

WEEKLY NEWS

July 01-06, 2024

Acquisition of Li-Fi Technology



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World Network of Biosphere Reserves



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HIGHLIGHTS

- Education to State List
- World Soil Index
- Responsible AI for All

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Bustard Recovery Program

● **Why in News?**

- ➡ The Ministry of Environment (MoEFCC) has approved funds for the next phase of the Bustard Recovery Program.

● **About the Program**

- ➡ **Duration:** Running since 2016, with the next phase proposed from 2024 to 2033.
- ➡ **Implementation:** Managed by the Wildlife Institute of India.
- ➡ **Key Activities:**
 - Habitat development.
 - In-situ conservation.
 - Completion of the conservation breeding centre.
 - Releasing captive-bred birds.

● **Great Indian Bustard and Lesser Florican**

➡ **Species Overview**

Both are species of bustards found in India, alongside Bengal Florican and Houbara Bustard.

Conservation Status:

Listed in Schedule I of the Wildlife Protection Act, 1972.

Classified as Critically Endangered by the IUCN.

➡ **Behavior and Characteristics**

Grassland species endemic to the Indian subcontinent.

Males are generally shorter and lighter than females.

Omnivorous, known for their aerial courtship displays.

➡ **Habitat**

Found in Rajasthan, Gujarat, Madhya Pradesh, parts of Andhra Pradesh, Maharashtra, and Karnataka.



● **Way Forward**

- ⇒ Enhance habitat development and in-situ conservation efforts.
- ⇒ Complete and operationalize the conservation breeding centre.
- ⇒ Ensure successful release and monitoring of captive-bred birds to boost population numbers.



Impact of Climate Change on Marginal Farmers Report by FEED

● Why in News?

- ➔ **Report Released:** The Forum of Enterprises for Equitable Development (FEED) has released a report on the impact of climate change on marginal farmers.

● Key Highlights

- ➔ **Vulnerability due to Extreme Weather:** Over one-third of marginal farmers experienced extreme weather events at least twice in the past five years.
- ➔ **Reduction in Agriculture Income:** Climate change may reduce annual agricultural income by 15-18%, and by 20-25% in unirrigated areas (Economic Survey 2017-18).
- ➔ **Livelihood Diversification:** Over 86% of farmers have altered their occupations due to climate impacts, including temporal migration and seeking work under MGNREGA.
- ➔ **Hurdles in Adoption of CRA Practices:** Major hurdles include high up-front costs, limited knowledge about options, small landholdings, and lack of physical resources.

● Key Recommendations

- ➔ **Strengthen Existing Platforms:** Enhance platforms like the Global Alliance for Climate-Smart Agriculture (GACSA) developed by the FAO.
- ➔ **Focus on Water Productivity:** Shift focus from land productivity (grains produced per hectare) to water productivity (grains produced per cubic meter of irrigation water).
- ➔ **Mission Mode Approach:** Implement a mission mode approach on education, training, orientation, and extension support to farmers.



● **Categories of Farmers Based on Landholding**

- ➡ **Marginal:** Less than 1 hectare
- ➡ **Small:** 1-2 hectares
- ➡ **Semi-Medium:** 2-4 hectares
- ➡ **Medium:** 4-10 hectares
- ➡ **Large:** 10 hectares and above

● **Way Forward**

- ➡ **Policy Support:** Implement supportive policies for marginal farmers to adopt climate-resilient agricultural practices.
- ➡ **Financial Assistance:** Provide financial aid and subsidies to reduce the up-front costs of CRA practices.
- ➡ **Capacity Building:** Enhance the capacity of farmers through education, training, and access to information.
- ➡ **Collaborative Efforts:** Foster collaboration between government, NGOs, and international organizations to support marginal farmers.



RBI Joins Project Nexus for Instant Cross-Border Retail Payments

● Why in News?

- ➔ **RBI Participation:** The Reserve Bank of India (RBI) joins Project Nexus to enable instant cross-border retail payments.
- ➔ **Objective:** Nexus aims to interlink domestic Instant Payment Systems (IPS) for faster and more efficient cross-border transactions.

● About Project Nexus

- ➔ **Conceptualization:** Initiated by the Innovation Hub of the Bank for International Settlements (BIS).
- ➔ **BIS Background:** Established in 1930, headquartered in Basel, Switzerland, and owned by 63 central banks, including RBI.
- ➔ **Participants:** Will connect IPS of Malaysia, Philippines, Singapore, Thailand, and India.
- ➔ **Timeline:** Expected to go live by 2026.
- ➔ **Standardization:** Designed to standardize how domestic IPS connect, eliminating the need for custom connections for each country.
- ➔ **G20 Goals:** Aims to achieve G20 targets of enabling cheaper, faster, more transparent, and accessible cross-border payments.

● Benefits of Project Nexus

- ➔ **Simplification:** Simplifies cross-border payments, reducing complexity, cost, and transaction time.
- ➔ **Cost-Effective:** Offers a low-cost and scalable solution for all payment service providers.
- ➔ **Standardization:** Bridges gaps in interoperability through standardization and harmonization across diverse systems.



● **Challenges with Cross-Border Payment Systems**

- ➔ **Interoperability Issues:** Lack of seamless integration between different systems.
- ➔ **Efficiency:** Existing systems are slow and expensive.
- ➔ **Additional Steps:** Necessitates additional processes such as currency conversion.
- ➔ **Scalability:** Difficult to scale existing solutions effectively.

