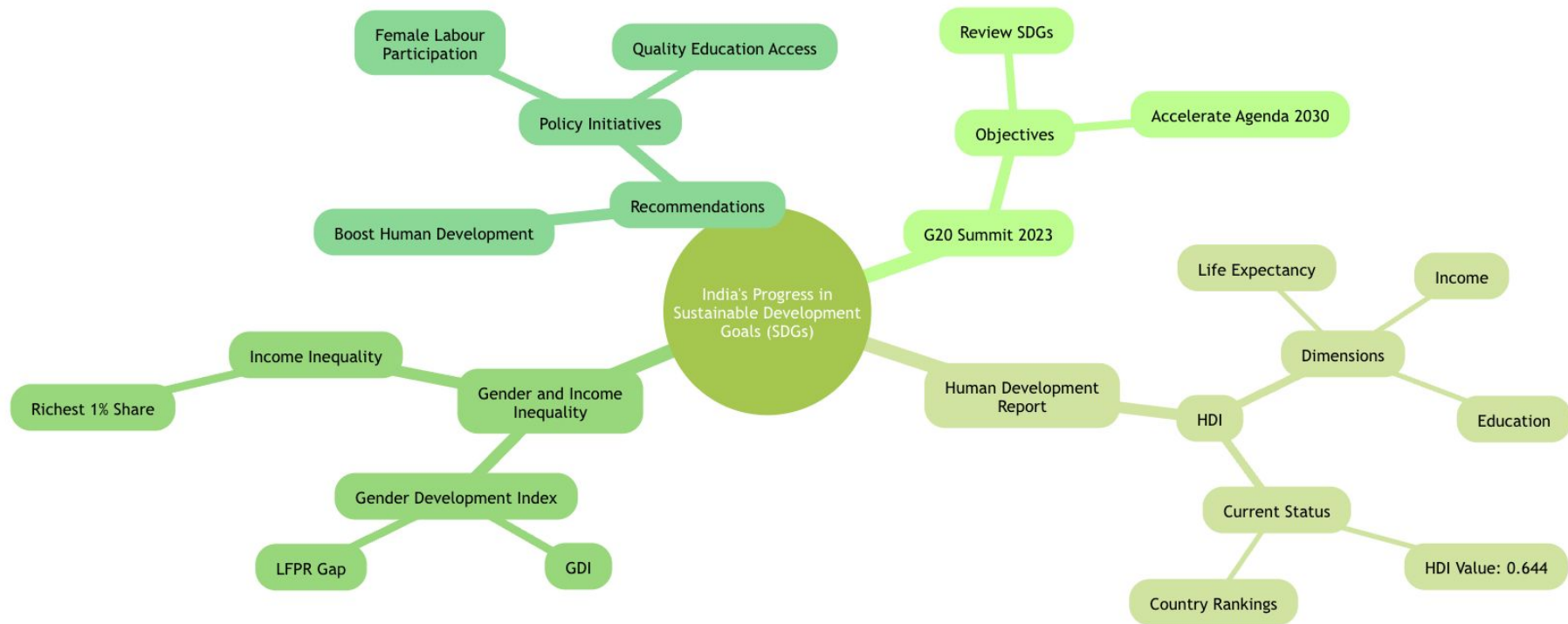
Address gender gaps and income inequality

Policy Initiatives:

Enhance female labour force participation

Improve access to quality education

Figure 1.1: Minimap



Topic→Judicial Review of Marital Rape Laws in India



Overview of Judicial Review



Judicial Review: A three-judge Bench led by Chief Justice D.Y. Chandrachud is examining petitions challenging the constitutional validity of Exception 2 to Section 375 of the IPC and Section 63 of the BNS, 2023.

Legal Immunity for Husbands

Legal Immunity: Current laws provide immunity to husbands, asserting that sexual acts with their wives over 18 are not considered rape.


Statistics on Marital Violence




Marital Violence: The National Family Health Survey-5 reveals that nearly one-third of married women (ages 18-49) in India have experienced physical or sexual violence from their husbands.

Global Context of Domestic Violence




 **Global Context:** Around 75% of sexual assaults occur in intimate settings, often perpetrated by someone known to the survivor, underscoring a widespread issue of domestic violence.


Historical Context of Marital Rape Exemption

 **Historical Context:** The marital rape exemption (MRE) is rooted in the colonial "doctrine of coverture," which restricted a married woman's legal autonomy.

Legal Precedent in India

 **Legal Precedent:** The Supreme Court's 2018 decision in *Joseph Shine versus Union of India* criticized the coverture doctrine, highlighting the necessity for legal acknowledgment of a woman's autonomy.

International Changes in Marital Rape Laws

 **International Changes:** England abolished the MRE in 1991 in the case of *R versus R*, marking a pivotal change in the legal status of wives in society.

— Analysis of Rape Laws and Legal Disparities



Definition of Rape

Section 375 of the IPC: Defines rape with seven conditions, including lack of consent and coercion.



Punishment for Rape

Minimum Sentence: 10 years imprisonment.

Maximum Sentence: Life imprisonment and fines.



Exceptions in Law

Medical Procedures: Exempted from being classified as rape.

Marital Exception: Sexual acts between a man and his wife, if she is over 18, are not considered rape. This was revised from 15 years in 2017.



Legal Disparity

Marital Rape Exception (MRE): Creates a legal distinction, denying married women the same protections as unmarried women.

Equality Concerns: Raises issues under Article 14 regarding equal protection under the law

Violation of Rights Fundamental Rights: Petitioners argue MRE violates rights such as non-discrimination (Article 15) and the right to privacy and bodily integrity (Article 21).



Judicial Precedents

Supreme Court Rulings: Cases like K.S. Puttaswamy and Joseph Shine emphasize privacy and individual autonomy as fundamental rights, extending beyond marriage.




Call for Equality


Advocacy for Change: Petitioners call for recognition of married women's rights to equal protection against sexual violence, challenging systemic legal barriers.


Summary: The Supreme Court is confronted with the challenge of addressing the constitutionality of rape law exceptions that disadvantage married women, highlighting issues of equality and fundamental rights.


1-Argentine province La Rioja's prints its own money.

2-Saudi Arabia launches new digital platform to ensure wage protection-

 The new labour rules in Saudi Arabia will benefit at least 10 African countries, including Sudan, Ethiopia, Uganda, Egypt, and Kenya.

 Additionally, nine Asian countries such as India, Bangladesh, Pakistan, Vietnam, the Philippines, and Sri Lanka will also benefit from these rules.

 **The Musaned platform** allows foreign workers in the domestic work sector to check existing employment contracts and receive updates via a dedicated app.

 Musaned can be linked with contract insurance and health benefits for foreign workers.



The platform aims to protect human rights and provide a stable working environment for both employees and employers.



Musaned can track financial transactions between employers and foreign workers, ensuring employers meet their contractual obligations.



The initiative emphasizes the importance of safeguarding the rights and welfare of foreign workers in Saudi Arabia.

Summary: The Musaned platform in Saudi Arabia enhances labor rights for foreign workers from various African and Asian countries, ensuring contract transparency and protection of human rights.



28th dec 2022



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What are the CAG's concerns?

Click to add speaker notes

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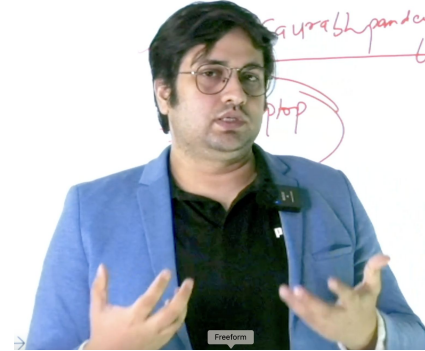
Q 5 --local bodies and urban bodies --PLZ TYPE on youtube the hindu analysis by saurabh pandey sir --11th october 2022

- The Constitution mandates that panchayats and municipalities shall be elected every five years and enjoins States to devolve functions and responsibilities to them through law.
- This is regarded as a design weakness, but on closer look, is not one.
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Topics - MINDS MAPS included (Daily current affairs)-- 19th October 2024



- Habeas corpus
- CHAR DHAM & HIMALAYA
- Severe Monsoon Impact in India
- Russia's Nuclear Strategy
-
- Mains



By saurabh Pandey





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SC closes *habeas corpus* case against Isha Foundation

Krishnadas Rajagopal

NEW DELHI

The Supreme Court on Friday closed *habeas corpus* proceedings initiated by a 70-year-old man accusing Isha Foundation, founded by Jaggi Vasudev alias Sadhguru, of holding his two daughters, aged 42 and 39, captives.

A three-judge Bench headed by Chief Justice of India D.Y. Chandrachud terminated the proceedings, which began in the Madras High Court and reached the top court, by noting that the two women had personally assured the court in a video conference that they were living in the Isha Foundation as monks of their own free will. The women had conveyed the same thing to a Tamil Nadu Police team which had talked to them separately.

“You have to accept the fact that they are 42 and 39... You cannot control their lives... We are also parents... Inter-personal relationships between parents and grown-up children are never to be governed by le-

gal suits, injunctions, and actions, you have to gain their confidence. They are not minors in a custody battle,” the Chief Justice addressed the father who was present in the courtroom with his counsel.

“These proceedings are not to be used to malign individuals and institutions... The moment we tend to elaborate on anything wider in today’s times there are handles used by third parties to malign...” the Chief Justice said orally.

Solicitor-General Tushar Mehta, present in court, said these were clickbait used to entice viewers.

The court refused to delve into concerns raised in a report submitted by the Tamil Nadu Police about medical equipment and the functioning of the Internal Complaints Committee to address sexual harassment complaints at the Isha Yoga Centre in Coimbatore. “Please ask the State to engage with the organisation,” the Chief Justice told senior advocate Siddharth Luthra, appearing for Tamil Nadu.

Topic→ Habeas corpus

Habeas corpus is a legal principle that protects individuals from unlawful detention, requiring a person under arrest to be brought before a judge to assess the legality of their imprisonment.

- The writ of habeas corpus is a legal order that requires a person holding another in custody to bring the detainee before a court, ensuring that the detention is lawful and justifiable under the law.
 - **Legal Significance:** This writ serves as a vital tool for protecting individual freedom, allowing courts to intervene in cases of unlawful detention and reinforcing the principle that no one should be deprived of liberty without due process.
-

Process of Filing a Habeas Corpus Petition

- **Why:** The purpose of filing a habeas corpus petition is to challenge the legality of an individual's detention, ensuring that their rights are protected and that they are not held unlawfully.
 - **What:** The process involves submitting a formal request to a court, seeking a review of the circumstances surrounding the detention and asking for the release of the individual if the detention is found to be unlawful.
 - **Where:** Habeas corpus petitions are typically filed in the jurisdiction where the individual is being held, often in state or federal courts, depending on the nature of the detention.
 -
-

-
- **When:** A petition can be filed at any time during the period of detention, but it is most effective when filed promptly after the individual is taken into custody to ensure timely judicial review.
 - **Who:** The petition can be filed by the detained individual, their attorney, or a family member, and it may involve various legal representatives and court officials throughout the process.
 - **How:** The filing process generally includes drafting the petition, gathering supporting evidence, submitting it to the appropriate court, and potentially attending a hearing where arguments are presented before a judge.
-

Legal Framework

Constitutional Provisions:

Article 21: Right to life and personal liberty.

Article 32: Right to constitutional remedies.

Judicial Precedents:

Landmark cases that shaped the interpretation of habeas corpus.

Recent Developments

Sadhguru's Isha Foundation Case:

Recent Supreme Court decisions dismissing habeas corpus petitions related to the Isha Yoga Centre.

Implications for institutional protections.

Project Details



Char Dham Highway Project: Aims to construct a 900-kilometre, 12-metre wide, two-lane highway to boost religious tourism to four shrines in Uttarakhand, India.

Environmental Concerns



Impact on Ecology: Criticized for its catastrophic impact on mountain ecology, deemed unscientific and environmentally harmful by experts.

Landslide Data



Study Findings: Identified 309 landslides along a 247 km stretch, with an average density of 1.25 landslides per kilometre, worsened by road-widening efforts.

Increased Risks



⚠️ Future Predictions: More frequent landslides and fatalities are expected due to climate change and extreme rainfall, emphasizing the need for environmental considerations in engineering projects.


Legal Controversies

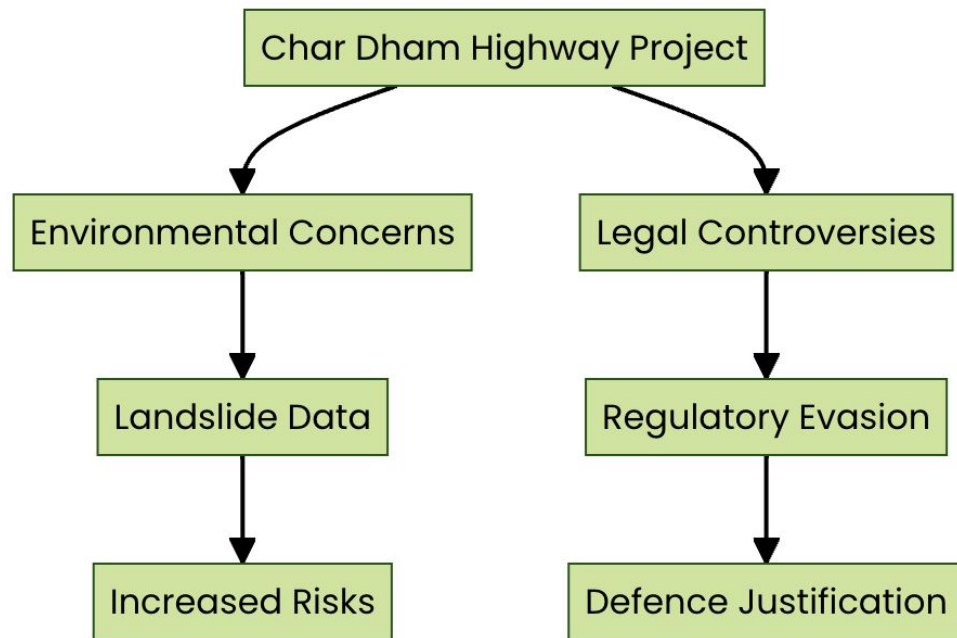
⚖️ Court Rulings: Faced legal challenges, with the Supreme Court initially favoring narrower road widths but later allowing the government to proceed for national security reasons.

Regulatory Evasion

🚧 Project Division: The government divided the project into over 50 smaller projects to bypass environmental clearance, raising concerns about cumulative ecological impacts.

Defence Justification

 Military Logistics: Initially framed as a tourism initiative, later defended as necessary for military logistics, despite alternative transport options.



Summary: The Char Dham Highway Project, aimed at enhancing religious tourism, poses severe ecological risks and has faced significant legal and environmental scrutiny.

Key Issues and Concerns



Lack of Scientific Assessment: Major projects in the Indian Himalayas are advancing without proper scientific evaluations, raising concerns about their feasibility in this fragile environment.



Landslide Risks: Widened roads are often blocked by landslides, causing delays in troop movement and increasing resource expenditure for repairs.



Human Casualties: Over the past four years, 160 lives have been lost due to landslides in Uttarakhand, highlighting the dangers of ongoing construction.



Ground Subsidence: Uncontrolled construction and poor drainage have led to significant land deformation, with towns like Joshimath experiencing severe subsidence issues.



Local Distress: Many villages in Uttarakhand are depopulating due to large-scale projects, with locals migrating for better opportunities in tourism rather than agriculture.

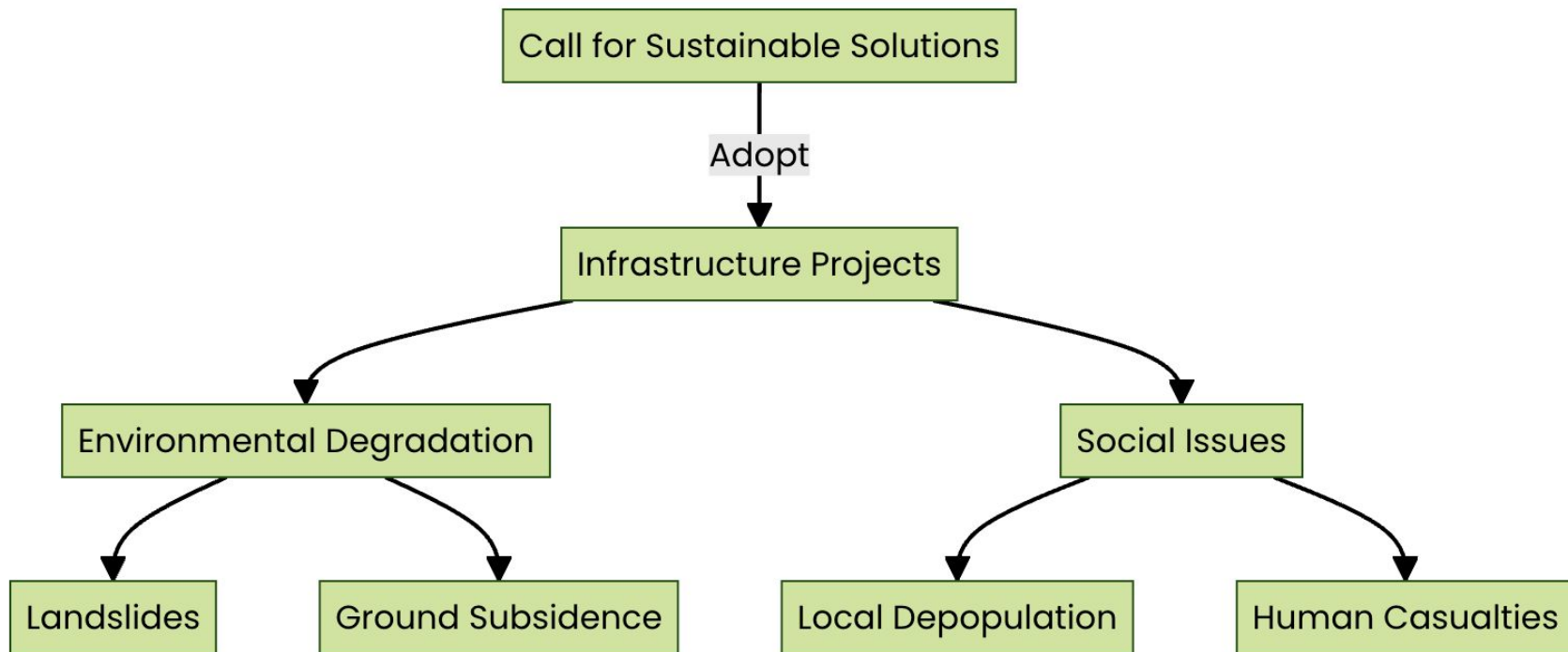


Government Response: Despite environmental degradation, the government continues to pursue infrastructure projects, including road widening in ecologically sensitive areas.



Call for Sustainable Solutions: There is a pressing need for the government to adopt sustainable practices and reduce large-scale construction in the Himalayas to address environmental challenges.

Environmental and Social Impact:



— Topic → Severe Monsoon Impact in India

Overview of Monsoon Challenges



Severe Monsoon Impact: This year's monsoon season in India has been particularly harsh, leading to widespread flooding across numerous states.

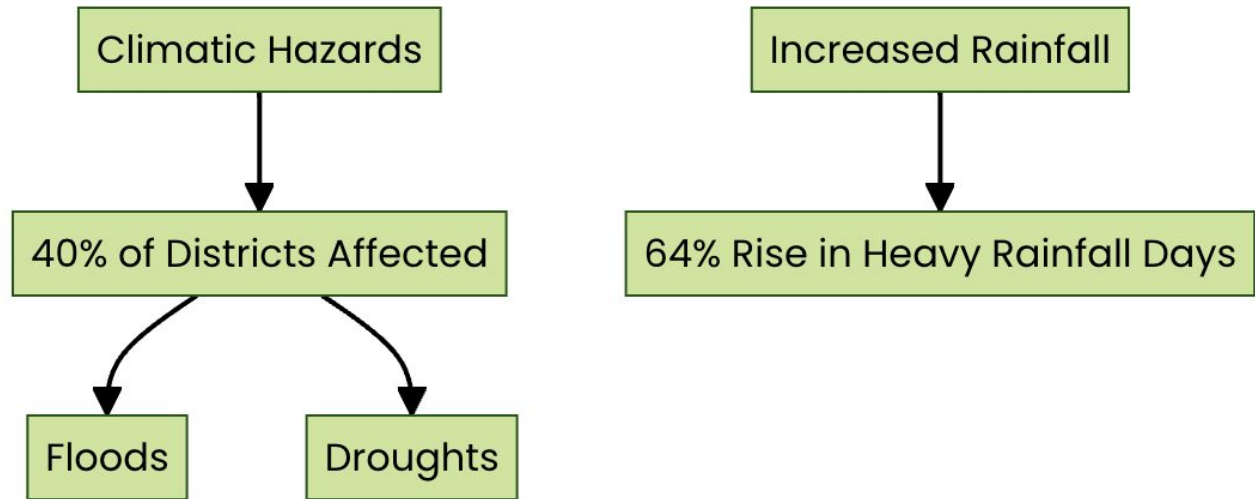


Climatic Hazards: A 2021 study by CEEW highlights that approximately 40% of Indian districts are vulnerable to alternating climatic hazards, including both floods and droughts.





Increased Rainfall: An analysis of four decades of rainfall data reveals a 64% rise in heavy rainfall days during monsoons over the past ten years.

Climatic Hazards and Rainfall Trends:

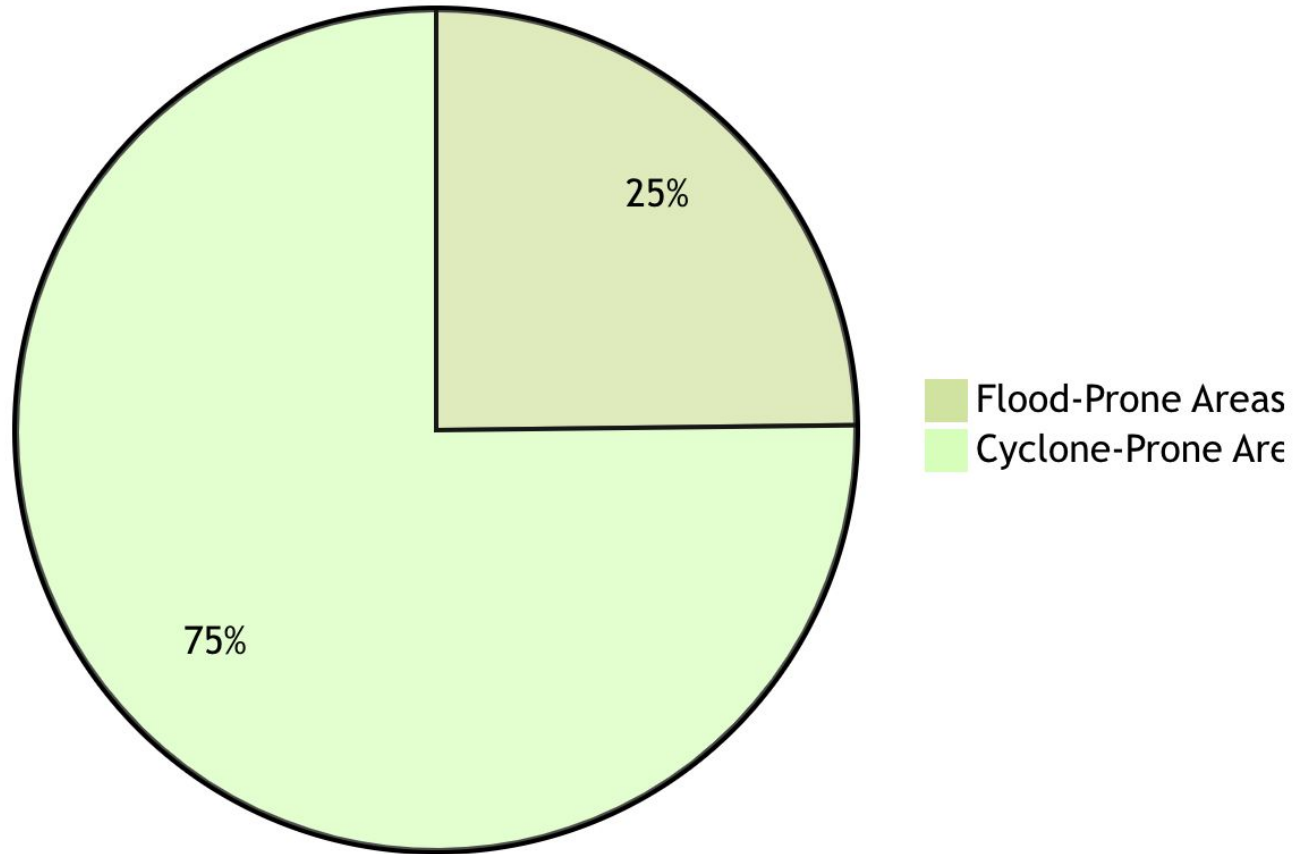


Addressing Flood Risks

 **Insufficient Early Warning Systems:** Despite two-thirds of India's population being at risk of flooding, only one-third of flood-prone areas have early warning systems, unlike cyclone-prone regions which are fully covered.

 **Mission Mausam:** Initiated in September 2024, this ₹2,000 crore project aims to improve weather observation and forecasting through advanced technology and research.

Early Warning Systems Coverage



Technological and Sectoral Innovations

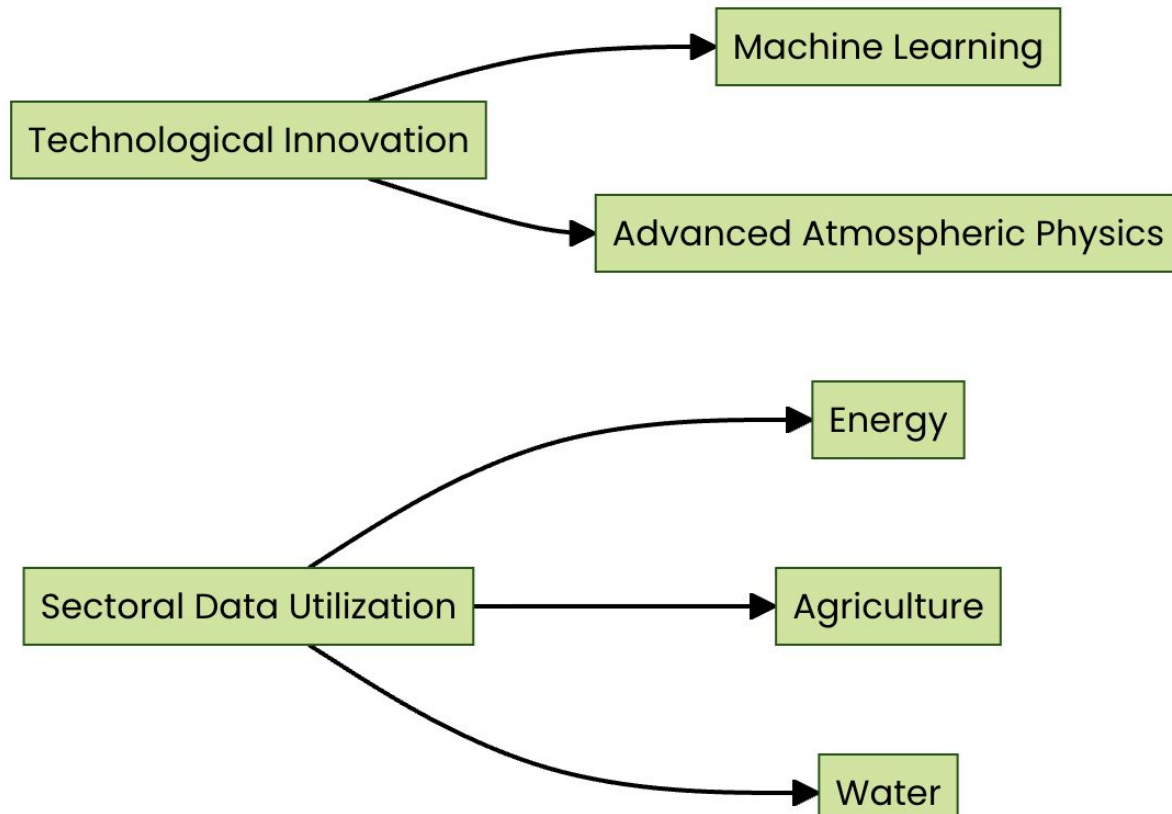


Focus on Technological Innovation: The mission will leverage machine learning and advanced atmospheric physics to enhance forecasting models and expand the weather observation network.



Sectoral Data Utilization: Emphasizing the importance of accessible data, the initiative aims to develop applications in energy, agriculture, and water sectors, especially in high climate risk areas.

Technological and Sectoral Focus:



Challenges for mission Mausam

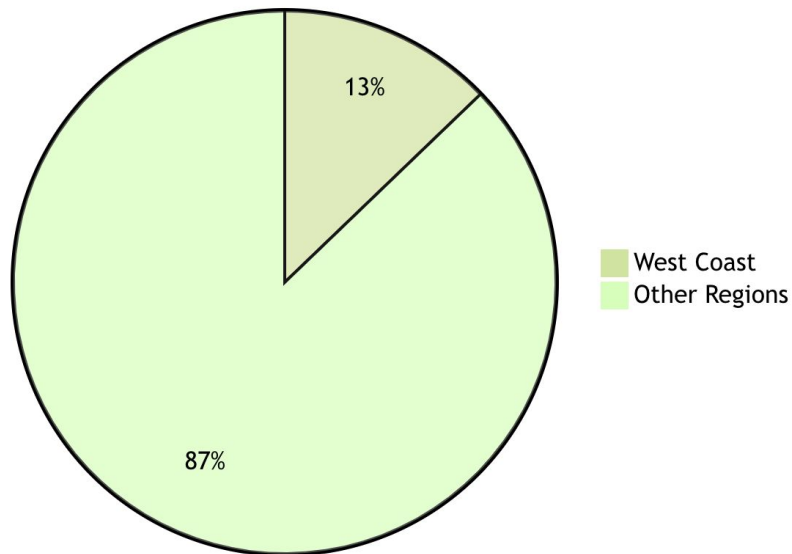
Gaps in Radar Coverage

Current Status: India operates 39 Doppler Weather Radars (DWRs).

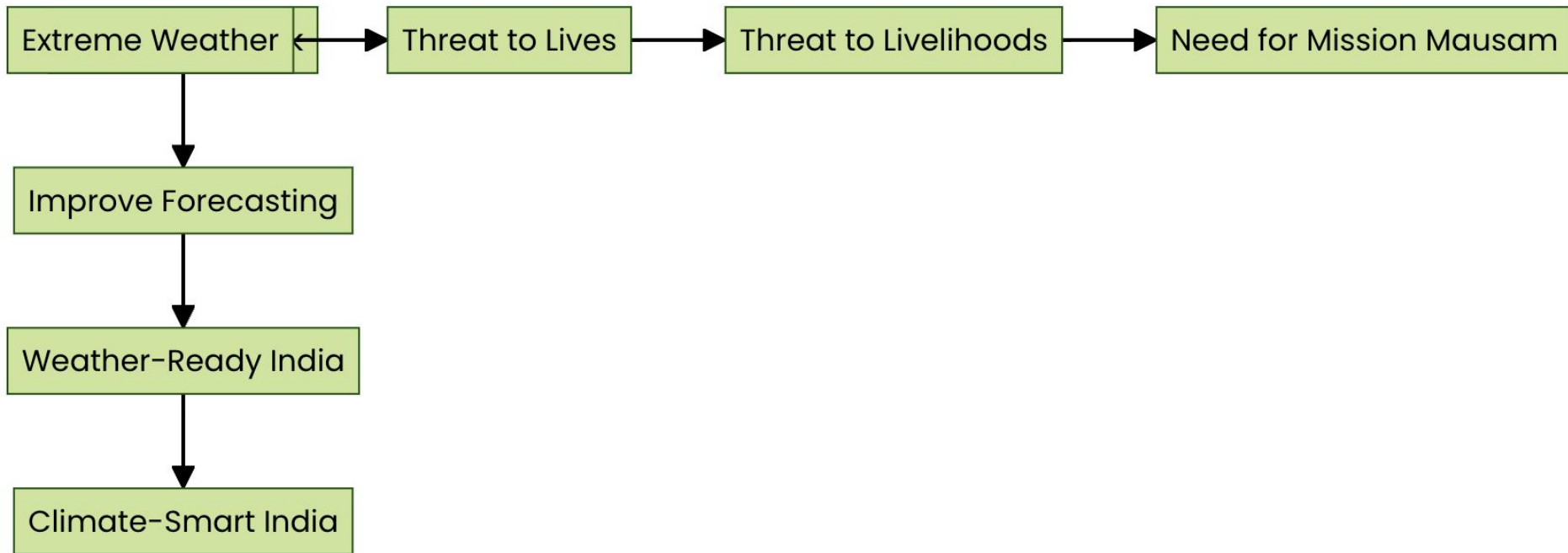
Regional Disparity: Only five radars are located on the west coast, a region increasingly prone to cyclones

Radar Distribution:

Radar Distribution in India



Mission Goals:





Need for Installation

Vulnerable Cities: Ahmedabad, Bengaluru, and Jodhpur lack essential weather radars.

Mission Focus: 'Mission Mausam' should prioritize these high-risk areas for new installations



Open Data Access

Innovation Catalyst: Open access to weather data can drive innovation.

Global Practices: Similar models in the US and Europe have proven effective



Improving Communication

Current Channels: IMD uses multiple platforms for weather warnings.

Enhancement Needed: Focus on improving user experience and comprehension



User Capacity Building

Educational Focus: 'Mission Mausam' should include user education through videos and guides.

Goal: Help users interpret and respond to weather warnings effectively.



Timely Initiative

Mission Objective: Expand observational networks and improve forecasting.

Urgency: Address the increasing threat of extreme weather events.



Impact of Extreme Weather

Critical Need: Extreme weather events pose significant risks to lives and livelihoods.

Mission Importance: 'Mission Mausam' is vital for national safety and preparedness.

Topic→ Russia's Nuclear Strategy



Key Developments in Russia's Nuclear Strategy



Nuclear Deterrence: President Vladimir Putin has highlighted Russia's nuclear strength to discourage Western support for Ukraine.



Military Drills: Joint military exercises with Belarus, focusing on battlefield nuclear weapons, have been conducted by Russia.



New Missile Production: Putin declared the production of ground-based intermediate-range missiles, contravening a 1987 treaty.



Nuclear Doctrine Revision: Russia has lowered the threshold for nuclear weapon use in its revised nuclear doctrine.



— **Nuclear Arsenal Size:** Russia holds about 5,580 nuclear warheads, making up roughly 88% of the global nuclear weapons stockpile.



Nuclear Triad: The country maintains a nuclear triad with intercontinental ballistic missiles, long-range bombers, and ICBM-equipped submarines.



Modernization Efforts: Since 2000, Russia has been upgrading its nuclear forces, leading the U.S. to modernize its arsenal in response.

Russia's Nuclear Modernization Efforts



Missile Upgrades

Replacement of Soviet Missiles: Transitioning from R-36M to mobile Yars ICBMs and heavy Sarmat ICBMs, known as "Satan II" in the West.



Sarmat Testing Issues

Testing Challenges: Only one successful test of the Sarmat ICBM, with a significant explosion during a recent abortive test.



Submarine Fleet Expansion

Borei-class Submarines: Commissioning of seven new submarines, each with 16 Bulava nuclear-tipped missiles, and plans for five more.



Strategic Bomber Production

Tu-160 Bombers: Restarting production of supersonic bombers to modernize several dozen aircraft.



Tactical Nuclear Weapons



U.S. Estimates: Russia's possession of 1,000 to 2,000 tactical nuclear weapons, less powerful than strategic warheads.



Iskander and Kinzhal Missiles

High-Precision Missiles: Iskander missiles with a 500 km range and MiG-31 jets with hypersonic Kinzhal missiles, both capable of nuclear or conventional warheads.



Nuclear Drills


Joint Exercises: Conducted with Belarus in May, focusing on battlefield nuclear weapons and emphasizing nuclear messaging.


Summary: Russia is actively modernizing its nuclear capabilities with new missile systems, submarines, and bombers, while maintaining a substantial stockpile of____ tactical nuclear weapons and engaging in military drills with Belarus

Russia's Revised Nuclear Doctrine





Overview of Russia's Nuclear Doctrine

 **Nuclear Doctrine:** Russia's 2020 nuclear doctrine permits the use of nuclear weapons in response to nuclear strikes or conventional attacks that threaten the state's existence.


 **Revised Doctrine:** The updated doctrine now considers a conventional attack on Russia by a non-nuclear nation, supported by a nuclear power, as a joint attack on Russia.


Criticism and Calls for Strengthening

 **Criticism:** Moscow hawks criticized the 2020 doctrine for its vagueness and urged President Putin to make it more robust.


 **Nuclear Testing Calls:** There are calls from Russian hawks to resume nuclear tests to demonstrate readiness and exert pressure on the West regarding support for Ukraine.

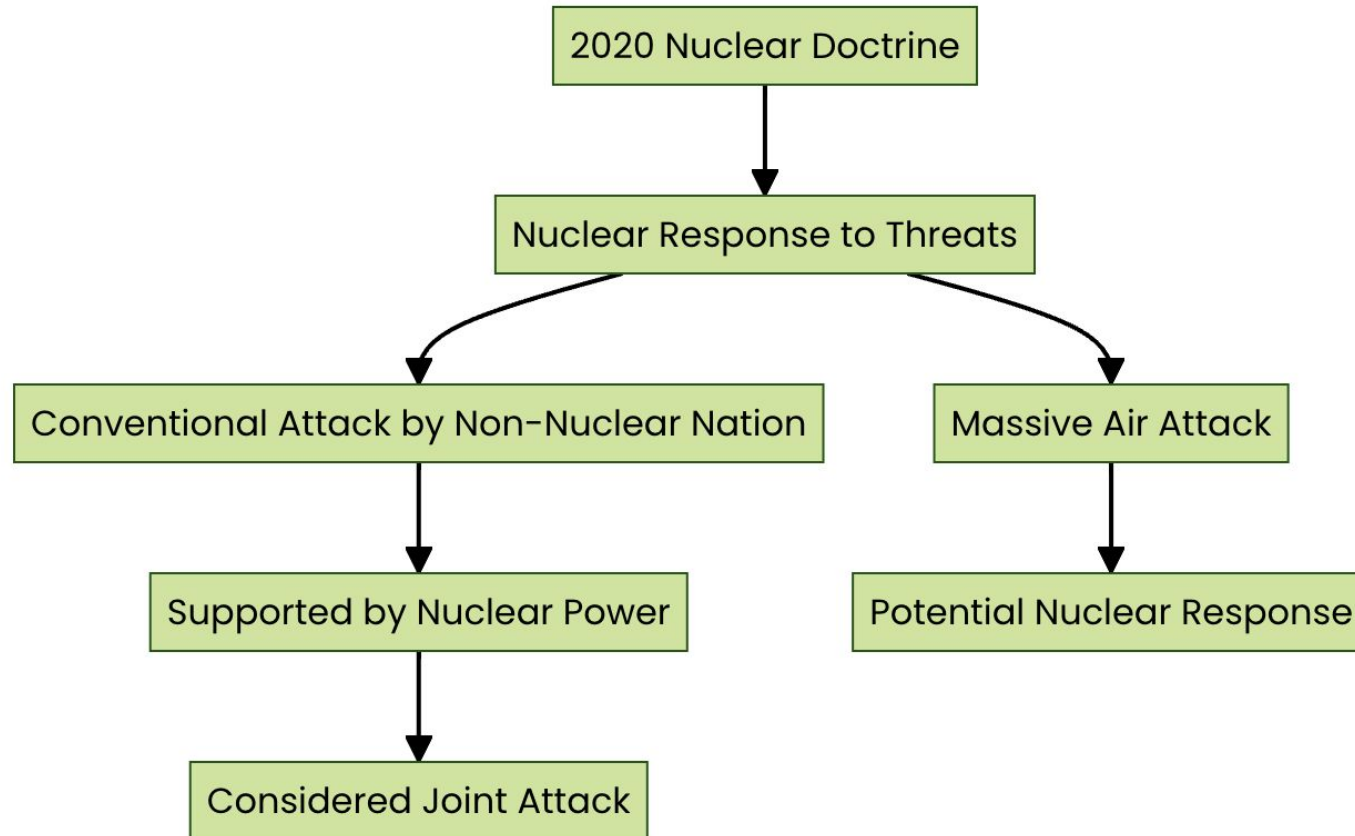
Tensions with NATO and the U.S.

 **Warning to NATO:** Putin warned that allowing Ukraine to use Western-supplied long-range weapons against Russia would equate to NATO being at war with Russia.

 **Dialogue Rejected:** Despite rising tensions, the U.S. urged for dialogue on nuclear arms control, which Putin rejected.

Potential Nuclear Response

 **Potential Nuclear Response:** The revised doctrine includes the possibility of using nuclear weapons in response to a massive air attack, creating ambiguity to deter Western actions.





28th dec 2022



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The story so far:

- A recent Comptroller and Auditor General of India (CAG) report on the update exercise of the National Register of Citizens (NRC) in Assam has flagged serious irregularities, including “haphazard development” of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.

on the Human Development Index.

However, health experts say the fact that India's fertility rate is declining due to a variety of factors, including increased literacy rates, increase in the age of marriage and so forth, should prompt measures to better anticipate, from the government, decisions to general health workers to launch campaigns on oral cancer awareness, push vaccination and screening for all girls.

What is the CAG audit report on Assam's NRC?

The report of the Comptroller and Auditor General of India (CAG) on the update exercise of the National Register of Citizens (NRC) in Assam has flagged several irregularities, including “haphazard development” of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.

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The audit flagged irregularities in a compliance report of hospital arrangements for NRC update project in Assam tabled in the Assam Assembly on December 24.

What is the NRC exercise?

The NRC was first created in 1950 to Assam to identify those born in India and migrants from elsewhere since Partition, now Bangladesh.

In 2019, the Supreme Court issued directions to the Centre and State to initiate an exercise in Assam to update the NRC register.

What are the CAG's concerns?

11th october 2022

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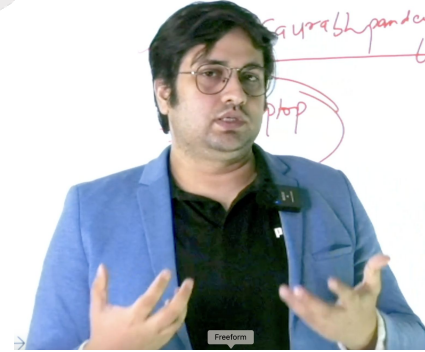
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Topics - MINDS MAPS included (Daily current affairs)-- 21st & 20th October 2024



- **Copper plate Inscriptions**
- **Malabar**
- black pollution balls,
- Ponta Delgada
- **Hurricane Season & LA NINA**
- **Sino-American Rivalry and Geopolitical Dynamics**
- **G-20 Economic Insights**
- **New Statue Unveiled at the Supreme Court**
- **COP29: Key Highlights and Focus Areas**

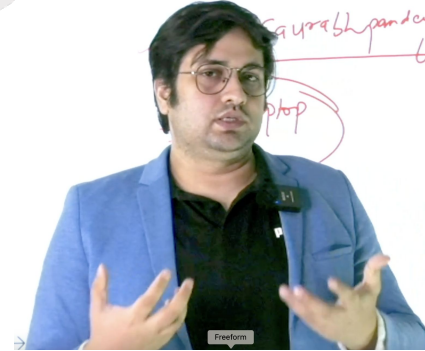


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THE HINDU

- **ICTP at Galathea Bay: India's 13th Major Port**
- **16th Amendment ACT (IR IN NEWS)**
- **Indian Railways: Challenges and Developments**
- **Classical Status Approval for Languages**
- **Legal Battle Between Google and Epic Games**
- **Plankton Migration**
- **Tea in India:**
 - The salivary amylase gene
- **CO2 From Forest Fire**
- **Ultra Processed foods**
- **RSV VACCINE**



By saurabh Pandey



— Topic → Copper plate Inscriptions



Discovery Location: Copper-plate inscriptions were found at the Sri Singeeswarar temple in Mappedu village, Tiruvallur district.