● **Way Forward**

- ➔ **Strengthen Collaboration:** Enhance international cooperation to implement and refine Project Nexus.
- ➔ **Public Awareness:** Increase awareness about the benefits of instant cross-border payments.
- ➔ **Technological Advancements:** Invest in technology to support seamless integration and scalability.
- ➔ **Regulatory Support:** Ensure supportive regulatory frameworks to facilitate smooth implementation of Nexus.



Responsible AI for All (RAI) on FRT

● Why in News?

- ➔ NITI Aayog released a White Paper titled "**Responsible AI for All (RAI)**" focusing on **Facial Recognition Technology (FRT)**.
- ➔ This paper examines FRT as the first use case under NITI Aayog's RAI principles and aims to establish a framework for responsible and safe development and deployment of FRT in India.

● About Facial Recognition Technology (FRT)

- ➔ **Definition:** An AI system that identifies or verifies a person based on images or video data using complex algorithms.
- ➔ **Key Functions:**
 - Facial Detection:** Detects the presence of a human face using algorithms.
 - Facial Extraction:** Identifies distinctive features on individual faces using mathematical representations.
 - Facial Recognition:** Automatically cross-references a person's facial features with a pre-existing database.

● Applications of FRT

- ➔ **Security Related:** Law enforcement (surveillance, identification of persons of interest, crowd monitoring, screening for public norm violations).
- ➔ **Non-Security Related:**
 - Ease of access** in services (e.g., contactless onboarding at airports through Digi Yatra).
 - Usability enhancements**, such as unique IDs in educational institutions.
 - Authentication** for access to products, services, and public benefits.



● **Risks with FRT Systems**

➡ **Design-based Risks:**

Automation bias

Discrimination

Lack of accountability

Misidentification/inaccuracy due to under-representations in databases.

➡ **Rights-based Issues:**

Privacy and lack of consent

Informational autonomy

Processing of sensitive personal data

● **Recommendations for Responsible Use of FRT**

➡ **Principle of Privacy and Security:** Establish a data protection regime fulfilling a three-pronged test of legality, reasonability, and proportionality.

➡ **Principles of Accountability:** Address issues related to transparency, algorithmic accountability, and AI biases.

➡ **Ensuring Safety and Reliability:** Publish standards for FRT related to explainability, bias, and errors.

➡ **Principle of Protection and Reinforcement of Positive Human Values:** Constitute an ethical committee to assess ethical implications and oversee mitigation measures.

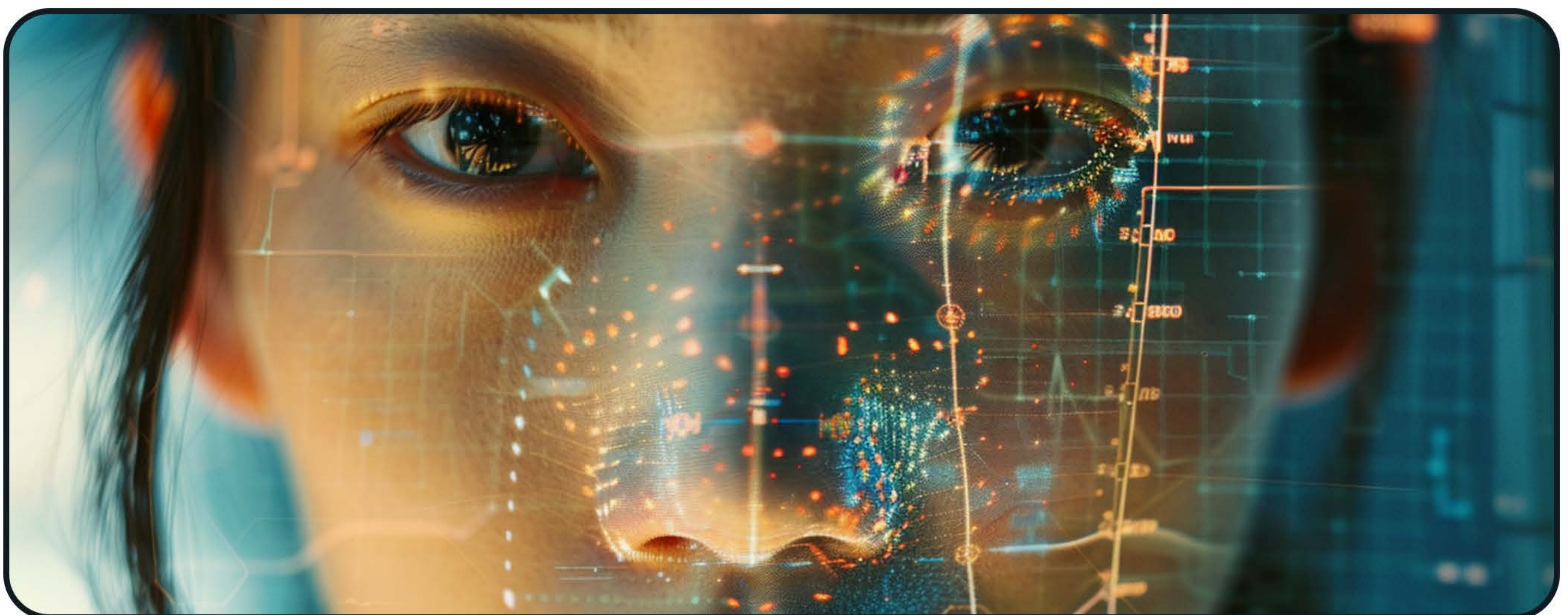
● **Way Forward**

➡ Implementing a comprehensive **data protection framework** to safeguard privacy.