Historical Date: The inscriptions date back to the 16th Century CE, specifically engraved in 1513.



Royal Connection: The plates feature the seal of the Vijayanagara Kingdom, indicating their royal significance.



Language and Script: The inscriptions are written in Sanskrit and Nandinagari script.



Official Notification: The discovery was reported to the Epigraphy Division of the Archaeological Survey of India by a state archaeology official.



Expert Insight: K. Munirathnam Reddy, Director of Epigraphy at ASI, emphasized the historical value of such inscriptions.




Historical Importance: These inscriptions are crucial for recording and understanding historical events and contexts.


Summary: Recently discovered copper-plate inscriptions from 1513 at the Sri Singeeswarar temple in Tiruvallur district provide valuable historical insights, written in Sanskrit and Nandinagari script, and linked to the Vijayanagara Kingdom.


Topic→ Malabar



 The Quad group includes India, Australia, Japan, and the U.S., with a focus on naval cooperation and interoperability.

 "Exercise Malabar" concluded on October 18 near Visakhapatnam, marking its most comprehensive edition.

 The exercise featured a harbour phase in Visakhapatnam and a sea phase in the Bay of Bengal, emphasizing maritime security collaboration.

 The Quad partners are particularly focused on anti-submarine warfare due to concerns over the expanding Chinese Navy in the Indian Ocean.



— "Exercise Kakadu," held from September 9 to 20, involved nearly 3,000 personnel from 30 nations, highlighting regional maritime security efforts.

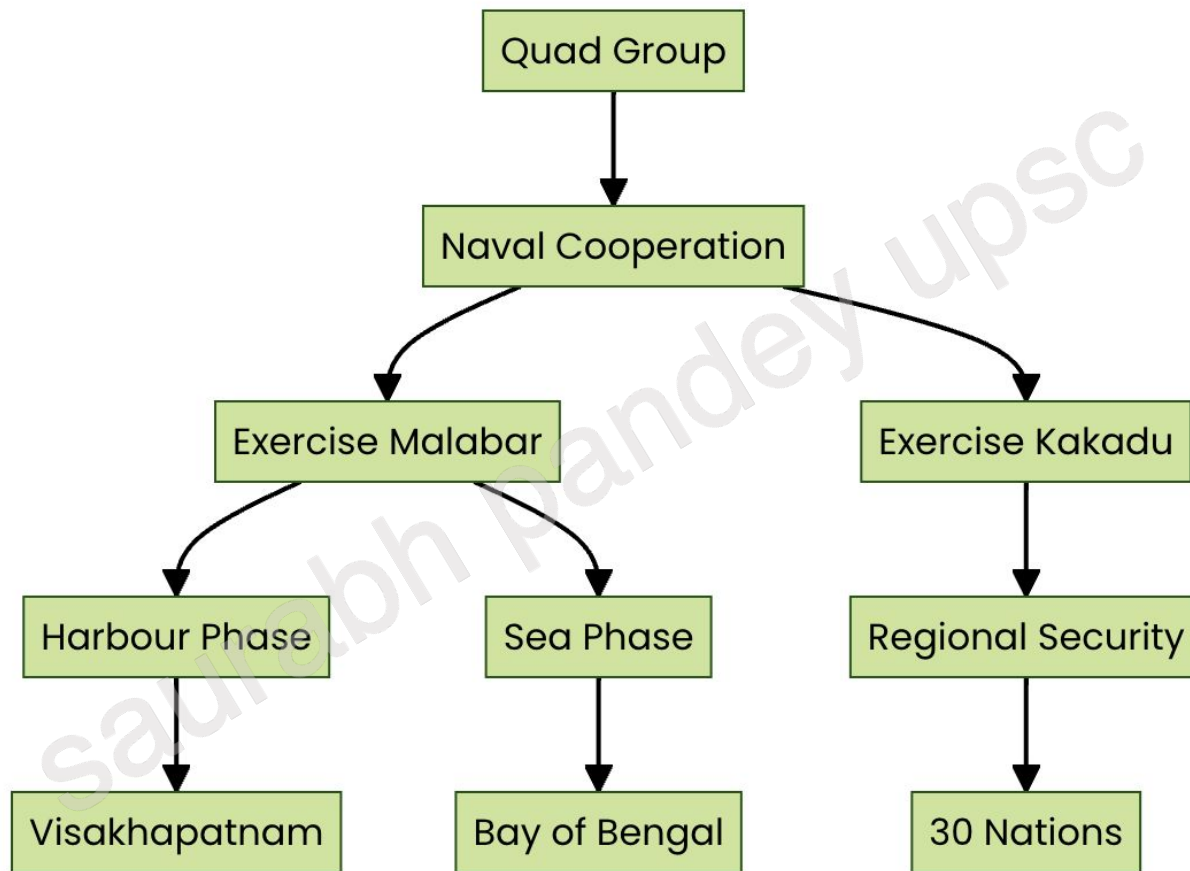


Major activities included surface weapon firings, anti-air shoots, air defense, and extensive operations of ship-borne helicopters.



"Exercise Malabar" began in 1992 as a bilateral drill and has evolved into a key multilateral event addressing shared maritime challenges.

Summary: The Quad nations conducted significant naval exercises, enhancing interoperability and focusing on anti-submarine warfare amid rising maritime security challenges.



Topic→ Sydney Beaches Reopened After Pollution Incident



Key Developments



Beaches Reopened: Sydney's beaches are now open for swimming following a thorough clean-up operation.




Pollution Incident: Since October 15, thousands of black pollution balls, similar to golf balls, washed ashore, causing the closure of eight beaches, including the famous Bondi Beach.



Chemical Composition: These balls consist of fatty acids and chemicals akin to those found in cosmetics and cleaning products, combined with fuel oil.



Health Advisory: Authorities have confirmed that the balls are not harmful to health if left on the sand, but they advise against physical contact.

-  Ongoing Investigation: The New South Wales Environment Protection Authority is actively conducting laboratory tests to trace the origin of these pollution balls.

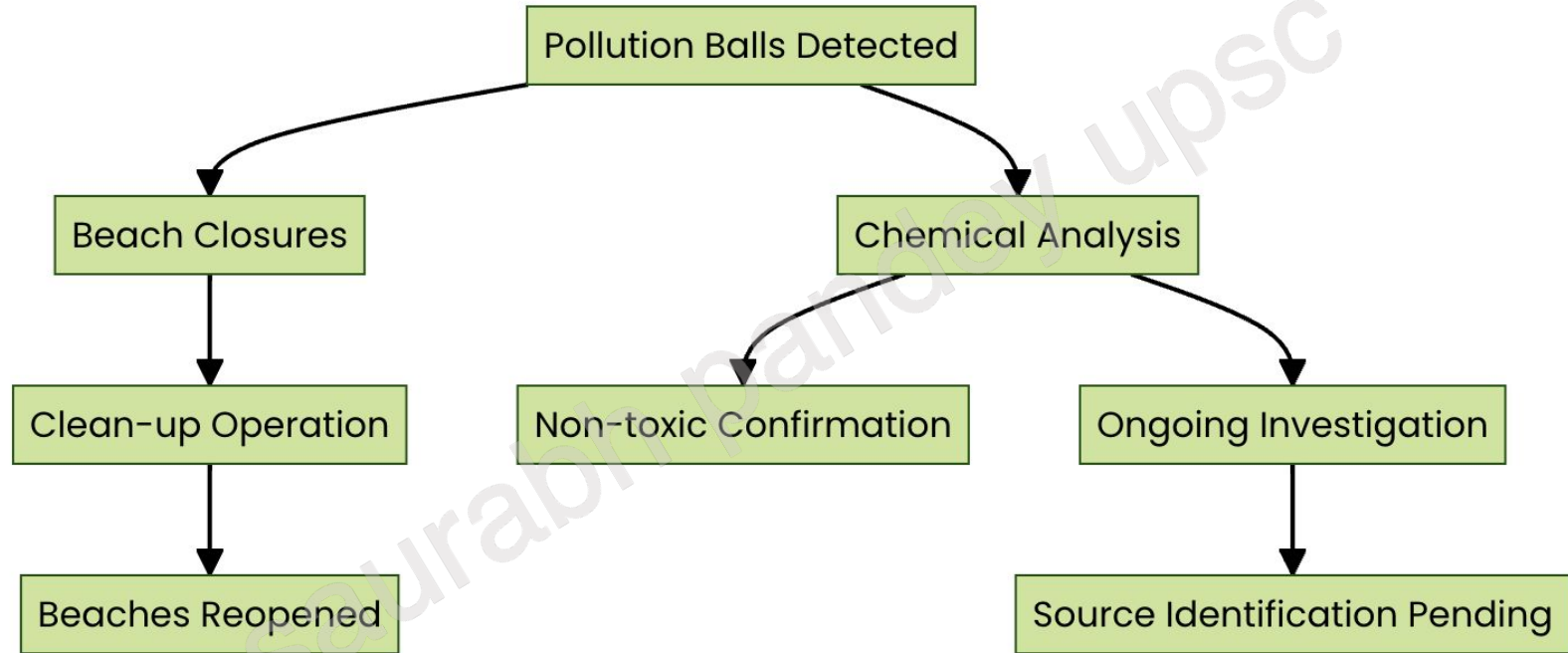


Tourism Impact: Known for their golden sands and pristine waters, Sydney's beaches are a major tourist attraction, making this incident particularly impactful on local tourism.



Mystery Remains: The source of the pollution balls is still unknown, and it may take several days to determine their origin.


Summary: Sydney's beaches have reopened after a clean-up of black pollution balls, which are non-toxic but remain under investigation to identify their source.






A pair of Atlantic spotted dolphins leap out of the water off Ponta Delgada, Sao Miguel Island in the Azores archipelago, Portugal, on July 3. The regional assembly of the Azores Islands approved the creation of the largest protected marine area in the North Atlantic to reach international conservation goals well ahead of time. The area encompasses almost 300,000 sq. km. and preserves underwater mountain ranges and vulnerable marine ecosystems. REUTERS


— Topic → Mapping in News


 A pair of Atlantic spotted dolphins were observed leaping out of the water in Ponta Delgada, Sao Miguel Island, Azores, Portugal,


 The regional assembly of the Azores Islands has approved the creation of a significant marine protected area.

 This new marine area is the largest in the North Atlantic, aimed at achieving international conservation goals ahead of schedule.

 The protected area covers nearly 300,000 square kilometers.


 It includes the preservation of underwater mountain ranges and vulnerable marine ecosystems.


-  The initiative reflects a commitment to marine conservation and biodiversity protection in the region.

 The approval signifies proactive measures taken by the Azores Islands for environmental sustainability.

Summary: The Azores Islands have established the largest marine protected area in the North Atlantic, covering nearly 300,000 sq. km, to enhance conservation efforts


Topic→Overview of 2024 Hurricane Season

 Initial Predictions: Meteorologists anticipated a historic hurricane season in 2024 due to a strong La Niña, but the season has been unexpectedly quiet.

 Forecast Adjustments: Weather agencies are revising their La Niña forecasts, suggesting a decrease in expected hurricane activity.

Historical Context and Challenges

 2023 Season Recap: The 2023 hurricane season was the fourth-most active on record, despite a strong El Niño.

 Forecasting Improvements: While predicting hurricane landfall has improved, forecasting post-landfall impacts remains challenging.

Cyclone Activity and Climate Change



Cyclone Trends: Historical data shows no increase in total cyclone numbers, but there is a rise in strong cyclones.



Ocean Warming Effects: Warming upper oceans contribute to rapid cyclone intensification, complicating predictions.



Regional Focus: The North Indian Ocean, especially the Arabian Sea, is seeing more cyclone activity, underscoring the unpredictability of seasonal forecasts.



Progress in Cyclone Forecasting

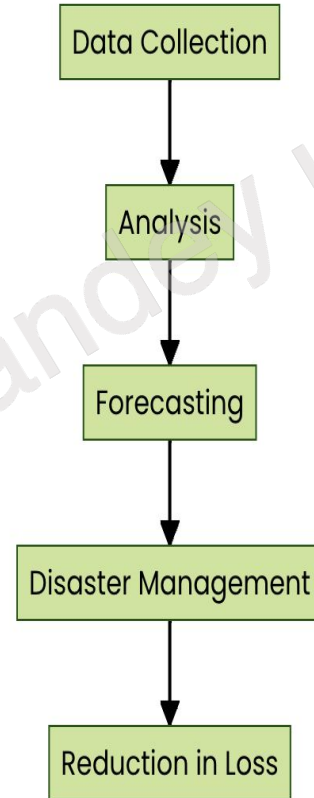
Significant advancements in forecasting cyclones in India.
Effective disaster management plans have been implemented.
Reduction in loss of life due to improved forecasting.



Limited Cyclone Intensity

North Indian Ocean has a small area for cyclone intensification.
Limits size and strength of cyclones, especially in the Arabian Sea.

Cyclone Forecasting Process:





Vulnerability to Climate Change

Indian subcontinent is highly susceptible to climate change.

Chronic stressors: Climate change impacts.

Acute stressors: Heavy rainfall and cyclones.



Impact of Rising Sea Levels

Exacerbates cyclone effects with increased inundation and flooding.

Rising sea levels contribute to more severe flooding.



Annual Flooding Events

Tamil Nadu experiences heavy rain and flooding annually.

Warming in the Indian Ocean affects monsoon patterns.



Forecasting Challenges

Recent issues with forecasting accuracy.

Low-pressure system missed Chennai, highlighting challenges.



Rising Expectations

Improved forecasting technology leads to higher public expectations.

Necessitates better preparedness for evacuations and responses.




Need for Improved Predictions: The region requires better predictions for cyclone intensification, landfall, and post-landfall impacts.




Hyperlocal Risk Mapping: Developing hyperlocal risk maps is crucial for managing cyclone risks effectively, given the economic constraints.




Economic Development Context: India's economic development is tied to its ability to manage financial and human resources, impacting cyclone risk management.

 **Investment in Mitigation:** India is integrating climate adaptation and mitigation into fiscal policies, focusing on renewable energy, electric vehicles, and disaster management.

 **Regional Resilience:** Sustainable economic development in India hinges on the resilience of the entire subcontinent to climate stressors.

 **National Security Concerns:** Climate vulnerabilities are not just socio-economic issues but also national security challenges that require regional cooperation.

 **Need for Regional Networks:** Establishing weather and climate networks across the subcontinent is essential for improving forecasts and addressing climate risks.

Topic→ Sino-American Rivalry and Geopolitical Dynamics



Sino-American Rivalry

Global Hegemony: The competition between the U.S. and China is centered on global dominance, differing from the ideological clash of the U.S.S.R. era.



Democracy vs. Autocracy

Narrative Skepticism: The U.S.'s portrayal of its rivalry with China as a democracy vs. autocracy battle is not widely accepted, even among European allies.



China-Russia Relations

Strategic Partnership: China supports Russia's actions in Ukraine, despite Russia's relatively weaker economic and military status compared to China.



Geopolitical Tension: The region is a hotspot for geopolitical tension, driven by China's naval ambitions and India's potential role as a counterbalance.



Quad and AUKUS Alliances

Alliance Shift: The Quad (U.S., India, Japan, Australia) and AUKUS (Australia, U.K., U.S.) aim to ensure a "free and open Indo-Pacific."



India's Strategic Position



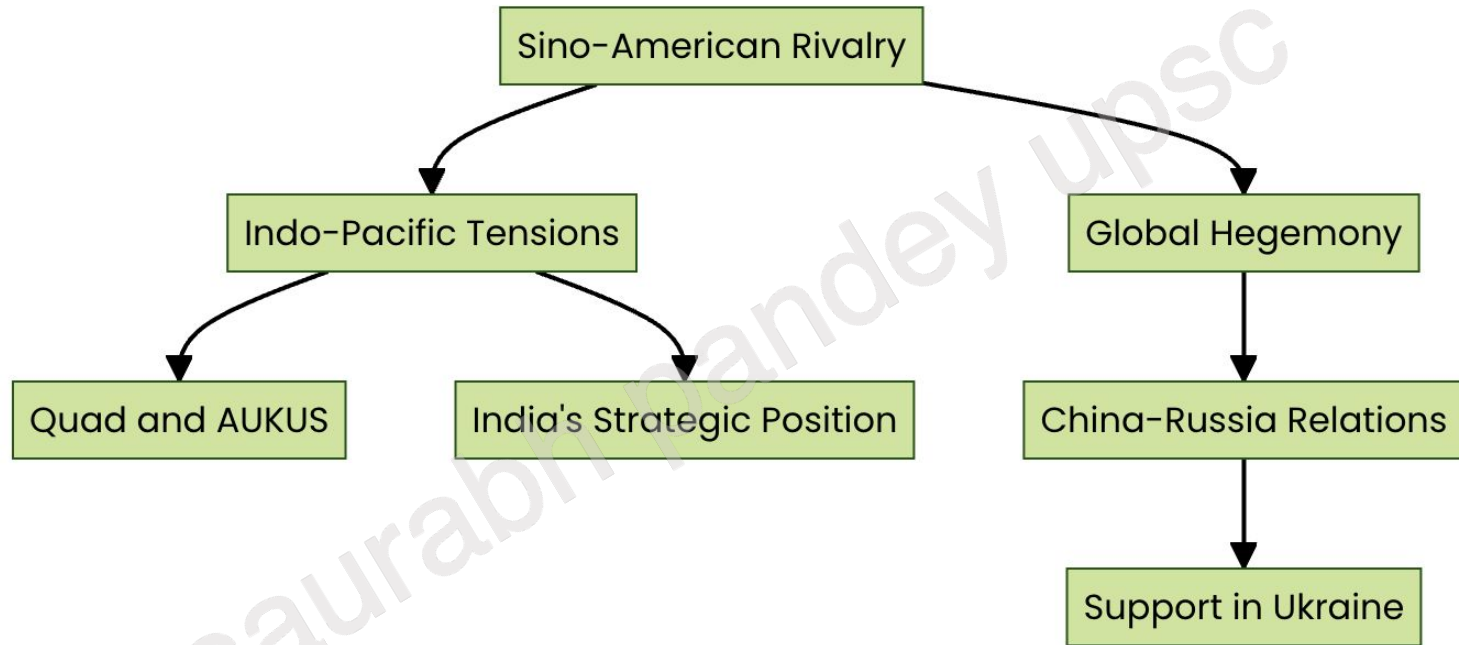
Balancing Act: India must manage its land threat from China while maintaining relationships within the Quad and protecting its sovereignty.



Geopolitical Realignment

Power Shift: The geopolitical landscape is shifting from West to East, with the Indo-Pacific as a critical arena for U.S.-China competition.

Summary: The Sino-American rivalry focuses on global dominance, with the Indo-Pacific as a key battleground influenced by alliances like the Quad and AUKUS. India seeks to maintain its sovereignty amidst these tensions



Topic→ G-20 Economic Insights

Diverse Growth Rates

Varied Performance: G-20 economies displayed a range of growth rates in Q1, with some surpassing expectations and others encountering difficulties.

Emerging Economies Leadership

B-20 Process: Emerging economies are leading the B-20 process, with South Africa poised to focus on the Global South agenda.

Collaboration for Growth

United Efforts: Businesses from both advanced and emerging economies are collaborating to set priorities and policy actions for inclusive growth.

Focus on Skill Development



Equitable Growth: Emphasizing skill development and education, especially for women, to meet evolving industrial demands.

Financial Inclusion

Access and Solutions: Stressing the importance of financial access and customized credit solutions, highlighted by India's Jan Dhan Yojana.

Opportunities in Africa

G-20 Inclusion: Africa's inclusion in the G-20 under India's presidency opens new avenues for global business engagement.

Adaptation to Challenges

Strategic Actions: Businesses need to align with emerging global challenges to maintain their effectiveness in the growth landscape.



Food Security Focus

Sustainable food systems are crucial for enhancing food and nutrition security, especially during global crises worsened by extreme weather events.



Technology in Agriculture

Utilizing technology and digital tools is key to promoting sustainable agricultural practices, reducing waste, and ensuring equitable access to nutritious food.



Global Trade Resilience

Strengthening global trade is vital for growth, but national security concerns and unfair practices create barriers that need addressing.



AI for Good



Businesses should leverage Artificial Intelligence for responsible applications in healthcare, climate change, and resource management, while engaging youth in innovative solutions.



Sustainability Mission

Companies must prioritize sustainability, focusing on net-zero transitions, fair climate policies, and financing for small and medium enterprises to meet environmental targets.



Circular Economy

Emphasizing circular economy practices and sustainable business operations is necessary for long-term environmental health and resource management.




Renewable Energy Investment


Promoting renewable energy capacity and the use of biofuels and green hydrogen is essential for businesses aiming to align with sustainability goals


Topic →>New Statue Unveiled at the Supreme Court




Key Highlights

 New Statue Unveiled: The Chief Justice of India introduced a new 'lady justice' statue at the Supreme Court, replacing the original one.

 Cultural Representation: The new statue is dressed in a saree, reflecting Indian tradition and moving away from colonial symbols.

 Blindfold Removed: The statue no longer wears a blindfold, symbolizing that the law is aware of social inequalities and aims to address them.

 Scales of Justice: The scales remain, emphasizing the importance of impartiality and balance in judicial decisions.

— 📜 Constitution Over Sword: The sword has been replaced by the Indian Constitution, highlighting its supremacy and significance in the legal framework.

🌍 Decolonial Intent: The change is part of a broader effort to decolonize symbols within the Indian legal system, moving away from British colonial influences.

⚖️ Nuanced Justice: The new representation aims to ensure that justice is delivered with an understanding of social diversity and the challenges faced by underprivileged groups.

Summary

The new 'lady justice' statue in India symbolizes a shift towards cultural representation and a nuanced approach to justice, emphasizing the Constitution's supremacy and the importance of impartiality.

Topic→COP29: Key Highlights and Focus Areas



COP29 Location and Dates

Event: 29th Conference of the Parties (COP29)

Location: Baku, Azerbaijan

Dates: November 11 to 22



Focus on Climate Finance

Priority: Key climate finance issues

Significance: Referred to as a "finance COP"



Vulnerability of Developing Countries

Factors: Geographical and economic reliance on sensitive sectors like agriculture

Impact: High vulnerability to climate change



Cumulative Emissions Disparity



Contribution: Developed countries responsible for 57% of global emissions since 1850

Population: Smaller compared to developing nations



Climate Finance Commitments

2009 Copenhagen Accord: \$100 billion annually by 2020 from developed to developing countries

Future Discussions: New target post-2025 at COP29



Definition of Climate Finance

UNFCCC Definition: Financing from various sources for climate change mitigation and adaptation



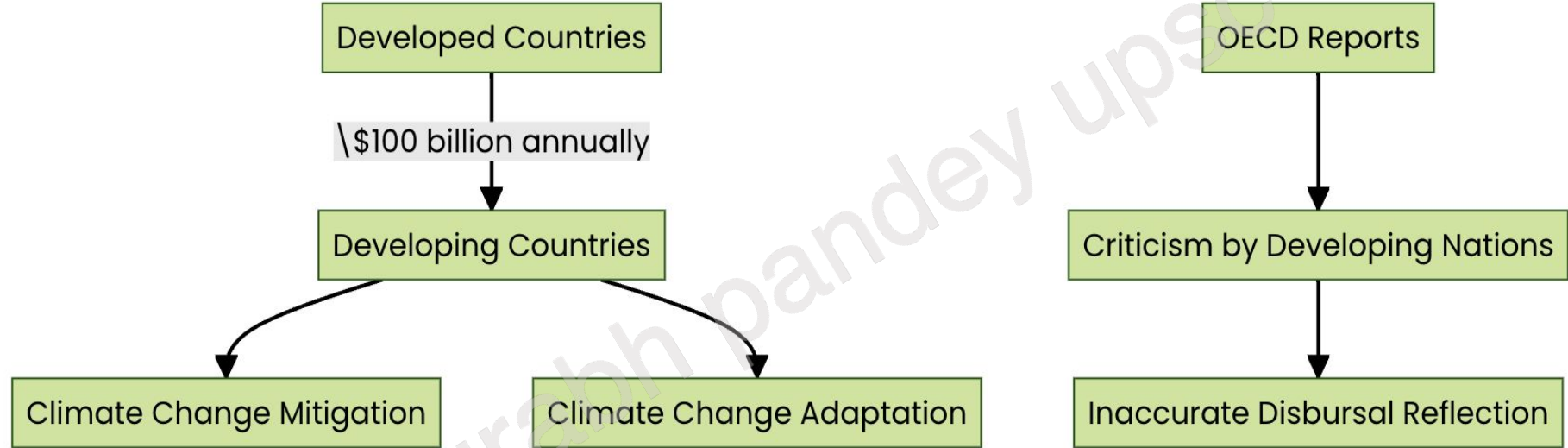
OECD Reports and Criticism

Reports: OECD on climate finance flows

Criticism: Developing countries and organizations like Oxfam argue reports don't reflect actual disbursements and include reclassified aid

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Climate Finance Flow:



Summary: COP29 in Baku will focus on climate finance, addressing the vulnerabilities of developing countries and the need for new financial commitments post-2025.



Need for Climate Finance

Developing countries require external financing for climate action.

Many lack access to electricity and face high capital costs.



Electricity Access

In 2021, 675 million people in developing nations did not have access to electric power.

Highlights the urgent need for universal access.



Investment Requirements in India

India aims for significant renewable energy targets by 2030.

Requires investments of:

- ₹16.8 lakh crore for 450 GW of renewable energy.

- ₹8 lakh crore for green hydrogen.

- ₹16 lakh crore for electric vehicles.

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Long-term Investment Needs



To achieve net-zero emissions, India will require ₹850 lakh crore in investments from 2020 to 2070.



New Collective Quantified Goal (NCQG)

A new annual climate finance mobilization target is essential.

Focus on actual disbursements, new public capital, and private capital mobilized by public funds.

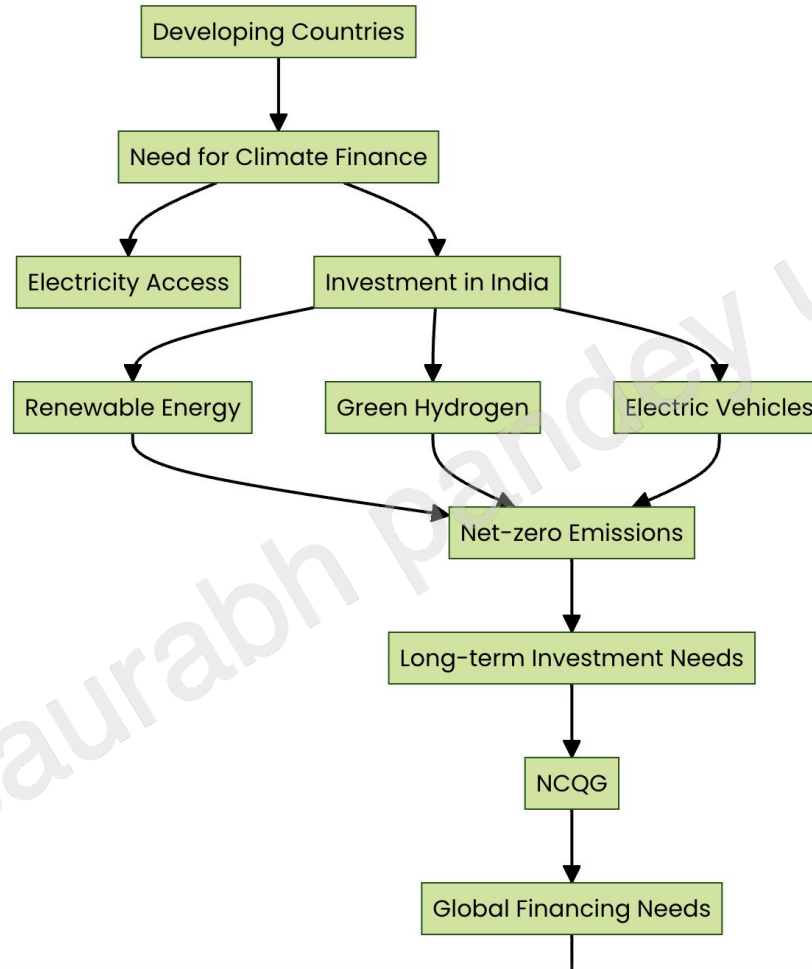


Global Financing Needs

An expert group estimates that developing countries (excluding China) will need around \$1 trillion in external finance by 2030.



Focus on Actual Disbursements-The NCQG should prioritize actual financial flows rather than mere commitments to ensure effective climate action._____



Topic→ ICTP at Galathea Bay: India's 13th Major Port



Overview



New Major Port: The international container transshipment port (ICTP) ICTP at Galathea Bay is recognized as India's 13th major port, following Kamarajar Port.




Strategic Location: Positioned on the East-West international trade route, it is near key transshipment terminals like Singapore, Klang, and Colombo.





Economic Impact: The port could save Indian ports \$200-220 million annually in transshipment charges, currently dominated by overseas ports.



Geopolitical Significance: Located in the Indo-Pacific region, it will facilitate transshipment cargo from Indian east coast ports, Bangladesh, and Myanmar. __

-  Environmental Concerns: Development must consider the ecological sensitivity of the region, with plans to implement changes in a phased manner.

 Phased Development: The port will be developed in four phases, with an estimated total cost of ₹41,000 crore; Phase 1 is set for completion in 2028.

 Capacity Growth: Initial handling capacity will be around 4 million TEUs, expanding to 16 million TEUs in the final phase.

Summary: The ICTP at Galathea Bay is set to become India's 13th major port, enhancing maritime trade while facing environmental challenges and planned for phased development.

IR IN NEWS




The Senate of Pakistan passed the 26th Constitution Amendment Bill, limiting the Chief Justice's tenure to three years.





The vote was overwhelmingly in favor, with a tally of 65-4, achieving the necessary two-thirds majority.




The ruling coalition partners reached a consensus to support the bill, which was approved by the Cabinet earlier that day.


—  Law Minister Azam Nazeer Tarar introduced the bill in the Senate, _____, emphasizing its purpose to amend the Constitution.


 Senate Chairman Yousaf Raza Gilani inquired about opposition to the bill, receiving no objections from members.

 The amendment consists of 22 clauses, all of which received support from the senators during the clause-wise voting.

 The bill faced opposition from the party of jailed former Prime Minister Imran Khan.


Topic---> 16th Amendment ACT (IR IN NEWS)

 **Supreme Judicial Council Reinstated:** Bangladesh's Supreme Court reinstated the Supreme Judicial Council to investigate judicial misconduct allegations.

 **16th Amendment Declared Illegal:** The court upheld its previous ruling that the 16th constitutional amendment, which transferred the power to remove judges to parliament, is illegal.

 **Reinforcement of Original Provisions:** The verdict reinforces the original constitutional provisions regarding the removal of judges.

 **Scrapping of 16th Amendment:** The ruling effectively scrapped the 16th amendment, which was passed during Sheikh Hasina's regime.

 **Timeline of Events:** The 16th Amendment was passed in January 2014, and a High Court bench declared it unconstitutional in May 2016.

At the threshold

India has managed to keep the number of cases under one in 10,000 for two consecutive years now

■ Kala-azar is a slow progressing indigenous disease caused by a protozoan parasite of genus *Leishmania*

■ In India, *Leishmania donovani* is the only parasite causing this disease

■ The parasite primarily infects the reticuloendothelial system and may be found in abundance in bone marrow, spleen and liver



Some sandfly species are vectors of Kala-azar

■ Post Kala-azar Dermal Leishmaniasis (PKDL) is a condition when *Leishmania donovani* invades skin cells, resides and develops there and manifests as dermal lesions

■ Some of the Kala-azar cases manifests PKDL after a few years of treatment

Source: Health Ministry, National Centre for Vector-Borne Diseases Control

Topic→ Indian Railways: Challenges and Developments



Kavach System

Objective: The **Kavach** automatic train protection system is designed to prevent collisions using tracking devices and automated braking protocols.



Implementation Status

Current Reach: As of February 2024, **Kavach** has been installed on 1,465 route km, which is only 2% of the total railway route length.



Cost of Implementation



Financials: The cost is ₹50 lakh per km and ₹70 lakh per locomotive. Over a decade, this cost is less than 2% of the Railways' annual capital expenditure.



Operating Ratio

Financial Efficiency: The operating ratio for 2024-2025 is estimated at ₹98.2, showing a decline in financial efficiency, which limits capital expenditure.



Freight Services



Revenue Contribution: Freight services contribute 65% of railway revenue.

Challenges: Slow freight movement and reliance on coal are issues, with only one of the proposed Dedicated Freight Corridors fully operational.



Passenger Services Losses

Financial Losses: Passenger services face significant losses, with projected revenue of ₹80,000 crore in 2024-2025, challenged by high operational costs and fare stagnation since 2020.



Safety Concerns

Operational Challenges: High congestion, inadequate systems like Kavach, and stressful working conditions for locomotive pilots impact overall operational efficiency.

Summary


The Indian Railways is dealing with safety, financial efficiency, and operational challenges, especially in implementing the **Kavach** system and managing passenger and freight services.

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Topic-- > Classical Status Approval for Languages




Overview of Classical Status Approval


 Classical Status Approval: The Union Cabinet has approved classical status for five languages: Marathi, Bengali, Assamese, Pali, and Prakrit.

Criteria for Classical Languages

 Initial Criteria: Established in 2004, requiring a history of over 1,000 years, a body of ancient literature, and an original literary tradition.


 Revised Criteria (2005): Extended the historical requirement to 1,500-2,000 years, acknowledging potential discontinuity between classical and modern forms.


Marathi's Journey to Recognition

 Proposal and Evidence: The Pathare committee proposed Marathi's classical status in 2012, with evidence submitted in 2013, leading to a decade-long pursuit for recognition.


Updated Criteria and Evidence



 **New Criteria (2024):** The Linguistic Experts Committee (LEC) updated the criteria, removing the originality requirement and adding the need for prose texts and inscriptional evidence.

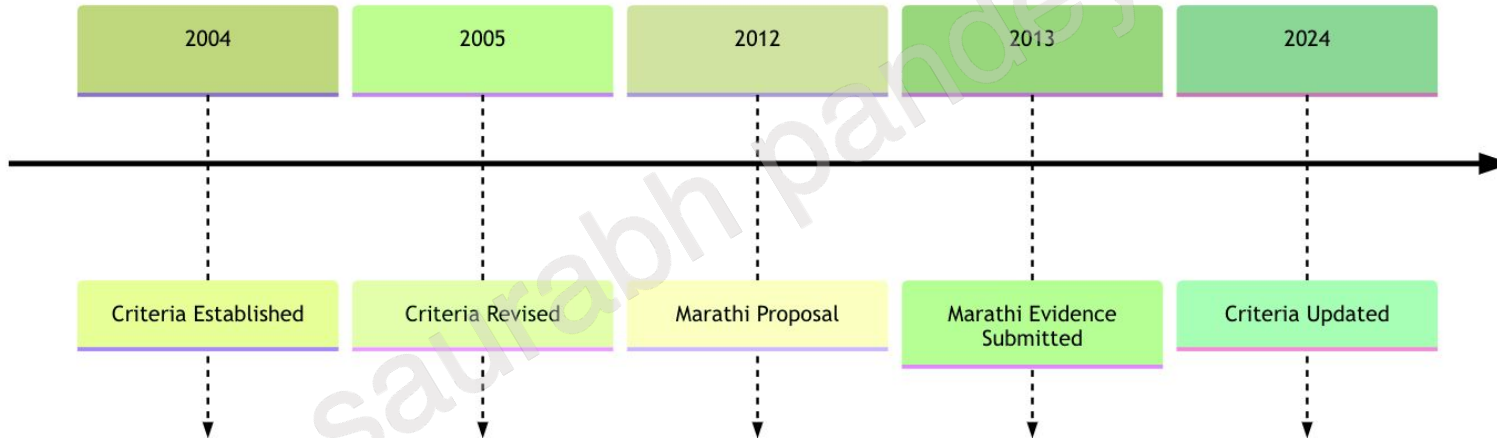
 **Assamese and Bengali Evidence:** Assamese's status supported by a 392-page historical report; Bengali's claim backed by a four-volume report tracing its written existence to the 3rd or 4th century BCE.

Cultural Significance

 **Cultural Movement:** The push for classical status reflects efforts to preserve and recognize the historical significance of these languages amidst colonial histories of language erasure.


Timeline of Criteria Changes and Language Recognition:


Timeline of Classical Language Criteria and Recognition





Topic→ Legal Battle Between Google and Epic Games

Key Developments in the Legal Dispute

 **Injunction Issued:** On October 7, U.S. District Judge James Donato mandated that Google must open its Play Store to third-party apps and allow alternative payment methods.

 **Google's Appeal:** Google has filed an appeal against this ruling, citing concerns over potential impacts on consumer privacy, security, and competition.

 **Background of Legal Tensions:** The conflict between app developers and major app store operators has been intensifying, notably highlighted by Epic Games' actions in August 2020.

 **Epic Games' Challenge:** Epic Games introduced a direct payment option in Fortnite, bypassing Google's billing system, which led to its removal from the Play Store and subsequent antitrust lawsuits.



Commission Disputes: Epic Games criticized Google's commission rates (15-30%) on in-app purchases as unjust and restrictive, prompting legal action against both Google and Apple.



Jury's Verdict: In December 2023, a jury unanimously found that Google engaged in anti-competitive practices that harmed Epic's business and stifled competition.

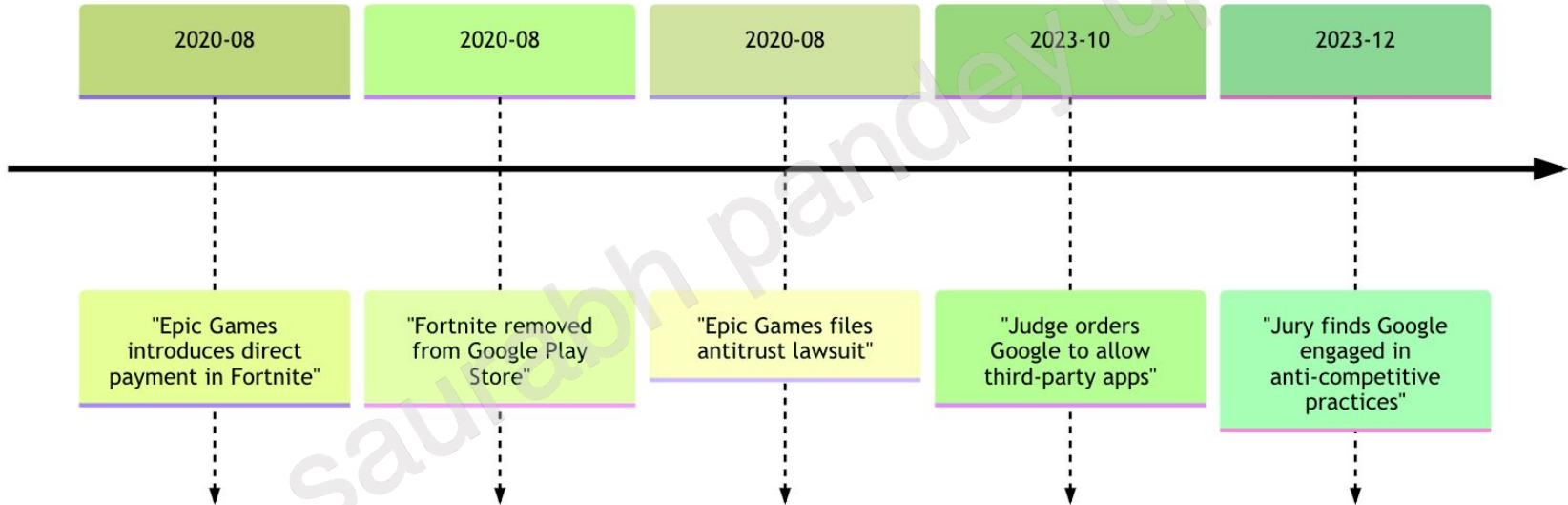


Market Control Battle: The case is seen as a pivotal moment in the ongoing struggle between app developers and app store operators over market control.


Summary: A U.S. District Judge has ruled against Google, requiring it to allow third-party apps and alternative payment options, amidst ongoing legal battles with Epic Games over anti-competitive practices.


Legal Conflict Timeline:


Timeline of Google vs. Epic Games Legal Battle





Key Developments in the App Economy


 App Economy Value: The app economy is valued at over \$250 billion, with major players being Google Play Store and Apple's App Store.


 Policy Revisions: Google and Apple are expected to revise their app store policies to be more developer-friendly, including options for alternative payment methods and reduced commissions.

 Lower Prices for Consumers: These policy changes could lead to lower prices for apps, subscriptions, and in-app purchases as developers save on high commissions.

 Rise of Alternative App Stores: Legal actions against Google may encourage the growth of alternative app stores, reducing the dominance of Google and Apple in app distribution.

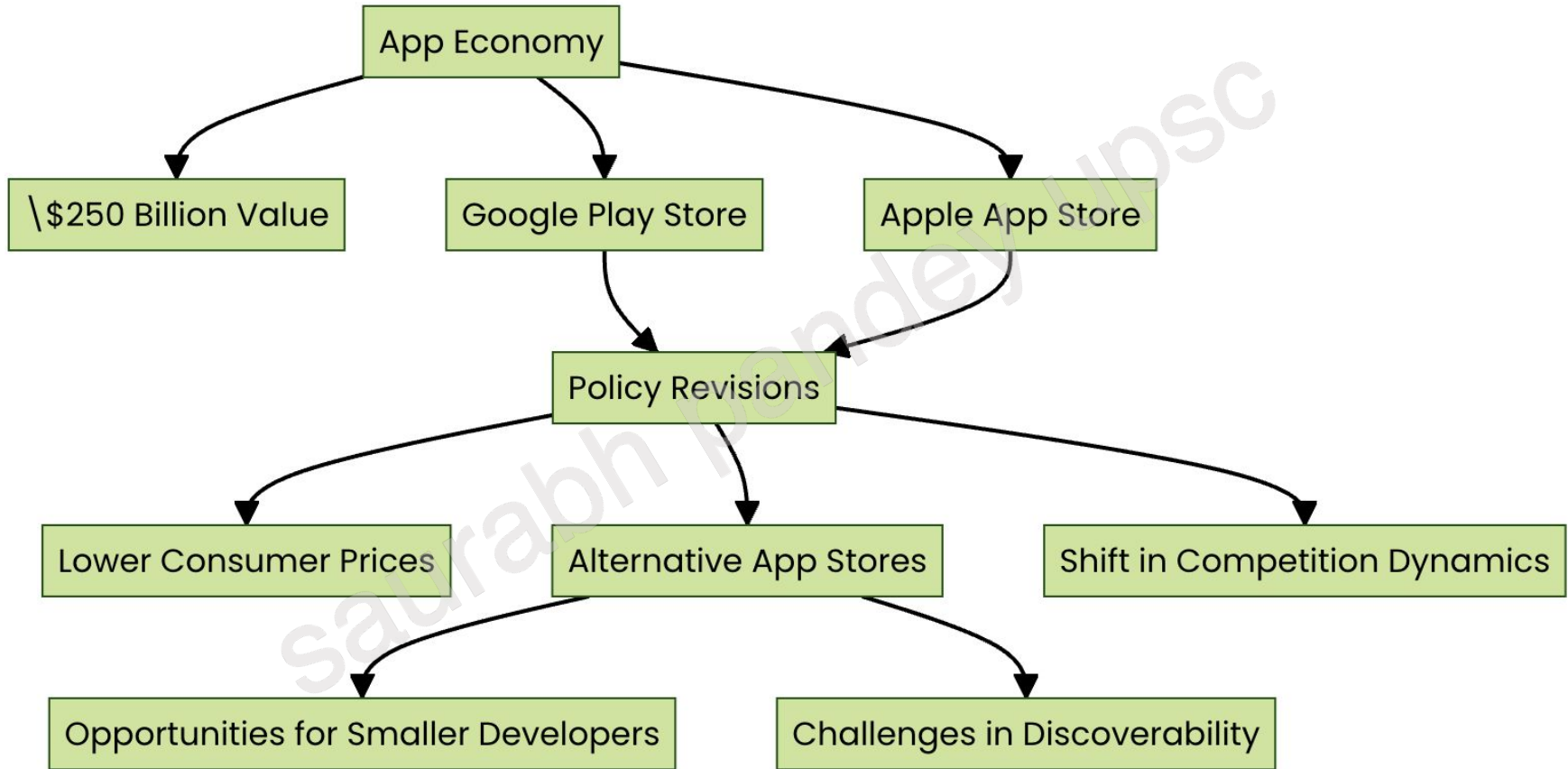
-  **Opportunities for Smaller Developers:** Smaller developers could benefit from reduced costs, enabling them to pass savings to consumers and lowering entry barriers for new app creators.