➡ **Enhancing transparency and accountability** in FRT deployment.

➡ **Establishing standards** to ensure the safety and reliability of FRT systems.

➡ **Promoting ethical oversight** to reinforce positive human values in AI technology.



Acquisition of Li-Fi Technology by Ministry of Defence (MoD)

● Why in News?

- ➡ The **Ministry of Defence (MoD)** is set to acquire Li-Fi technology for secure and efficient data transmission.
- ➡ A start-up, funded under **the Innovations for Defence Excellence (iDEX)** initiative, is developing Li-Fi technology for the Indian Defence sector, with a particular focus on the Navy.
- ➡ iDEX is managed by the Defence Innovation Organization under the MoD to foster innovation and technology development in the Defence and Aerospace sectors.

● About Li-Fi (Light Fidelity) Technology

- ➡ **Definition:** A bidirectional wireless system that uses visible light (400-800 Terahertz) for communication, unlike Wi-Fi which uses radio waves.
- ➡ **Transmission Method:** Uses Light Emitting Diode (LED) to transmit data.
- ➡ **Working Mechanism:** The on/off activity of the LED transmitter enables data transmission according to incoming binary codes (switching ON is a logical '1', switching OFF is a logical '0').
- ➡ **Applications:** Suitable for environments where electromagnetic (radio) interference creates security issues, such as aircraft, hospitals (operation theatres), and power plants.

● Advantages of Li-Fi over Wi-Fi

- ➡ **Speed:** Combines low interference and high bandwidths to provide a high data rate.
- ➡ **Cost-Effective and Sustainable:** Up to 10 times cheaper than Wi-Fi, requires fewer components, and uses less energy.
- ➡ **Security:** Light does not pass through walls like radio waves, preventing interception.

● Disadvantages of Li-Fi

- ➡ **Range:** Much shorter range compared to Wi-Fi.
- ➡ **Accessibility:** Cannot be accessed beyond the illumination range of light.



● **Way Forward**

- ➔ **Further Development:** Continued research and development to overcome the limitations of Li-Fi, such as range and accessibility.
- ➔ **Integration:** Gradual integration of Li-Fi technology into various defence and civilian applications to enhance data security and transmission efficiency.
- ➔ **Collaboration:** Encourage collaboration between start-ups, research institutions, and defence organizations to advance Li-Fi technology.

● **Innovations for Defence Excellence (iDEX)**

- ➔ **Objective:** Foster innovation and technology development in the Defence and Aerospace sector.
- ➔ **Management:** Managed by the Defence Innovation Organization under the Ministry of Defence.
- ➔ **Impact:** Aims to support start-ups and innovators to develop cutting-edge technologies for defence applications.



Enhancing R&D in State Universities and Institutes

● Why in News?

- ➡ NITI Aayog released the report “Improving the Culture of Research and Development (R&D) in State Universities and Institutes”.

● Status of R&D Ecosystem in India

➡ Gross Expenditure on R&D (GERD):

GERD more than doubled from Rs. 60,197 crore in 2010-11 to Rs. 127,381 crore in 2020-21.

GERD primarily driven by government sector: central government (43.7%), state governments (6.7%), higher education institutions (8.8%) during 2020-21.

● Significance of R&D in Educational Institutes

- ➡ Incubates creativity and innovation.
- ➡ Promotes curriculum development reflecting contemporary industry needs.
- ➡ Provides solutions to societal challenges such as healthcare and environmental sustainability.

● Challenges in the R&D System in Educational Institutes

- ➡ **Low R&D expenditure:** India spends 0.64% of GDP on R&D (2020-21), lower than South Korea (4.8%) and the United States (3.5%).
- ➡ Greater emphasis on teaching over research.
- ➡ Low student enrollment in advanced programs: Total Ph.D. enrollment was 2.12 lakh in 2021-22 (All India Survey on Higher Education).



● **Recommendations to Boost R&D Culture**

- ➔ **University/Institute Level:** Establish R&D committee/cell. Improve infrastructure through public-private partnerships (PPP).
- ➔ **State Level:** Provide financial and decision-making autonomy to universities. Align research thrust areas with global and regional challenges.
- ➔ **Centre Level:** Align R&D initiatives with the National Educational Policy, 2020. Grant special status to universities/institutes in distinctive geographical regions.

● **Initiatives Taken to Promote Research**

- ➔ **National Education Policy 2020:** Promotes quality and quantity of research in India.
- ➔ **Anusandhan National Research Foundation Act 2023.**
- ➔ **Innovation in Science Pursuit for Inspired Research (INSPIRE).**
- ➔ **Women in Science and Engineering - Knowledge Involvement in Research Advancement through Nurturing (WISE-KIRAN).**

● **Way Forward**

- ➔ **Enhance infrastructure** and funding for R&D in educational institutions.
- ➔ **Encourage collaboration** between universities, industry, and government.
- ➔ **Foster a culture** that values and promotes research and innovation.



UNESCO Announces New World Soil Health Index

● Why in News?

- ⇒ UNESCO announced the New World Soil Health Index at the International Conference on Soils held in Morocco.
- ⇒ Aims to standardize the measurement of soil quality across different regions and ecosystems, identifying trends of degradation or improvement.

● Key Highlights

⇒ Pilot Program for Sustainable Soil Management:

UNESCO will launch a pilot program for sustainable management of soils and landscapes in ten natural sites under its Biosphere Reserves program.

Goal: Assess the effectiveness of management methods used on these sites and ensure best practices are developed and implemented globally.

● Soil Degradation

- ⇒ **Definition:** Change in soil health resulting in diminished capacity of the ecosystem to provide goods and services.

⇒ Status:

75% of land is already degraded, directly impacting 3.2 billion people (World Atlas of Desertification). Projected to rise to 90% by 2050.

In India, about 32% of land is under degradation and 25% is undergoing desertification.

- ⇒ **Causes:** Deforestation, unsustainable agricultural practices, industrial pollution, natural erosion (wind and water), etc.



● **Impact of Soil Degradation**

- ➡ Reduced soil fertility leading to decreased plant growth and agricultural output.
- ➡ Releases stored carbon, contributing to greenhouse gas emissions and climate change.
- ➡ Decrease in soil organisms that contribute to nutrient cycling, pest control, and plant health.

● **Initiatives to Prevent Soil Degradation**

➡ **Global:**

Land Degradation Neutrality under UNCCD.

Bonn Challenge: Restore 350 million hectares of degraded and deforested landscapes by 2030.

Global Soil Partnership Action Plan 2022-2030 by FAO.

➡ **India:**

Soil Health Card Scheme.

National Mission for Sustainable Agriculture.

Organic Farming Initiatives like Paramparagat Krishi Vikas Yojana.

● **Way Forward**

- ➡ Implement **standardized soil quality measures** globally.
- ➡ Promote **sustainable soil management practices**.
- ➡ Strengthen **international and national efforts** to combat soil degradation and restore degraded lands.



Bridge Recombinase Mechanism (BRM) in DNA Editing

● Why in News?

➡ **New Discovery:** Scientists have discovered a naturally occurring DNA editing tool called the Bridge Recombinase Mechanism (BRM).

● About Bridge Recombinase Mechanism (BRM)

➡ **Definition:** Utilizes mobile genetic elements, or "jumping genes," to cut and paste themselves into genomes for on-the-go DNA manipulation.

➡ **Jumping Genes:** These are small DNA segments with a recombinase enzyme and extra DNA segments at their ends that bind and manipulate DNA.

➡ **Gene Editing:** Involves altering the genetic material of a living organism by inserting, replacing, or deleting a DNA sequence to improve characteristics or correct genetic disorders.

● Mechanism of BRM

➡ **Extra DNA Function:** Extra DNA at the ends of jumping genes joins together, converting the DNA double helix structure into a single-stranded RNA molecule.

➡ **Bridge RNA:** This molecule binds to two DNA segments (donor and target), allowing for flexible DNA modifications.

➡ **Programmable Loops:** Donor and target loops can be programmed independently, offering great flexibility in inserting or recombining DNA sequences.



● **Significance of BRM**

- ➔ **Advanced Editing:** Allows researchers to rearrange, recombine, invert, duplicate, move, and perform other editing operations on long DNA sequences.
- ➔ **Therapeutics Development:** Can lead to the development of advanced gene-editing therapeutics and treatments for diseases.

● **Other Gene-Editing Technologies**

- ➔ **CRISPR-Cas9:** Customizable tool that lets scientists cut and insert small pieces of DNA at precise areas along a DNA strand.
- ➔ **TALE Nucleases:** Cleave unique genomic sequences in living cells for targeted gene editing.
- ➔ **Zinc-Finger Nucleases:** Target specific genomic sequences to provoke cellular repair processes for efficient modification.
- ➔ **RNA Interference (RNAi):** Targets RNA molecules to block or activate gene expression.

● **Way Forward**

- ➔ **Research and Development:** Further research to understand and harness the potential of BRM for therapeutic applications.
- ➔ **Ethical Considerations:** Address ethical concerns and regulatory challenges related to advanced gene-editing technologies.
- ➔ **Collaboration:** Encourage collaboration between scientists, researchers, and policymakers to ensure the safe and effective use of BRM in gene editing.



RBI's Draft Foreign Exchange Management Regulation, 2024

● Why in News?

- ➡ RBI released the Draft Foreign Exchange Management (Export and Import of Goods and Services) Regulations, 2024 for public response under Section 47 of FEMA, 1999.

● Key Highlights of the Draft Regulation

- ➡ **Export Declaration:** Every exporter must furnish a declaration specifying the full export value of goods or services.
- ➡ **Repatriation Timeline:** The full export value of goods and services must be realized and repatriated to India within nine months from the date of shipment (goods) and invoice (services).
- ➡ **Extension by Authorized Dealer:** Authorized Dealers may extend the specified repatriation period for reasonable and sufficient cause.
- ➡ **Import Restrictions:** No advance remittance for the import of gold and silver without specific RBI approval.

● Significance of the Draft

- ➡ **Ease of Doing Business:** Promotes ease of doing business, especially for small exporters and importers.
- ➡ **Empowerment of Authorized Dealers:** Enables Authorized Dealer banks to provide quicker and more efficient services.
- ➡ **Alignment with Liberalization Policies:** In line with progressive liberalization policies governing foreign exchange transactions under FEMA.

● About FEMA, 1999

- ➡ **Objective:** Consolidate and amend the law relating to foreign exchange, facilitate external trade and payments, and promote orderly development of the foreign exchange market in India.
- ➡ **Enforcement Directorate:** Established to investigate cases under the Act.

Demand for Restoring 'Education' to the State List

● ***Why in News?***

➡ There is a growing demand to restore education to the State List from the Concurrent List of the Constitution.