 **Challenges in App Discoverability:** The emergence of multiple app stores may pose challenges for smaller developers in terms of app discoverability and customer attraction in a fragmented market.

 **Shift in Competition Dynamics:** Legal rulings suggest a significant shift towards more open competition and fairer terms for developers, highlighting increased scrutiny of major tech companies.

Summary: Legal rulings against Google and Apple have the potential to reshape the app economy by fostering competition, reducing consumer costs, and challenging the dominance of major app stores_____

App Economy Dynamics:



Topic→ Plankton Migration



Plankton Migration: Plankton, including phytoplankton, move between the ocean's depths and surface in a continuous cycle.



Phytoplankton Size Change: The bioluminescent phytoplankton species *Pyrocystis noctiluca* can expand to six times its original size.



Density Control: *P. noctiluca* can adjust its density to remain buoyant and reach the ocean surface for photosynthesis.



Research Discovery: Researchers observed different sizes of *P. noctiluca* during a study off the coast of Hawaii, leading to insights about their growth.



Gravity Machine Experiment: A novel "gravity machine" was used to simulate ocean conditions, revealing how inflated cells can float due to being less dense than seawater.



Cell Cycle Mechanism: The expansion of *P. noctiluca* occurs naturally during its cell cycle, particularly after cell division when vacuoles fill with freshwater.



Biomass Production: The plankton produce biomass through photosynthesis until they become too heavy and sink, after which they can use inflation to return to their original size.

Summary: Researchers have discovered how the bioluminescent phytoplankton *Pyrocystis noctiluca* can control its density and size to navigate between ocean depths and the surface.

Topic-- >> Tea in India: A Comprehensive Overview



Origin of Tea in India

Tea plants were introduced to India from China and Southeastern Asia by British colonialists around three centuries ago.

Tea Cultivation Regions

Assam is the primary region for tea cultivation in India.

Other regions include Karnataka, Kerala, Tamil Nadu, Uttaranchal, and U.P.

Tea Consumption

India has the largest total tea consumption globally, at 540,000 metric tonnes. Average consumption is 620 grams per capita, which is 15 times more than coffee.



Economic Impact

India ranks as the fourth-largest tea exporter in the world.

Tea exports generate approximately \$800 million.



Health Benefits

Tea leaves are rich in vitamins and protective compounds.

Benefits include improved cardiovascular health, reduced diabetes risk, and stress alleviation.



Cost Comparison

A cup of tea costs ₹8 to ₹10 in North India and ₹10 in South India.

Coffee prices range from ₹15 to ₹20.

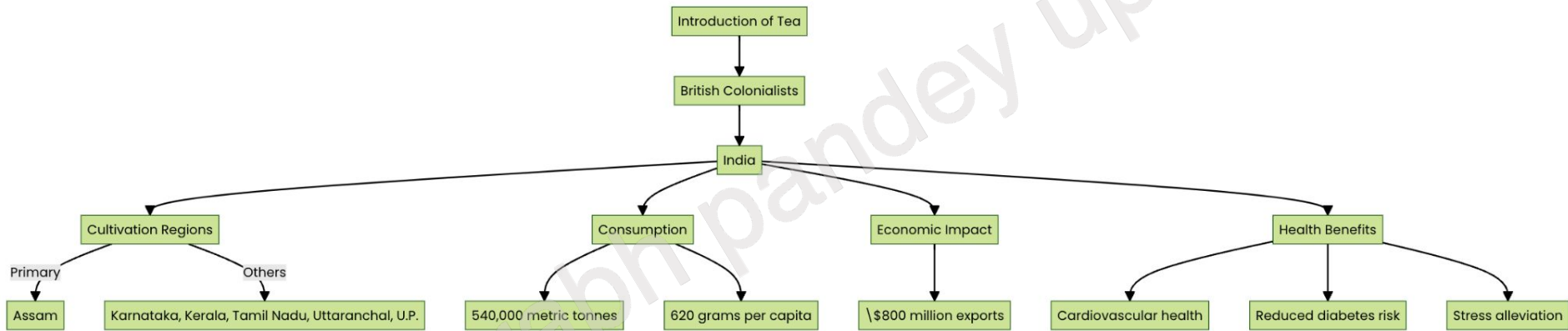


Chemical Composition

Tea leaves contain aroma-rich compounds like carotenoids.

Tea has more antioxidants than coffee, though coffee may have advantages against diabetes.

Summary: Tea, introduced to India by British colonialists, is now the most consumed beverage in the country, known for its health benefits and economic significance.



Topic→ The salivary amylase gene (AMY1)



The salivary amylase gene (AMY1) is responsible for breaking down complex carbohydrate starch in the mouth.



The duplication of the AMY1 gene may have occurred over 800,000 years ago.



This gene duplication helped shape human adaptation to starchy foods.



Pre-agricultural hunter-gatherers had an average of four to eight copies of the AMY1 gene per diploid cell.



High AMY1 copy numbers existed in humans before the domestication of plants and increased starch consumption.










The study highlights the genetic variation in AMY1 that influences starch digestion in modern humans.



Early gene duplications set the stage for the wide genetic variation observed today.


Summary: The duplication of the salivary amylase gene (AMY1), crucial for starch digestion, occurred over 800,000 years ago, influencing human adaptation to starchy diets.


Topic→CO2 From Forest Fire


-  Carbon dioxide emissions from forest fires have increased by 60% globally since 2001.
-  In some northern boreal forests, emissions have nearly tripled.
-  The study highlights a significant rise in emissions in the largest pyromes, which are regions influenced by similar environmental and climatic factors.
-  The affected pyromes include boreal forests in both Eurasia and North America.
-  The timeframe for this increase in emissions spans from 2001 to 2023.
-  The findings indicate a concerning trend in forest fire emissions, particularly in climate-sensitive areas.
-  The study underscores the impact of climate change on forest fire patterns and emissions.

Summary: A new study shows a 60% global increase in carbon dioxide emissions from forest fires since 2001, with emissions tripling in some northern boreal forests.

Topic→ Ultra Processed foods

 Increased consumption of ultra-processed foods is associated with higher blood sugar levels in individuals with Type 2 diabetes.


 The study highlights that additives in ultra-processed foods contribute more to elevated blood glucose levels than just sugar and salt.

 Higher average blood glucose levels are measured by HbA1C over several months.

 Ultra-processed foods are also linked to increased rates of cardiovascular disease.

 There is a correlation between ultra-processed food consumption and obesity.

 The consumption of these foods is associated with a higher risk of early death.

 The findings emphasize the importance of dietary choices for managing Type 2 diabetes and overall health.

Summary: A study reveals that ultra-processed foods significantly raise blood sugar levels in Type 2 diabetes patients, contributing to various health risks

— **Topic→ RSV VACCINE**



A study analyzed the effectiveness of the respiratory syncytial virus (RSV) vaccine using real-world data.



The vaccine is highly effective in older adults, including those with immunocompromising conditions.



RSV vaccination offers approximately 80% protection against disease and hospitalization.



It also reduces the risk of ICU admission and death due to respiratory infections.



The vaccine provides protection against less severe disease in adults visiting emergency departments without requiring hospitalization.



The findings highlight the importance of RSV vaccination in vulnerable populations.



The study underscores the potential benefits of vaccination in improving health outcomes for older adults.

Summary: The RSV vaccine is highly effective, providing around 80% protection against severe disease and hospitalization in older adults, including those with weakened immune systems.



Slideshow

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Q 4 --CAG --PLZ TYPE on youtube the hindu analysis by saurabh pandey sir --28th dec 2022

The story so far:

- A recent Comptroller and Auditor General of India (CAG) report on the update exercise of the National Register of Citizens (NRC) in Assam has flagged serious irregularities, including “haphazard development” of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.

11th october 2022

File Edit View Insert Format



Slideshow

Share

Q 5 --local bodies and urban bodies --PLZ TYPE on youtube the hindu analysis by saurabh pandey sir --11th october 2022

- The Constitution mandates that panchayats and municipalities shall be elected every five years and enjoins States to devolve functions and responsibilities to them through law.
- This is regarded as a design weakness, but on closer look, is not one.
- Given diverse habitation patterns, political and social history, it makes sense to mandate States to assign functions to local governments.

Target Mains -2025/26 -

Q Developing infrastructure in indian Islands will have its own challenges . Examine

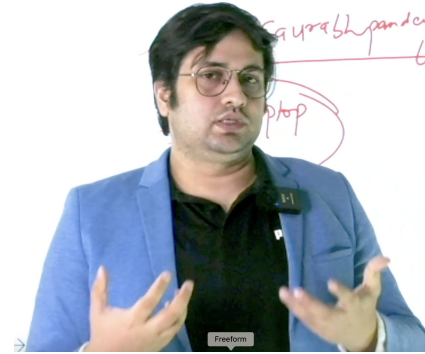
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**send your answer - Saurabh pandey
upsc telegram channel**

Topics - MINDS MAPS included (Daily current affairs)-- 22nd October 2024



- **Cyclone Dana:**
 - **Supreme Court's Stance on Secularism and Socialism**
 - **COP16 Biodiversity Summit**
 - **James Webb Telescope**
 - **75th Anniversary of the Indian Constitution**
 - **Advance Reservation Policy Update**
 - **Ecosystem Restoration and Land Degradation**
 - **Shadow Fleet and Global Shipping Dynamics**
 - **High-Performance Buildings:**
 - **Yasmina Lake**
 - **Mains**
-



By saurabh Pandey



C) Uttarakhand
D) Ladhak

Q2. Consider the following statements in context of the Gold Production. (The Hindu)

- 1) Gold is a precious metal with the atomic number 69 and the Latin name 'aurum', symbolized as Au on the periodic table
- 2) Around 10% of gold produced globally is utilized in various industries due to its desirable properties, including being corrosion-resistant and a good conductor of electricity
- 3) While South Africa is the largest producer of gold, China holds the second position.
- 4) Each Nobel Prize awarded from is a featured medal made of electrum, an alloy of gold and silver, plated with 24-carat gold.

Q3. This is a wildlife sanctuary situated on the northern boundary of Madhya Pradesh and the adjoining Rajasthan state in India. It was notified in 1974. The Chambal River passes through the sanctuary dividing it into two parts. It is in the Khathiar-Gir dry deciduous forests ecoregion.

Which of the following Wildlife Protected Area is described above. (DTE)

- A) Kuno National Park
- B) Gandhi Sagar Wildlife Sanctuary.
- C) Sailana Wildlife Sanctuary
- D) Madhav National Park

Q4. Consider the following statements. (DTE)

Statement I: Inclusive institutions were often introduced in countries that were poor when they were

Riding the waves



Brewing storm: Fishermen off the Visakhapatnam coast on Monday. They have been asked not to venture into the sea since cyclonic storm Dana is expected to make a landfall in Odisha on Thursday. V. RAJU (RELATED REPORT ON PAGE 6)

Topic→ Cyclone Dana: A Developing Weather Phenomenon



Low-Pressure System: The India Meteorological Department (IMD) has identified a low-pressure system over the East-central Bay of Bengal, which is expected to intensify.



Cyclone Formation: This system is projected to evolve into a severe cyclonic storm named "Dana"




Landfall Timeline: Cyclone Dana is anticipated to make landfall in north Odisha and West Bengal




Wind Speeds: The cyclone is expected to bring wind speeds reaching up to 120 km/h at the time of landfall.

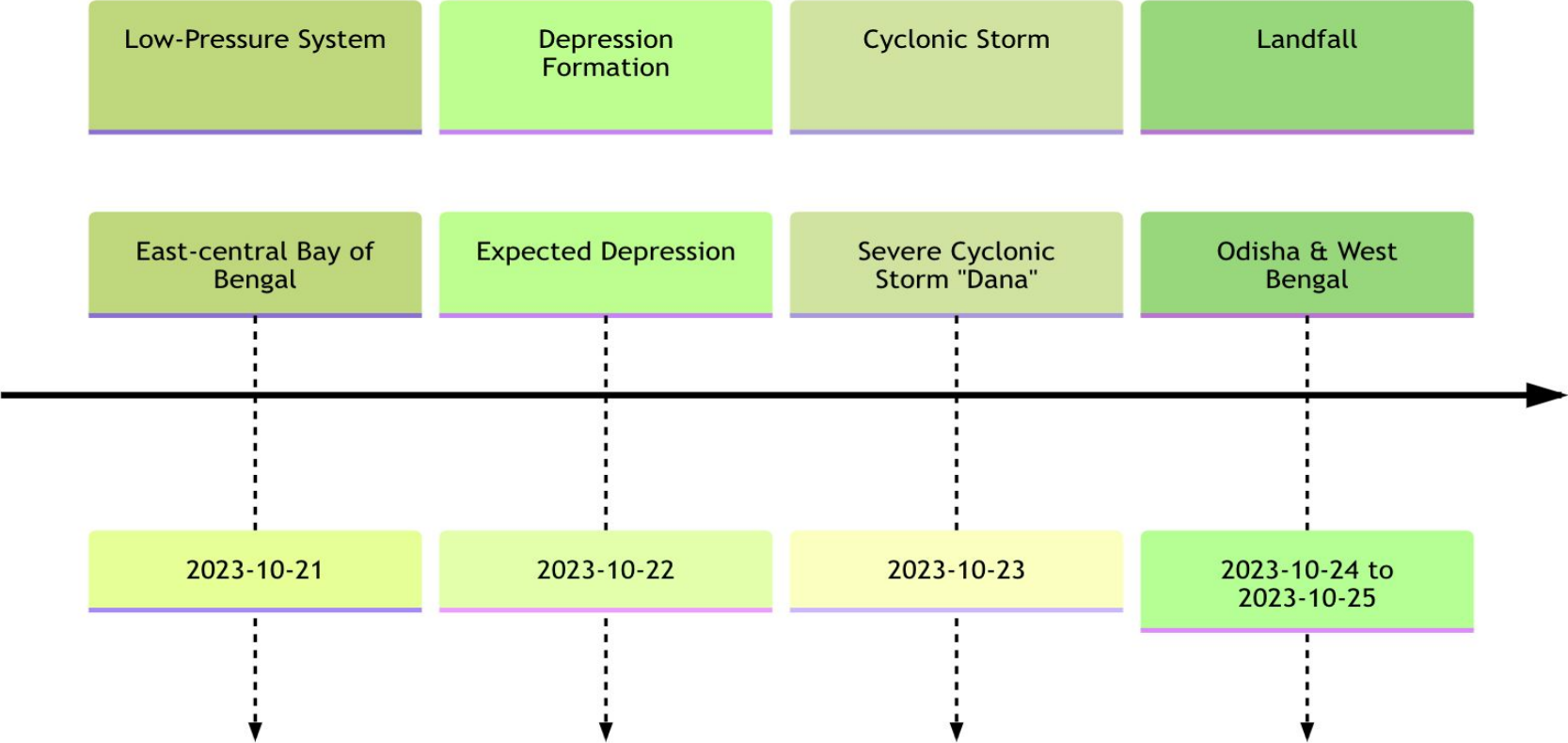


Recent Cyclones: Dana will be the second cyclone in the North Indian Ocean within a span of less than two months, following Cyclone Asna in late August.

 Naming Convention: The name "Dana," meaning "generosity" in Arabic, was selected by Qatar, following the regional naming conventions for tropical cyclones.

 Development Timeline: The IMD predicts the system will develop into a depression by Tuesday morning, October 22, and escalate to a cyclonic storm by Wednesday

Cyclone Dana Development



Cyclone Naming Initiative



Cyclone Naming Origin

In 2000, the WMO/ESCAP group initiated the naming of cyclones in the Asia-Pacific region.



Participating Nations

Original member countries included:

Bangladesh

India

Maldives

Myanmar

Oman

Pakistan

Sri Lanka

Thailand

Each country contributed suggestions for cyclone names.

Names were finalized by the WMO/ESCAP Panel on Tropical Cyclones (PTC).

Expansion of Membership

In 2018, five additional countries joined:

Iran

Qatar

Saudi Arabia

United Arab Emirates

Yemen

Cyclone Name List

A total of 169 cyclone names were released by the Indian Meteorological Department (IMD) in April 2020. _____

Each of the 13 countries provided 13 name suggestions.

—



Historical Context

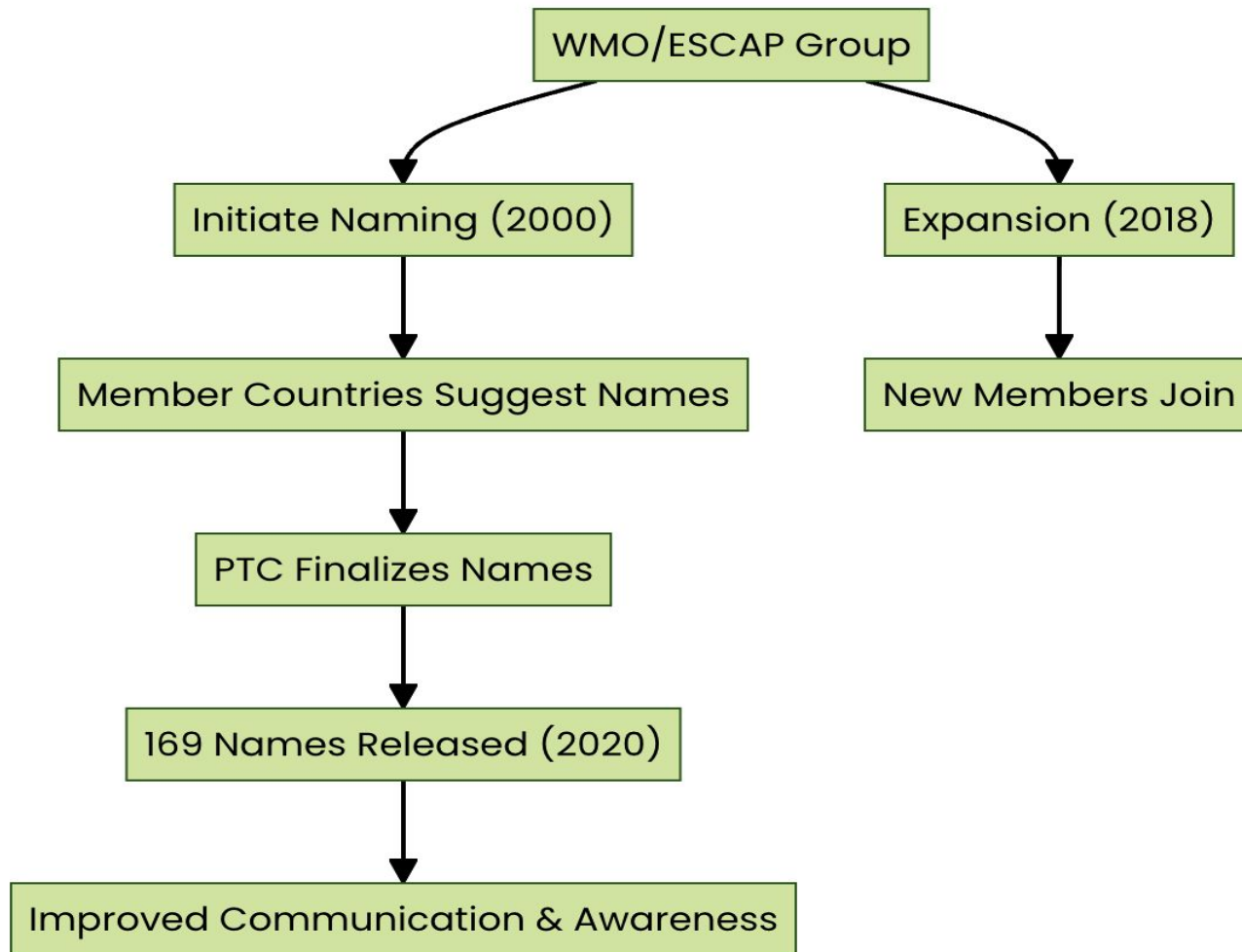
The initiative aims to improve communication and awareness regarding tropical cyclones in the region.



Regional Collaboration

The naming process reflects a collaborative effort among nations to address the challenges posed by cyclones.

Cyclone Naming Process:



Cyclone Naming Conventions



Naming Benefits

Enhances Memory: Naming cyclones aids in memory retention for both the public and professionals.

Boosts Awareness: Increases awareness and preparedness for impending cyclones.



Target Audience

Broad Reach: Names assist not only the general public but also scientists, media, and disaster managers in identifying cyclones.



Naming Guidelines

Neutrality: Proposed names must be neutral regarding politics, religion, culture, and gender.

Respectful: Names should not offend any group.



Offensive Restrictions



Avoid Rudeness: Names should be respectful and considerate, avoiding any rude or cruel connotations.



Name Characteristics

Simplicity: Cyclone names should be short (up to eight letters) and easy to pronounce.

Guidance: Pronunciation guidance should accompany the names.



Rotational System

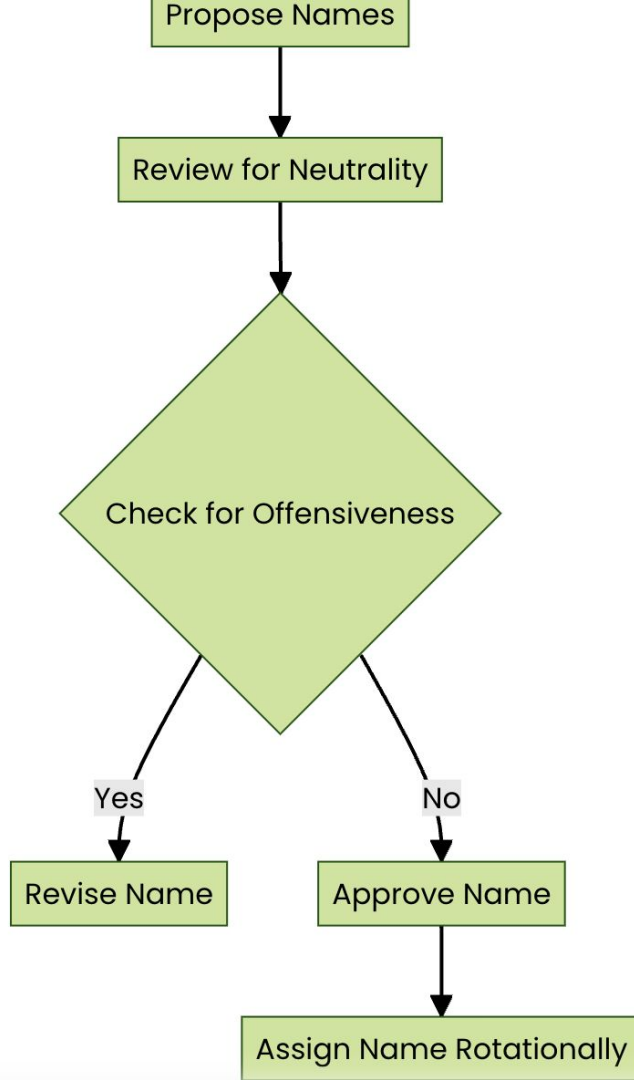
Alphabetical Order: Names are assigned on a rotational basis, following the alphabetical order of the proposing countries.



Global Consideration

Diverse Sentiments: The naming process considers the sentiments of diverse populations worldwide to avoid conflict.

Summary: Naming cyclones enhances communication and preparedness while adhering to strict guidelines to ensure respect and clarity.



Topic → Supreme Court's Stance on Secularism and Socialism



Key Highlights



Supreme Court's Stance: Affirmed secularism as a fundamental part of the Constitution's Basic Structure.



Petition Background: Addressed challenges to the inclusion of "socialist" and "secular" in the Constitution's Preamble.



Judicial Precedent: Justices Khanna and Kumar cited past judgments recognizing secularism as a core constitutional feature.



Socialism Interpretation: Justice Khanna emphasized a broader view of socialism, focusing on equality and wealth distribution.



Preamble Amendment: In 1976, "socialist" and "secular" were added, altering "unity of the nation" to "unity and integrity of the

nation."

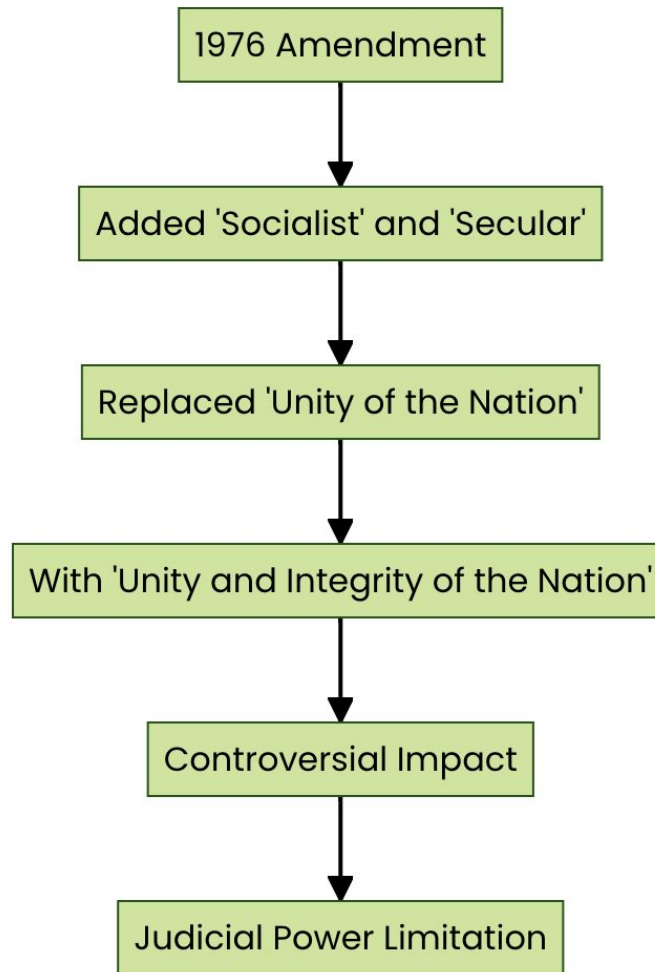


Historical Context: The 42nd Amendment, during Indira Gandhi's tenure, was controversial for its impact on judicial power.





Kesavananda Bharati Case: Established the Preamble's integral role in the Constitution, allowing amendments without altering the Basic Structure.


Summary: The Supreme Court upheld secularism as a core constitutional principle while reviewing the controversial 1976 amendment that added "socialist" and "secular" to the Preamble




Key Highlights

 2022 Agreement: Nearly 200 nations agreed to halt nature destruction by the end of the decade, but progress has stalled.

 COP16 Summit: Held in Cali, Colombia, with around 23,000 delegates, marking it as the largest biodiversity summit.

 Funding Focus: Emphasis on finding new funding initiatives for conservation, with current funding falling short of the 2025 goal.

 NBSAPs Submission: Only 31 out of 195 countries have submitted their National Biodiversity Strategies and Action Plans by October 18.



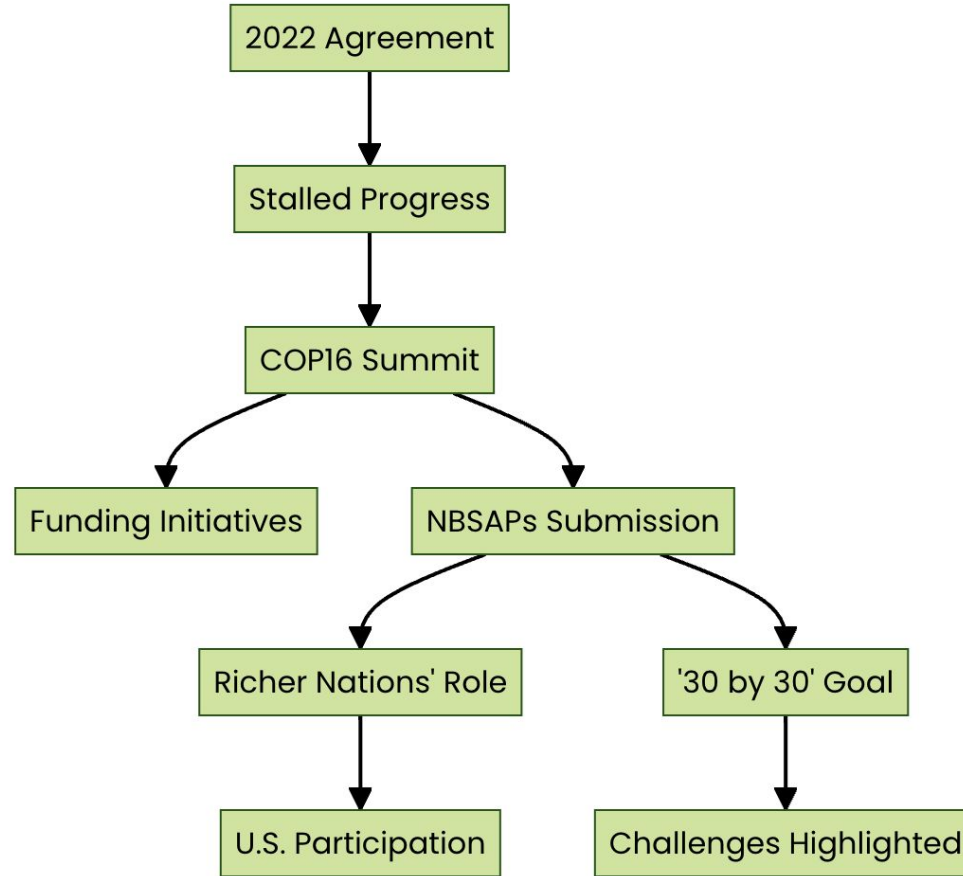
Richer Nations' Role: These countries have been quicker to submit plans, while the U.S. participates without obligation due to not ratifying the Convention on Biodiversity.



"30 by 30" Goal: The lack of submitted plans complicates the assessment of progress towards protecting 30% of land and sea by 2030.



Challenges Highlighted: Colombia's Environment Minister pointed out delays due to insufficient funding and expertise in poorer countries.



Summary: The COP16 summit in Colombia aims to address stalled biodiversity goals, with significant concerns over funding and the lack of national conservation plans from many countries.

Topic→James Webb Telescope



Overview

What is it?: Next-generation space telescope

Purpose: To explore the universe's earliest galaxies, stars, and planets 

Key Discoveries

Super Star Clusters: Observations of unique star clusters in the Milky Way 

Exoplanets: Direct imaging of young exoplanets 

'Inside Out' Galaxies: Discovery of unusual galaxies from the early universe 

Quasars: Detection of quasars in unexpected locations 



Launch: December 25, 2021.

_Technology



Infrared Capabilities: Allows for observing distant cosmic phenomena 🌈

Mirror Design: Large segmented mirror for enhanced light-gathering power 📡

Scientific Impact

Cosmology Studies: Insights into the formation and evolution of the universe 📊

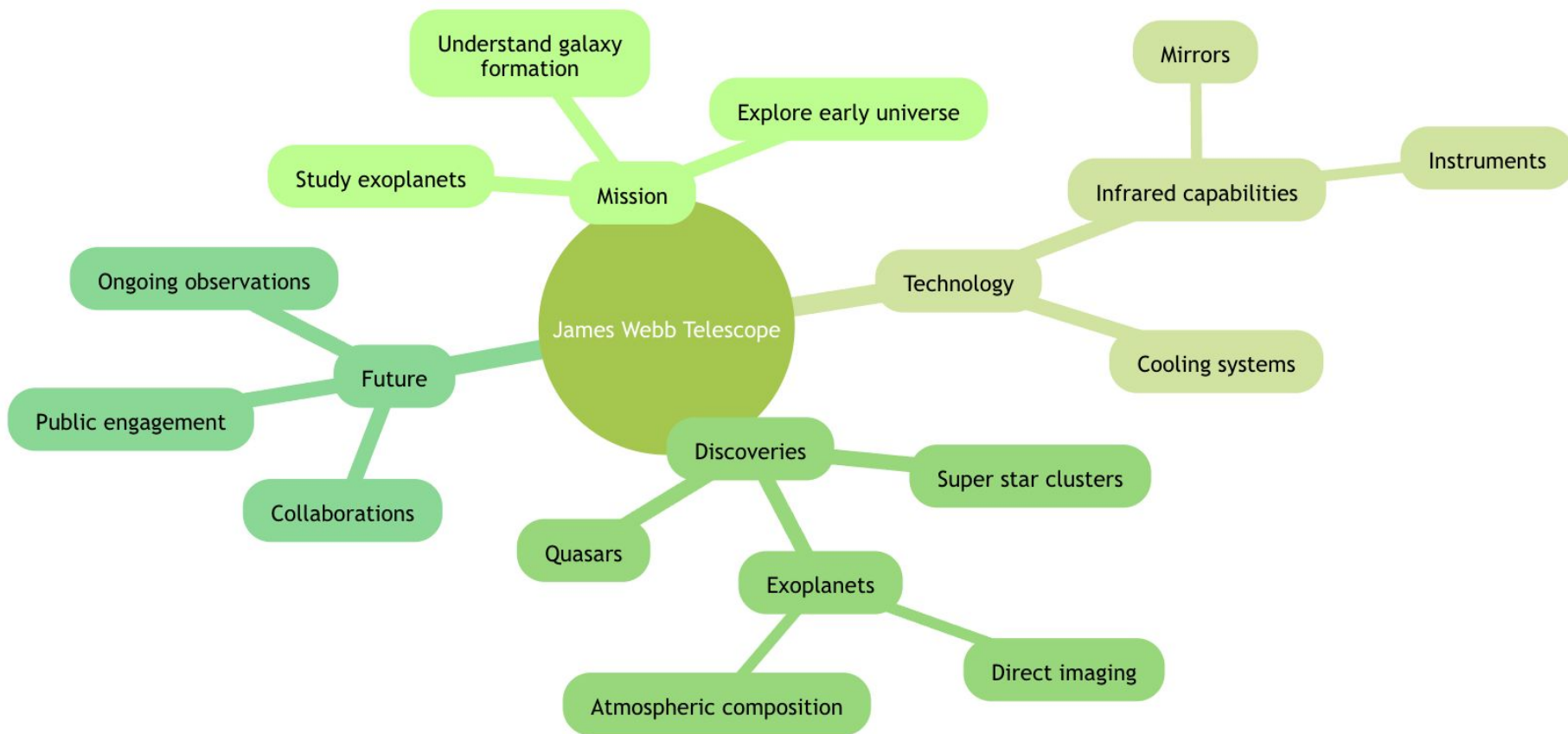
Stellar Evolution: Understanding star formation processes 🌟

Planetary Science: Studies of planetary atmospheres and compositions 🌍

Future Prospects

Further Missions: Continued exploration of the universe's mysteries 🔍

Collaborations: Partnerships with international space agencies and research institutions 🤝



Topic-- >75th Anniversary of the Indian Constitution-- constitutional governance



Key Highlights



75th Anniversary: November 26, 2023, marks a significant milestone in Indian history with the 75th anniversary of the adoption of the Constitution of India.




Constitutional Governance: The governance in India is not only about laws but also a deep-rooted constitutional culture that mirrors the diverse consciousness of its people.





Voter Participation: Since 1951-52, approximately 60% of Indians have participated in elections, with a remarkable 65.79% turnout in the 2024 general election.

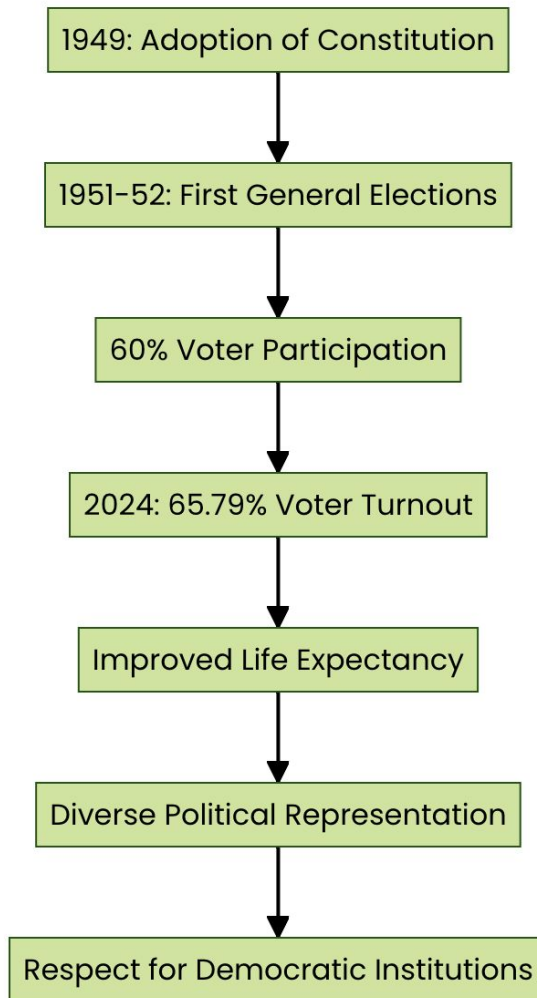


Smooth Power Transition: India is known for its tradition of smooth transitions of power between elected governments, irrespective of political

—  Improved Quality of Life: Life expectancy has significantly increased_ from around 32 years at the time of the Constitution's adoption to approximately 70 years today, indicating substantial social and economic progress.

 Respect for Democratic Institutions: A core constitutional value, the respect for democratic institutions, has remained robust over the decades.

 Diverse Political Representation: The presence of various political parties and leaders representing different ideologies highlights the electorate's understanding of national challenges.



Key Aspects of the Indian Constitution



Protection of Rights: The Constitution underscores the significance of fundamental rights and the judiciary's role in their protection.



Historical Context: The framers, influenced by the freedom movement, were dedicated to safeguarding individual rights against state power.



Skepticism of State Power: The drafters ensured that individual freedoms were prioritized within the constitutional framework.



Federalism: Recognizing India's diversity, the Constitution grants autonomy and special privileges to states to preserve their unique identities and cultures.



Equity and Inclusivity: Special provisions aim to address regional disparities and foster inclusivity among the populace.

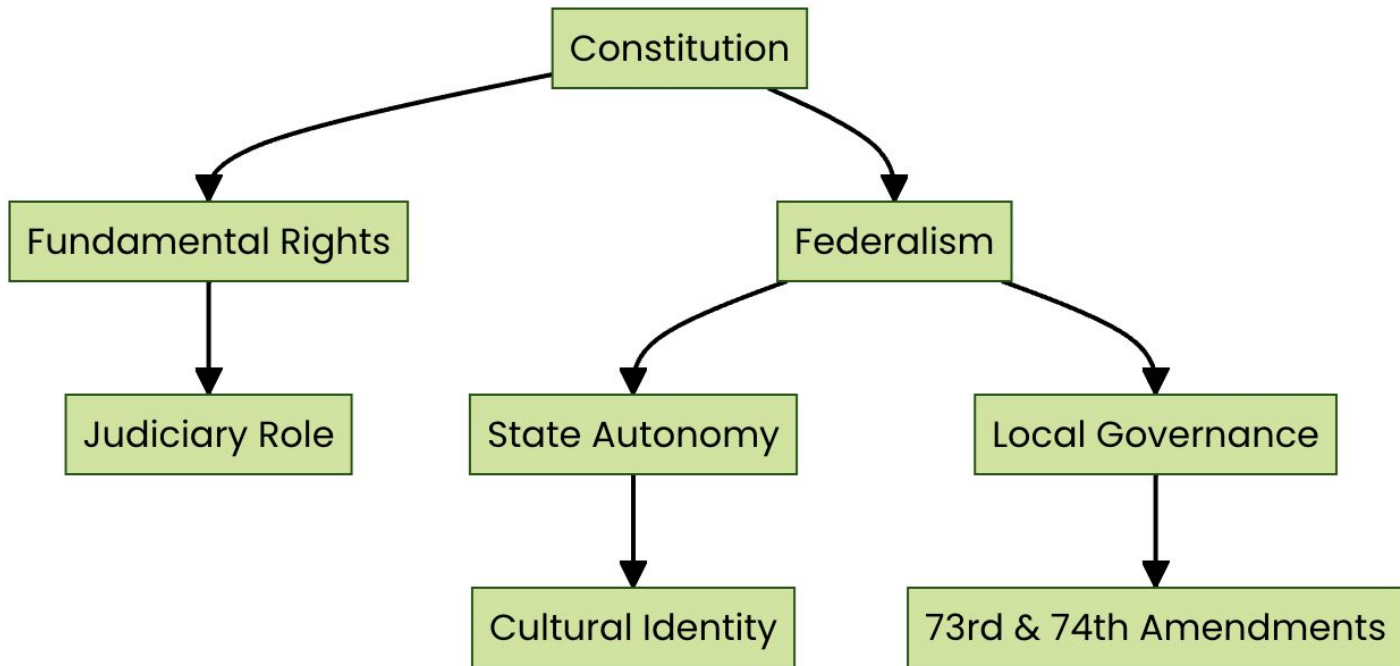


Political Evolution: The rise of state-level political parties has significantly influenced national politics and coalition governance.



Local Governance: The 73rd and 74th Amendments established local self-governance institutions, strengthening federalism in India.

Conceptual Overview:



Diverse Media Landscape



Heterogeneous Institution: The Indian media is a diverse entity with multiple perspectives across various languages.

Media Evolution



Transition and Innovation: The shift from print to broadcast, along with technological advancements, has democratized information access.

Role in Democracy



Crucial Role: Media and civil society have been pivotal in fostering trust in Indian democracy.

Challenges and Values



Media Autonomy: Despite challenges, transparency remains a fundamental value in media culture

Informed Electorate



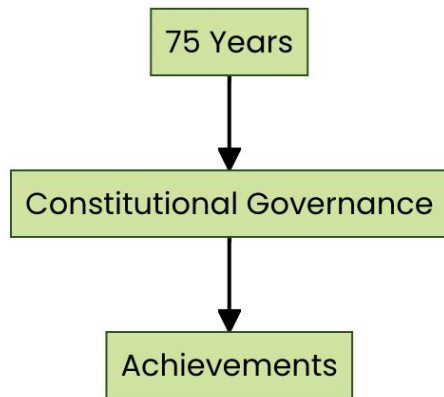
Explosion of Information: The surge in information has led to a more informed Indian electorate about media and civil society roles

celebrating Governance




75 Years of Governance: Reflecting on 75 years of constitutional governance in India, highlighting its achievements

Governance Celebration:

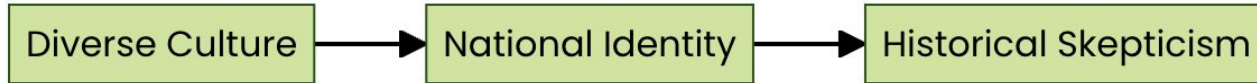


_National Identity



 Forging Identity: India has successfully created a national identity despite its diverse cultural landscape, countering historical skepticism

National Identity:



Summary: The Indian media and civil society have significantly contributed to democracy, fostering an informed electorate and celebrating 75 years of constitutional governance.