● ***Background on Listing of Education***

➡ **Government of India Act, 1935:** Education was placed under the Provincial Legislative List.

➡ **Post-Independence:** Education was initially on the State List of the Seventh Schedule.

➡ **42nd Constitutional Amendment (1976):** Moved education to the Concurrent List, based on the Swaran Singh Committee's recommendation, with no explicit reason provided.

● ***Benefits of Education under the Concurrent List***

➡ **Unified Policies:** Enables the development of all-India policies on education.

➡ **Addressing Issues:** Helps tackle lack of professionalism and corruption in state-run universities.

● ***Reasons for Shifting Education to the State List***

➡ **Diverse Needs:** A "one size fits all" approach is not feasible or desirable for a diverse country like India.

➡ **State Expenditure:** States spend 76% on education, while the Centre spends 24% (Analysis of Budgeted Expenditure on Education, 2022).

➡ **Customized Curriculum:** Allows states to tailor syllabi according to their specific needs.



● **International Practices**

- ➔ **U.S.:** State and local governments set educational standards and supervise institutions; the federal education department primarily focuses on financial aid policies.
- ➔ **Canada:** Education is managed by the provinces.
- ➔ **Germany:** Legislative powers for education reside with the states.
- ➔ **South Africa:** National departments oversee school and higher education policies, while provinces implement these policies and address local needs.

● **Way Forward**

- ➔ **Consider Decentralization:** Evaluate the potential benefits of restoring education to the State List.
- ➔ **Tailored Policies:** Develop education policies that address the unique needs of each state.
- ➔ **Enhanced Collaboration:** Foster collaboration between state and central governments to ensure quality education across the country.



National Indicator Framework (NIF)

● Why in News?

- ➔ **National Indicator Framework (NIF) 2024:** The government revealed plans to develop a national indicator to measure "extreme poverty".
- ➔ **SDG Tracking:** NIF tracks India's progress on Sustainable Development Goals (SDGs), specifically aiming to eradicate extreme poverty by 2030.

● Need for a National Indicator

- ➔ **Lack of Updated Official Poverty Line:** India's official poverty line is based on the Suresh Tendulkar Committee's 2009 report.
 - Previous committees:** D T Lakdawala (1993), C Rangarajan (2014).
 - Note:** C Rangarajan committee's report was not adopted by the Centre.
- ➔ **Varying Global Indicators:**
 - IMF:** Less than 1% of Indians lived in extreme poverty in 2021.
 - World Bank:** 12.92% of Indians lived in extreme poverty in 2021.
- ➔ **Policy Making and Tracking Progress:** A reliable poverty estimate is crucial for designing, implementing, and monitoring anti-poverty programs.

● Measurement of Poverty in India

- ➔ **Official Poverty Line:** Based on consumption expenditure (stated in rupees).
 - Consumption Expenditure Surveys (CES):** Conducted every five years by the National Sample Survey Office.
- ➔ **National Multidimensional Poverty Index (NMPI):** Launched by NITI Aayog.
 - Poverty reduction:** From 24.85% in 2015-16 to 14.96% in 2019-21.

● Calculation of Poverty by Suresh Tendulkar Committee

- ➔ **Urban Areas:** Rs 1,000 per month or Rs 33 or less per day.
- ➔ **Rural Areas:** Rs 816 per month or Rs 27 or less per day.
- ➔ **Rangarajan Committee:** Raised the limit to Rs 32 for rural areas and Rs 47 for urban areas.



● **Way Forward**

- ➔ **Develop Comprehensive Indicator:** Ensure accurate and updated measurement of extreme poverty.
- ➔ **Align with Global Standards:** Harmonize national indicators with global benchmarks for consistency.
- ➔ **Enhanced Data Collection:** Improve the frequency and reliability of consumption expenditure surveys.
- ➔ **Policy Implementation:** Use the national indicator to better design and track anti-poverty initiatives.



Scheme Guidelines for Funding of Testing Facilities under NGHM

● **Why in News?**

- ➔ The **Ministry of New & Renewable Energy (MNRE)** has issued guidelines for a scheme on "**Funding of Testing Facilities, Infrastructure, and Institutional Support for Development of Standards and Regulatory Framework**" under the **National Green Hydrogen Mission (NGHM)**.

● **Key Highlights of the Scheme**

➔ **Objective**

Bridge the gap in existing testing infrastructures for various components of the Green Hydrogen (GH₂) value chain.

Establish new and upgrade existing testing facilities to achieve self-sufficiency in testing and certification of GH₂.

➔ **Timeline**

New Testing & Certification Facilities: 18 months from the date of sanction by MNRE.

Upgradation of Existing Facilities: 12 months.

MNRE can retract or cancel projects in consultation with the Steering Committee if delays occur or objectives are not met.

- ➔ **Access** Testing facilities (set-up or upgraded) will be open to all potential users and will not be a captive unit of any one or group of organizations.

- ➔ **Implementing Agency:** National Institute of Solar Energy under MNRE.

- ➔ **Budgetary Outlay:** Rs. 200 Crores till 2025-26.



● **Funding Pattern by MNRE**

- ⇒ Up to 100% for Government entities.
- ⇒ Up to 70% for Non-Government entities.