Topic→Ecosystem Restoration and Land Degradation



Global Issue

Degradation of natural ecosystems is a critical global concern.

Countries like India, with rich ecological diversity, are significantly affected.

Land Degradation in India

30% of India's geographical area is experiencing land degradation.

97.85 million hectares were affected as of 2018-19.

Nature Restoration Law (NRL)

Enacted by the EU on June 17, 2024.

Aims to restore 20% of land and sea areas by 2030.

Full restoration of all ecosystems targeted by 2050.

Part of the EU's Biodiversity Strategy for 2030 and the European Green Deal.

Addresses the alarming loss of biodiversity in Europe.

Restoration Goals

Includes measures like restoring 25,000 kilometers of rivers.

Planting three billion trees by 2030.

India's Initiatives

Programs like the Green India Mission and the National Afforestation Programme have been initiated.

A comprehensive nature restoration law similar to the EU's is needed.

Global Issue: Ecosystem Degradation

Impact on India

Land Degradation: 30% Area

EU's Nature Restoration Law

Biodiversity Strategy

Restoration Goals

India's Initiatives

The scale of environmental challenges in India requires a legally binding framework.

Essential for ensuring sustainability in ecosystem restoration.

Summary: India faces significant land degradation challenges, necessitating a comprehensive nature restoration law inspired by the EU's Nature Restoration Law to ensure ecosystem sustainability

Nature Restoration Law in India



Restoration Targets

Goal: Restore 20% of degraded land by 2030 and all ecosystems by 2050.

Focus Areas: Forests, wetlands, and urban spaces.

Restoration Timeline:



Objective: Restore 30% of degraded wetlands by 2030.

Key Areas: Sundarbans and Chilika Lake

Biodiversity in Agriculture

Strategies: Promote agroforestry and sustainable practices.

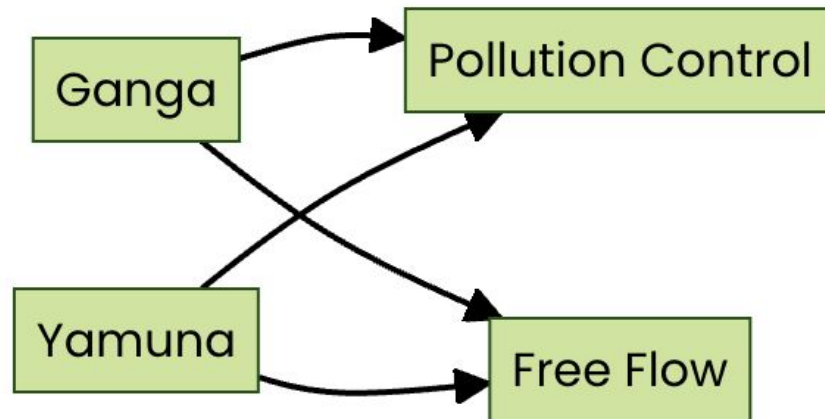
Indicators: Use butterfly or bird index to track progress.

River Restoration

Priority: Major rivers like the Ganga and Yamuna.

Goals: Address pollution and ensure free-flowing rivers.

River Restoration Plan:



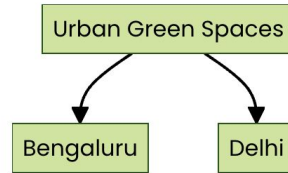
_Urban Green Spaces



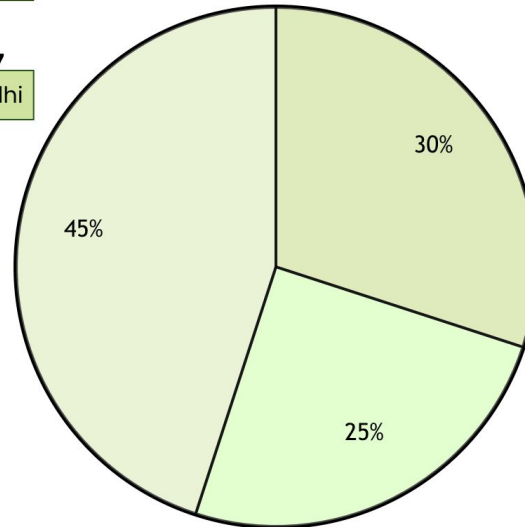
Policy: No net loss of urban green spaces.

Target Cities: Bengaluru and Delhi

Urban Green Space Strategy:



Economic Benefits



Agricultural Produ
Water Security
Job Creation

Economic and Social Benefits 💰



Potential: Generate up to \$10 trillion globally by 2030.

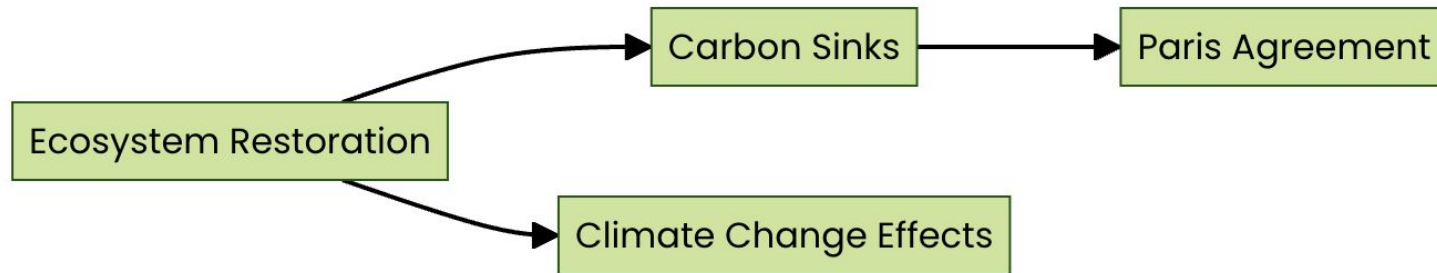
Benefits: Enhance agricultural productivity, water security, and job creation.

Climate Change Mitigation 🌍

Contribution: Help meet Paris Agreement commitments.

Mechanism: Enhance carbon sinks and combat climate change effects.

Climate Mitigation Strategy:



Summary: A proposed Nature Restoration Law in India aims to restore ecosystems, enhance biodiversity, and provide significant economic and climate benefits by 2030.

Topic→Advance Reservation Policy Update



Key Updates on Advance Reservation Policy



New ARP Effective Date: The Advance Reservation Period (ARP) will be effective from November 1, 2024, with a booking window of 60 days in advance.




Previous Booking Policy: The previous ARP allowed bookings up to 120 days in advance, a policy in place since May 1, 2008.





Historical Changes: The ARP has varied over the years, with periods of 60 days (1995-2007), 45 days (1988-1993), and 90 days (1981-1985).



Cancellation Rates: Currently, about 21% of passengers cancel their tickets, leading to wastage of seats and a high no-show rate of 4-5%.

—  **Fraud Prevention:** Shortening the ARP is aimed at reducing fraud and ticket touting, as longer booking windows have been linked to impersonation and illegal ticket allotments.

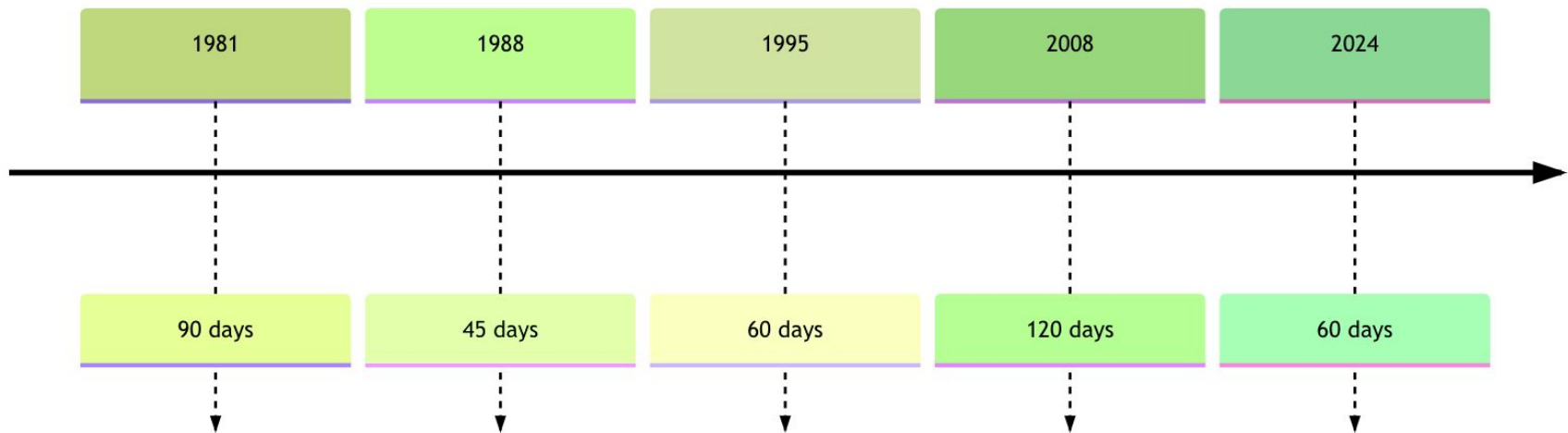
 **Exemptions:** Foreign tourists and certain trains like the Taj Express and Gomti Express are exempt from the new ARP rules, as their tickets are typically booked close to the travel date.

 **Ongoing Debate:** There is an ongoing discussion within the Ministry about whether to maintain or further adjust the ARP, with some advocating for a year-round booking option.

Summary: The Indian Railways will shorten the Advance Reservation Period to 60 days starting November 1, 2024, to reduce cancellations and fraud, while certain groups remain exempt from this rule.

Historical ARP Changes:

ARP Changes Over the Years



Topic→Shadow Fleet and Global Shipping Dynamics



Shadow Fleet Concept

Western media labels tanker ships carrying Russian oil as a 'shadow fleet'.
Implies illegal activities and connections to India as a laundering hub.



U.S. Sanctions on Russia

U.S. sanctions cap Russian crude oil sales at \$60 per barrel.
Market prices exceed this cap by at least \$15.
Aims to restrict funding for Russia's war efforts in Ukraine.



Global Shipping Landscape

Diverse industry with Greece owning 20% of the fleet.
China surpasses Japan in ship ownership.
Most ships built in China, Japan, and South Korea.
Regulations centered in the U.K. and Europe.

Flags of Convenience

Ships switch flags to evade scrutiny.

Use jurisdictions like Panama and Liberia to obscure ownership.



Insurance and Compliance

Turkish ships trading Russian oil risk losing Protection and Indemnity (P&I) insurance.

Can circumvent this by changing management to European firms.



India's Involvement

Russian ships allied with Indian firms post-sanctions.

Accusations of India facilitating shadow fleets.

Indian Register of Shipping focuses on vessel safety.



Challenges in Enforcement



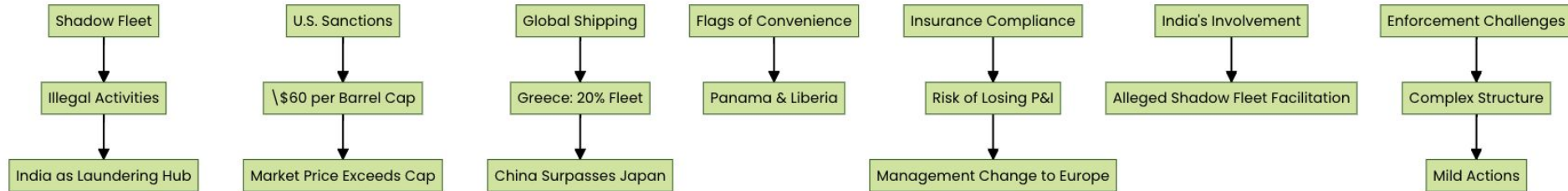
U.S. sanctions on Russian oil are difficult to enforce.

Complex shipping structure and potential global economic repercussions.

Only mild actions taken against violators.

Summary: The intricate dynamics of global shipping, U.S. sanctions on Russian oil, and India's alleged involvement in shadow fleets underscore significant challenges in enforcing international regulations.

Global Shipping Dynamics:



C) Uttarakhand
D) Ladhak

Q2. Consider the following statements in context of the Gold Production. (The Hindu)

- 1) Gold is a precious metal with the atomic number 69 and the Latin name 'aurum', symbolized as Au on the periodic table
- 2) Around 10% of gold produced globally is utilized in various industries due to its desirable properties, including being corrosion-resistant and a good conductor of electricity
- 3) While South Africa is the largest producer of gold, China holds the second position.
- 4) Each Nobel Prize awarded from is a featured medal made of electrum, an alloy of gold and silver, plated with 24-carat gold.

Q3. This is a wildlife sanctuary situated on the northern boundary of Madhya Pradesh and the adjoining Rajasthan state in India. It was notified in 1974. The Chambal River passes through the sanctuary dividing it into two parts. It is in the Khathiar-Gir dry deciduous forests ecoregion.

Which of the following Wildlife Protected Area is described above. (DTE)

- A) Kuno National Park
- B) Gandhi Sagar Wildlife Sanctuary.
- C) Sailana Wildlife Sanctuary
- D) Madhav National Park

Q4. Consider the following statements. (DTE)

Statement I: Inclusive institutions were often introduced in countries that were poor when they were

Topic-- >High-Performance Buildings: A Path to Sustainability



Climate Mitigation and Adaptation

High-Performance Buildings (HPBs) play a crucial role in tackling climate challenges and urban issues.



Design Features

Engineered for Efficiency: HPBs are designed to lower greenhouse gas emissions, reduce energy and water consumption, and decrease operational costs through climate-adaptive designs.



Occupant Well-being

Enhanced Living: These buildings improve the well-being of their occupants, making them attractive to both businesses and individuals.



Financial Benefits



Economic Advantages: HPBs offer financial benefits, including increased property value, reduced utility expenses, and opportunities for carbon financing.



Government Support

Global Policies: Governments worldwide are implementing progressive policies and financing mechanisms to promote the adoption of HPBs, focusing on energy efficiency and carbon neutrality.



India's Initiatives

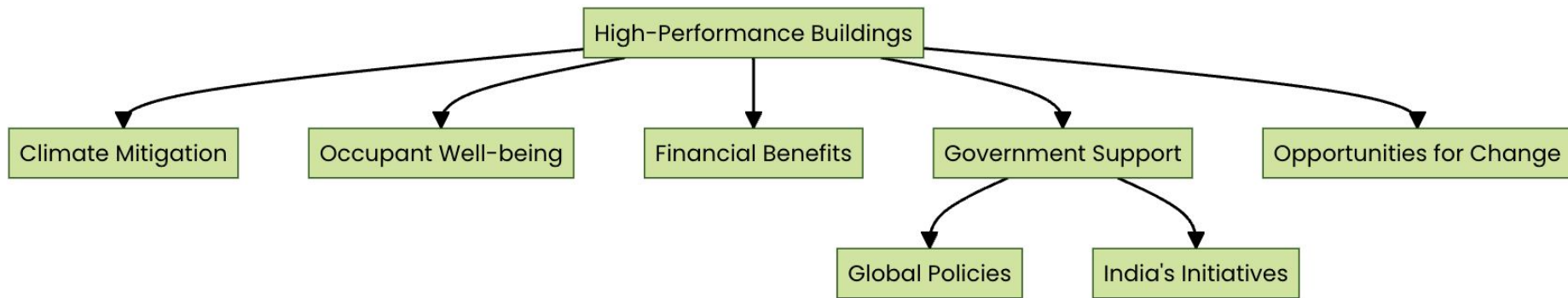
Policy Alignment: India is beginning to align its policies and business strategies to support the development of High-Performance Buildings.



Opportunities for Change

Sustainability Transformation: The built environment presents significant_____ opportunities for transformation towards sustainability through HPBs.

Conceptual Overview:



Summary: High-Performance Buildings (HPBs) are essential for climate mitigation, offering environmental and financial benefits while enhancing occupant well-being, with growing support from governments globally, including India.

Mapping → Yasmina Lake

Overview

Yasmina Lake is a prominent feature in Morocco known for its beautiful landscape and recreational opportunities.

It has seen increased attention due to climate changes and environmental projects in the region.



14th jan 2023



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Slideshow

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Find

- 21
- The constitutional role of the Governor is that of a constitutional figurehead who holds a series of powers to appoint and dismiss judges, and to grant pardons, but these powers are defined by the Constitution and the law.
 - The Governor of the Reserve is expected to be above party politics and should not interfere in the functioning of a duly elected state government.



- 23
- parliamentary legislation is subject to two limitations under the Constitution of India.
 - One is by judicial review, or the power of constitutional courts to review legislation for compliance with the provisions of the Constitution.
 - Another is that no amendment to the Constitution is valid unless it is passed by a majority of two-thirds of the members of each House of Parliament.

- 24
- while the first limitation is set out in Article 13, under which laws inconsistent with or in derogation of fundamental rights are void, the second limitation is based on the 'basic structure' doctrine evolved by the Supreme Court.
 - Vice-President Jagdeep Dhankhar's remarks questioning the basic structure doctrine propounded in the landmark Kesavananda Bharati case (1973) does not call into question the position of law.

- 25
- In his view, the basic structure doctrine has ensured parliamentary sovereignty and gone against the democratic imperative that the elected legislature should retain supreme.

- 26
- His particular concern seems to be...

Q 3 --Parliamentary
supremacy--PLZ TYPE
on youtube the hindu
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pandey sir -- 14th jan
2023

Click and title

Click subtitle

Bound supremacy

Parliamentary sovereignty isn't undone by the basic structure doctrine

It is fairly well-known that parliamentary legislation is subject to two limitations under the Constitution of India. One is by judicial review, or the power of constitutional courts to review legislation for possible violation of any fundamental right. Another is that no amendment to the Constitution should have the effect of destroying any of its basic features. While the first limitation is set out in Article 13, under which laws inconsistent with or in derogation of fundamental rights are void, the second limitation is based on the 'basic structure' doctrine evolved by the Supreme Court. Vice-President Jagdeep Dhankhar's remarks questioning the basic structure doctrine propounded in the landmark Kesavananda Bharati case (1973) does not reflect the correct position of law. In his view, the basic structure doctrine has usurped parliamentary sovereignty and goes against the democratic imperative that the elected legislature should retain supreme. His particular concern seems justified: that the Supreme Court prevented the National Judicial Appointments Commission, a body to appoint judges to the superior courts in the country, from coming into existence by striking down the relevant amendment to the Constitution and a parliamentary law to give effect to it. But it is difficult not to see his attack on the basic structure doctrine as part of the current dispensation's tirade against the judiciary and its grievance that it does not have enough say in the appointment of judges.

The idea that the basic structure doctrine undermines parliamentary sovereignty is simply wrong. Parliament is sovereign in its domain, but it is still bound by the limitations imposed by the Constitution. Mr. Dhankhar seems to have a problem with any sort of limitation on Parliament's jurisdiction to amend the Constitution. Surely, he could not have forgotten that the basic structure doctrine had helped save the Constitution from being undermined through the misuse of parliamentary majority. The main purpose of the doctrine is to ensure that some fundamental features of the Constitution are not legislated out of existence. It has been invoked to strike down amendments only in a few cases, but many others have survived basic structure challenges. Parliamentary majority is transient, but essential features of the Constitution such as the rule of law, parliamentary form of government, separation of powers, the idea of equality, and free and fair elections ought to be perennially protected from legislative excess. It may be open to a new Constituent Assembly to come up with another constitution that changes these fundamental concepts, but a legislature formed under the current Constitution cannot be allowed to change its core identity.

Click to add speaker notes



28th dec 2022



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Q 4 --CAG --PLZ TYPE on youtube the hindu analysis by saurabh pandey sir --28th dec 2022



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Fit



5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

The story so far:

- A recent Comptroller and Auditor General of India (CAG) report on the update exercise of the National Register of Citizens (NRC) in Assam has flagged serious irregularities, including “haphazard development” of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.

on the Human Development Index.

However, health experts say the fact that India's fertility rate is declining due to a variety of factors, including increased literacy rates, increase in the age of marriage and so forth, should prompt measures to better anticipate, from the government, decisions to general health workers to launch campaigns on oral cancer awareness, push vaccination and screening for all girls.

What is the CAG's audit report on Assam's NRC?

The report, released on December 24, says the NRC update exercise in Assam has been marred by several irregularities, including “haphazard development” of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.

The story so far:

A recent Comptroller and Auditor General of India (CAG) report on the update exercise of the National Register of Citizens (NRC) in Assam has flagged serious irregularities, including “haphazard development” of software for the exercise, making it prone to data tampering, and flagged undue profits worth crores amassed by the system integrator (SI) by violating the Minimum Wages Act.

The audit flagged irregularities in a compliance report of hospital arrangements for NRC update project in Assam tabled in the Assam Assembly on December 24.

What is the NRC exercise?

• An NRC was first created in 1951 to Assam to identify those born in India and migrants from elsewhere about Pakistan, now Bangladesh.
• In 2019, the Supreme Court issued directions to the Centre and State to initiate an exercise in Assam to update the NRC register.

What are the CAG's concerns?

Click to add speaker notes

11th october 2022

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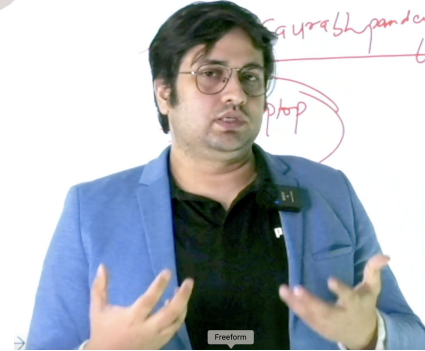
Q 5 --local bodies and urban bodies --PLZ TYPE on youtube the hindu analysis by saurabh pandey sir --11th october 2022

- The Constitution mandates that panchayats and municipalities shall be elected every five years and enjoins States to devolve functions and responsibilities to them through law.
- This is regarded as a design weakness, but on closer look, is not one.
- Given diverse habitation patterns, political and social history, it makes sense to mandate States to assign functions to local governments.

Topics - MINDS MAPS included (Daily current affairs)-- 23rd October 2024



- Tenkana
- Cobenfy
- Galaxy Cluster Abell 3381
- Brown Dwarfs:
- UN Peacekeeping & UNSC REFORM
- Supreme Court Ruling on Section 6A of the Citizenship Act
- Google and Nuclear Energy:
- ETF (exchange-traded fund) & Extended Trade Facility
- Mains



By saurabh Pandey



THE HINDU


Target Mains -2025/26 -

Q What challenge energy deficit will bring in digital infrastructure development ? ". Examine

**Connect with sir
9057921649**


**send your answer - Saurabh pandey
upsc telegram channel**

Topic → Tenkana

 A new genus of jumping spiders, named 'Tenkana', has been discovered in southern India, including two previously known species.

 The new species, *Tenkana jayamangali*, was introduced from Karnataka and is named after the Jayamangali river.

 The name 'Tenkana' is derived from the Kannada word for south, indicating the geographical origin of the species.

 The research was conducted by a team of scientists from India and Canada, utilizing genetic studies and physical examinations, and published in the journal Zookeys.



- 🌳 Unlike related species that inhabit forests, Tenkana spiders prefer drier areas and ground habitats, found in states like Tamil Nadu, Karnataka, and Andhra Pradesh.

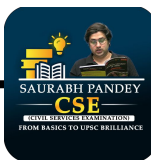
↩️ Two species previously classified under Colopsus, Tenkana manu and Tenkana arkavathi, have been reclassified into the new genus.

🧑🔬 The research team included notable scientists such as Kiran Marathe, Wayne Maddison, and John Caleb T.D., with genetic analysis conducted by Krushnamegh Kunte.

Summary: A new genus of jumping spiders, Tenkana, has been identified in southern India, including a new species, Tenkana jayamangali, with findings published in Zookeys.



Topic → Cobenfy



The FDA approved a new drug called Cobenfy on September 26 to treat schizophrenia.



Cobenfy is a combination of xanomeline and trospium chloride, featuring a novel mechanism of action that avoids the side effects of older drugs.





Schizophrenia significantly impacts life expectancy, reducing it by 13-15 years due to factors like weight gain, poor diet, smoking, and substance use.




Approximately 1 in 100 people will experience schizophrenia in their lifetime, with a slightly higher prevalence in men.



-  The disorder typically manifests in late adolescence and early adulthood, peaking in the early 20s for men and mid- to late 40s for women.

 Five percent of individuals with schizophrenia die by suicide, highlighting the severe consequences of the disorder.

 Understanding Cobenfy's potential benefits requires knowledge of schizophrenia's effects, diagnosis, and underlying causes.

Summary: The FDA has approved Cobenfy, a new drug for schizophrenia, which offers a novel treatment approach while addressing the serious impacts of the disorder

BIG SHOT



This image shows an area of a mosaic released by the Euclid space telescope on October 15. This patch of the southern sky shows stars in the Milky Way, and many galaxies beyond. Red stars are colder, and white/blue stars are hotter. On the right of the image, galaxy cluster Abell 3381 is visible as a string of galaxies. EUCLID CONSORTIUM, ESA, NASA

Topic → Galaxy Cluster Abell 3381



Overview

Abell 3381: A galaxy cluster with red and blue stars

Characteristics:



Red Stars: Colder temperatures



White/Blue Stars: Hotter temperatures



Visibility: Cluster observed as a string of galaxies



Key Points:

Structure: The arrangement and types of stars

Importance: Understanding cosmic evolution and star formation

Topic → Brown Dwarfs: Cosmic Discoveries

Overview of Brown Dwarfs



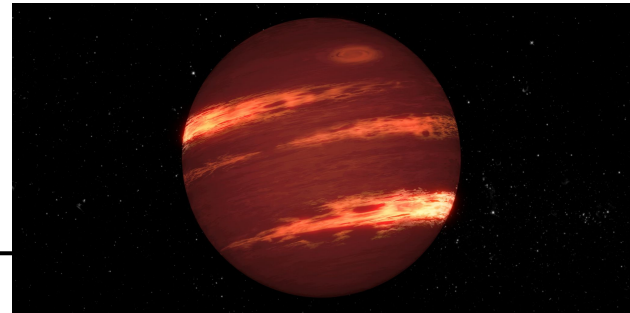
Definition of Brown Dwarfs: Celestial bodies that are too small to be stars and too large to be planets, often called "wannabe stars."



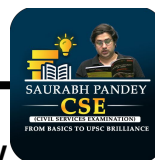
Nuclear Fusion: Unable to ignite nuclear fusion like stars but capable of burning deuterium, a heavy form of hydrogen.



Discovery Confirmation: The first brown dwarf was confirmed by astronomers in 1995.



Recent Discoveries



Recent Findings: The first discovered brown dwarf, Gliese 229B, is now known to be a binary system of two brown dwarfs.



Mass Comparison: Gliese 229Ba has a mass 38 times that of Jupiter, while Gliese 229Bb has a mass 34 times that of Jupiter.



Location: These brown dwarfs are situated 19 light-years away in the constellation Lepus.



Publication: The findings were published in the Astrophysical Journal Letters.

Summary


Brown dwarfs are sub-stellar objects capable of burning deuterium. The first confirmed discovery in 1995, Gliese 229B, is now recognized as a binary system located 19 light-years away.


Topic → UN Peacekeeping: Successes and Challenges





Overview

 The UN Charter is robust, with over 100,000 peacekeepers, yet struggles persist in eradicating wars and exploitation worldwide.


 Successful missions have been conducted in Cambodia, Mozambique, and Kosovo over the past seventy years.


 The UN has faced criticism for inaction during crises, notably in Rwanda (1994) and Bosnia (1995), where it failed to protect vulnerable populations.

 Recent missions emphasize civilian protection, showcasing the UN's dedication to its core values and institutional memory.

 The UN is perceived as a bystander in ongoing conflicts in Ukraine and West Asia, to take decisive action despite its military resources.



 The effectiveness of UN peacekeeping has diminished since 2020, leading to increased violence and destruction in conflict zones.

 The UN's response to recent escalations in Ukraine and Gaza has been criticized for lacking urgency and clarity in addressing the perpetrators.

Challenges and Criticisms

Inaction in Crises: Notable failures in Rwanda and Bosnia highlight the UN's struggle to protect vulnerable populations.

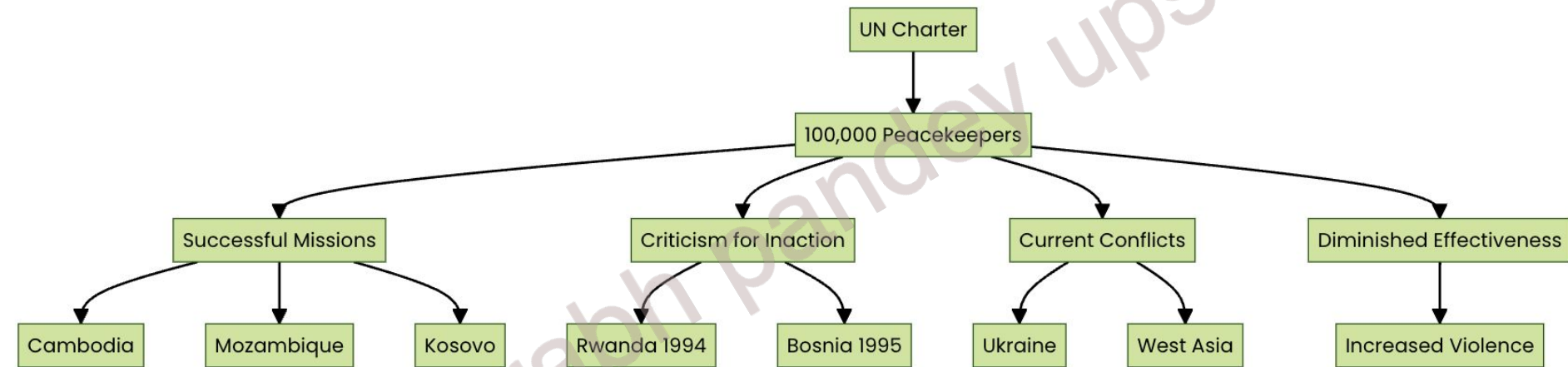
Current Perception: Seen as a bystander in Ukraine and West Asia, the UN's military resources are underutilized.

Diminished Effectiveness: Since 2020, the impact of peacekeeping has waned, resulting in more violence.

Recent Focus

Civilian Protection: Recent missions prioritize safeguarding civilians, reflecting a commitment to core values.

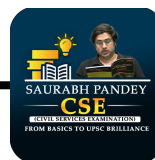
UN Peacekeeping Dynamics:




Summary: The UN has a history of both successful peacekeeping and significant failures, currently facing criticism for its inaction in ongoing conflicts despite having substantial military resources.

Urgent Reforms in UN Peacekeeping and Security Council

Extraordinary Interventions Needed




 Decisive Actions: Extraordinary situations require decisive actions from peacekeeping forces to protect civilians effectively.

Historical Precedents


 Successful Missions: Peacekeeping missions in Kosovo and Timor Leste involved significant troop deployments that restored peace and governance.

Potential for Loss of Life


 Mitigation of Casualties: A similar deployment in the Israel-Gaza-West Bank region could have mitigated severe civilian casualties.

Need for UNSC Reform




 **Veto Power Issues:** The veto power of the P5 members in the UN Security Council often hinders timely peace enforcement, as seen during the Rwandan genocide.

Proposed Security Council Changes

 **Expansion and Reform:** Calls for expanding permanent membership to include India and South Africa, and reforming veto powers for more effective decision-making.

Voting System for Interventions

 **P7 Voting System:** A proposed P7 voting system would allow for UN interventions without the current veto deadlock, enabling quicker responses to conflicts.

Consequences of Inaction

❌ Reconsidering UN's Role: If the UN cannot effectively enforce peace, there are calls to reconsider its role and possibly transition to a different organizational structure.

Summary: The text advocates for urgent reforms in UN peacekeeping and the Security Council to enable decisive action in conflict zones, preventing civilian casualties and improving global governance.



Extraordinary Interventions



Historical Precedents



Potential for Loss of Life



Need for UNSC Reform



Proposed Security Council Changes



Voting System for Interventions





Consequences of Inaction

Topic → Supreme Court Ruling on Section 6A of the Citizenship Act





Overview of the Ruling

 Supreme Court Decision: On October 18, the Supreme Court upheld the constitutional validity of Section 6A of the Citizenship Act, 1955, with a 4:1 majority.


 Section 6A Details: This section provides a framework for migrants from erstwhile East Pakistan (now Bangladesh) to obtain Indian citizenship if they entered India before March 25, 1971.


Historical Context


 Significance of March 25, 1971: This date marks the beginning of the Bangladesh Liberation War, leading to a significant migration to Assam.

 Assam Accord: Section 6A is based on the Assam Accord, signed on August 15, 1985, addressing concerns of Assam's student groups about undocumented migrants.

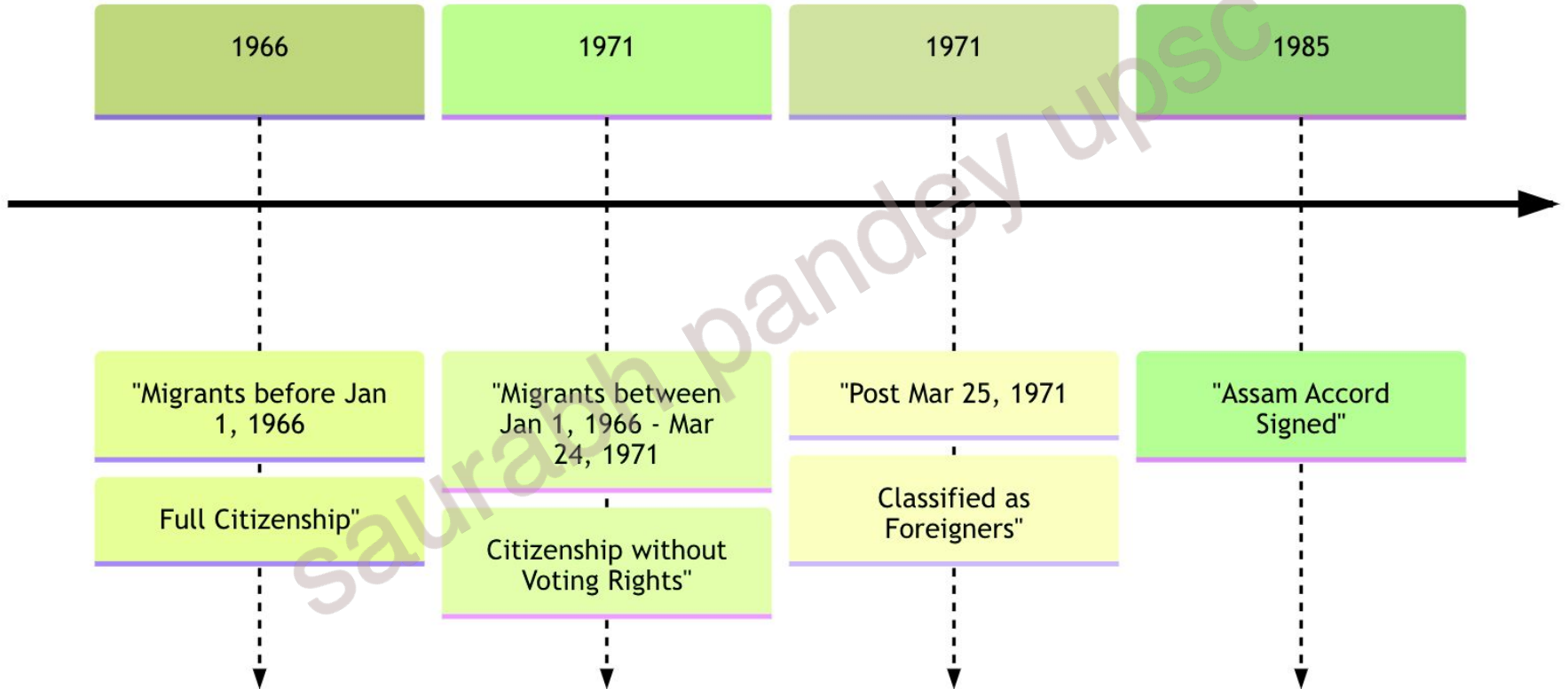
Citizenship and Migration

 Post-Cut-off Migrants: Those entering Assam after March 25, 1971, are classified as foreigners and are subject to deportation.

 Criteria for Citizenship: Migrants of Indian origin who entered Assam before January 1, 1966, and have been residents since are granted Indian citizenship.

 Voting Rights: Migrants arriving between January 1, 1966, and March 24, 1971, receive full citizenship rights except for voting, which is withheld for ten years.

Timeline of Migration and Citizenship



Assam's Unique Treatment Under Section 6A

Key Points of the Ruling



⚖️ **Majority Ruling:** Justices Kant and Chandrachud emphasized the distinctive historical and political context of Assam, justifying its differentiated treatment under Section 6A.

📜 **Equality Clause:** The provision was found to be in harmony with Article 14, balancing humanitarian concerns for Bangladeshi immigrants against the resource limitations of Assam.

🏛️ **Constitutional Consistency:** Section 6A aligns with the citizenship provisions in Articles 6 and 7, addressing individuals not covered by these articles.





— Parliamentary Flexibility: Article 11 empowers Parliament to enact citizenship laws with conditions that may differ from those in Articles 6 and 7. —



Cultural Rights: Article 29 was interpreted to support the coexistence of cultures, affirming that Section 6A does not infringe upon the cultural rights of indigenous Assamese people.



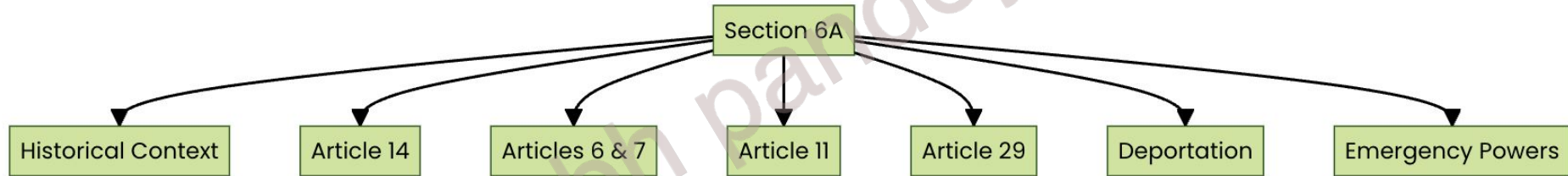
Deportation Urgency: Justice Kant called for a monitoring Bench to ensure the timely deportation of illegal immigrants after the cut-off date.



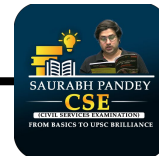
Emergency Powers: The ruling clarified that "external aggression" does not encompass humanitarian migration, warning against the misuse of emergency powers that could undermine federalism.

Summary: The ruling upheld Assam's unique treatment under Section 6A, balancing humanitarian needs with local resource concerns, while affirming constitutional consistency and cultural rights.

Conceptual Overview:



– **Topic → Google and Nuclear Energy: A Strategic Move**



Corporate Agreement

Announcement: On October 14, Google revealed its inaugural corporate agreement to acquire nuclear energy from multiple Small Modular Reactors (SMRs) developed by Kairos Power.

Energy Capacity

Objective: The agreement aims to deliver 500 MW of carbon-free power to the U.S. electricity grid.

Timeline

Operational Date: The first SMR is anticipated to be operational by 2030, with additional deployments planned through 2035.

Support for AI: Google believes this nuclear energy deal will bolster the development of AI technologies and scientific progress.

Emissions Challenge

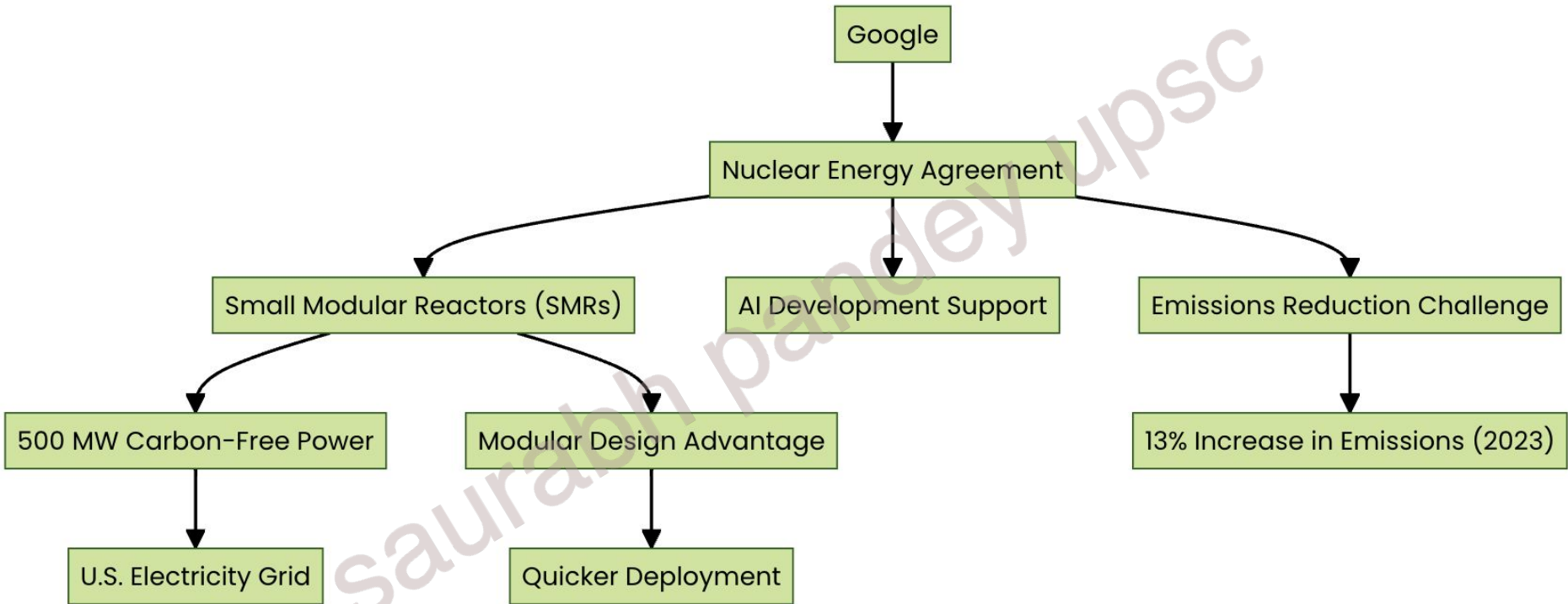
Environmental Report: In its 2024 Environmental Report, Google noted a 13% increase in global greenhouse gas emissions in 2023, underscoring the challenge of reducing emissions amid rising energy demands.

Nuclear Energy Benefits

Advocacy: Google promotes nuclear energy as a clean, reliable, and carbon-free power source, crucial for powering data centers and offices.

Modular Design Advantage

Deployment: The smaller sizes and modular designs of SMRs facilitate quicker_____ deployment cycles, aligning with Google's infrastructure needs.



Nuclear Energy: Challenges and Opportunities



⚠️ Nuclear Energy's Reputation

Historical Accidents: Nuclear energy has a tarnished reputation due to past accidents that have left a lasting impact on public perception.

🌍 Chernobyl and Fukushima

Environmental Damage: The Chernobyl (1986) and Fukushima (2011) disasters caused severe environmental harm and ongoing health concerns.

🔧 Three Mile Island Incident

Major Accident: The 1979 incident in the U.S. was marked by human error and equipment failure, leading to core overheating and radioactive gas release.

Environmental Opposition



Criticism: Groups like 'Friends of the Earth' criticize nuclear energy for its perceived dangers and high costs, citing a history of accidents.

Concerns Over Location

Safety Issues: Building nuclear infrastructure in earthquake-prone areas raises significant safety concerns.

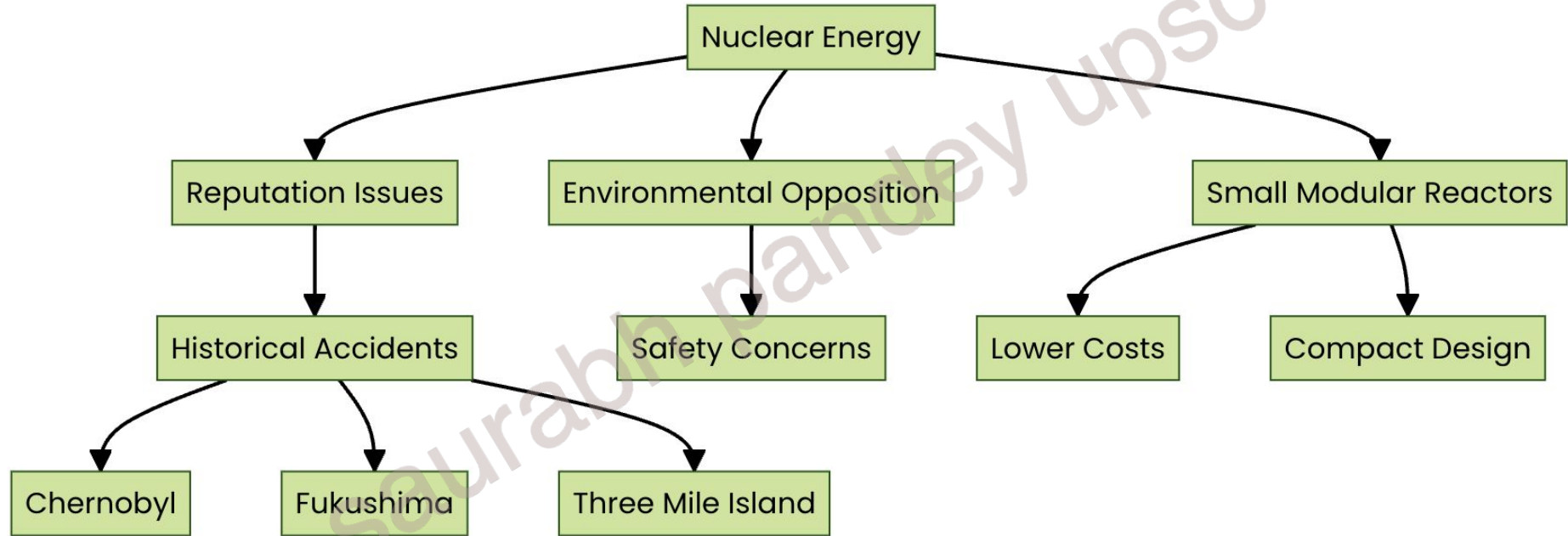
Promise of SMRs

Potential Solution: Small Modular Reactors (SMRs) offer lower costs and are suitable for locations unable to support larger plants.

Department of Energy Insights

Compact Design: A report highlights SMRs' compact design, making them viable for areas with limited water resources.

Nuclear Energy Landscape:



Topic → ETF (exchange-traded fund)

- An exchange-traded fund is an investment vehicle that pools a group of securities into a fund. It can be traded like an individual stock on an exchange.
- ETFs can even be designed to track specific investment strategies.
- Various types of ETFs are available to investors for income generation, speculation, and price increases, and to hedge or partly offset risk in an investor's [portfolio](#).
- An ETF must be registered with the Securities and Exchange Commission



Part -2 Extended Trade Facility (ETF)



Overview of Extended Trade Facility (ETF)

Definition: A mechanism allowing trading beyond regular hours.

Purpose: Enhances market accessibility and liquidity.

Types:

- Pre-market trading

- After-hours trading



Key Components of ETF



Trading Hours:

Regular hours (e.g., 9:30 AM - 4:00 PM EST)

Extended hours (e.g., 4:00 PM - 8:00 PM EST)

Market Participants:

Retail investors

Institutional investors

Benefits of ETF

Increased Flexibility: Trade at convenience outside regular hours.

Market Reaction: Respond to news and events impacting prices.

Extended Access: More opportunities for profit.





A boy puts up a net to catch fish in the floodwaters covering a road outside his home in Odobere on Tuesday. Floods along the Senegal river have affected more than 55,000 people after heavy rain in the Senegal River Basin, leaving many villages underwater. AFP

Topic → Senegal River



Overview of Senegal River

Location: West Africa, flowing through Senegal and Mauritania 🌍

Length: Approximately 1,086 km

Significance: Vital for agriculture, transportation, and local ecosystems 🚢

Importance of River

Geography

Flows into the Atlantic Ocean 🌊

Surrounding regions: wetlands, savannahs, and forests 🌳

Economy

Agriculture: irrigation for crops like rice and millet 🌾

Fishing: local communities rely on it for food and income 🐟

Trade: river transport for goods and resources 🚢



Environmental Concerns

Pollution: from agriculture and urban run-off 🚫

Flooding: seasonal floods impact local communities 🌧️

Conservation: initiatives to protect biodiversity and ecosystems 🐾

Cultural Importance

Home to various ethnic groups with rich traditions 🎉

Festivals and events related to the river and its resources 🎵

Tourism

River cruises: exploring the natural beauty 🌅

Wildlife watching: diverse fauna along the riverbanks 🌳



Target Mains -2025/26 -

Q What challenge energy deficit will bring in digital infrastructure development ? ". Examine

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Topics - MINDS MAPS included (Daily current affairs)-- 25th October 2024



- **Dhamra River**
- **ISRO's Satellite Monitoring of Cyclone Dana**
- **Trachoma: A Global Health Challenge**
- **Drug Pricing**
- **GLOBAL POTASH SUPPLY**
- **San Pedro Cholula , Mexico's Volcanic Activity**
- **Mains**



By saurabh Pandey



Target Mains -2025/26 -

Q What role Border management can play in protection of social values ??

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Disturbed waters



Bracing for impact: Fishermen securing their boats after the Dhamra river swelled on Thursday as Cyclone Dana made landfall close to Bhitarkanika and Dhamara along the Odisha coast after midnight. PTI (REPORT: PAGE 6)

Topic → Dhamra River



Overview of Dhamra River

Location: Odisha, India

Length: Approximately 40 km

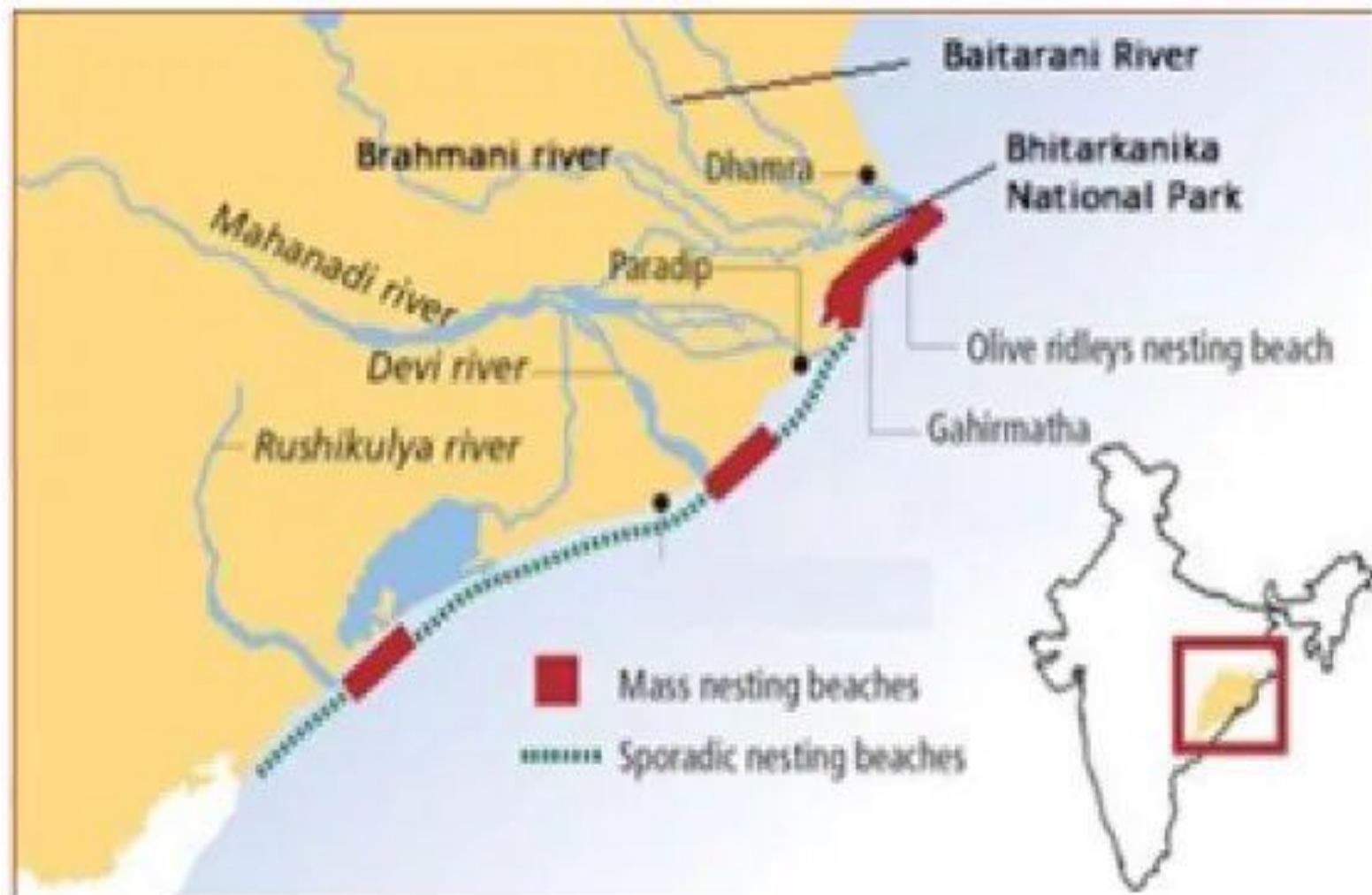
Importance: Supports local ecosystems and economy

Dhamra River Features:

Port Development: Dhamra Port expansion plans by Adani Ports.

Biodiversity: Home to Olive Ridley turtles and numerous fish species.

Environmental Concerns: Impact of climate change and pollution.



-
- **Bhitarkanika Mangroves** is a mangrove wetland in Odisha, India, covering an area of 650 km (400 mi) in the Brahmani River and Baitarani River deltas.




Topic → ISRO's Satellite Monitoring of Cyclone Dana


Overview




 ISRO is actively monitoring Cyclone Dana using its satellites EOS-06 and INSAT-3DR.

 The cyclone is approaching the coastal districts of Odisha and West Bengal.

 The EOS-06 satellite features a scatterometer sensor that tracks ocean winds and circulation prior to cyclone formation.

 The data provided by the satellites is crucial for assessing the cyclone's status and potential impact.

 ISRO's satellite inputs enhance monitoring and mitigation efforts against cyclone threats in India.



The use of advanced satellite technology aids in disaster preparedness and response.



Timely information from ISRO supports local authorities in managing cyclone-related risks.



EOS-06 and INSAT-3DR are pivotal in providing real-time data. The scatterometer sensor on EOS-06 is essential for tracking oceanic conditions.

Data aids in disaster preparedness and risk management.

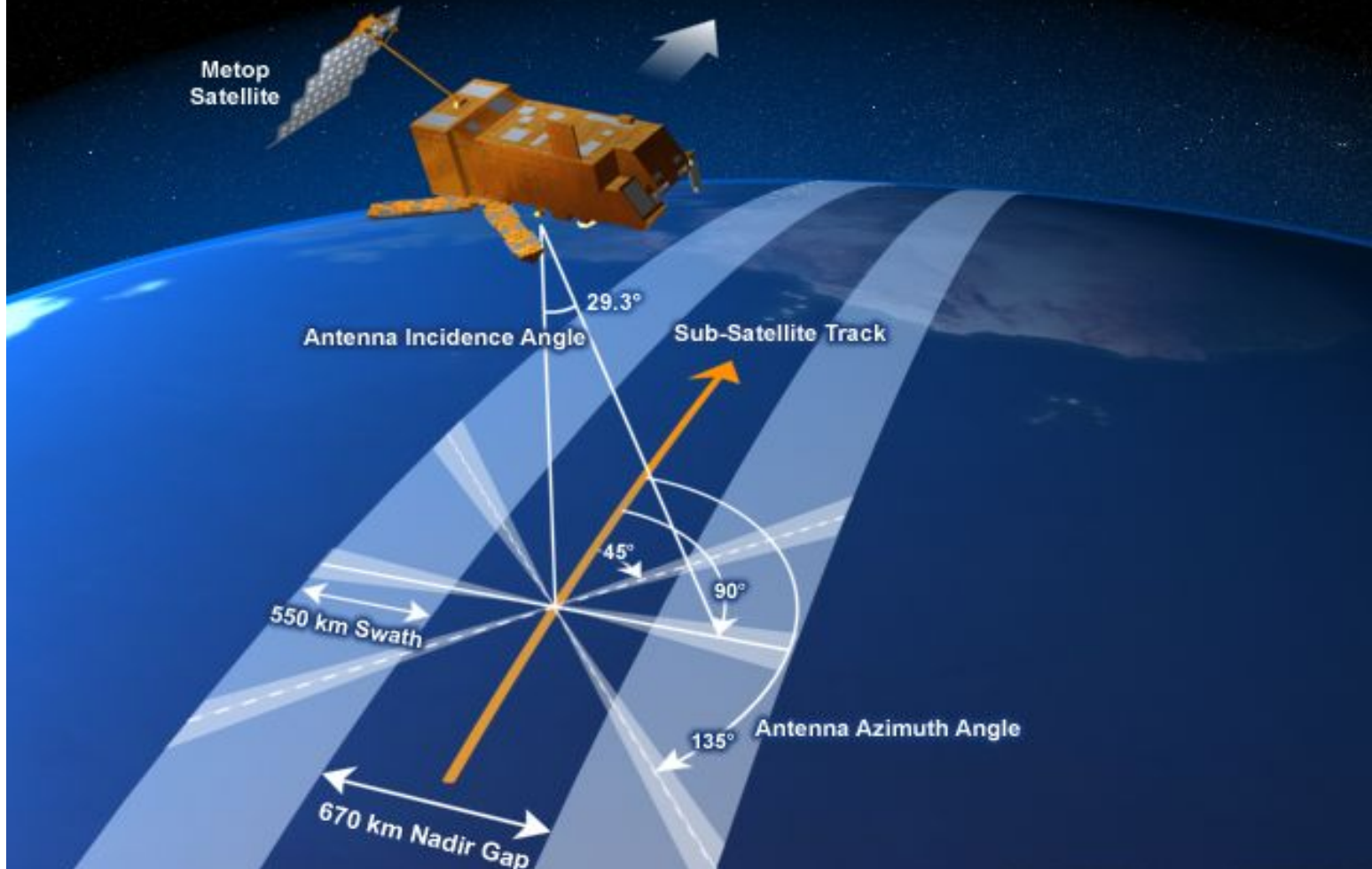
What is scatterometer ??

→ A **scatterometer** or **diffusionmeter** is a scientific instrument to measure the return of a beam of light or radar waves **scattered** by diffusion in a medium such as air.

→ Diffusionmeters using visible light are found in airports or along roads to measure horizontal **visibility**. Radar scatterometers use radio or microwaves to determine the **normalized radar cross section** of a surface.

→ They are often mounted on **weather satellites** to find wind speed and direction, and are used in industries to analyze the roughness of surfaces

ASCAT Scatterometer Coverage



–Topic→ Trachoma: A Global Health Challenge



Economic Impact

💰 Economic Loss: Trachoma leads to an estimated economic loss of \$2.9 to \$5.3 billion annually due to reduced productivity.

👶 Primary Impact: Young children and women in areas with poor hygiene and limited access to clean water are most affected.

🦠 Bacterium: Chlamydia trachomatis, specifically serotypes A, B, Ba, and C, causes trachoma-related eye infections

Transmission

🦟 Spread: Through contact with infected eye secretions, contaminated items, or flies.


Exacerbated by: Poor hygiene and overcrowding.

Topic→Drug Pricing Update: Essential Drugs Price Hike





Overview of Price Increase

 Price Increase: On October 14, the NPPA raised the ceiling prices of eight essential drugs by 50%.

 Public Interest: The Central Government justified the price hike citing "extraordinary circumstances" and the need for public interest.

Factors Influencing the Decision

 Cost Factors: Manufacturers requested price increases due to rising costs of active pharmaceutical ingredients, production, and unfavorable exchange rates.

 Regulatory Authority: The NPPA, established in 1997, regulates drug prices under the Drug Price Control Order (DPCO) and operates under the Ministry of Chemicals and Fertilizers.

Recent Deliberations and Historical Context



Recent Deliberations: The decision followed discussions in a meeting held on October 8, invoking extraordinary powers under the DPCO.



Drugs Affected: The price revision affects key medications for conditions like asthma, tuberculosis, and bipolar disorder, including atropine and lithium tablets.





Historical Context: Similar extraordinary powers were used in 2019 and 2021 to increase prices of other formulations by 50%.


The Drugs (Prices Control) Order (DPCO) in India



Overview

 Regulation: The DPCO regulates drug prices in India under the Essential Commodities Act, 1955.

 Goals: Prevent unreasonable pricing, ensure access to essential medicines, and protect public finances from high healthcare costs.

 Components: Includes a list of price-controlled drugs, procedures for setting prices, implementation methods, and penalties for violations.

— Implementation and Enforcement



Authority: The National Pharmaceutical Pricing Authority (NPPA) is responsible for implementing the DPCO, including fixing and revising drug prices.



Enforcement: The NPPA enforces prices, recovers overcharges, and monitors prices of decontrolled drugs.



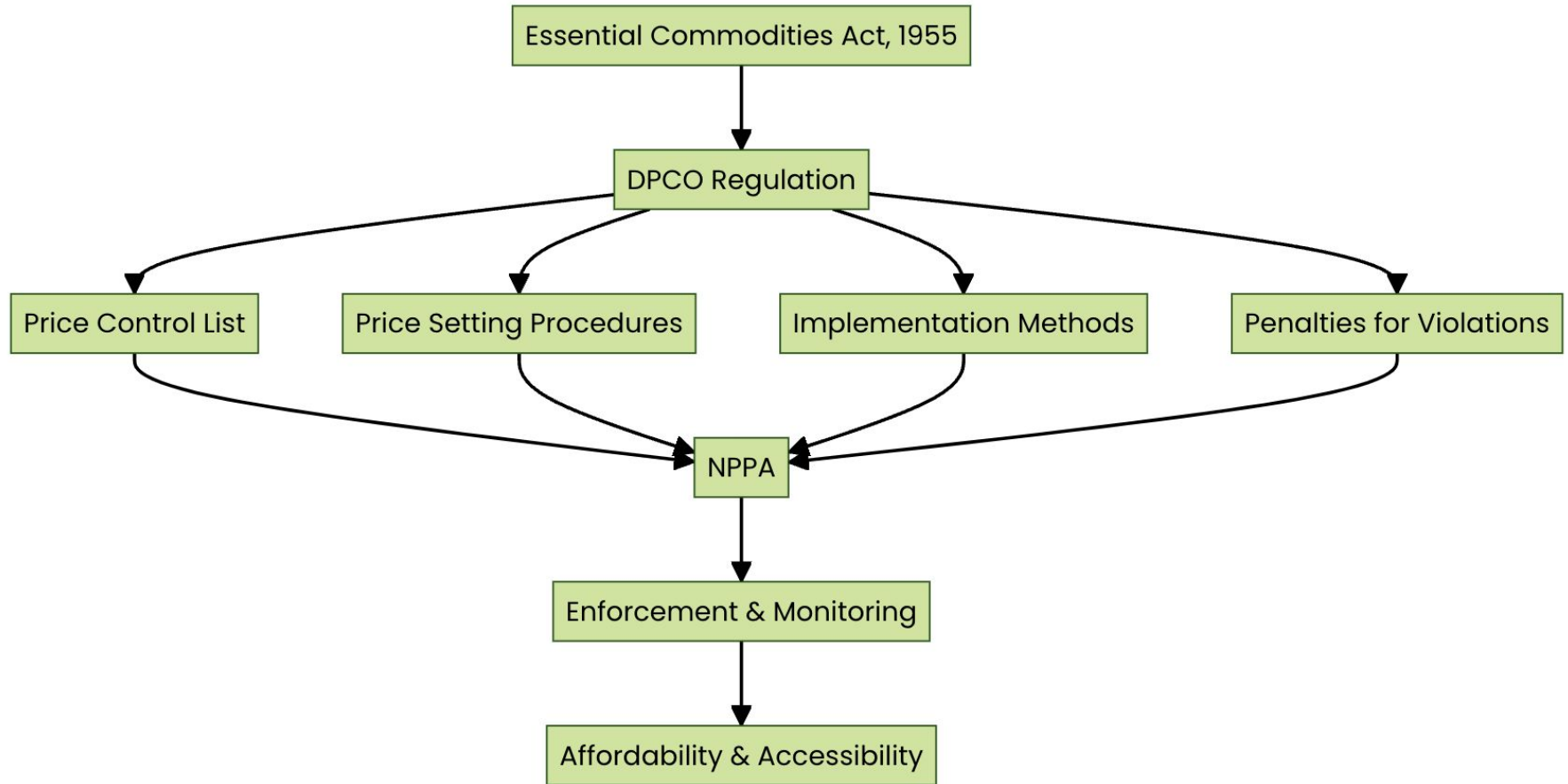
Oversight: The Ministry of Chemicals and Fertilizers oversees DPCO implementation to balance consumer and producer interests.

Objectives



Affordability and Accessibility: The DPCO aims to enhance the affordability and accessibility of essential medicines for the public.


DPCO Implementation Flow:





Summary: The DPCO regulates drug prices in India to ensure affordability and accessibility while protecting consumers' financial interests.

NPPA and Recent Developments




 Establishment: The National Pharmaceutical Pricing Authority (NPPA) was founded in 1997 to oversee drug prices in India, operating under the Drug Price Control Order (DPCO).


 Recent Meeting: On October 8, a significant decision was made to increase drug prices, utilizing extraordinary powers as per Para 19 of the DPCO, 2013.


 Price Increase: The NPPA sanctioned a 50% increase in ceiling prices for eleven formulations of eight drugs, highlighting their importance for public health.

 Historical Context: Similar extraordinary price hikes were recorded in 2019 and 2021, impacting 21 and 9 formulations respectively.

 Legal Framework: Section 19 of the DPCO permits the government to adjust drug prices under extraordinary circumstances to serve the public interest.



 Regulatory Compliance: In the fiscal year 2023-24, a total of ₹72.73 crore was recovered from companies that breached pricing regulations.


 Manufacturing Standards: Adherence to the Drugs and Cosmetics Act, 1945, and Good Manufacturing Practices (GMP) is compulsory for drug manufacturers.


Summary: The NPPA has invoked extraordinary powers to raise the ceiling prices of certain essential drugs by 50%, underscoring the importance of public health and stringent regulatory compliance.


Topic→ GLOBAL POTASH SUPPLY



 Global potash supply is rebounding to pre-Ukraine invasion levels as Russia and Belarus increase shipments to Asia and South America.

 Potash production is projected to hit 73 million metric tons this year, with Russian exports at 12-13 million tons and Belarusian exports around 10 million tons.

 Potash prices are normalizing after a volatile period post-Ukraine invasion, easing financial and logistical challenges for Russian exports.

 Increased exports from Canada, Jordan, and Laos are contributing to global supply growth, raising concerns about potential oversupply.



— Demand for potash is expected to improve slightly by 2025, but analysts warn that abundant supply will limit price increases.



Major potash producers like Germany's K+S are optimistic about demand and price stabilization, despite warnings from analysts about earnings prospects.



Analysts indicate that the global supply shift will likely prevent premium pricing, contrasting with the price volatility seen in 2022 and early 2023.

Summary: Global potash supply is recovering, with increased exports from Russia, Belarus, and other countries leading to normalized prices and concerns about oversupply

—Potash Application in Industry

Overview

Potash is primarily used in the production of fertilizers.
It improves crop yield and quality.
Essential for the agricultural sector.

Key Applications

Fertilizers 🥕

Major use in NPK (Nitrogen, Phosphorus, Potassium) fertilizers.
Enhances plant growth and nutrient absorption.

Industrial Uses 🏭

Used in glass production.
Acts as a flux in ceramics.
Employed in food processing as a preservative.

Animal Feed 🐮

Source of potassium for livestock.
Supports animal health and production.



Market Trends



Growth Projections

Expected market size to surpass USD 90 billion by 2032.

CAGR of around 5.10% from 2024 to 2033.

Global Supply

Canada is a leading producer.

Key partnerships with suppliers in Saskatchewan.

Challenges

Market Volatility

Fluctuating prices due to global demand and supply chain issues.

Environmental Concerns

Mining and processing impacts on ecosystems.

Need for sustainable practices in potash extraction.

Future Outlook

Innovation in Fertilizers

Development of slow-release and specialty fertilizers.

Sustainability Initiatives

Focus on eco-friendly mining techniques.

Increased use of potash in organic farming.



Boom and bloom



In contrast: Marigold flowers are pictured from San Pedro Cholula, Puebla State, Mexico, on Wednesday while the Popocatepetl volcano spews a column of ash and smoke in the background. REUTERS

Geography Special → San Pedro Cholula, Puebla State, Mexico



Overview

Location: San Pedro Cholula is a city in the Puebla State of Mexico.

Cultural Significance: Known for its rich history, ancient archaeological sites, and vibrant traditions.



Overview of Mexico's Volcanic Activity



Location in the Pacific Ring of Fire: Mexico is situated in a seismically active region known for frequent earthquakes and volcanic eruptions.



Plate Tectonics: The dynamic movement and interaction of lithospheric plates contribute to the formation of the Pacific Ring of Fire.



Cocos Plate: The subduction of the Cocos Plate beneath the North American Plate results in the formation of the Trans-Mexican Volcanic Belt.



Popocatépetl Volcano: A highly active volcano in Mexico, with 15 eruptions recorded since 1519, located on the Trans-Mexican Volcanic Belt.





Chichinautzin Monogenetic Field (YCMF): This volcanic field poses potential eruption risks to the southern part of Mexico City.



Volcanic Ash Hazards: Volcanic ash can significantly impact aviation by reducing visibility and damaging jet engines.



Eruption Risks: Active volcanoes in Mexico present ongoing risks to populated areas.

Summary: Mexico's position in the Pacific Ring of Fire exposes it to significant volcanic activity, with active volcanoes like Popocatépetl and the Chichinautzin Monogenetic Field posing substantial risks.

Topics - MINDS MAPS included (Daily current affairs)-- 26th October 2024



- **ISRO and DBT Agreement**
- **Anti-Defection Law in India: An Overview**
- **Climate Finance and Carbon Markets at COP29**
- **Mains**



By saurabh Pandey




Target Mains -2025/26 -


**Q Essay topic→ Technology will take us to universe
and universe will take us to “nowhere”**


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— Topic → ISRO and DBT Agreement

 **ISRO and DBT Collaboration:** The Indian Space Research Organisation (ISRO) and the Department of Biotechnology (DBT) have signed an agreement to conduct experiments for the upcoming Bharatiya Antariksh Station (BAS).

 **Bharatiya Antariksh Station Timeline:** The BAS is projected to be developed between 2028 and 2035.

 **Health Experiments in Space:** Proposed experiments include studying muscle loss due to weightlessness, exploring algae for nutrition and food preservation, processing algae for jet fuel, and assessing radiation's health impacts on astronauts.




Gaganyaan Mission: Before the BAS, ISRO plans to launch the Gaganyaan mission, India's first crewed space mission, expected between 2025-2026, with three uncrewed test missions preceding it.



Inclusion of Biology Missions: Some biology experiments may be included in the uncrewed test flights leading up to the Gaganyaan mission, as stated by ISRO Chairman S. Somanath.



BIOE3 Initiative: The collaboration is part of the BIOE3 policy aimed at boosting bio-manufacturing in India, which is projected to contribute \$300 billion to the bioeconomy by 2030.

-  **Impact on Innovation:** The agreement is expected to foster innovation in health research, pharmaceuticals, regenerative medicine, and support startups in bio-based technologies.

Summary: ISRO and DBT's partnership aims to conduct space-related experiments for India's future space station, with a focus on health impacts and bio-manufacturing innovations

Topic → **Anti-Defection Law in India: An Overview**



Introduction of the Law

Established in 1985 to prevent party-switching by legislators.
Aimed at maintaining government stability.



Historical Context

Defection issues have deep roots in post-Independence Indian politics.
Led to government instability and raised ethical concerns.



Legislative Framework

Enacted through the 52nd Amendment.
Disqualifies MPs and state legislators for:
 Voluntarily leaving their party.
 Disobeying party whips during key votes._____



Loopholes and Reforms



Initial loopholes allowed splits in parties with one-third defections.

91st Amendment in 2003 addressed these by requiring two-thirds agreement for mergers.



Implementation Challenges

Delays in deciding defection cases by Speakers.

Defectors often retain positions for extended periods.



Transparency Issues

Lack of transparency in party whip communication.

Disputes over the legitimacy of defection cases complicate enforcement.




Judicial Reluctance


Courts hesitant to intervene, emphasizing legislative autonomy. _____


Limits on accountability and timely resolutions.


Anti-Defection Law Amendments


Key Proposals and Recommendations


 **Proposed Time Frame:** A four-week deadline is suggested for resolving defection cases to prevent delays and misuse of power.


 **Disqualification Clause:** If a decision on defection is not made within the four-week period, defecting members will be disqualified from their positions.






 **Transparency in Whips:** A framework for public notice of party whips is proposed to enhance transparency and reduce disputes regarding member notifications.

—  Independent Tribunal Suggestion: The Supreme Court recommended _____ replacing the Speaker's role in defection cases with an independent tribunal, but the importance of the Speaker's role in maintaining parliamentary integrity is emphasized.


 Historical Recommendations: The Government of India is urged to consider various past committee reports for strengthening the anti-defection law.

 Accountability and Transparency: Reforms should focus on enhancing the accountability and transparency of the Speaker or Chairperson's office rather than sidelining it.

 Legislative Integrity: The proposed amendments aim to uphold the integrity of the legislative process and limit political bias.

-  Importance of Anti-Defection Law: The anti-defection law is essential for _____ preventing political instability and maintaining electoral integrity.
-  Need for Amendments: There are gaps in the current implementation that necessitate amendments to the Tenth Schedule of the Indian Constitution.
-  Support for "One Nation, One Election": Amendments should align with the Union Government's initiative to conduct simultaneous elections across the country.
-  Upholding Democratic Principles: The law aims to ensure party loyalty and protect the democratic mandate of voters.
-  Adaptation to Political Changes: The law must evolve to address the changing political landscape effectively and fairly.

‘

-  Strengthening Democracy: Revitalizing the anti-defection law is crucial for maintaining the stability and integrity of India's parliamentary democracy.

Summary: The anti-defection law is vital for political stability in India, requiring amendments to enhance its effectiveness and support the "One Nation, One Election" initiative

Topic→ Climate Finance and Carbon Markets at COP29



29th COP in Baku

Event: The Conference of Parties (COP) will convene next month in Baku, Azerbaijan.

Focus: Discussions will center on climate finance and carbon markets.



Article 6 of Paris Agreement

Framework: Establishes the operational guidelines for carbon markets.

Purpose: Enables countries to trade carbon credits for reducing greenhouse gas emissions.



Incentives for Climate Action

Encouragement: Carbon markets promote activities like adopting renewable energy and ecosystem conservation.

Mechanism: Facilitates the trading of carbon credits.



Challenges in Verification



Issue: Persistent confusion over the verification of carbon credits.

Impact: Leads to skepticism about the effectiveness of carbon markets.



India's Commitment

Goal: Achieve 50% electricity generation from non-fossil sources by 2030.

Opportunity: Positioning to benefit from carbon-reduction projects.



Private Sector Initiatives

Innovation: Indian enterprises are developing forestry projects.

Benefit: These projects can generate carbon credits for multinational companies.



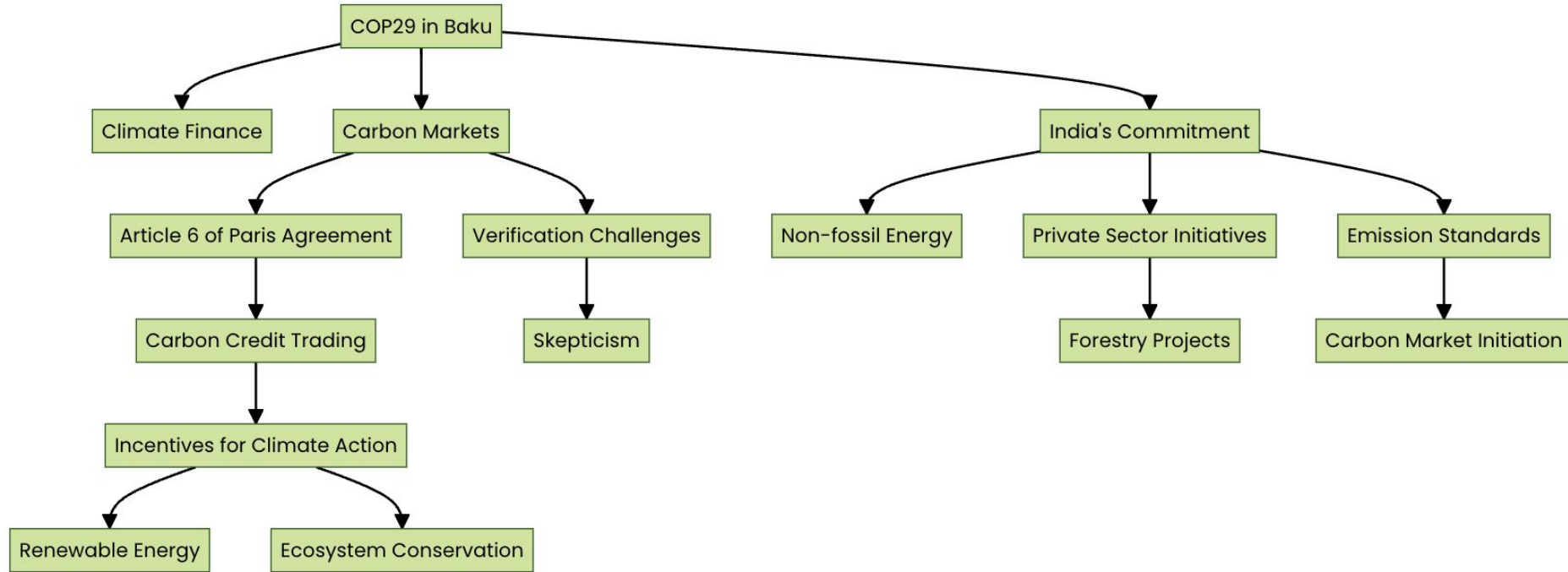
Emission Standards for Industries

Expectation: India's iron and steel industries to meet emission intensity standards by 2025.

Outcome: This may formally initiate India's carbon market.

Summary: The upcoming COP in Baku aims to clarify carbon markets under the Paris Agreement, with India poised to benefit from its commitment to non-fossil energy and emerging private sector initiatives.

Carbon Market Dynamics:



LAUREL

Tropical storm Trami leaves towns submerged, 66 dead in Philippines



AFP

Residents of the northern Philippines used spades and rakes to clear their homes of mud and debris on Friday while others still awaited rescue as the death toll from Tropical Storm Trami rose to 66. Tens of thousands remained displaced after fleeing floods driven by a torrential downpour. AFP

-Topic→ Severe Tropical Storm Trami (Kristine)

Overview



Storm Name and Classification: Severe Tropical Storm Trami, also known as Severe Tropical Storm Kristine in the Philippines, is currently active.




Timeline: The storm developed into a low-pressure area on October 19, 2024, and was named Kristine on October 20 after entering the Philippine Area of Responsibility.




Location: Trami is moving into the South China Sea after impacting the Philippines.



Development: Initially a tropical depression, it was upgraded to a tropical storm by the Japan Meteorological Agency (JMA) due to the formation of spiral bands of deep convection.

 **Meteorological Context:** The storm was embedded within a larger trough extending from the Philippine Islands to Guam.


 **Satellite Imagery:** Early satellite imagery indicated that the depression was exposed with elongated circulation and convective bands.


 **Impact:** The storm caused deadly impacts in the Philippines before moving into the South China Sea.


Summary: Severe Tropical Storm Trami (Kristine) is an active storm that developed in October 2024, causing significant impacts in the Philippines before moving into the South China Sea.


Tropical Cyclone Formation: Key Factors and Theories



 **Warm Ocean Requirement:** Tropical cyclones need expansive ocean areas with surface temperatures above 26°C or 27°C to develop.

 **Latitude Influence:** Initial disturbances are observed within 5° of latitude from the equator, but they intensify into hurricanes or typhoons only beyond this range.

 **Wind Shear Conditions:** Weak vertical wind shear is crucial for storm formation, highlighting regions with minimal mean zonal-wind shear.

 **Pre-existing Disturbances:** Cyclone development relies on a low-level disturbance over warm ocean waters, coupled with upper-level divergence.



— **Formation Theories:** Two primary theories explain cyclone formation: the convective theory (involving unstable air masses) and the frontal theory (involving air mass convergence).



Pressure Dynamics: Cyclone development involves a continuous pressure drop due to air movement towards the center and outward flow at high levels.







Convergence and Divergence: Effective cyclone formation requires a balance of circulation, divergence, and convergence over time and scale.

Summary: Tropical cyclones form under specific conditions involving warm ocean temperatures, latitude, weak wind shear, and the interplay of various atmospheric dynamics.




Tropical Cyclones: Formation and Impact





Regions of Formation:

-  Tropical North Atlantic
-  Western North Pacific
-  Bay of Bengal
-  South Pacific Ocean

Seasonal Occurrence:

-  Atlantic: July to October
-  Western Pacific: May to November
-  South Pacific and Indian Oceans: December to April

Exclusions:

-  South Atlantic Ocean
-  Southeastern Pacific

— Equatorial Rarity:_____



Rare within 5° latitude of the equator

Movement Patterns:



Pacific: West or west-northwest at 19 km/h



South China Sea: Northward or northeast, affecting the Philippines

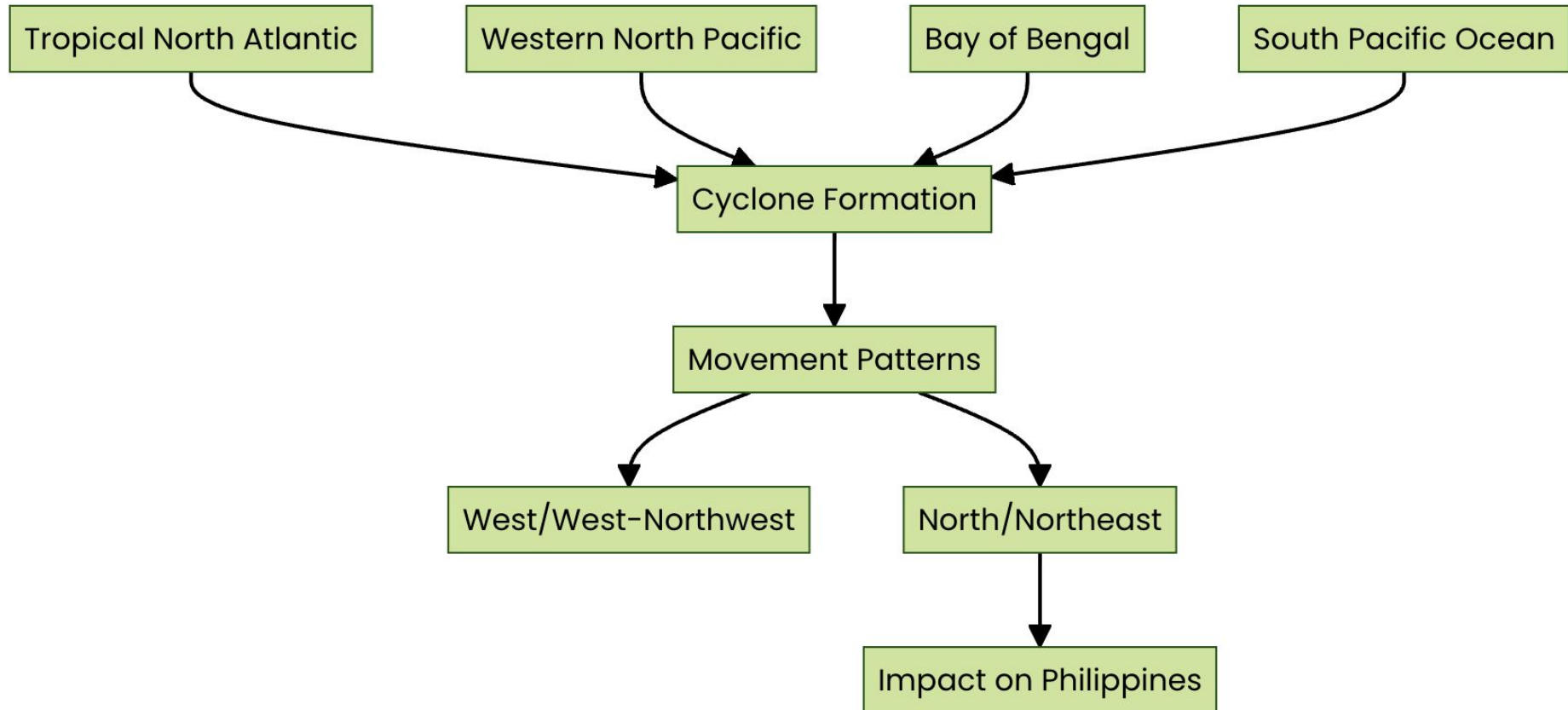
Global Distribution:



Predominantly oceanic phenomena


Summary: Tropical cyclones form in specific oceanic regions and times, significantly impacting areas like the Philippines.


Cyclone Formation and Movement:




TOPIC → UNFCCC Budget Shortfall: A Critical Challenge


Overview of the Budget Shortfall

 **Severe Budget Shortfall:** The UNFCCC is experiencing a budget gap of at least 57 million euros for 2024, which is impacting international climate dialogue.

 **Total Budget Overview:** The total budget for 2024-25 is 240 million euros, with half expected to be allocated for 2024.

Key Contributors to the Shortfall

 **Delayed Contributions:** The U.S. and China have not met their payment obligations, contributing significantly to the funding shortfall.

 **Operational Impact:** This financial gap has led to reduced operating hours and the cancellation of regional climate events.

Funding Structure and Challenges



Funding Structure: The UNFCCC budget comprises obligatory and voluntary contributions, with many countries relying on voluntary donations.



Record Payment Delays: This year has seen the worst payment delays in UNFCCC history, affecting its operations and ability to fund delegates from poorer nations.

Implications for Global Climate Action



Global Climate Action Risk: Experts warn that the funding gap could weaken global climate change efforts and negotiations.