● **National Green Hydrogen Mission (NGHM)**

- ⇒ Launched in 2023 till 2029-30 by MNRE to achieve a GH₂ production capacity of 5 MMT (Million Metric Tonnes) by 2030.
- ⇒ **Objective:** Make India a leading producer and supplier of GH₂ and reduce dependence on fossil fuel imports by over Rs. 1 lakh crore by 2030.
- ⇒ **GH₂ Production:** Using electrolysis of water with electricity generated by renewable energy.

● **Way Forward**

- ⇒ **Infrastructure Development:** Ensure timely establishment and upgradation of testing facilities.
- ⇒ **Access and Utilization:** Promote open access to testing facilities for all potential users.
- ⇒ **Monitoring and Compliance:** Regularly monitor project progress and ensure compliance with scheme objectives.
- ⇒ **Promote Green Hydrogen:** Enhance efforts to position India as a global leader in GH₂ production and supply.



Shanghai Cooperation Organisation (SCO)

● Why in News?

- ➡ **Kazakhstan (Astana)** hosted the **24th Summit** of the Shanghai Cooperation Organisation (SCO).
- ➡ **Belarus** became the **10th member** to join the SCO.

● Key Outcomes of the Summit

- ➡ **Astana Declaration:** Adopted the Astana Declaration, highlighting SCO's role in global peace and a new democratic and economic order.
- ➡ **Cooperation Program:** Introduced the Cooperation Program to Counter Terrorism, Separatism, and Extremism for 2025-2027.
- ➡ **Anti-Drug Strategy:** Approved the Anti-Drug Strategy for 2024-2029.
- ➡ **Development Strategy:** Endorsed the SCO Development Strategy until 2035.
- ➡ **Economic Strategy:** Approved the Economic Development Strategy's Action Plan until 2030 and strategies for energy cooperation till 2030.
- ➡ **World Unity Initiative:** Endorsed Kazakhstan's Initiative 'On World Unity for a Just Peace, Harmony, and Development', aiming for a multipolar world order with the UN as the central coordinator.

● Importance of SCO for India

- ➡ **Resource Access:** Aids in India's Connect Central Asia policy, providing access to mineral resources, including uranium reserves in Kazakhstan.
- ➡ **Counter-terrorism:** SCO's Regional Anti-Terrorist Structure (RATS) offers crucial information and intelligence on terrorist movements and drug trafficking.
- ➡ **Energy Security:** The region holds 4% of the world's natural gas reserves and approximately 3% of oil reserves. SCO could also facilitate the TAPI pipeline.

● Challenges for India in SCO

- ➡ **Perception:** Western nations often perceive the SCO as an anti-West forum.
- ➡ **Member Conflicts:** Internal conflicts among member nations, such as the India-Pakistan conflict.
- ➡ **Limited Engagement:** There is limited engagement with observer states, dialogue partners, and other regional and international organizations.



● **About Shanghai Cooperation Organisation (SCO)**

- ➡ **Headquarters:** Beijing, China
- ➡ **Genesis:** Founded in Shanghai in 2001 by Kazakhstan, China, Kyrgyz Republic, Russia, Tajikistan, and Uzbekistan.
- ➡ **Current Members:** India, Iran, Kazakhstan, China, Kyrgyzstan, Pakistan, Russia, Tajikistan, Uzbekistan, and Belarus.
- ➡ **Observers:** Afghanistan and Mongolia.
- ➡ **Official Languages:** Russian and Chinese.
- ➡ **Goals:** Strengthening mutual trust, friendship, and neighborly relations among member states; promoting effective cooperation in political, trade, economic, scientific, technical, and cultural spheres.

● **Way Forward**

- ➡ **Enhance Cooperation:** Strengthen collaboration within SCO frameworks for counter-terrorism, energy security, and resource access.
- ➡ **Address Perceptions:** Work towards changing the perception of SCO as an anti-West forum.
- ➡ **Engage Stakeholders:** Increase engagement with observer states, dialogue partners, and other international organizations.
- ➡ **Resolve Conflicts:** Address and manage internal conflicts among member nations to ensure cohesive functioning.



ISRO's Involvement in Global Planetary Defense Efforts

● Why in News?

- ➡ At an international workshop on Asteroid Day 2024, ISRO Chairperson announced ISRO's plan to study asteroid Apophis in 2029, when it will be 32,000 km away from Earth, as part of planetary defense efforts.

● About Asteroid Apophis

- ➡ **Discovery:** Discovered in 2004, Apophis is a near-Earth object (NEO) initially identified as a significant threat to Earth.
- ➡ **NEO Definition:** Comets and asteroids whose orbits bring them close to Earth are classified as NEOs.
- ➡ **Impact Risk:** A radar observation campaign in March 2021 concluded there is no risk of Apophis impacting Earth for at least a century.

● Planetary Defense

- ➡ **Definition:** Efforts and strategies to protect Earth from potential impacts by NEOs, including detection, tracking, impact assessment, and deflection.
- ➡ **Need:** NEOs intersecting Earth's orbit could threaten billions of lives through impacts, tsunamis, earthquakes, and fires.

● Global Planetary Defense Efforts

- ➡ **NASA's Double Asteroid Redirection Test (DART):** First mission dedicated to asteroid deflection, which impacted the moonlet Dimorphos of the asteroid Didymos.
- ➡ **OSIRIS-APophis EXplorer (OSIRIS-APEX):** NASA's mission to study Apophis after gathering samples from asteroid Bennu. Originally named OSIRIS-REx.
- ➡ **International Asteroid Warning Network:** Established in 2013 to unite global organizations involved in detecting, tracking, and characterizing NEOs.
- ➡ **NEO Coordination Centre by European Space Agency:** A central access point for European NEO data sources and information providers.