Topics - MINDS MAPS included (Daily current affairs)-- 28th & 27th October 2024



- **Supreme Court Ruling on Intoxicating Liquors**
 - **Aviation Security Overview**
 - **Hematopoietic Stem Cell Transplant Study**
 - **DNA Analysis**
 - **Ocean Surface Temperature and Carbon Dioxide Absorption.**
 - **Mini-Protein for Targeted Cancer Treatment**
 - **Animal Evolution in Response to Human Impact**
 - **Avian Influenza H5N1 Outbreak**
 - **Mains**
-



By saurabh Pandey



THE HINDU

Target Mains -2025/26 -

Q “Indian federalism depends more on cooperation and less on competition ” Discuss

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Complete course on Cybersecurity, Disaster Management and Border management
(FOR UPSC 2025/26)
starting 10th Sep 2024
BY SAURABH PANDEY SIR

Complete Course On Cyber Security ,Disaste...

Admin

Topic -- Supreme Court Ruling on Intoxicating Liquors



Key Highlights



Supreme Court Ruling: Clarification that 'intoxicating liquors' in the State List includes both potable and industrial alcohol.




Federal Principle: Reinforces the federal principle of power distribution, ensuring States retain control over alcohol regulation.




Scope of Entry 8: Encompasses all activities related to the production, sale, and distribution of various alcohol products.




IDRA Exclusion: Excludes 'intoxicating liquor' from the regulatory purview of the Industries (Development and Regulation) Act (IDRA), 1951.

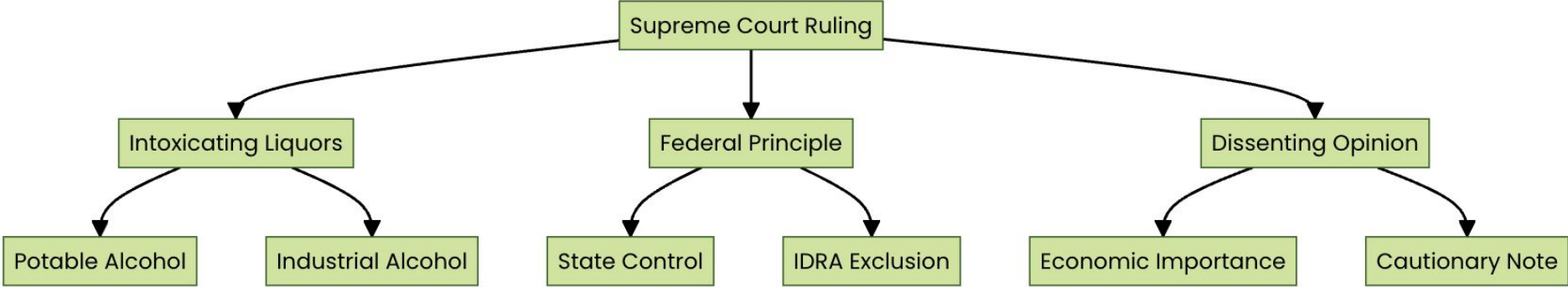
-  Dissenting Opinion: Justice B.V. Nagarathna argues 'intoxicating liquor' should only refer to potable alcohol, suggesting Parliament has control over fermentation industries.



 Economic Importance: Highlights the significance of industrial alcohol for the economy, particularly in the chemicals industry and as a fuel additive.

 Cautionary Note: Warns against misinterpreting the Constitution in a way that could disrupt the federal balance of power.

Conceptual Overview:



Summary: The Supreme Court of India ruled that 'intoxicating liquors' includes both potable and industrial alcohol, reinforcing state powers over alcohol regulation while a dissenting opinion cautioned against misinterpretation of constitutional terms.

International Guidelines

ICAO's Annex 17: Establishes Standards and Recommended Practices (SARPs) for international civil aviation security.

ICAO's Role

Global Security Measures: Formulates and adopts measures to combat unlawful interference in civil aviation.

Constant Review

Regular Updates: Annex 17 and the ICAO Aviation Security Manual (Doc 8973) are updated to address new threats and technological advancements.



India's Security Framework



Main Agency: Bureau of Civil Aviation Security oversees civilian flight security.

Collaborating Agencies: Includes the Directorate General of Civil Aviation (DGCA) and the Airports Authority of India.



Legislative Amendments

Enhanced Security: Proposed amendments to aviation laws aim to improve security measures and impose stricter penalties, including a 'no-fly list'.



Preparedness at Airports

Established Procedures: Airports have protocols to manage security threats, regularly tested and updated for incidents like bomb threats and hijackings.



Pilot and ATC Protocols

Coordinated Response: Specific procedures for pilots and air traffic control to respond to security threats during emergencies.

Summary: The aviation security framework is guided by ICAO's guidelines, emphasizing continuous updates, national agency roles, and preparedness for various threats.


Key Issues in Hoax Calls


📞 Hoax Calls: Categorized as specific or non-specific, with limited public information in India.


🔧 Systemic Issues: Highlight systemic problems in procedures, guidelines, training, and technology.

💻 Technological Investment: Requires investment in call tracking, AI analysis, and voice stress analysis.

🌐 Emerging Technologies: Explore quantum computing and AI chatbots for threat management.

-  Public Awareness: Suggest displaying offenders' photos on social media and airports for safety.


 Regulatory Challenges: Ongoing challenges need addressing for better hoax call handling.


 Incentives for Informers: Rewards for informers could aid in threat information gathering

Topic → Hematopoietic Stem Cell Transplant Study





Study Overview


 A new study published in *Science Translational Medicine* explores long-term changes in transplanted stem cells from donors.

 The research involved 16 pairs of donors and recipients, focusing on their health up to 46 years post-transplant.

Key Findings


 **Mutation Rates:** The rate of mutations and clonal expansion remained low and similar between donors (2% per year) and recipients (2.6% per year).

 **Sequencing Method:** Whole genome sequencing was performed using duplex sequencing, targeting genes commonly mutated in myeloid cancers and clonal hematopoiesis


 **Clonal Hematopoiesis:** All donors exhibited some clonal hematopoiesis variants, even in early blood samples, but no significant clonal expansion was observed.

Importance of Hematopoietic Stem Cell Transplants

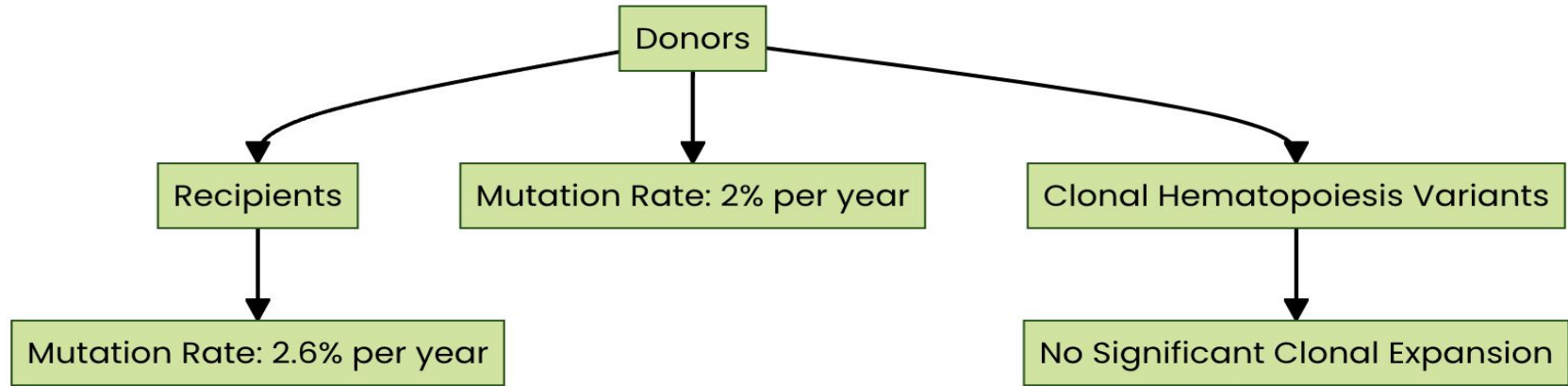


 These transplants are crucial for treating blood cancers, as they rebuild the recipient's blood cell-forming machinery.

Future Research Directions

 The study lays the groundwork for future research on the effects of donor age and preexisting clonal hematopoiesis on transplant outcomes.

Study Findings Overview:



Summary: A study reveals that mutations in stem cells from donors and recipients remain low even decades after hematopoietic stem cell transplants, supporting the regenerative capacity of bone marrow.

Enhanced Detection: DNA analysis surpasses standard methods in identifying genetic diseases.

Comprehensive Analysis: Genome sequencing covers a wide range of gene variants.

Potential Impact: Thousands of genetic diseases could be identified early.








Current Limitations: Standard screening is limited to about 60 disorders.

Health Benefits: Improved prevention and treatment of serious conditions.

Technological Advantage: Advanced genetic testing offers significant benefits.

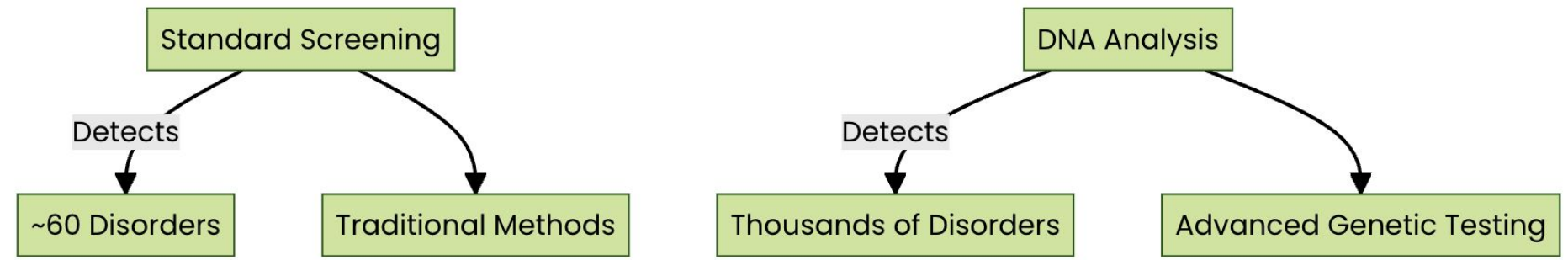
GUARDIAN Study: Advancements in Newborn Screening



-  Early results from the GUARDIAN study indicate that DNA analysis is more effective than standard newborn screening.
-  Genome sequencing analyzes a newborn's DNA for hundreds of specific gene variants linked to diseases.
-  The new technology can potentially identify thousands of genetic diseases.
-  Standard newborn screening currently detects around 60 disorders.
-  The findings suggest a significant improvement in the ability to prevent or treat serious health conditions.
-  The study highlights the advantages of advanced genetic testing over traditional methods.
-  This advancement could lead to better health outcomes for newborns.

Summary: The GUARDIAN study shows that DNA analysis can detect many more genetic diseases in newborns than standard screening methods._____

Comparison of Screening Methods:



Topic → Ocean Surface Temperature and Carbon Dioxide Absorption



Key Insights



Temperature Differences: Subtle temperature variations at the ocean surface enhance the absorption of carbon dioxide.




Focus on 'Ocean Skin': Scientists concentrated on the 'ocean skin,' a layer less than 2 mm deep at the surface.





Cooler Ocean Skin: This layer is slightly cooler than the water beneath, aiding in carbon absorption.



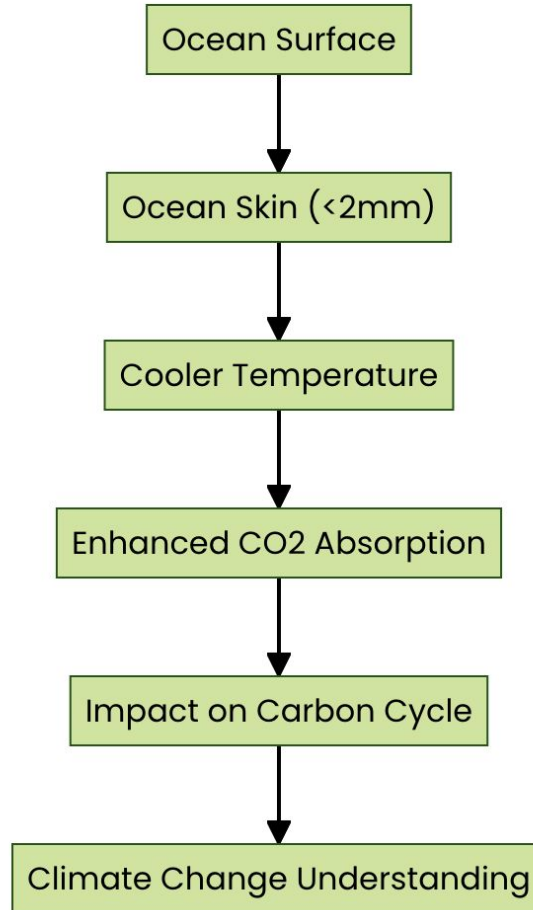
Theoretical vs. Real-World: Previous studies suggested this phenomenon theoretically and in labs but lacked real-world evidence.

—  Recent Confirmation: New research confirms that the cooler temperature of the ocean skin facilitates carbon absorption.

 Implications: This discovery is crucial for understanding oceanic carbon cycles and climate change.

 Advancement in Marine Science: The study bridges the gap between theory and observation, marking a significant advancement.

Conceptual Diagram:



Summary: A study confirms that cooler temperatures in the ocean's surface layer enhance carbon dioxide absorption, supporting previous theoretical findings.


Topic → Mini-Protein for Targeted Cancer Treatment



 Researchers have developed a mini-protein that can deliver radiation directly to tumor cells.

 The mini-protein targets cells expressing the Nectin-4 protein on their surfaces.

 This mini-protein is classified as a radiopharmaceutical.

 Healthy tissues are spared from radiation exposure, enhancing treatment safety.

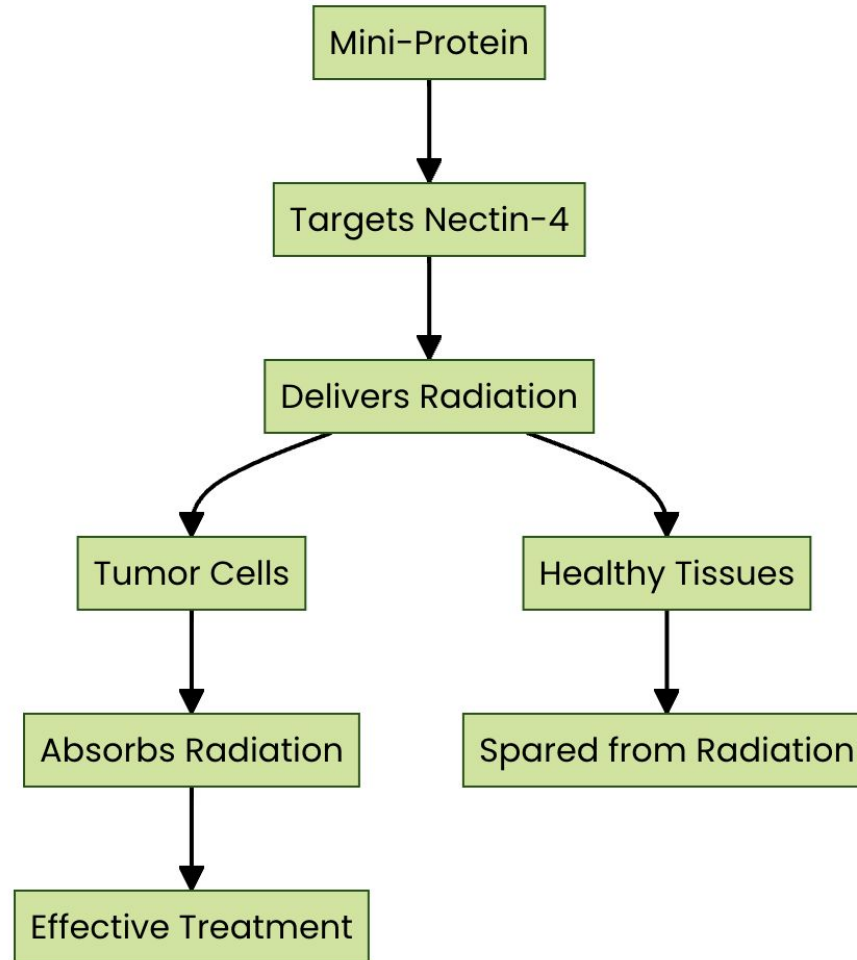
 The study demonstrated effectiveness across various types of cancer.

 Tumors were shown to absorb the radiation dose effectively.

 This marks the first successful demonstration of this targeted approach.


Summary: Researchers have created a mini-protein that effectively delivers radiation to tumor cells while protecting healthy tissues, targeting Nectin-4 expressing cancers.


Targeted Treatment Process:





Topic → Animal Evolution in Response to Human Impact





 A study from the University of Otago highlights animal evolution in response to human-induced environmental changes in New Zealand.

 Native stoneflies have changed color due to deforestation, showcasing a clear case of evolution linked to human activity.

 The stoneflies evolved to mimic warning colors of a toxic species to evade predators, adapting to their changing environment.

 The removal of forests has led to the disappearance of the poisonous species, prompting the stoneflies to abandon their mimicry strategy.

 In deforested areas, stoneflies have evolved into a different color as there are no longer toxic species to mimic.

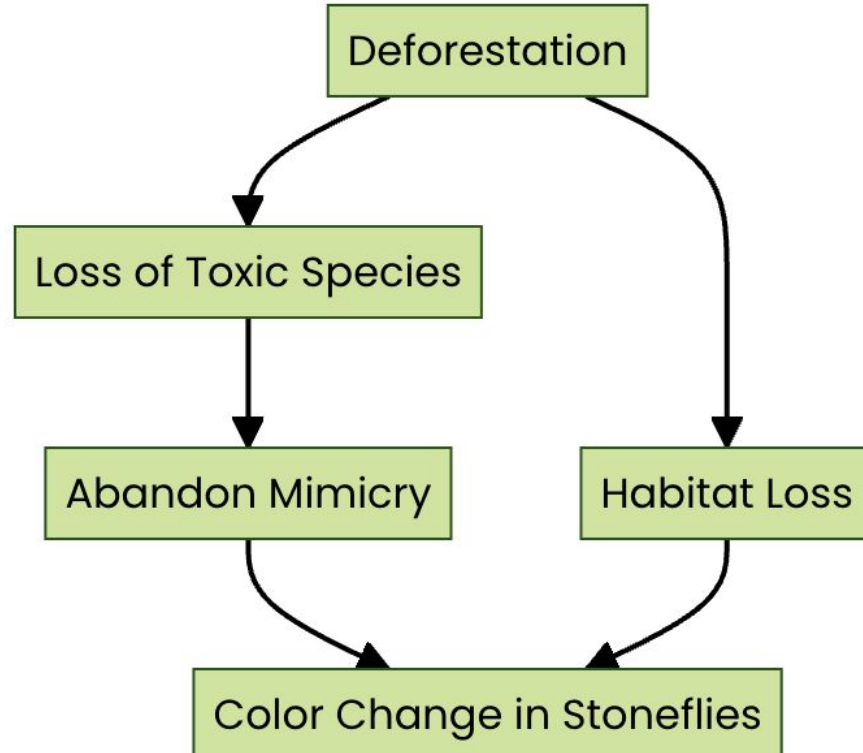
 The study provides evidence of how shifts in predation pressure and habitat loss can drive evolutionary changes in species.



Dr. Jon Waters, a co-author, emphasizes the significance of these findings in understanding human impact on animal evolution.

Summary: A study reveals that New Zealand's stoneflies have evolved color changes in response to deforestation caused by humans, abandoning mimicry of toxic species as their environment changes

Evolutionary Changes in Stoneflies:



Emergence and Impact

- 🦠 **Emergence of H5N1 Clade:** A new clade of Avian Influenza H5N1 (2.3.4.4b) emerged in late 2020, leading to a global outbreak primarily spread by migratory birds.
- 🐦 **Impact on Bird Populations:** The outbreak has resulted in the death of millions of birds and has infected over 200 mammalian species, including humans.

Detection and Spread in Cattle

- 🐮 **Detection in Cattle:** In March 2024, avian influenza was confirmed in U.S. cattle, initially linked to a drop in milk production observed by farmers.
 - 🌍 **Spread Among Herds:** The outbreak affected 100 herds by mid-June and has since expanded to over 330 herds across 14 states.
-

Virus Transmission and Human Cases



Virus Transmission: Studies suggest the virus likely spread to cattle from poultry and can infect cattle through aerosol and intramammary routes.



Human Cases: As of April 2024, 26 human cases have been reported, primarily linked to direct exposure to infected cattle or poultry, with one unexplained case in Missouri.

Ongoing Risks and Concerns



Ongoing Risks: While the CDC states the risk of infection for the general public remains low, the potential for the virus to evolve and adapt raises significant concerns.

Summary: The emergence of a new H5N1 clade has led to a widespread outbreak affecting birds and mammals, including cattle and humans, with ongoing risks of evolution and transmission.

Topics - MINDS MAPS included (Daily current affairs)-- 29th October 2024



- Diversity and Challenges in Plant-Based Nutraceuticals
- Solar Energy: A Catalyst for Change
- Global Election Expenditure Overview
- Fertilizer Crisis in India
- India's Economic Outlook
- Delhi's Air Quality and Pollution Sources
- India's Expanding Space Program 🚀
- Carbon credit
- India's New Initiatives and Sustainable Practices
- P2P Lending Industry Overview
- Mains



By saurabh Pandey



Topic→ Diversity and Challenges in Plant-Based Nutraceuticals

Diversity of Plants

Humans consume a wide variety of plants as food.

Many plants are recognized as medicines in Indigenous knowledge systems like Ayurveda.

Nutraceutical Demand

Growing demand for sustainable, natural products.

Products serve as nutraceuticals, offering both nutritional and pharmaceutical benefits.



Medicinal and Food Overlap



A study identified 1,788 species of plants documented as both food and medicine.
Out of 7,564 medicinal species reviewed.



Safety Concerns

Traditional uses of plants are generally safe.
New formulations and dosages may pose safety risks.
Highlights the need for regulation.



Scientific Naming Issues

Significant discordance in scientific names for plants.
Over 21,000 names refer to just 7,564 plants.
Complicates research and regulation.

- **Regulatory Challenges**

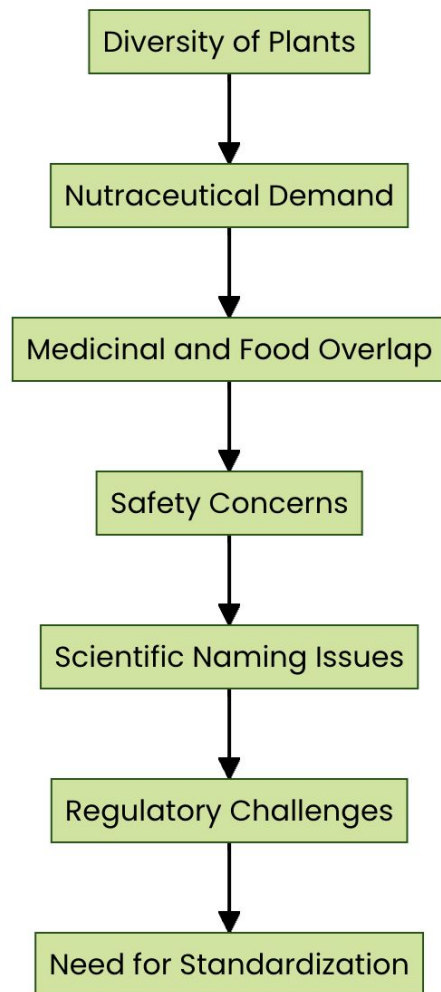
Different countries have separate regulators for food and medicine.
Complicates regulation of plants serving dual purposes.



Need for Standardization

Pressing need for standardized scientific nomenclature.
Regulatory frameworks for plant-based products to ensure safety and efficacy.

Summary: The intersection of food and medicine in plants presents both opportunities and challenges, necessitating better regulation and standardization to ensure safety and efficacy.



Topic→Solar Energy: A Catalyst for Change



Key Highlights

🌞 Historical Milestone: In 1884, Charles Fritts installed the first rooftop photovoltaic solar array in New York City, marking the dawn of solar energy utilization.

🌍 Decentralization Benefits: Solar energy facilitates localized power generation, reducing dependency on traditional energy sources and infrastructure.

👩🔧 Empowerment of Women: Solar initiatives empower women, especially in regions with limited energy access, boosting their economic potential and participation in the energy economy.



— Economic Impact: In Gujarat, women salt farmers using solar pumps
increased their income by 94% and reduced CO2 emissions by 115,000 metric tons annually.



Health Improvements: Solar solutions, like We Care Solar's suitcases, have significantly reduced perinatal deaths in Uganda's health centers by 72%.

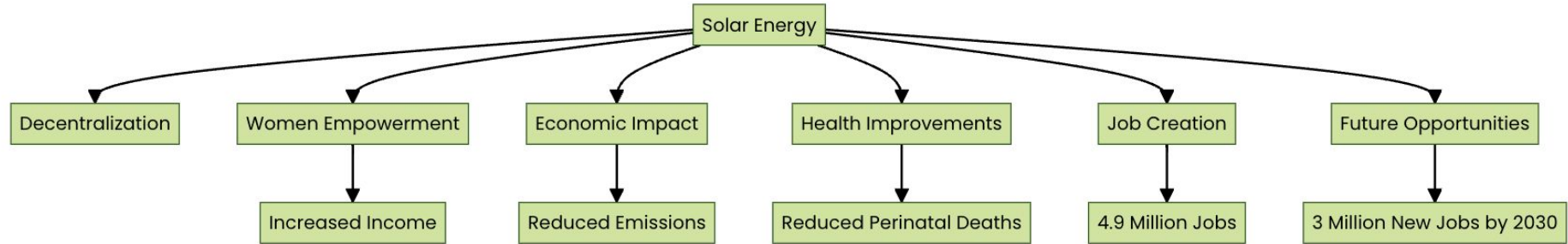


Job Creation: The solar photovoltaic industry employed approximately 4.9 million people in 2022, with women comprising 40% of the workforce.



Future Opportunities: India's renewable energy targets could create three million new jobs in the solar sector by 2030, offering substantial opportunities for women.

Impact of Solar Energy:





Solar Energy Benefits



Empowerment: Solar energy provides a sustainable alternative to coal, uplifting marginalized communities.

Impact: It addresses impoverished conditions in resource-rich areas.



Community Engagement

Importance: Effective engagement is crucial for solar project success.

Role of Institutions: Local institutions are key in planning and operation.



Off-Grid Solutions

Clean Energy Access: Off-grid projects bring electricity to rural areas.

Economic Growth: They foster development and job creation.



Challenges in Solar Adoption

Investment Imbalances: Geographical and sectoral disparities exist.

Overlooked Areas: Developing countries and smaller applications need attention.



Sustainability Focus



Life Cycle Emphasis: Recycling guidelines and waste management are needed.
Enhancement: These practices enhance sustainability.



Gender Inclusivity

Energy Transition: Women must be included as change agents.
Policy Needs: A gender lens is necessary to combat inequality.

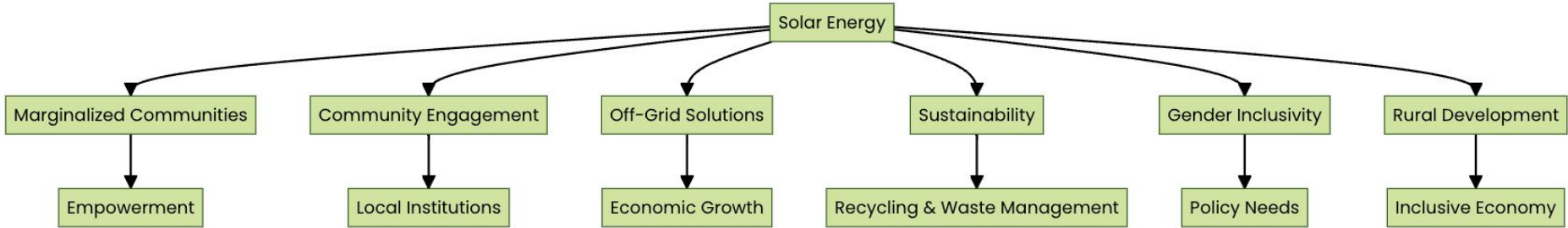


Holistic Integration

Electrification and Agriculture: Integration is vital for removing barriers.
Inclusive Economy: Promotes an inclusive energy economy benefiting women.

Summary: Solar energy offers a sustainable solution for marginalized communities.
Addressing challenges like investment imbalances and gender inclusivity is essential for effective implementation.

Conceptual Overview:



Topic-- > Global Election Expenditure Overview

Estimated U.S. Election Expenditure

Total Expenditure: Estimated at around \$16 billion (₹1,36,000 crores) for the U.S. presidential and Congressional elections in November 2024.

India's Election Spending

Lok Sabha Elections: Political parties spent approximately ₹1,00,000 crores.

Expenditure Limits in India

Candidate Spending Limits: ₹95 lakh in larger States and ₹75 lakh in smaller States for Lok Sabha elections.

Political Party Spending: No limits imposed.

With respect to Legislative Assemblies, they are ₹40 lakh and ₹28 lakh for larger and smaller States respectively. These limits are set, from time to time, by the Election Commission (EC).

U.S. Election Financing



Sources: Individuals, corporations, and PACs.

Super PACs: No spending limits.

Presidential Election: Expected expenditure of approximately \$5.5 billion.

U.K. Spending Limits

Per Constituency: £54,010.

Total Limit: £35 million for all constituencies.

Candidate Limits: Specific limits during campaign periods.

Challenges of High Expenditure

Nexus with Donors: High costs create connections between officials and large donors.

Barrier to Entry: Difficult for well-meaning citizens to enter politics.

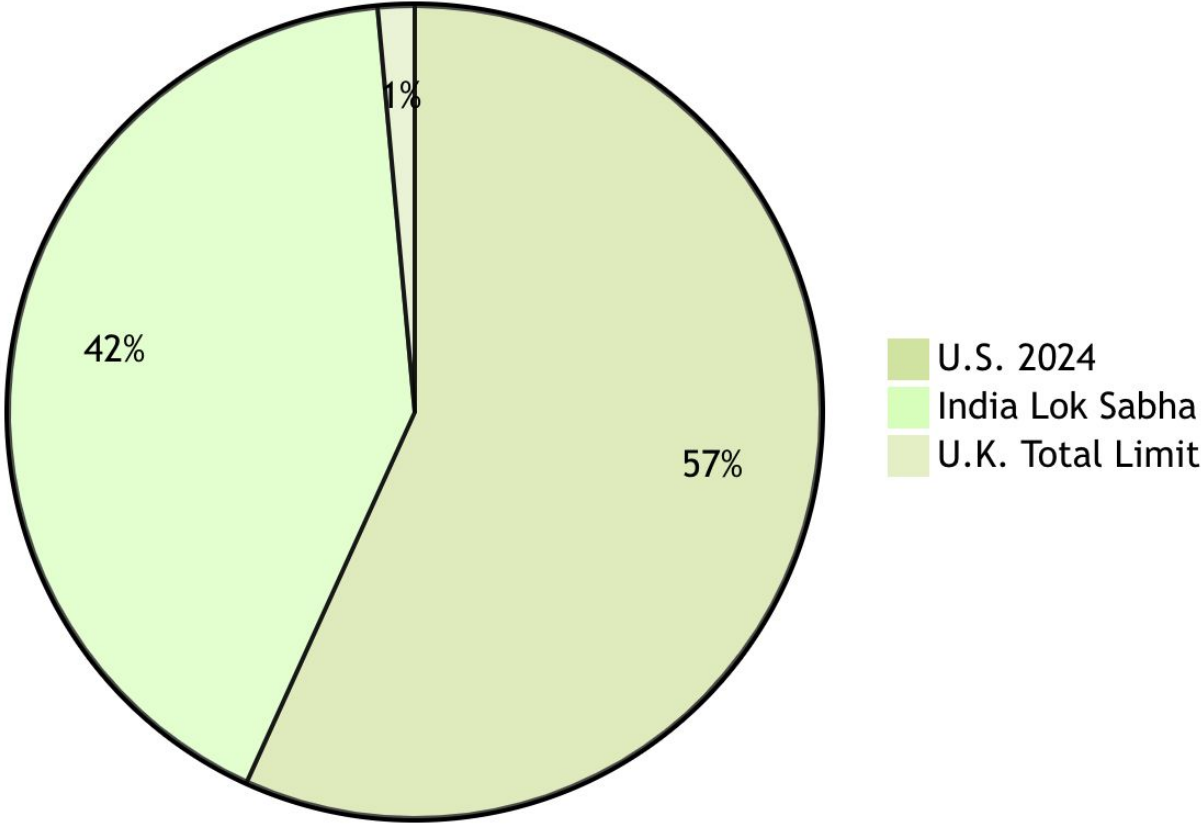


Corruption and Election Spending


India's 2019 Elections: Major parties reportedly spent ₹50,000 crore, exceeding limits and fostering corruption.


Election Expenditure Comparison:


Election Expenditure (in crores)





Key Aspects of Electoral Reforms


 **State Funding of Elections:** Recommendations from the Indrajit Gupta Committee (1998) and the Law Commission report (1999) suggest state funding to partially cover election expenses for candidates from recognized political parties.


 **Feasibility Concerns:** There are significant doubts about the feasibility and implementation mechanisms of state funding in the current context.

 **Simultaneous Elections:** Proposed as a solution to rising election expenditures, simultaneous elections face challenges related to federalism and constitutional amendments.

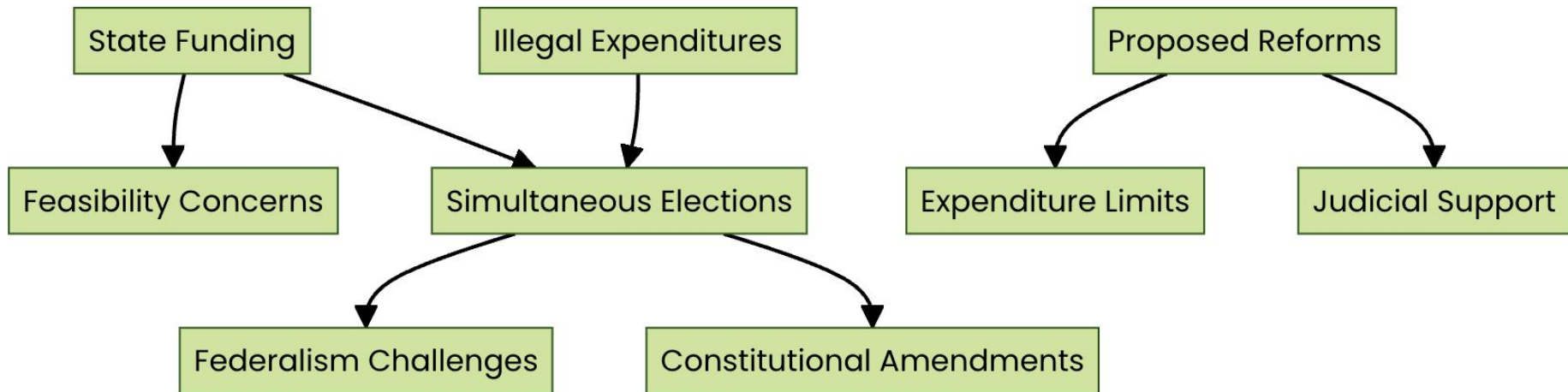
 **Curbing Illegal Expenditures:** Without addressing illegal cash distribution to voters, simultaneous elections may not significantly reduce overall election spending.

 **Proposed Electoral Reforms:** Based on the Election Commission's 2016 report, reforms include amending laws to limit financial assistance from parties to candidates within prescribed expenditure limits.

 **Ceiling on Party Expenditures:** A proposed ceiling on political party expenditures should be based on the number of candidates multiplied by the individual candidate's expenditure limit.

 **Judicial Support:** The appointment of additional judges in High Courts is suggested to expedite the resolution of election-related cases, acting as a deterrent against violations.

Conceptual Overview:



Summary: The text discusses proposed electoral reforms aimed at reducing election expenditures, including state funding, simultaneous elections, and stricter regulations on party and candidate spending.



Global Crisis Impact

Ongoing crises in Ukraine and Gaza are raising concerns about rising prices of petroleum-based chemical fertilizers.



Fertilizer Shortage

Uttar Pradesh's Agriculture Minister reported only 10 days' worth of fertilizer stock available for winter rabi crop sowing.



Import Dependency

India relies heavily on imports for fertilizers:

- 20% of urea

- 50-60% of DAP

- 100% of MOP



Production vs. Consumption

In 2021-22, India produced 435.95 LMT of fertilizers.

Faced a shortfall of 143.72 LMT against a consumption of 579.67 LMT. _____



Subsidy Allocation



The Indian government allocated ₹1.79 lakh crore for fertilizer subsidies in the 2023-24 budget.

Significant amounts for both indigenous and imported fertilizers.



Need for Policy Changes

Experts advocate for enhancing fertilizer production capacity.

Shifting farming practices to reduce reliance on imports.



New Urea Plants

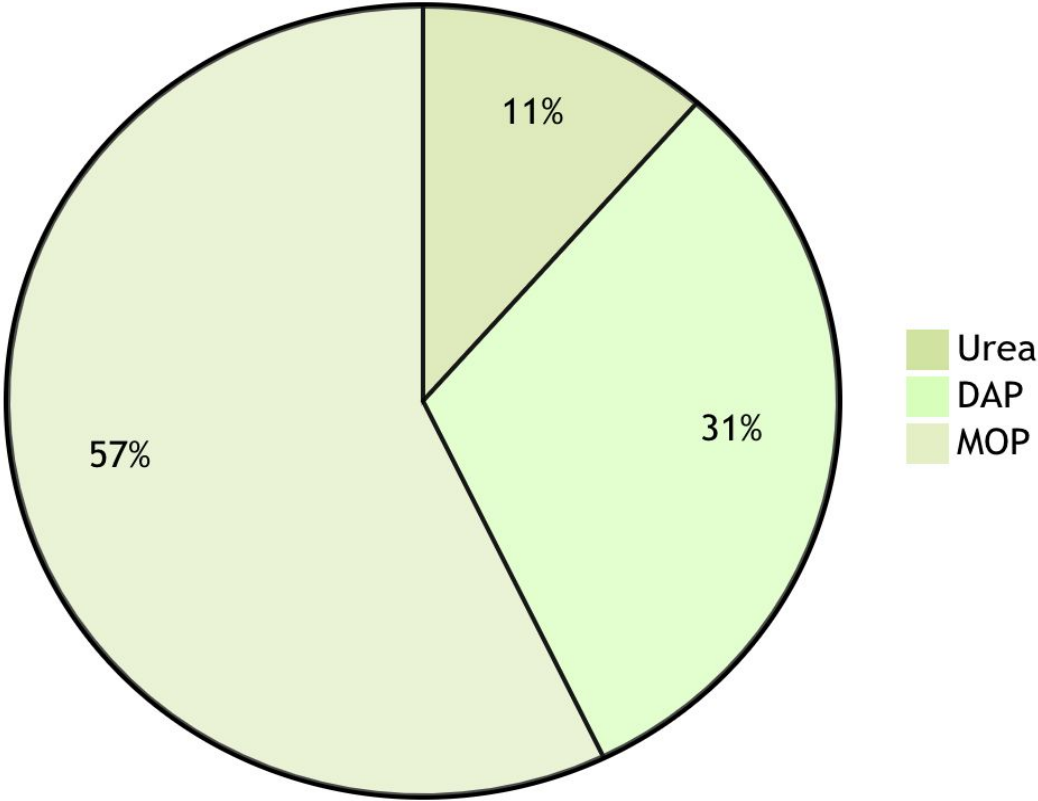
Six new Urea plants have been established since 2012.

Increased production capacity by 76.2 LMT annually.

Summary: India's fertilizer production is insufficient to meet demand, heavily relying on imports amid global crises, prompting calls for increased domestic production and policy reforms.

Fertilizer Import Dependency:

Fertilizer Import Dependency



Cyclical slowdown? Nomura thinks so

Days after its research report stating 'the growth glass looks half empty' for India, Nomura economists signal weak urban demand is unlikely to rebound soon and GDP growth may even slip under 6.7% this year

Vikas Dhoot

NEW DELHI

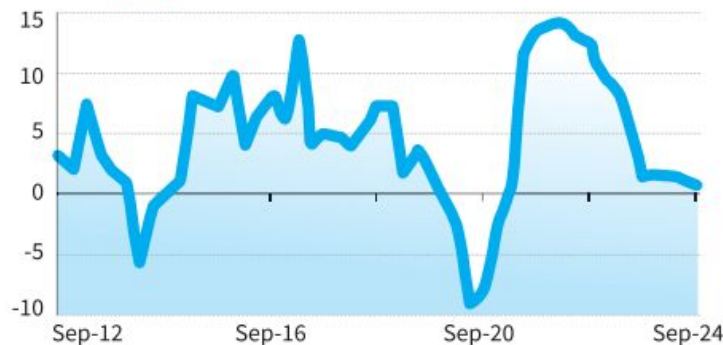
India's economy has likely entered a cyclical growth slowdown and growth may slip below 6.7% in the face of emerging risks, Nomura economists reckoned, noting that weak urban demand is likely to stay insipid amid high interest rates and moderating wage growth.

"Urban consumption indicators have been softening lately... We believe this weakness in urban demand is likely to continue," Nomura's economists Sonal Varma and Aurodeep Nandi said in a note on Monday. They linked this

Dampening demand

Nomura links weak urban demand signals, like slowing growth in non-durables' sales and air passenger traffic, to lower salary growth

% Y-O-Y ■ Real salary expenditure of non-financial companies



Source: CMIE, CEIC and Nomura Global Economics

Note: Sep-24 reading is provisional. Nominal readings deflated by CPI-Urban for conversion to real data.

to lower real salary hikes, fading pent-up demand and tight credit conditions.

"We believe India's economy has entered a cyclical growth slowdown.

Coincident and leading growth indicators point to a further moderation in GDP growth and the RBI's forecast of 7.2% for 2024-25 is overly optimistic, in our view," they said. Nomura has projected GDP growth of 6.7% this year and 6.8% in 2025-26, but the note said downside risks to this forecast are rising.

Companies are scaling down their salary outlays, the research note pointed out. "When deflated by the urban inflation, real salary and wage expenditure growth of listed non-financial corporates - a proxy for real urban wages - has moderated to 0.8% year-on-year in Q2 FY25 from

1.2% in Q1 FY25, and is down from 2.5% in FY24 and 10.8% in FY23. This likely reflects a mix of weaker nominal salary growth and a leaner workforce," they concluded.

"Additionally, the post-pandemic surge in pent-up demand has faded, monetary policy is tight and the RBI's macroprudential crackdown on unsecured, frothy credit is being reflected in the slowdown in personal loans and lending growth by non-banking finance companies," the economists averred, following up on an October 17 report which said 'the growth glass looks half empty' for India.

Key Economic Indicators



Cyclical Growth Slowdown: India's economy is likely experiencing a cyclical growth slowdown, with growth projected to slip below 6.7%.



Weak Urban Demand: Urban consumption indicators are softening due to high interest rates and moderating wage growth, leading to continued weakness in urban demand.



Salary Outlays Reduced: Companies are scaling down salary expenditures, with real salary growth for non-financial corporates dropping significantly.



GDP Growth Projections: Nomura projects GDP growth of 6.7% for the current year and 6.8% for 2025-26, but notes rising downside risks to these forecasts.





Transport Contribution

On October 25, stubble burning accounted for 15% of Delhi's air pollution. Transport contributed about 18% of PM 2.5 levels.



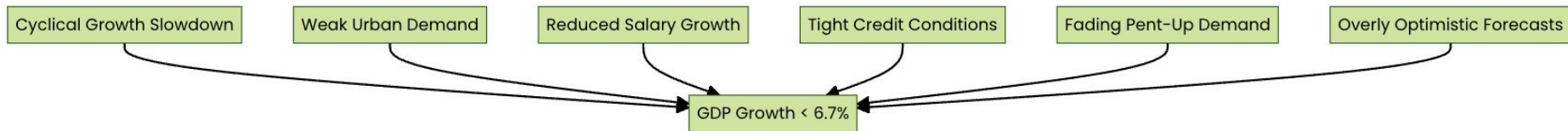
Fading Pent-Up Demand: The post-pandemic surge in pent-up demand has diminished, contributing to the economic slowdown.

 **Tight Credit Conditions:** The Reserve Bank of India's (RBI) strict monetary policy and crackdown on unsecured credit are reflected in the slowdown of personal loans and lending growth.

 **Overly Optimistic Forecasts:** Nomura believes the RBI's forecast of 7.2% GDP growth for 2024-25 is overly optimistic given the current economic indicators.

Summary: India's economy is facing a cyclical growth slowdown, with weak urban demand, reduced salary growth, and tight credit conditions contributing to a projected GDP growth below 6.7%

Economic Factors Impacting Growth:



Topic → Delhi's Air Quality and Pollution Sources



Air Quality Improvement

Delhi's air quality index improved from 285 in 2017 to 173 in 2021.

Despite improvements, the index remained above 216 (poor) for six out of seven years.



Stubble Burning Decline

Punjab saw a significant drop in stubble burning incidents from 17,467 in 2018 to 1,749 in 2023.

Haryana also experienced a reduction in incidents since 2020.



Winter Pollution Trends

Stubble burning ceases during winter months (December to February).

Despite this, Delhi's air quality remained in the 'very poor' and 'severe' categories from 2016-2023.



Secondary Inorganic Aerosols (SIA)

SIA, mainly from external sources, was the largest contributor to Delhi's pollution. Made up 32% of winter pollution, with 84% of SIA coming from outside Delhi.



Pollution Source Apportionment

Average winter pollution sources: SIA (32%), biomass burning (24%), and vehicles (17%).



Airshed Approach

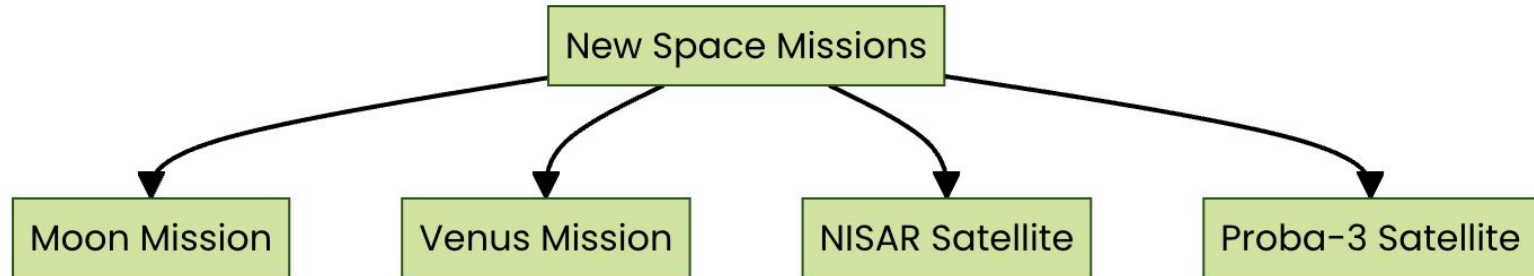
Policymakers are recognizing the need for a coordinated airshed approach. Involves multiple states to effectively address the pollution crisis.

Summary: Stubble burning is not the sole cause of Delhi's pollution; significant contributions come from transport and external sources, necessitating a collaborative approach to tackle air quality issues.

🚀 New Space Missions

The Indian government has initiated several new space projects. Missions include explorations to the Moon and Venus. Upcoming launches: NISAR and Proba-3 satellites.

Mission Overview:





Gaganyaan Program

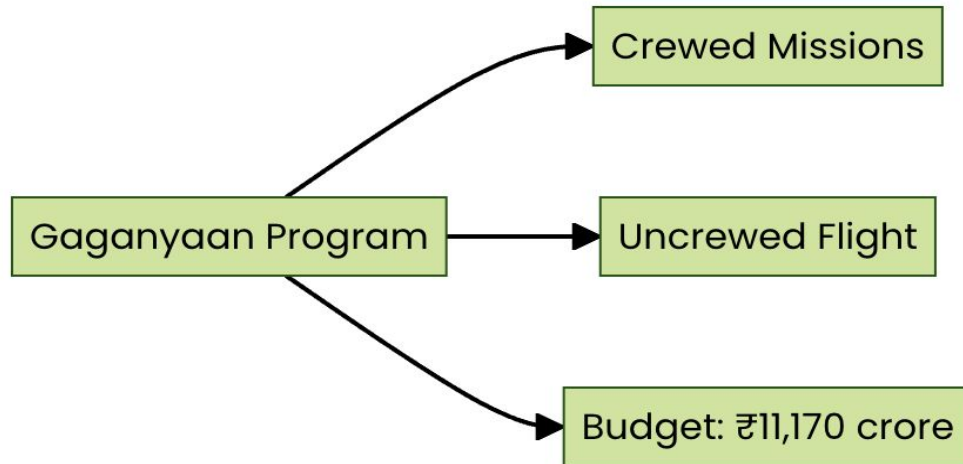


Union Cabinet approved four missions under the Gaganyaan human spaceflight program.

Includes an additional uncrewed flight.

Total budget: ₹11,170 crore.

Gaganyaan Program Structure:





Funding for Launch Vehicles

Additional funding of ₹8,240 crore for the Next Generation Launch Vehicle (NGLV).

Development in collaboration with the private sector.



Chandrayaan-4 Mission

A sample-return project set to launch by 2027.

Aims to collect lunar soil and rock samples.

Project cost: ₹2,104 crore



Lunar Polar Exploration Mission (LUPEX)

Joint mission with Japan to explore the Moon.

ISRO developing a new lander for potential crewed missions.



Space Based Surveillance (SBS)



Third phase approved, involving 21 satellites by ISRO and 31 by private companies.

Total budget: ₹26,968 crore



Astronaut Training

Sudhanshu Shukla, India's astronaut-designate, is training for the Axiom-4 mission.

Mission will take him to the International Space Station.

Manastu Space Agreement

Agreement with Dhruva Space: Manastu Space has signed a collaboration to test green propulsion technology for the LEAP-3 mission, scheduled for 2025.

Green Propulsion Development

Hydrogen-Peroxide System: Manastu is working on a hydrogen-peroxide-based propulsion system, with initial tests on the PSLV-C58 mission on January 1, 2023.

Bellatrix Aerospace's Project 200

Prototype Satellite: Bellatrix Aerospace introduced 'Project 200', a satellite prototype for ultra-low earth orbit at 200 km altitude.



Ananth Technologies' Milestone

Satellite Assembly: Ananth Technologies is the first private Indian company to assemble, integrate, and test two SpaDEx satellites for ISRO, delivered to the U.R. Rao Satellite Center.



Chandrayaan-3 Crater Discovery

Ancient Crater: The landing site of Chandrayaan-3 is older than the South Pole Aitken Basin, dating back 4.2-4.3 billion years.



Astrosat's Extended Mission



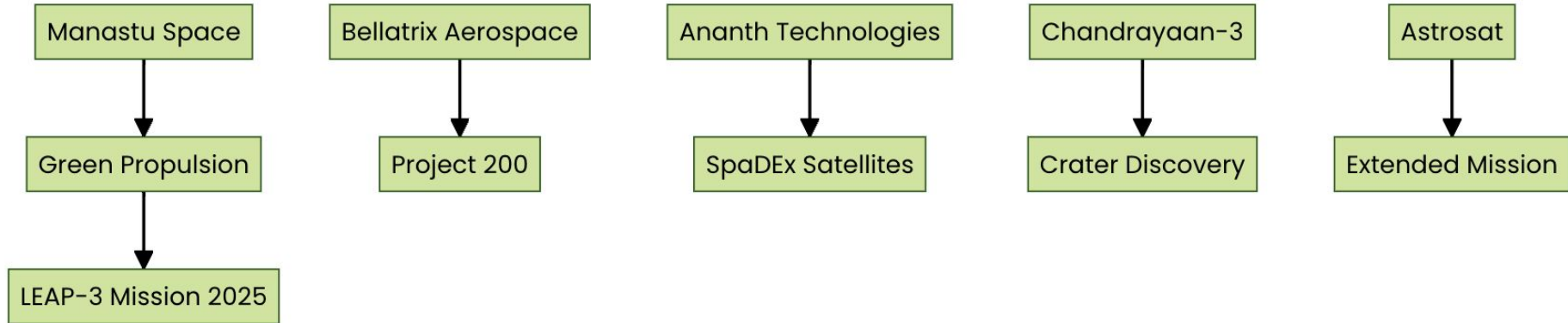
Mission Longevity: Astrosat, India's first multi-wavelength space observatory, has surpassed its five-year mission, operating for nine years and expected to continue for two more, contributing to over 400 research papers.



Data Sources

Chandrayaan-3 Findings: Data from the Optical High-Resolution Camera on Chandrayaan-2 and Pragyaan rover's navigational cameras informed the findings about the Chandrayaan-3 landing site.


Space Sector Developments:





Summary: India's space sector is advancing with new agreements, satellite prototypes, and significant discoveries from Chandrayaan missions.


Topic-- > Carbon credit



 Carbon Credits as Climate Finance: Carbon credits are a new instrument aimed at financing climate initiatives.

 Value Representation: A carbon credit represents the right to emit 1,000 kg of carbon dioxide, similar to how a 20 rupee note represents monetary value.

 Earning Carbon Credits: Individuals can earn carbon credits by removing 1,000 kg of CO₂ from the environment and providing proof to certifying agencies.

 Certification and Sale: Once certified, carbon credits can be sold to buyers, with specific projects like renewable energy and carbon capture being eligible.



International Framework: The Paris Agreement established an international carbon market to help countries meet their emissions targets.



Verification Challenges: Certifying agencies face difficulties in verifying the actual removal of CO₂, which is a significant issue for the carbon credit system.



Upcoming Discussions: The verification problem will be a key topic at the COP29 climate talks in Baku in November.

Summary: Carbon credits serve as a financial tool for climate action, allowing individuals to earn and sell credits for CO₂ removal, but face verification challenges that will be addressed at COP29.

Mapping →

Thwaites Glacier is an unusually broad and vast Antarctic glacier located east of Mount Murphy, on the Walgreen Coast of Marie Byrd Land.

Topic → India's New Initiatives and Sustainable Practices



India's New Initiatives

Anusandhan National Research Foundation (ANRF): Aims to boost research and development through partnerships between academia and industry.

BioE3 Policy (BioE3 stands for Biotechnology for Economy, Environment, and Employment)

Focuses on shifting from chemical-based industries to sustainable bio-based models.
Highlights the bioeconomy's role in economic growth and climate action.

Soap Industry Impact

The global soap industry is a significant contributor to greenhouse gas emissions and biodiversity loss.

This is mainly due to its reliance on palm oil.

Palm Oil Dependency

Palm oil accounts for about 40% of global vegetable oil demand.

Its high yield makes it difficult to replace in soap production.



Emerging Technologies

New synthetic biotechnologies may provide alternatives to palm oil. These include creating artificial fatty acid chains or using local plant materials to maintain soap structure.



Value Chain Development

Innovations in the soap value chain are crucial for reducing environmental impact. This includes the use of bio-based materials and sustainable packaging.




Support for Transition


Strong support from government and civil society is essential. This backing is crucial for developing sustainable solutions and reinventing legacy products in the soap industry.

Sustainable Palm Oil in India

Key Initiatives and Considerations


Key Initiatives and Considerations

 Sustainable Palm Oil: Essential for products like soaps until bio-synthetic alternatives are available.


 National Mission on Edible Oils: Aims to expand oil palm production to 10 lakh hectares and increase crude palm oil output to 11.20 lakh tonnes by 2025-26.

🌳 Environmental Considerations: Adherence to 'No Deforestation, No Peat' policies is crucial to protect biodiversity.

💰 **Cost of Sustainability:** Local sustainable palm oil may raise costs, impacting market share.

-  **Government Support:** Financial backing and incentives can drive sustainable practices and innovation.

 **Regulatory Changes Needed:** Reform soap grading standards to focus on performance and sustainability.


 **Consumer Awareness:** Mandatory sustainability labeling can empower informed consumer choices.


Summary


The Indian government is promoting sustainable palm oil production with a focus on environmental protection, regulatory reform, and consumer awareness to support a bio-based economy

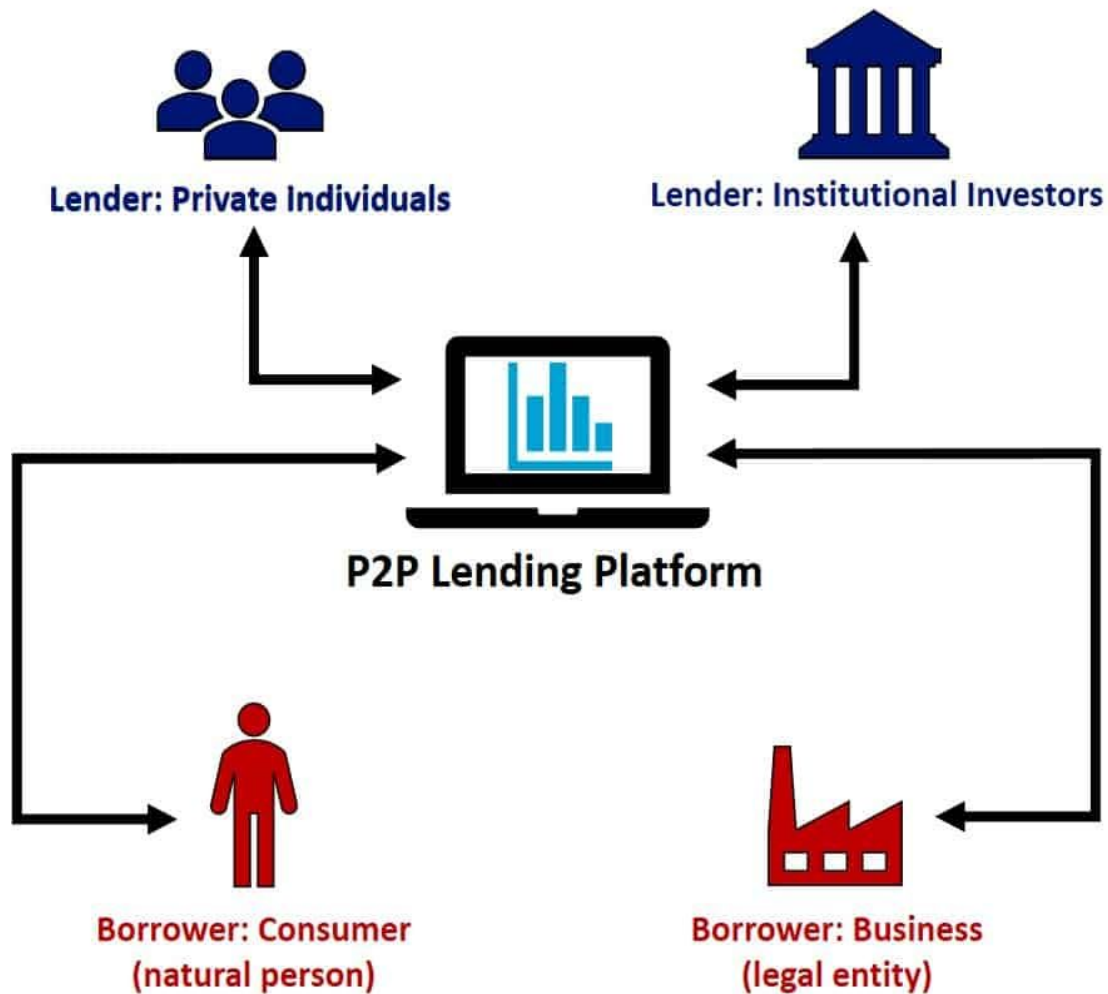
Key Developments in P2P Lending


 **AUM Decline:** The asset under management (AUM) in the P2P lending sector experienced a 35% drop, decreasing from ₹10,000 crore to ₹6,500 crore due to the RBI's restrictions.


 **RBI Restrictions:** The Reserve Bank of India (RBI) introduced regulations affecting attractive features of P2P lending, such as assured returns and liquidity options, along with a T+1 settlement cycle.


 **Role of P2P Platforms:** These platforms enable transactions between lenders and borrowers without directly engaging in the lending process.

 **Regulatory History:** Discussions on regulating P2P lending began in 2016, culminating in the RBI issuing master directions in 2017 to ensure transparency and establish eligibility criteria.



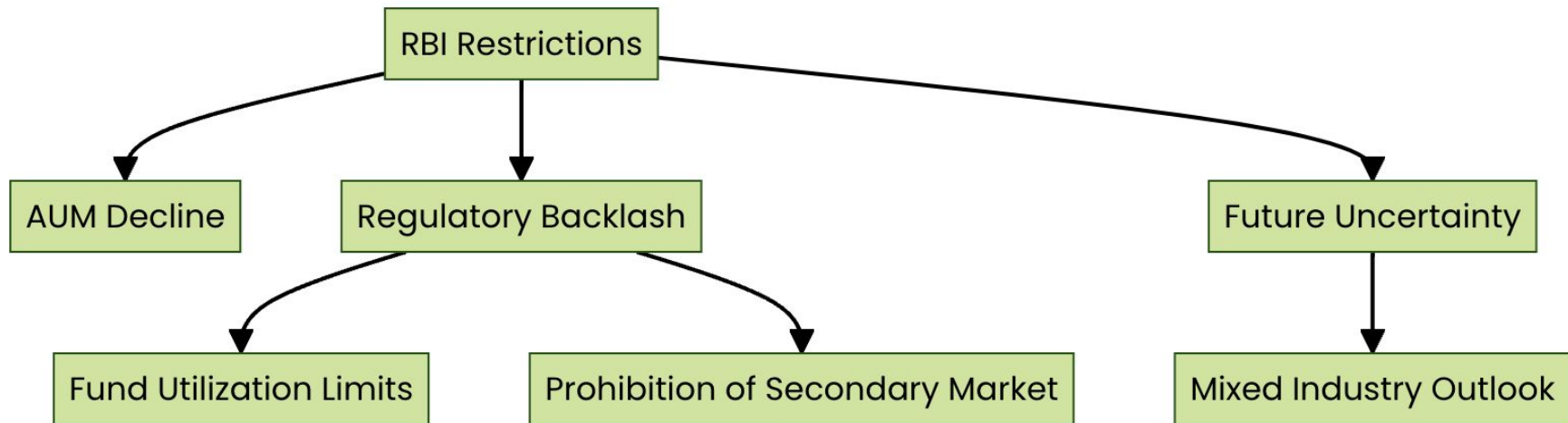
-  Regulatory Backlash: P2P exchanges were scrutinized for operating like banks, leading to restrictions on fund utilization and a ban on secondary market practices.

 Future Uncertainty: The future of P2P lending remains uncertain, with some companies stopping new customer onboarding and concerns about compliance with new norms.

 Mixed Outlook: While some industry players are pessimistic about the future, others believe that regulation could lead to a better product-market fit over time.

Summary: The RBI's recent actions against P2P lending have caused a significant decline in AUM and raised concerns about the industry's future, with mixed opinions on the regulatory impact.

P2P Lending Regulatory Impact:



Topics - MINDS MAPS included (Daily current affairs)-- 30th October 2024



- **Ayushman Bharat Scheme.**
- **Immunity and Vaccine Efficacy**
- **Sea Foam: An Oceanic Phenomenon**
- **Tica Vent:**
- **Economic Disparities in Indian States: A Comprehensive Analysis**
- **Exit polls and missed predictions**
- **Venture Capital Investment**
- **Global Oil Market Dynamics**
- **Dabke Dance**
- **Mains**



By saurabh Pandey



THE HINDU

Overview

Objective: Provide health coverage to economically disadvantaged citizens.

Target Group: Primarily focuses on low-income families and senior citizens.

Key Features:

Health Insurance: Offers up to ₹5 lakh per year for secondary and tertiary care hospitalization.

Eligibility: Based on the Socio-Economic Caste Census (SECC) data.

Cashless Access: Beneficiaries can access cashless healthcare services at empaneled hospitals.



— Expansion of Coverage: The Ayushman Bharat PM-JAY scheme now includes all senior citizens aged 70 and above, irrespective of income.



Cost Coverage: The government will cover hospitalization costs for beneficiaries up to ₹5 lakh.



Target Group: The scheme specifically aims to support elderly individuals, enhancing their access to healthcare



Government Initiative: This expansion is part of the government's effort to alleviate the financial burden of illness on the poor.

Topic → Immunity and Vaccine Efficacy



Immunity Mechanism



Immunity from infections or vaccines is primarily due to the generation of antibodies by plasma cells derived from B-cells in lymph nodes.

B-cell Lifespan



Most B-cells and plasma cells have a short lifespan, producing antibodies for a few weeks before dying, leading to a decline in antibody concentration.

Germinal Centres



Germinal centres (GCs) in lymph nodes are crucial for affinity maturation, producing memory B-cells that provide long-lasting immunity by memorizing antigens.

Memory B-cells



⚡ Memory B-cells quickly recognize previously encountered antigens, rapidly producing antigen-specific plasma cells to boost antibody levels upon re-exposure.

Long-lasting Plasma Cells

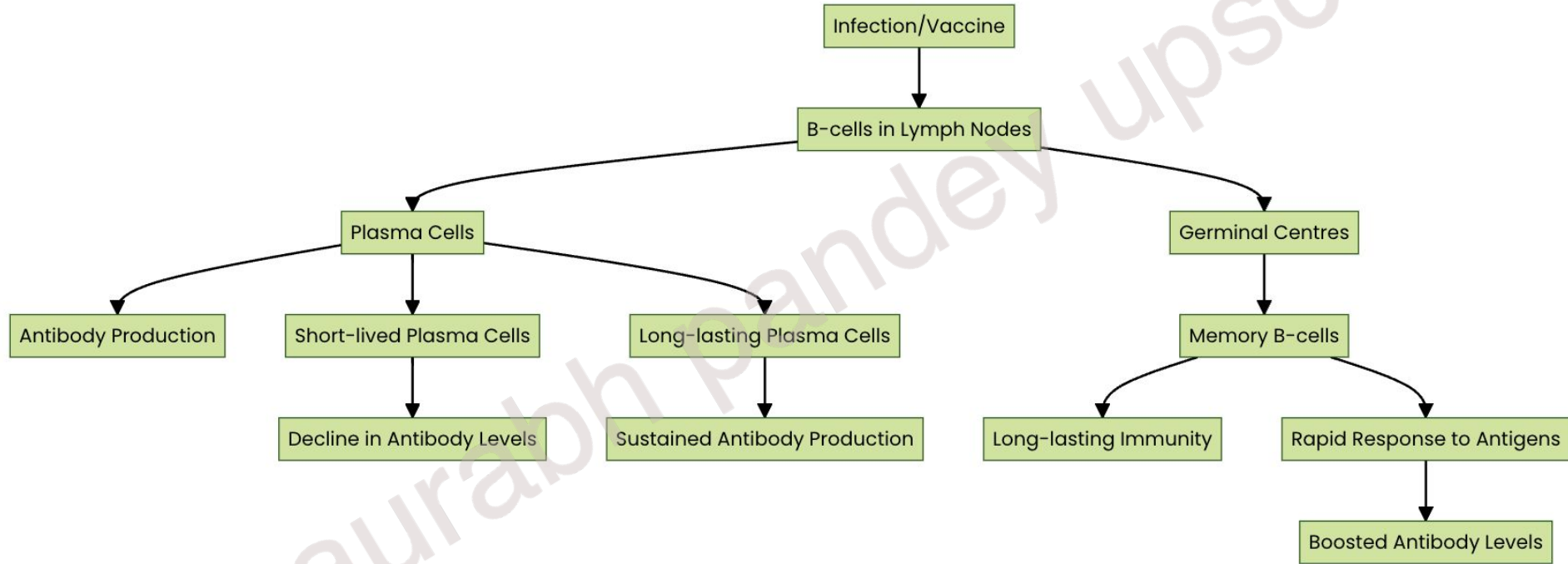
🦴 Some plasma cells, known as long-lasting plasma cells (LLPCs), migrate to the bone marrow and survive for extended periods, contributing to sustained antibody production.


Vaccine Efficacy


💉 The effectiveness of vaccines in providing long-term protection is linked to their ability to induce LLPCs in the bone marrow.


BCR Cross-linking


🔗 The formation of LLPCs requires specific signals from B-cell receptors, with BCR cross-linking and the vaccine's antigen type playing a critical role in T-cell activation.





—  **LLPCs and Immunity:** Long-lived plasma cells (LLPCs) are crucial for maintaining durable immunity against COVID-19.


 **Waning Protection:** The absence of LLPCs in bone marrow leads to rapid waning of immunity from both vaccines and natural infections.

 **Study Findings:** A study of 20 unvaccinated COVID-19 patients showed a deficiency in LLPCs specific to SARS-CoV-2 compared to those generated by a tetanus vaccine.

 **mRNA Vaccine Limitations:** mRNA vaccines for COVID-19 have not been effective in generating LLPCs, raising questions about their design.

—  Spike Protein Structure: The unique spacing of spike proteins on the SARS-CoV-2 virus may hinder B cell receptor (BCR) crosslinking, affecting LLPC production.

 Alternative Vaccine Platforms: Other vaccines, like the HPV vaccine, use virus-like particle (VLP) platforms that present spike proteins more effectively, potentially enhancing immune response.

 Skepticism in Research: Some researchers doubt the correlation between spike spacing and vaccine durability, suggesting further investigation is needed.

Summary: LLPCs are essential for long-lasting immunity against COVID-19, and their absence in mRNA vaccine responses may explain the rapid decline in protection.

Topic → Sea Foam: An Oceanic Phenomenon

Ingredients for Sea Foam

Components: Requires a substance to increase water's surface tension and a frothing mechanism.

Role of Organic Material

Function: Acts as the "bubble bath" in the ocean, often from phytoplankton blooms or fish kills.

Wind and Waves

Contribution: Strong winds and breaking waves mix air into the water, forming bubbles that create foam.

Sources of Organic Material

Origins: Can come from natural events like phytoplankton blooms or human activities such as sewer spills.



Concentration Mechanisms

Process: Various mechanisms concentrate sea foam, often resulting in it being blown onto beaches.



Occurrence in the Ocean

Distribution: Rarely found in the open ocean due to low plankton concentrations, but appears in areas with favorable conditions for blooms.

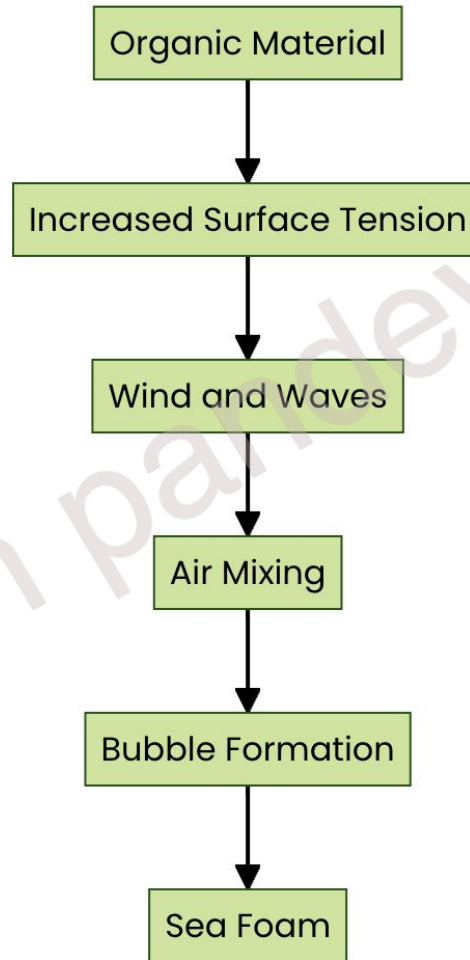


Environmental Indicators

Significance: Indicates ecological events like algal blooms or pollution.

Summary: Sea foam forms from dissolved organic materials and air mixing, often influenced by wind and waves, and is typically concentrated near beaches.

Sea Foam Formation Process:





This handout photograph released by the Schmidt Ocean Institute shows an eelpout swimming by tubeworms at a depth of 2,500 metres at the Tica Vent, a site on the East Pacific Rise. Scientists have discovered giant worms on the seabed, suggesting the presence of a larger ecosystem in these hostile environments than initially believed. AFP

Overview

- Tica Vent is a notable site on the East Pacific Rise, renowned for its distinct hydrothermal vent ecosystems.
 - These vents harbor a wide variety of marine life and enhance our comprehension of deep-sea habitats
-

Topic → Economic Disparities in Indian States: A Comprehensive Analysis



Economic Report Released

The Economic Advisory Council to the Prime Minister published a paper in September 2023.

Analyzed the economic performance of Indian states from 1960-61 to 2023-24.



Income Disparities

Significant disparities in per capita income.

Maharashtra has a per capita income of about 150% of the national average.

Notable regional inequalities within the state.



Regional Performance

Western and southern states are economically stronger.

Eastern states are lagging behind.

Northern states show poor performance, except for Haryana and Delhi.



Federalism Concerns

Economic divide raises questions about federalism in India.

Wealthier states feel they are not receiving a fair share of resources from the central government



Historical Context

References a similar protest in 2000 regarding resource allocation.
Indicates a long-standing issue with the devolution of funds from the central government.



Impact of Liberalization

Liberalization of 1991 marked a turning point for southern states.
The report does not explore the underlying causes of this improvement.



Coastal Advantage

Coastal areas, including Odisha, show better economic performance.
Suggests a potential link between geography and economic success.

Key Determinants of Economic Output



Investment as Key Determinant: Investment is the primary factor influencing economic output; higher investment correlates with a larger economy.

Public vs. Private Investment



Public vs. Private Investment: Investment originates from both public (policy-driven) and private (profit-driven) sectors, with private investment favoring developed areas.

Geographical Preferences



Geographical Preferences: Coastal regions and urban centers like Mumbai and Delhi attract more investment due to market size and access to external markets.

_Impact of New Economic Policies (NEP)



Impact of NEP: The New Economic Policies (NEP) of 1991 shifted investment focus from public to private sectors, exacerbating disparities between richer and poorer states.

Disparity in Investment




Disparity in Investment: Poorer states experience lower investment rates, reflected in their low credit-deposit ratios, leading to growing economic inequality.

Organized vs. Unorganized Sector



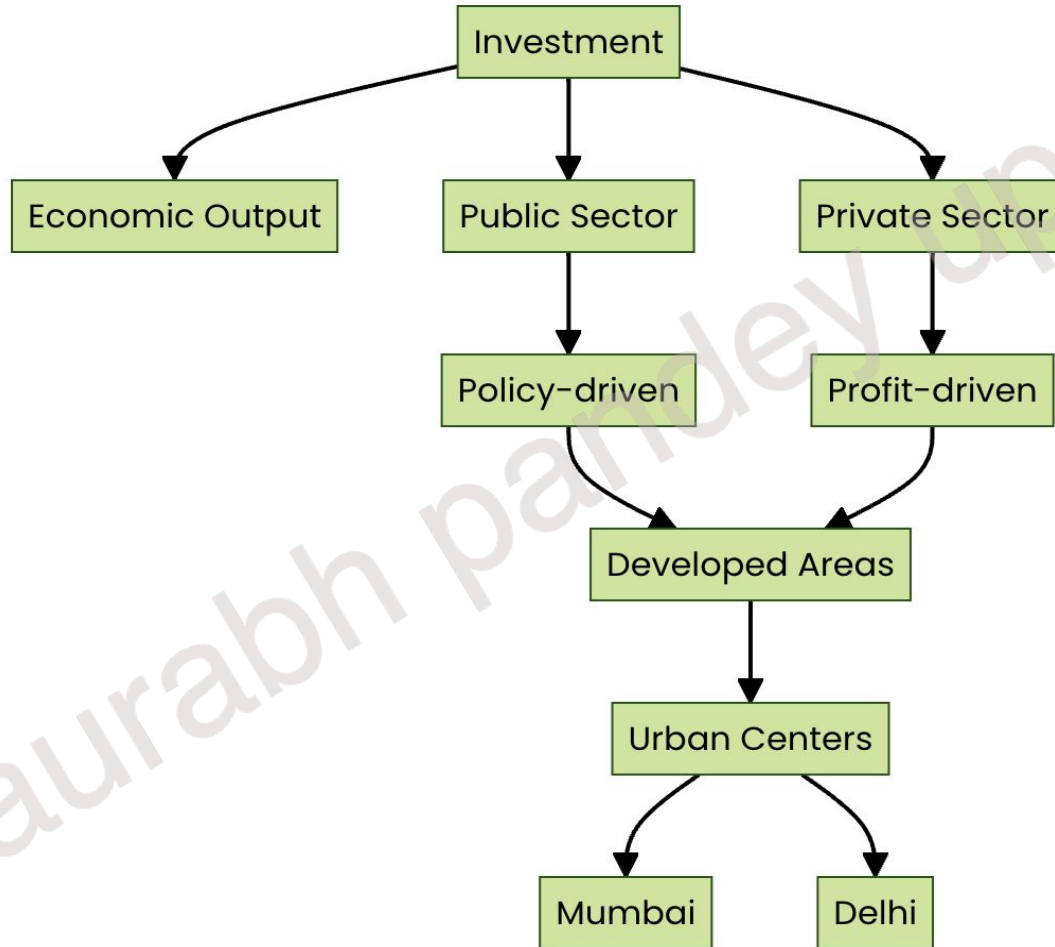
Organized vs. Unorganized Sector: The organized sector has expanded at the expense of the unorganized sector, particularly in richer states, due to favorable policies and infrastructure development.

Political Influence on Investment

 Political Influence on Investment: Political dynamics, including cronyism and governance quality, significantly affect investment climates, particularly in opposition-ruled states.

Summary: Investment levels, influenced by public policy and private profitability, significantly determine economic disparities across Indian states, with the NEP contributing to a widening gap.

Investment Dynamics:





Economic Disparities: Persistent economic performance differences among States are threatening federalism.



Need for Policy Change: A reversal of current trends in private investment, governance, and infrastructure is essential.




Role of States: States must enhance governance and reduce corruption to improve their economic conditions.




Public Expenditure: Significant increases in public spending on social sectors are necessary for development.

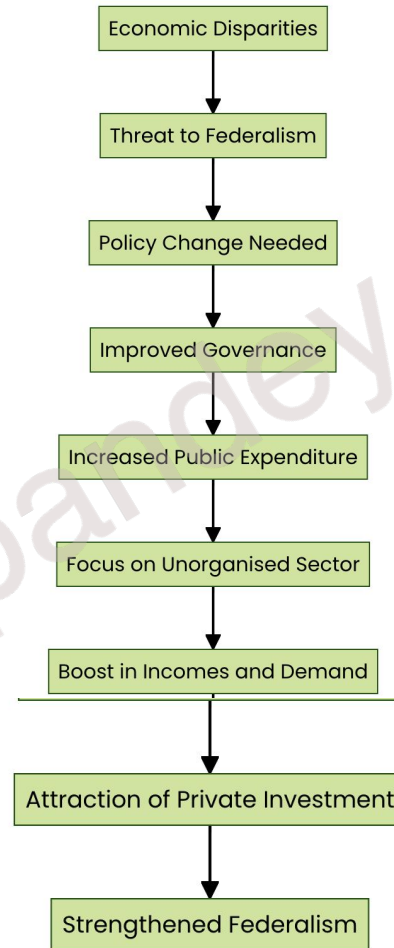


Focus on Unorganised Sector: Shifting focus from the organised to the unorganised sector can elevate incomes and boost demand in poorer States.


-  Investment Attraction: Rising demand in poorer States will attract more private investment, benefiting the overall economy.

 Strengthening Federalism: These changes aim to reduce disparities while allowing richer States to continue growing, thereby strengthening federalism and national unity.

Summary: Addressing economic disparities among States through policy changes and a focus on the unorganised sector is crucial for strengthening federalism and national unity.





Topic → Exit polls and missed predictions


 Random Selection: Constituencies are chosen using the probability proportional to size (PPS) method, which adjusts selection based on electorate size.

 Systematic Sampling: Polling stations within selected constituencies are chosen through systematic random sampling (SRS).

 Diverse Respondents: Respondents are drawn from updated electoral rolls using SRS, ensuring a representative cross-section of voters reflecting demographic diversity.

 Demographic Accuracy: The methodology closely matches the demographics of the survey sample with actual demographic trends for major groups, including women, Dalits, Muslims, and urban-rural populations.

-  State-Specific Profiles: The demographic profile of sampled voters in Madhya Pradesh and Chhattisgarh aligns closely with the actual voter profiles in these states.

 Weight Adjustments: Deviations in demographics are corrected by applying weights to different social groups to align the sample with the electorate.

 Transparency in Methodology: CSDS-Lokniti emphasizes transparency by publicly sharing its methodologies, unlike many other exit polls.

Summary: The survey employs a rigorous and transparent methodology to ensure demographic representation and accuracy in voter sampling

Venture capital investments into India may rise in 2025: KPMG

The Hindu Bureau

BENGALURU

Global venture capital (VC) investments have dropped from \$95.5 billion in the second quarter of calendar 2024 to \$70.1 billion in Q324. The number of VC deals, too, slid from 9,270 to 7,227 over the same period, reported KPMG.

However, the consulting firm said India bucked the global trend. Despite a decline in Q3, VC investments in the country 'remained solid at \$3.6 billion', aided by several significant fund raises by consumer-focused businesses.

The large fundraises by B2C businesses in India was an incredibly unique trend, opposite to trends seen in most other Asian jurisdictions and other re-

gions of the world where B2B firms attracted the greatest levels of VC investment, KPMG said.

Nitish Poddar, partner and national leader, private equity, KPMG in India said, "As expected, there has been a bounce back in activity led by consumer-focused consumption sectors. This trend is expected to continue."

While fintech businesses continued to attract a lot of attention in India, VC investors in the space have become more cautious in recent quarters as traditional banks have increasingly introduced their own fintech products.

Investors were expected to back businesses which align with two key themes – path to profitability and/or strong growth trajectory

with high level of customer engagement. This coupled with robust capital markets was what was driving this renewed VC interest.

In India, there was a very strong optimism that the VC market was recovering and the next few quarters could see the level of investments really start to climb, the report reckoned. With the U.S. election looming on the global stage heading into the last quarter of 2024, VC investments would likely remain subdued over most of this period as investors adopt a wait-and-watch approach till the poll outcomes.

According to KPMG's analysis, AI will likely remain a hot investment area, along with defence technology given the ongoing geopolitical tensions.

Overview of Venture Capital Investment

Definition: Funding provided to startups and small businesses with high growth potential.

Key Players: Venture capitalists, angel investors, and investment firms.

Importance: Drives innovation and economic growth.

Types of Venture Capital

Seed Capital: Initial funding for startups.

Early Stage: Funding for companies in their growth phase.

Late Stage: Investment in companies that are further along in development.

Investment Strategies



Sector Focus: Technology, healthcare, renewable energy.

Geographical Focus: Local, national, or international markets.

Investment Size: Small (under

1M), Medium (

1M), *Medium* (1M-\$10M), Large (over \$10M).

Trends in Venture Capital

Corporate Venture Capital: Corporations investing directly in startups.

Impact Investing: Investments aiming for social/environmental impact.

Diversity in Investment: Increasing focus on women and minority-led startups.

Topic → Global Oil Market Dynamics



Global Oil Prices Decline

Sharp decline in oil prices following Israel's targeted strikes on Iranian military sites.
Reduced fears of a wider conflict in the region.



Escalating Tensions

Iran launched nearly 200 missiles into Israel.
Increased concerns about a potential regional war.



Impact of Supply and Demand

Ample supply and falling demand characterize the global oil market.
Slowing economic growth in China contributes to reduced demand.



OPEC+ Influence Diminished

OPEC+ has less influence over global oil prices than in the past.
Current dynamics favor supply over demand.



Long-term Price Expectations

Experts predict a continued decline in oil prices due to oversupply.

The International Energy Agency notes the smallest demand increase since 2020.



U.S. Production Surge

The U.S. is expected to maintain high levels of crude oil production.

Projections of 13.2 million barrels per day in 2023, with growth anticipated in 2025.

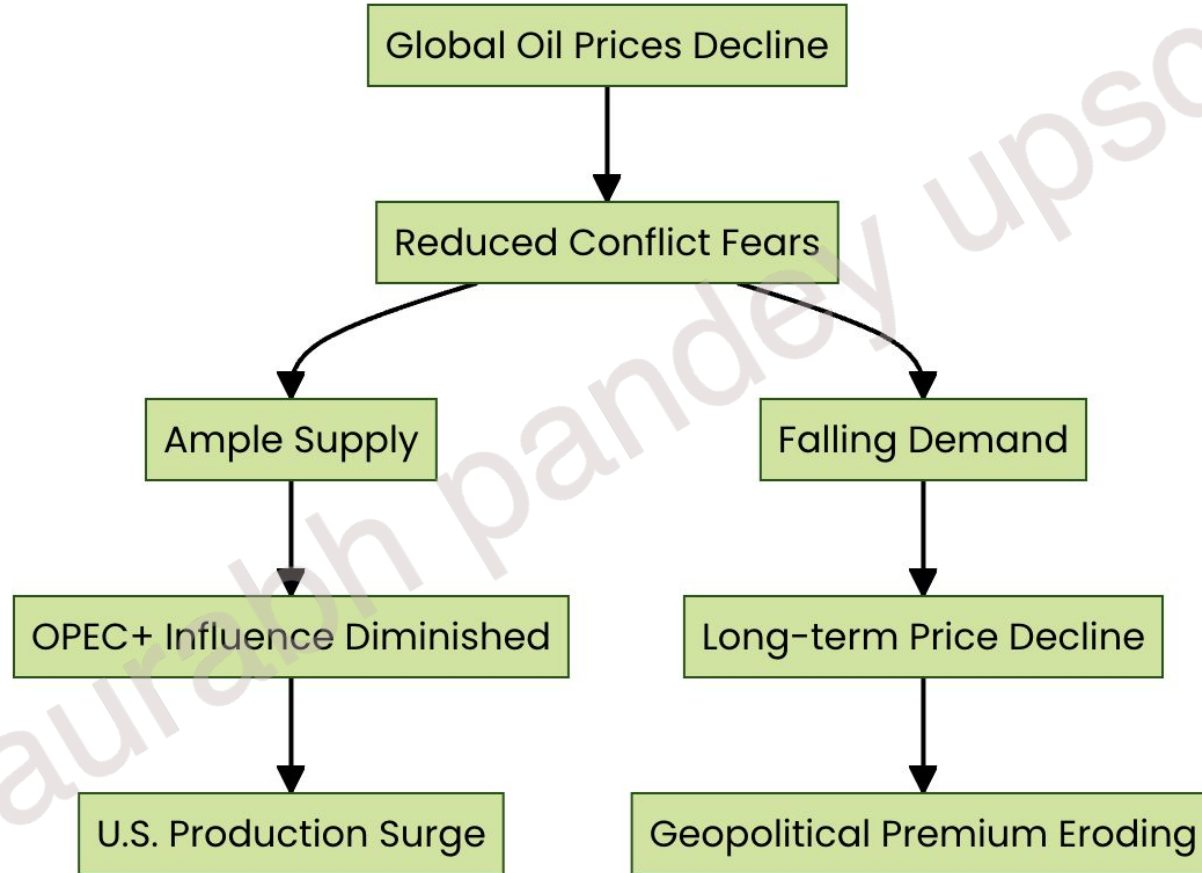


Geopolitical Premium Eroding

Limited Israeli military actions against Iran are expected to reduce fears of a wider conflict.