● **Way Forward**

- ➔ **ISRO's Role:** Enhance participation in global planetary defense initiatives and contribute to research and strategies for asteroid deflection and impact prevention.
- ➔ **Collaborative Efforts:** Strengthen international cooperation and data sharing to improve detection, tracking, and characterization of NEOs.
- ➔ **Public Awareness:** Increase public understanding of planetary defense and the importance of global efforts to protect Earth from potential asteroid impacts.



National Policy on Farmer Producer Organisations (FPOs)

● Why in News?

➔ The Ministry of Agriculture and Farmers Welfare proposed a National Policy on FPOs.

● Key Highlights of National Policy on FPOs

➔ **Aim:** Consolidate existing FPOs and establish 50,000 new FPOs, directly benefiting 2.50 crore farmers.

➔ Guiding Principles

Assessment of Schemes: Promote FPOs through the evaluation of all relevant schemes, including the 2021 Central sector scheme 'Formation and Promotion of 10,000 FPOs'.

End-to-End Value Chain: Boost farmers' income through a comprehensive value chain approach, covering production to marketing.

Emulating AMUL Model: Develop FPOs based on the three-tier AMUL model (Village Dairy Cooperative, District Milk Cooperative Union, State Cooperative Milk Federation), focusing on collective business goals, capacity building, and professional management.

➔ FPO Eligibility

Membership: Minimum of 300 members (100 in Northeast/hilly/UTs).

Legal Status: Registered as a legal entity under the Companies Act 2013 or any Cooperative Society law in force.

Registry: Must register with the FPO Registry Portal maintained by the Central Government.

➔ Central Nodal Department (CND)

Department: Department of Agriculture and Farmers' Welfare (DA&FW).

Role:

Allocate funds for FPO development through convergence of central government schemes.

Make institutional loans available to FPOs at lower interest rates.

➔ **Central Nodal Agency:** Small Farmers' Agribusiness Consortium, New Delhi (under DA&FW).



● **About FPOs**

- ➔ **Purpose:** Leverage collectives through economies of scale in production and marketing of agricultural and allied sectors.
- ➔ **Current Status:** 5000 FPOs registered on Open Network for Digital Commerce portal for selling produce online.
- ➔ **Objective:** Ensure better income for producers and enhance productivity through efficient, cost-effective, and sustainable resource use.

● **Way Forward**

- ➔ **Implementation:** Ensure effective implementation of the proposed policy to maximize the benefits for farmers.
- ➔ **Support:** Provide necessary support and resources to newly formed and existing FPOs for sustainable development.
- ➔ **Monitoring:** Regularly monitor and assess the progress of FPOs to ensure alignment with the policy objectives.



World Network of Biosphere Reserves (WNBR)

● Why in News?

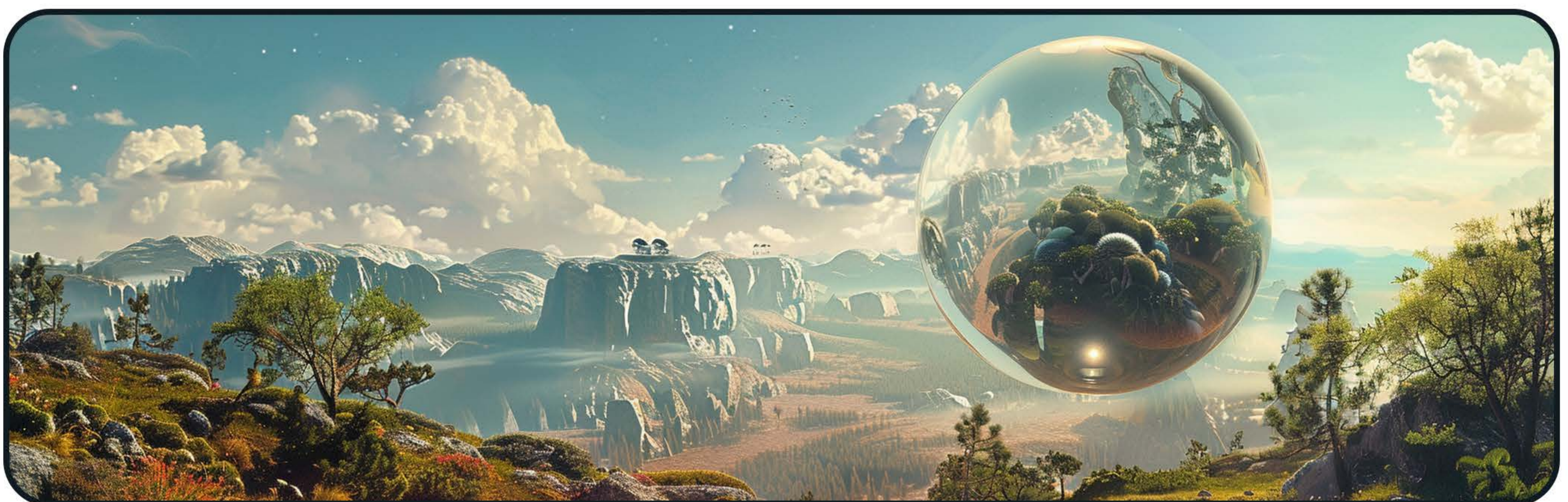
- ➡ **UNESCO** added eleven new biosphere reserves to the WNBR, including sites from countries like Colombia.
- ➡ For the first time, two trans-boundary biosphere reserves were added: Kempen-Broek (Belgium and Netherlands) and Julian Alps (Italy and Slovenia).
The WNBR now totals 759 sites in 136 countries.

● About the Man and Biosphere (MAB) Programme

- ➡ **Launch:** 1971 as an intergovernmental scientific programme.
- ➡ **Aim:** Establish a scientific basis for enhancing the relationship between people and their environments.
- ➡ **Focus:**
 - Combine natural and social sciences to improve human livelihoods and safeguard natural and managed ecosystems.
 - Promote economic development that is socially and culturally appropriate and environmentally sustainable.

● India and the MAB Programme

- ➡ **Biosphere Reserves:** Out of 18 biosphere reserves in India, 12 are recognized under the MAB Programme.
- ➡ **First Recognized:** Nilgiri Biosphere Reserve.



● **About Biosphere Reserves (In Situ Conservation)**

➡ **Purpose:** Represent diverse natural and cultural landscapes across terrestrial, coastal, or marine ecosystems.

➡ **Zones:**

Core Areas: Strictly protected zones.

Buffer Zones: Areas used for activities compatible with sound ecological practices, reinforcing scientific research, etc.

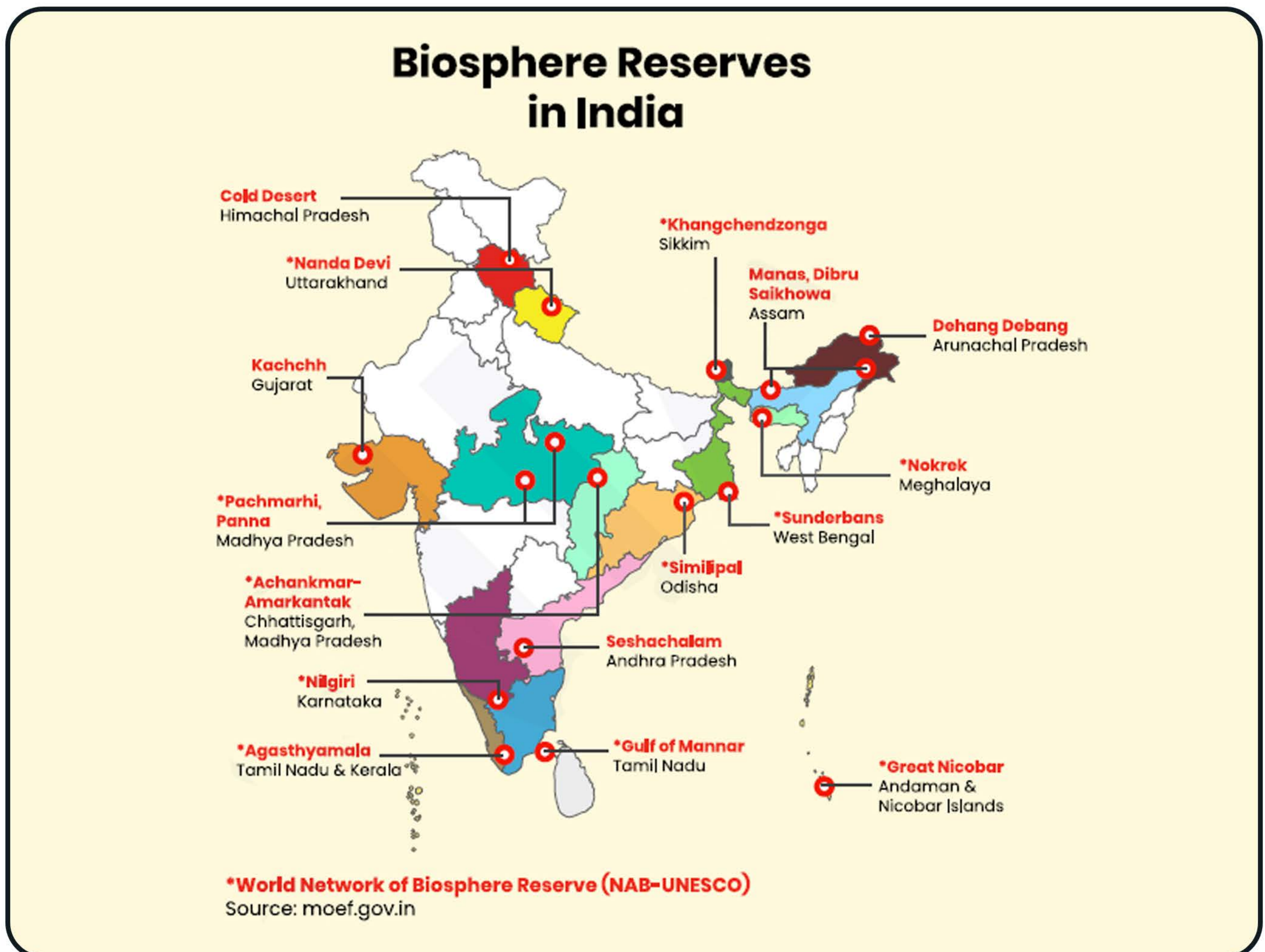
Transition Areas: Communities foster socio-culturally and ecologically sustainable activities.

● **Way Forward**

➡ **Sustainable Management:** Ensure effective management of the newly added biosphere reserves.

➡ **Research and Collaboration:** Promote scientific research and international collaboration to enhance conservation efforts.

➡ **Community Involvement:** Engage local communities in sustainable practices and development initiatives within the biosphere reserves.






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