This leads to a lower geopolitical premium on crude oil prices.

Summary: Global oil prices are falling due to reduced fears of conflict following Israeli strikes on Iran, amid a backdrop of ample supply and declining demand.



Calming the nerves



Syrian migrants perform the traditional Dabke dance before trying to cross the English Channel in Calais in France on Wednesday. AFP

Topic → Dabke Dance

- It is an Arabic folk dance which originated in the mountains of the Levantine region; including Palestine, Lebanon, Jordan & Syria.
 - Legend says that people in the Levantine region made the roof of their houses with tree branches & mud. When the weather would change, the mud would crack. Family members & community would come & help patch it by forming a line, joining hands & stomping the mud into place.
 - Once better roof-making technology was available, the story of their work dance was passed on through generations to remind them of the importance of family, community & tradition. Today, dabke is seen all throughout the world at weddings, family gatherings, and celebrations
-

التراث اللبناني



MONT-LIBAN Le Dabki ou la Danse des hommes
au son de la Flûte et du Tambourin.

— Topic- China Space Mission



Mission Overview: China's Shenzhou-19 mission will launch a crew of three astronauts to the Tiangong space station this week.



Lunar Ambitions: The mission aims to support China's goal of sending astronauts to the Moon by 2030 and establishing a lunar base.



Female Representation: Wang Haoze, China's only female spaceflight engineer, is part of the crew, making her the third Chinese woman to participate in a crewed mission.



Launch Details: The launch is scheduled from the Jiuquan Satellite Launch Center in northwest China.



Crew Leadership: The mission is led by Cai Xuzhe, a 48-year-old former Air Force pilot with prior experience on the Tiangong space station.



Return Timeline: The crew is expected to return to Earth in late April or early May next year.



Crew Aspirations: Wang expressed her dreams of exploring space and completing tasks meticulously to protect their home in space.

Summary: China's Shenzhou-19 mission, featuring its only female spaceflight engineer, aims to advance lunar exploration goals with a launch scheduled for this week

"About Shenzhou 19 mission"



The Shenzhou-19 mission is part of China's human spaceflight program.



It aims to advance China's capabilities in space exploration and technology.



The mission involves sending astronauts to the Tiangong space station.



Shenzhou-19 is expected to conduct scientific experiments and technology demonstrations.



This mission reflects China's growing ambitions in space and international collaboration.



The launch date and specific crew details are yet to be announced.



Shenzhou-19 is a continuation of previous successful missions, enhancing China's presence in low Earth orbit.

Summary: The Shenzhou-19 mission is a key part of China's space program, focusing on human spaceflight and scientific research at the Tiangong space station.

Topics - MINDS MAPS included (Daily current affairs)--

31st October 2024



- Rohini Godbole & elementary particle
- -Space Rivalry Between the West and China
- Tragic Impact of Work Culture in Multinational Corporations
- Judicial System Challenges and Reforms.
- Political and Social Implications of Public Statistics
- US Electoral college system
- Mains



By saurabh Pandey



Target Mains -2025/26 -

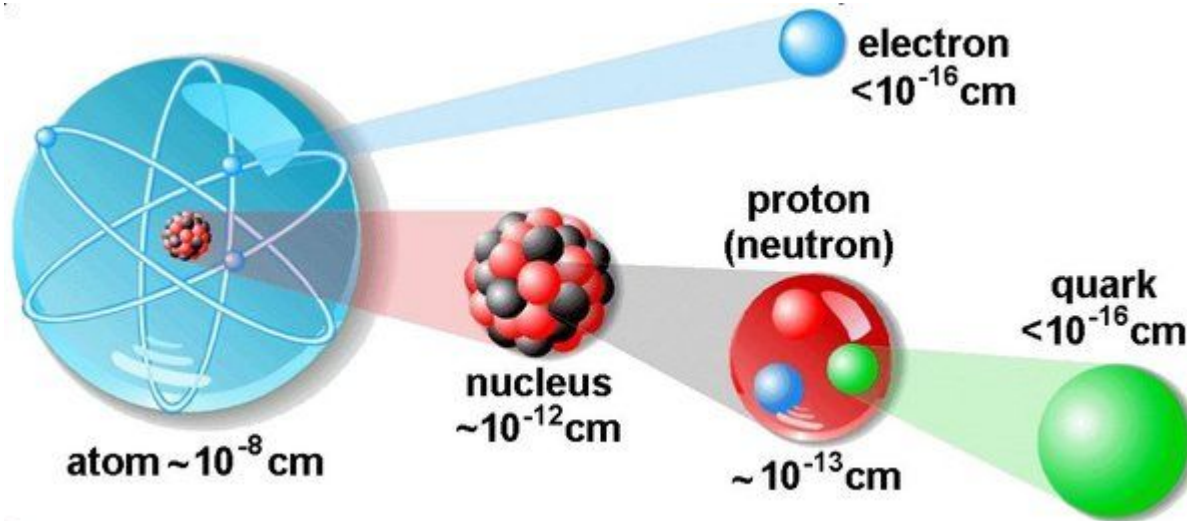
Q Only economic empowerment bring individualism but but without individual freedom . Explain the statement in context of changing work culture in india

**Connect with sir
9057921649**

**send your answer - Saurabh pandey
upsc telegram channel**

Topic - Rohini Godbole & elementary particle

Rohini Godbole was a classic “elementary particle phenomenologist” — a scientist who studies phenomena that are observed at particle colliders.



Standard Model of Elementary Particles

three generations of matter (elementary fermions)						three generations of antimatter (elementary antifermions)						interactions / force carriers (elementary bosons)	
I		II		III		I		II		III			
mass	$\approx 2.2 \text{ MeV}/c^2$	$\approx 1.28 \text{ GeV}/c^2$	$\approx 173.1 \text{ GeV}/c^2$	$\approx 2.2 \text{ MeV}/c^2$	$\approx 1.28 \text{ GeV}/c^2$	$\approx 173.1 \text{ GeV}/c^2$	0	0	0	0	$\approx 124.97 \text{ GeV}/c^2$		
charge	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$-\frac{2}{3}$	$-\frac{2}{3}$	$-\frac{2}{3}$	0	0	0	0	0		
spin	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1	1	1	1	0		
QUARKS	u up	c charm	t top	\bar{u} antiup	\bar{c} anticharm	\bar{t} antitop	g gluon	H higgs					
	d down	s strange	b bottom	\bar{d} antidown	\bar{s} antistrange	\bar{b} antibottom	γ photon						
	e electron	μ muon	τ tau	e^+ positron	$\bar{\mu}$ antimuon	$\bar{\tau}$ antitau	Z Z ⁰ boson						
LEPTONS	ν_e electron neutrino	ν_μ muon neutrino	ν_τ tau neutrino	$\bar{\nu}_e$ electron antineutrino	$\bar{\nu}_\mu$ muon antineutrino	$\bar{\nu}_\tau$ tau antineutrino	W ⁺ W ⁺ boson	W ⁻ W ⁻ boson					
	$< 2.2 \text{ eV}/c^2$	$< 0.17 \text{ MeV}/c^2$	$< 18.2 \text{ MeV}/c^2$	$< 2.2 \text{ eV}/c^2$	$< 0.17 \text{ MeV}/c^2$	$< 18.2 \text{ MeV}/c^2$	$\approx 80.39 \text{ GeV}/c^2$	$\approx 80.39 \text{ GeV}/c^2$					
	0	0	0	0	0	0	1	1					
	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1	1					

GAUGE BOSONS
VECTOR BOSONS

SCALAR BOSONS

Topic --Space Rivalry Between the West and China



Overview

The ongoing competition in space exploration and technology

Key players: United States, China, and other nations

Motivations: National security, technological advancement, and resource acquisition.

Key Themes:



Technological Competition



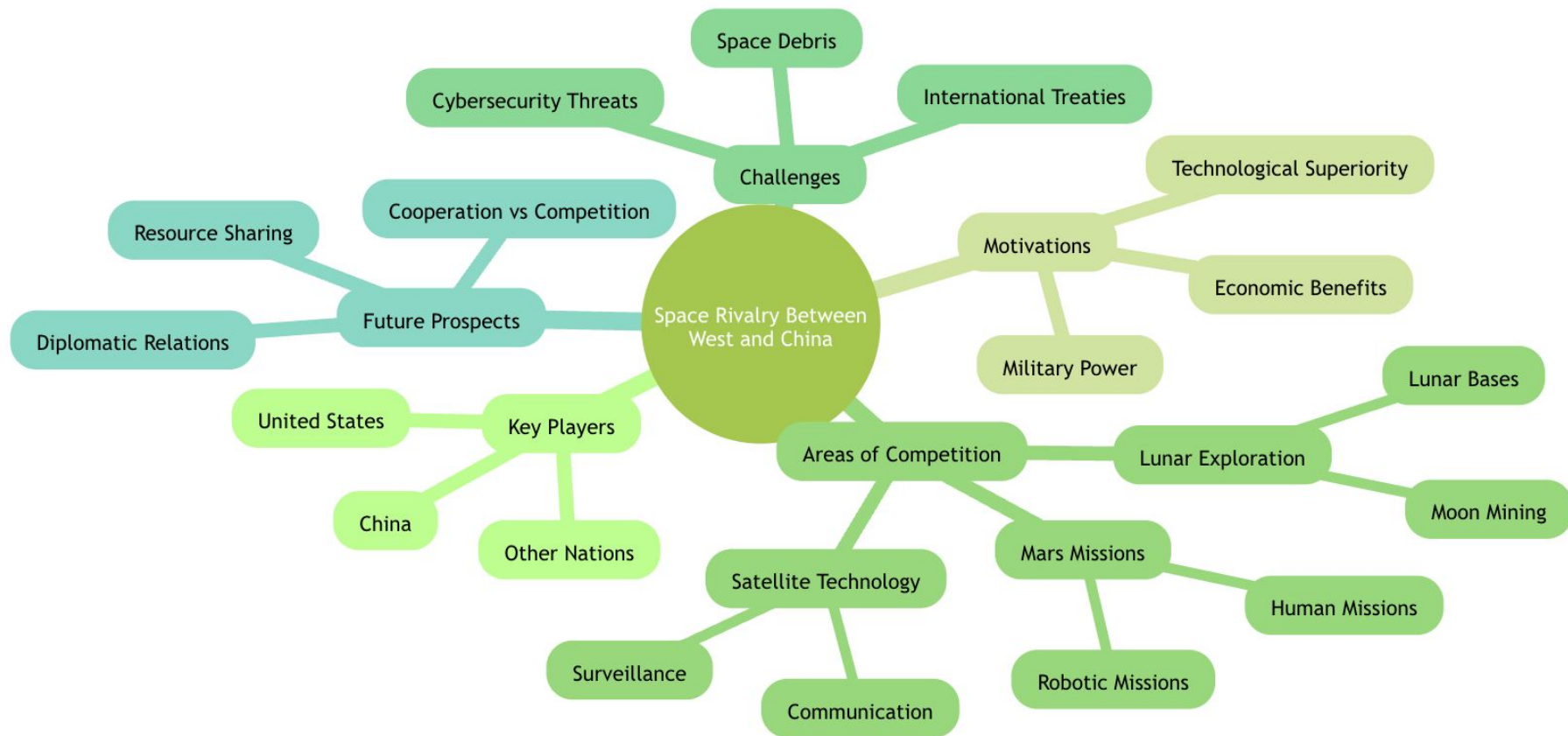
Military Aspects



Resource Exploration



International Cooperation vs. Rivalry



Importing a toxic work culture into India



An Indian woman in her twenties, working in Pune for a major consultancy firm, died one day after returning home from work. Her mother believes that this had resulted from exhaustion due to overwork at the office.

While the deeper cause would be difficult to ascertain, her parents have spoken publicly about their daughter informing them about the long hours she faced at work and the stress she endured from unreasonably close deadlines for reports.

Moreover, soon after the news of her death broke, at least one former employee has written or spoken in the public domain regarding the work culture that they experienced at the same company, which led him to leave. Ironically, on the website of the firm's 'India Office' the first entry is a banner declaring that the company's purpose is "building a better working world"

An American imprint

The firm concerned is a so-called multinational. This term is somewhat of an oxymoron, reflected in the reality that every multinational company has a distinct national affiliation, and national governments avidly work to further the prospects of their own multinationals (MNCs). Thus, when United States President Bill Clinton visited India in 2000, where he was mobbed by our parliamentarians in the Lok Sabha, he had come with a posse of American CEOs seeking opportunities. Most of the world's multinationals are American. This explains their work culture, the essential part of which is an emphasis on long hours apart from the relentless pressure to fulfil stringent targets, whether of sales or, in the case of accounting/consultancy firms, commissioned reports for clients ranging from for-profit firms to governments.

It is useful to understand the provenance of the work culture found in multinationals. With the collapse of the Soviet Union, the U.S. came to have an outsized influence on global affairs, and its economic architecture, including the work culture, came to be seen as the gold standard. From accounting practices to what is considered normal when it comes to hours of work, 'the American way' became the norm. Now, the culture of the multinationals came to possess the cachet of being of American origin even if the company itself may not be. This culture has a history.

The German sociologist, Max Weber, showed how the reformation of Christianity in northern Europe altered the view of work. Protestantism, especially Calvinism, doctrinally supported worldly activities dedicated to economic gain, seeing them as endowed with a moral and



**Pulapre
Balakrishnan**

Honorary Visiting
Professor, Centre for
Development Studies,
Thiruvananthapuram

spiritual significance that was equal to working for the Church, which Catholicism had privileged. Weber identified the protestant ethic as a driver of early capitalism. As America was founded by northern Europeans intent on establishing a community based on Protestant beliefs, it is not difficult to see where the glorification of work that came to define the American way of life came from. Weber relies on the writings of the American thinker, Benjamin Franklin, to make his case. The point of all this is to see that the work culture at MNCs is not based on ergonomics or organisational psychology but is actually of religious extraction.

A country comparison of work, productivity

For the economist, it remains pertinent to ask where the American obsession with work has got Americans. I shall base my investigation on data issued by the International Labour Organisation. If we were to make a global comparison of national per capita incomes, a standard measure of the standard of living of a population, we would find that hard work has got the U.S. quite far for sure but not as far as others without the same approach to work. In 2023, the U.S. was the 12th globally in terms of GNP per capita. If we take Guyana out of this list – it was only barely ahead – 10 countries were ahead of the U.S. These were Austria, Belgium, Denmark, Ireland, Luxembourg, Netherlands, Norway, Singapore, Sweden and Switzerland. Note that apart from a tiny Asian country, the rest of the list is exclusively of western European countries.

There is, though, an aspect of the comparison just made that needs mentioning. As productivity measures are based on value, the country that makes more valuable goods would tend to rank higher even if its physical productivity is not higher across all goods. So as to avoid relying on a comparison of value-based productivity levels alone, we may compare how the value-based productivity measure grows over time across countries. When we do this for the period of half a century from 1970, we find that U.S. GNP per capita has grown faster than only Switzerland's, and that too marginally (paucity of data meant that Austria and Singapore had to be excluded from the exercise). So, we find that neither is the population of the U.S. the richest in the world nor is its productivity growth faster. A further assessment of the economic value of hard work is conveyed by the following indicator.

In the above sample, except for Singapore, the average hours worked per person in a year were lower than that in the U.S. in every other country listed above. So, we can see that it is possible to get richer than the U.S. even when working less. There appears to be a difference between

working, a creative mental and physical engagement, and just labouring, as defined by hours worked.

However, talk of national cultures glorifying work can go only this far in accounting for the long hours allegedly worked by employees of multinationals, such as the employee who died. As observed by Karl Marx a 150 years ago, the length of the working day is a factor determining profits under capitalism. When only a part of a day's labour by the worker is needed to pay for their maintenance by way of the wage, the rest accrues to the capitalist as profit. As competition among capitalists lowers the rate of profit, capitalists strive to recoup profits by increasing the length of the working day or getting workers to do more and more faster. For consulting firms such as the one in question, the latter would mean producing more reports in less and less time.

An add-on to foreign investment

It is useful to remember that the work culture allegedly existing at the firm was not always present in India. It came along with the foreign investment that was courted as part of the liberalising reforms of 1991. Foreign investment was seen as a route to raising capital formation and bringing along global best practices in management. As for the promised global best practices, the incident involving the Pune firm is at least one data point by which to gauge outcomes. Whatever may be the actual benefits for India of having kept an open house for them, the multinationals seem to have done quite well for themselves since.

It has been reported that during 2017-22, the 'Big Four' among the global consulting firms bagged 305 assignments from the Government of India. The same source reports a figure so large for the revenue that accrued to them from India that I thought it wise to ascertain it before citing it. But in all these cases, it would be of interest to know if expertise as good was not available in India. There is also a record of the governments of some southern States favouring external consultants over local experts who are far more knowledgeable on economic matters.


An upshot of the incident at Pune is that the working hours and practices in the multinationals working in India must be regulated by the government. So should the working hours at the Indian companies directly serving offshore entities, where stress-induced suicides have been reported recently. That these companies, which serve a global clientele, would require them to run shifts that cater to different time zones to ply their business is well understood, but they would have to adhere to Indian norms.


The practices,
including
working hours,
in
multinationals
functioning in
India must
be regulated


—Topic → Tragic Impact of Work Culture in Multinational Corporations





Overview


 An Indian woman in her twenties tragically passed away after returning home from her job at a major consultancy firm in Pune. Her mother attributed her death to exhaustion from overwork.


 The woman had informed her parents about the long hours and stress due to tight deadlines at her workplace.

 A former employee criticized the company's work culture, claiming it contributed to his decision to leave.

 The firm is a multinational corporation (MNC) with a work culture influenced by American standards, emphasizing long hours and high-pressure targets.


-  The American work culture, seen as a global standard, is rooted in Protestant ethics that glorify hard work and economic gain, as analyzed by sociologist Max Weber.

 Since the end of the Cold War, American multinationals have significantly influenced global work culture, shaping norms around work hours and expectations.

 The work culture in MNCs is suggested to be more about historical and religious influences rather than modern organizational psychology

U.S. Economic and Work Culture Analysis

Global GNP Per Capita Ranking

 The U.S. ranks 12th globally in GNP per capita as of 2023, trailing behind primarily Western European countries.

Work and Living Standards




Hard work in the U.S. does not guarantee the highest standard of living; some countries achieve greater wealth with fewer working hours.

GNP Growth and Productivity




U.S. GNP per capita growth from 1970 to 2023 was only marginally faster than Switzerland's, indicating limited productivity growth.


Misleading Productivity Measures

 Productivity measures can be misleading; value-based productivity does not always reflect actual physical productivity across countries.

Work Hours and Economic Performance

 The average hours worked per person in the U.S. are higher than in economically outperforming countries, suggesting efficiency over sheer hours worked.

Work Hours and Profit Relationship

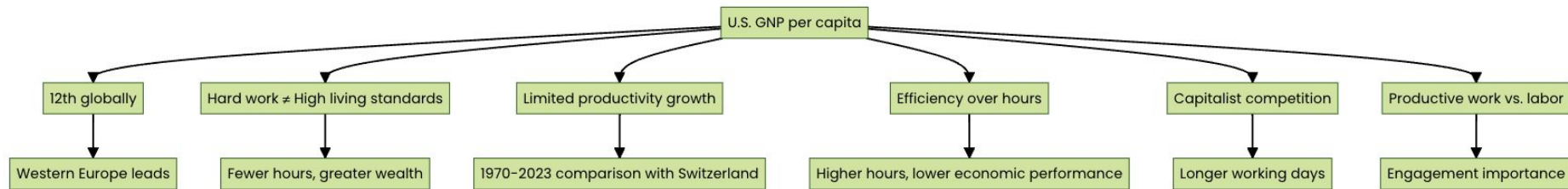
 The relationship between work hours and profits is influenced by capitalist competition, leading to longer working days to maintain profit margins.

Productive Work vs. Mere Labor

🧠 There is a distinction between productive work and mere labor, emphasizing the importance of engagement over hours logged.

Summary: The U.S. ranks 12th in GNP per capita, showing that hard work does not always equate to higher living standards, as other countries achieve greater wealth with fewer hours worked.

Economic and Work Culture Analysis:





Foreign Investment Impact: The work culture in India has evolved due to foreign investment, particularly since the liberalization reforms of 1991.



Capital Formation: Foreign investment was aimed at increasing capital formation and introducing global best practices in management.



Consulting Assignments: From 2017 to 2022, the 'Big Four' consulting firms secured 305 assignments from the Government of India.



Revenue Concerns: The revenue generated by these consulting firms from India is significant, raising questions about the availability of local expertise.



— Preference for External Consultants: Some southern Indian states have shown a preference for hiring external consultants over local experts, despite the latter's superior knowledge.



Regulation of Working Hours: There is a need for government regulation of working hours in multinationals and Indian companies serving offshore clients, especially due to reports of stress-induced suicides.



Global Clientele Challenges: Companies serving global clients must balance operational demands with adherence to Indian labor norms.

Summary: The evolution of work culture in India due to foreign investment has raised concerns about local expertise, the regulation of working hours, and the impact of global business practices.

Topic → Judicial System Challenges and Reforms



Overview of the Tribunal System



Introduction: The tribunal system was established in 1976 via the 42nd Constitutional Amendment Act to address the backlog in civil courts.



Specialized Forums: Created to handle specific subjects with set timelines for case resolution.



Systemic Delays: Despite timelines, most cases do not meet statutory deadlines due to systemic issues.

Current Judicial Challenges



Judge Shortage: As of 2024, there are only 21 judges per million people, far below the recommended 50.



Vacancies: Judicial positions remain unfilled, exacerbating delays.



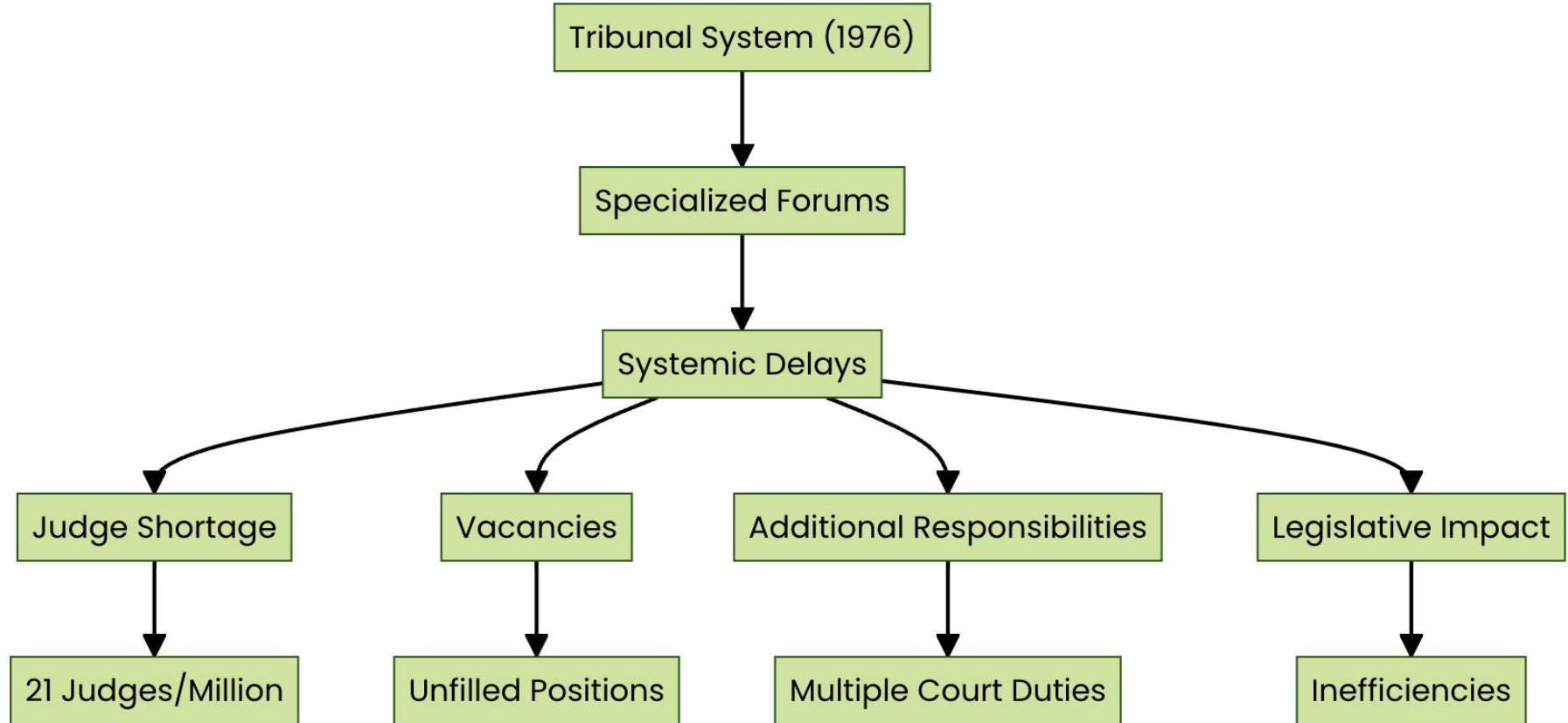
Additional Responsibilities: Judges often manage duties across multiple courts, adding strain to the system.



Legislative Impact: New laws are enacted without assessing their impact on the judiciary, causing inefficiencies.



Judicial System Challenges:



Judicial System Challenges



Current Judicial Landscape



Judicial Vacancy: As of October 30, 2024, there are 770 judges in High Courts, which is only 30% of the sanctioned strength of 1,114 judges.



High Court Responsibilities: High Courts handle a wide range of powers including appeals, revisions, and writ matters, leading to increased case loads.

Case Management Challenges



Case Backlog: The average time for a case to be resolved in a High Court is between six to seven years, contributing to significant case pendency.



Supreme Court Appeals: The Supreme Court operates with a full strength of 34 judges but faces a high volume of direct appeals from various statutes, particularly from High Court decisions.

Judicial Workload and Stress



Judicial Workload: Judges, from district courts to the Supreme Court, are working overtime to manage the heavy caseload, which can lead to mental stress and potential errors in judgment writing.



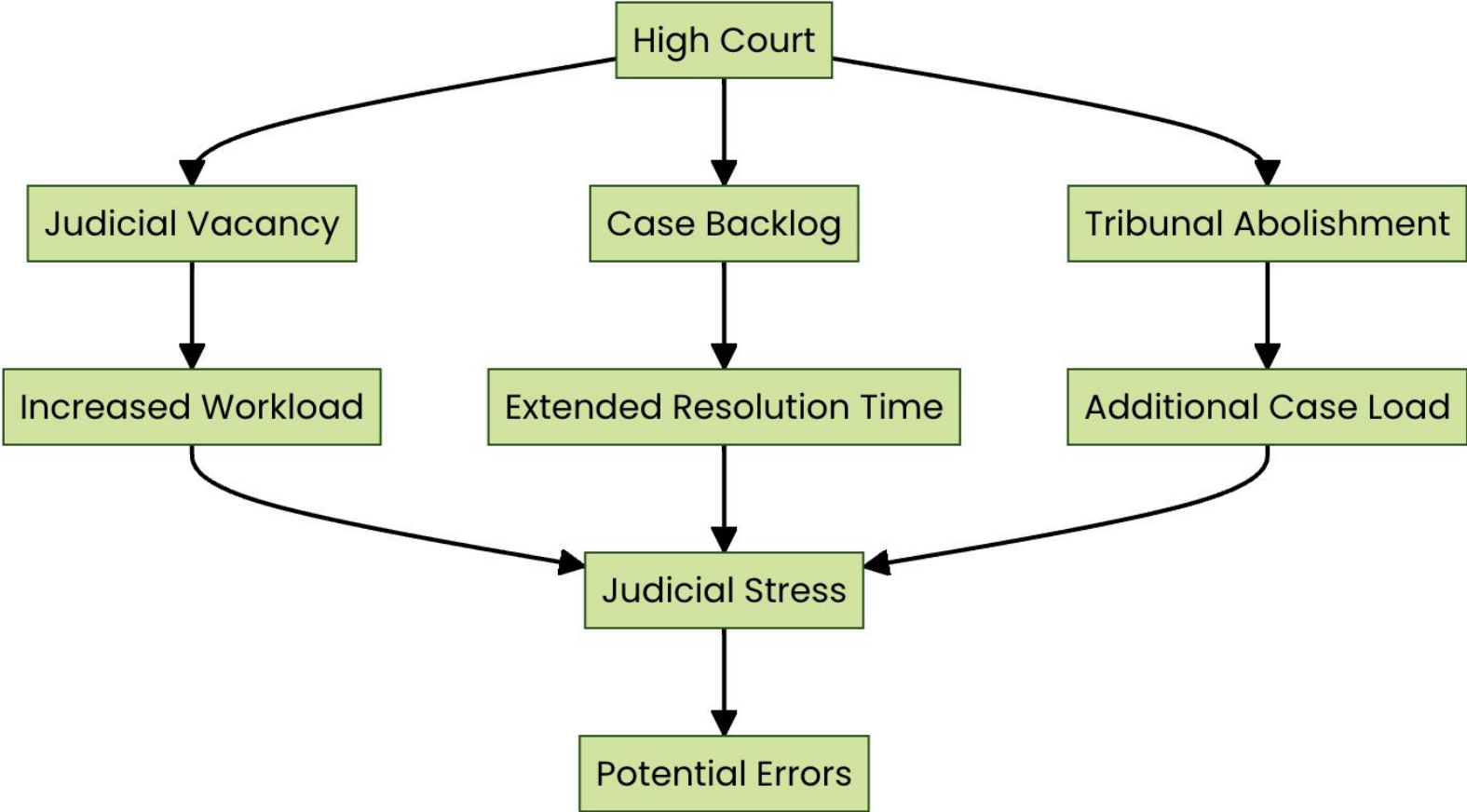
Impact of Stress: The overwhelming workload and stress on judges may result in mistakes in judgments, further complicating the judicial process and causing delays.

Structural Changes



Tribunal Abolishment: The abolition of six specialized tribunals in 2021 has shifted their functions to High Courts, exacerbating the backlog of cases.

Judicial System Overview:





Steps Needed


🕊️ Mediation as an Alternative: Mediation is proposed as a consensual method for resolving disputes amicably, but challenges arise when one party prefers litigation.

📜 Judicial Impact Assessment: The Justice M. Jagannadha Rao Committee recommended implementing a "judicial impact assessment" for all new legislation to evaluate potential legal consequences.

💰 Cost Estimation: The committee suggested that every Bill should include an estimate of additional legal expenses and the expected number of civil and criminal cases that may arise.

—  **Resource Requirements:** It was recommended that new legislation should specify the necessary number of courts, judges, staff, and infrastructure to handle the anticipated cases.

 **Commendation by Supreme Court:** The committee's report received praise from the Supreme Court in the case of Salem Advocate Bar Association (II) vs Union of India (2005).

 **Judiciary Staffing:** Collaboration between the High Court and State government is essential to fill vacancies in the district judiciary proactively, ideally six months in advance.

 **Judicial Focus:** Judges should not be assigned additional charges to ensure they can focus on the cases in their own courts effectively.

Summary: The text discusses the need for mediation in dispute resolution, the implementation of judicial impact assessments for new legislation, and the importance of adequate judicial resources and staffing

_Topic --Political and Social Implications of Public Statistics



Political Context of Statistics



Influence of Political Commitments: Public statistics are shaped by political agendas, necessitating transparency for effective policymaking.

Complex Social Experiences




Representation of Social Realities: Statistics often simplify complex social issues, potentially obscuring critical aspects like welfare accessibility


Welfare Policy Critique




Jan Dhan Yojana Analysis: Highlights the disparity between statistical achievements (e.g., number of bank accounts) and real accessibility for marginalized groups.

 Disconnect in Metrics: Despite food distribution efforts, India's worsening Global Hunger Report ranking shows a gap between metrics and actual outcomes


Data vs. Development Objectives

 Statistical Targets vs. Development Goals: Achieving statistical targets, like those from the eShram database, doesn't always align with development objectives, as many eligible individuals may be missed.

Challenges of Digitization

 Complications in Data Scrutiny: Digitization increases state control over data, complicating citizen and researcher efforts to hold institutions accountable.

Data Accessibility Issues

 Limited Access: While the state collects extensive data, access is restricted to government and private entities, limiting citizen and journalist oversight

Steps



Shift in Data Orientation: Emphasize the importance of focusing on data that enhances citizens' well-being rather than just the accuracy of data collection methods.



Access Measurement: Highlight the need to measure the accessibility of services, such as the proportion of the poor accessing their bank accounts, rather than just the number of services provided.



Inclusive Data Design: Advocate for the involvement of civil society in the design of data systems, ensuring that digitally collected data serves a broader audience beyond just government and startups.



Collaborative Approach: Encourage policymakers to view data collection as a social and political process, integrating insights from social scientists, citizens, and activists.



Citizen-Centric Statistics: Reinforce the idea that statistics should prioritize serving citizens' needs rather than merely fulfilling statistical targets.



Porous Institutional Structures: Stress the importance of creating flexible institutional frameworks that allow for citizen input in data infrastructure development.



Empowerment through Data: Recognize that empowering citizens through data systems can lead to better societal outcomes and improved governance.

Summary: The text emphasizes the need for data systems to prioritize citizen well-being, involve civil society in their design, and view data collection as a collaborative social process.

Topic --US Electoral college system

US Constitution's Requirements for a Presidential Candidate



Natural born
✓ **Citizen**



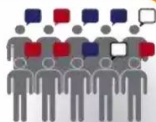
Minimum Age
✓ **35 years**



U.S. Resident
✓ **14 years**

STEP 1

PRIMARIES & CAUCUSES



There are many people who want to be President, each with their own ideas about how Government should work



People with similar ideas belong to the same political party, this is where Primaries and Caucuses come in



Candidates from each political party campaign throughout the country to win the favor of their party members



IN A CAUCUS

Party members select the best candidate through a series of discussions and votes



IN A PRIMARY

Party members vote for the best candidate that will represent them in the general election

STEP 2

NATIONAL CONVENTIONS

Each party holds a national convention to select a final Presidential nominee



At each convention, the Presidential candidate chooses a running mate (Vice Presidential Candidate)



...AND I APPROVE THIS MESSAGE



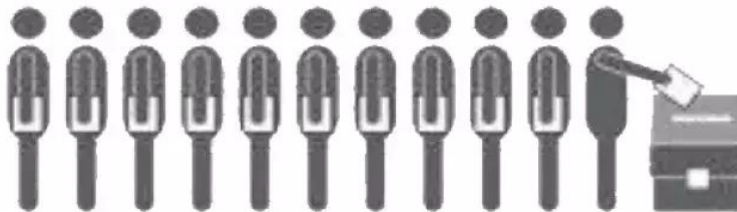
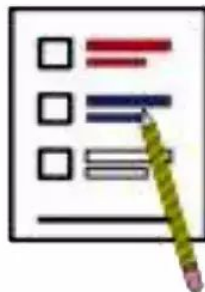
The Presidential candidates campaign throughout the country to win the support of the general population



STEP 3

GENERAL ELECTION

- People in every state across the country vote for one President and Vice President
- When people cast their vote, they are actually voting for a group of people known as Electors.

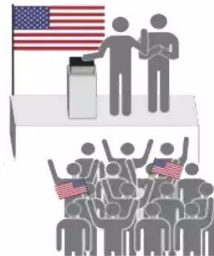


STEP 4 ELECTORAL COLLEGE

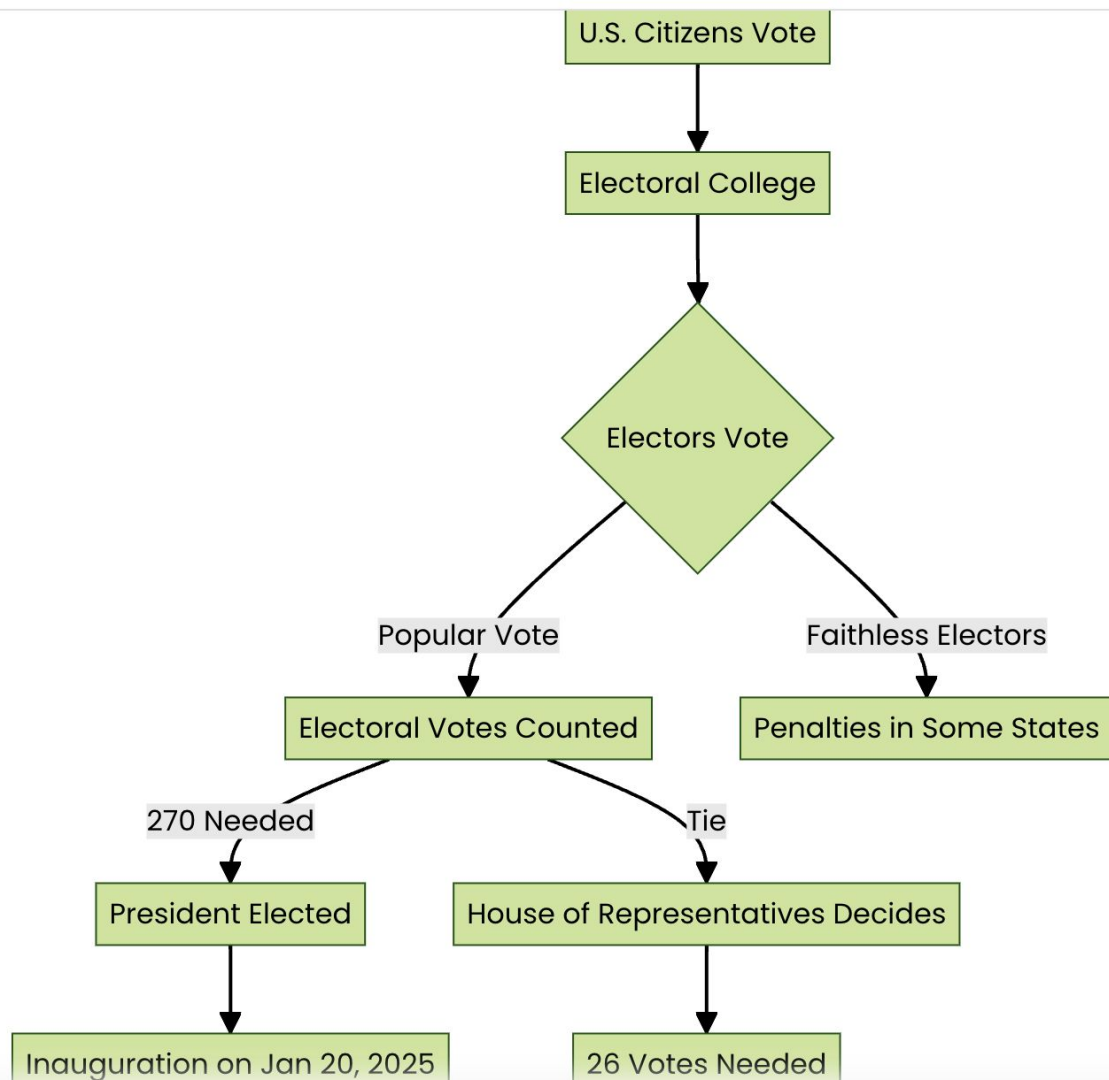
- In the electoral college system, each state gets a certain number of electors based on its representation in Congress





- Each elector casts one vote following the general election, and the candidate who gets more than half (270) wins.





The newly elected President and Vice President are inaugurated in January




—  **Faithless Electors:** Electors who do not vote according to their state's popular vote are known as "faithless electors," and some states impose penalties for this.


 **Tie Resolution:** In the event of a tie, the House of Representatives elects the President, with each state casting one vote until a candidate secures 26 votes.


 **Inauguration:** The new President will assume office on January 20, 2025, with Congress counting the electoral votes in early January.


 **Separate Elections:** The Vice-President is elected separately in the Senate, which can lead to a President and Vice-President from different parties.


—  Electoral College System: A U.S. President can win the election without winning the popular vote due to the Electoral College system.



 2016 Election Example: Hillary Clinton won the popular vote by nearly 3 million votes, but Donald Trump won the presidency by securing 57% of the electoral votes.

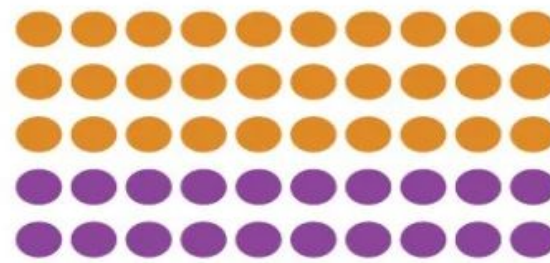
 2000 Election Example: Al Gore won the popular vote, yet George W. Bush won the election by receiving more electoral votes.

 Impact of Electoral Distribution: The distribution of electoral votes across states can lead to outcomes where the Electoral College results differ from the national popular vote.

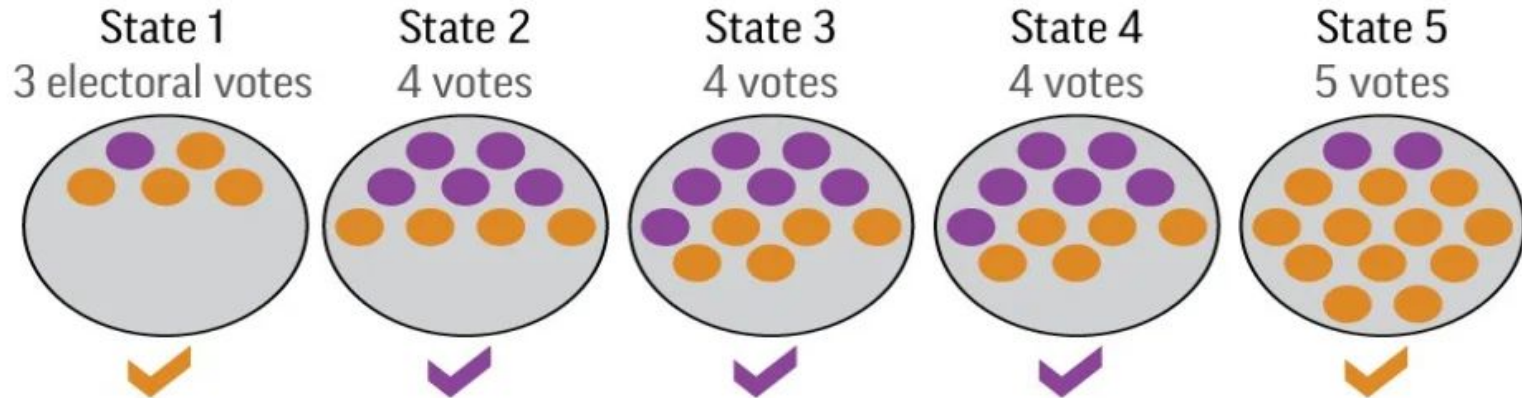
 Notable Instances: The text highlights notable instances (2000 and 2016) where the Electoral College produced a different outcome than the popular vote.

Article 2 of the U.S. Constitution and the 12th Amendment mandate that the election moves to the House of Representatives where the newly elected 435 members are sworn in and vote on who becomes President.

more voters choose the orange candidate over the purple candidate, giving orange a clear majority.



But through the Electoral College system, if the purple voters are distributed so that purple wins by slim margins in enough states, while orange wins in more heavily orange states, purple can engineer an electoral victory:



Electoral vote: **Purple** wins with 12 of 20 votes