

WEEKLY NEWS

December 01-07, 2024

MSMEs: Challenges and Way Forward



Effective Compliance of POSH Act, 2013




HIGHLIGHTS

- Boilers Bill 2024
- Female Labour Force Participation

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MSMEs: Challenges and Way Forward

● Why in News?

- ➡ The **ASSOCHAM-EGROW report** highlights challenges faced by **MSMEs** in India and provides actionable recommendations for improvement.
- ➡ MSMEs play a critical role in India's economy, contributing: **30% of GDP, 45% of manufacturing output & 46% of exports (FY 2024)**

● Significance of MSMEs

- ➡ Globally, MSMEs constitute **90% of businesses** and contribute **50% of global GDP**.
- ➡ In India, the MSME sector is expected to grow to **\$1 trillion by 2028**.
- ➡ By 2047, the manufacturing and services sectors will employ **67% of the workforce** and contribute over **75% of GDP**.

● Key Challenges

➡ Administrative Barriers

Delay in registration due to cumbersome processes and inefficient single-window clearance systems.

Confusion about schemes: Poor awareness of government programs. Frequent GST amendments increase compliance costs.

Overlapping documentation for taxes, labour laws, and wages increases administrative burdens.

➡ Labour-Related Issues

Unskilled workforce and lack of efficient training centres.

Variation in wages across states and undefined trial periods for new hires.

➡ Financial Constraints

Limited access to institutional finance due to opaque loan application processes & high collateral requirements.

Insufficient financial literacy among MSME owners.

➡ Export Challenges

Inadequate infrastructure and lack of ESG-compliance affect global competitiveness.



● **Way Forward**

➡ **Streamline Administrative Processes**

Introduce **single-window clearance** with a standardized document checklist and dedicated helpline.

Establish a **MSME Coordination Council** for better implementation of schemes.

Simplify GST registration and reduce frequent amendments.

➡ **Workforce Development**

Ensure uniform labour wages across states.

Launch affordable labour insurance schemes.

Enhance vocational training aligned with industry needs.

➡ **Financial Inclusion**

Expand the reach of **MUDRA loans**.

Promote fintech solutions for faster financing.

Improve financial literacy programs.

➡ **Export and Infrastructure Support**

Build robust export infrastructure tailored for MSMEs.

Develop a dedicated ESG framework to improve competitiveness in global markets.



Illegal Sand Mining

● Why in News?

- ➡ The **National Green Tribunal (NGT)** has directed the **Central Pollution Control Board (CPCB)** to create **nationwide guidelines** for combating illegal sand mining.
- ➡ Concerns raised include **health hazards**, particularly **silicosis**, caused by silica sand extraction and poor regulatory oversight.

● Key Observations by NGT

- ➡ **Health Hazards:** Workers in silica sand mines are prone to **silicosis**, a lung disease caused by inhaling crystalline silica dust.
- ➡ **Regulatory Issues:**
 - Silica Sand Washing Plants** lack proper **record-keeping**.
 - Statutory regulators fail to ensure **compliance** with environmental and safety norms.

● About Silica Sand and Sand Resource

➡ Silica Sand:

Produced by crushing **sandstone** or **quartzite** of open texture.
Washed and graded for the required grain distribution.

➡ Sand:

The **second-most exploited natural resource** after water (**UNEP**).
Classified as a **minor mineral** under the **Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)**.

● Understanding Sand Mining

- ➡ **Sand Mining:** The removal of natural sand and other resources like minerals and metals from the environment (land, rivers, etc.) for construction and other uses.

● Factors Driving Illegal Sand Mining:

- ➡ High demand in construction.
- ➡ Existence of organized **sand mafias**.
- ➡ Lack of **sustainable alternatives**.



● **Impacts of Illegal Sand Mining**

- ⇒ **Flooding and Sedimentation:** Alters river courses, leading to flooding, loss of fertile land, and infrastructure damage.
- ⇒ **Groundwater Depletion:** Lowers water tables, affecting wells and causing scarcity.
- ⇒ **Biodiversity Loss:** Disrupts **aquatic habitats**, threatening species such as gharials, freshwater turtles, otters, and river dolphins.

● **Steps Taken to Address Illegal Sand Mining**

- ⇒ **Section 23C of MMDR Act:** Enables states and UTs to create rules to curb illegal mining, transportation, and storage of minerals.
- ⇒ **Sustainable Sand Management Guidelines (2016):** Focus on restoring river ecology.
- ⇒ **Enforcement & Monitoring Guidelines (2020):** Strengthen monitoring mechanisms.
- ⇒ **Sand Mining Framework (2018):** Advocates for alternatives like **manufactured sand** and sand from coal mine overburden.
- ⇒ **Mining Surveillance System:** Utilizes **space technology** for tracking and controlling illegal sand mining.

● **Way Forward**

- ⇒ **Stronger Enforcement:** Ensure strict compliance with sand mining regulations through robust monitoring systems.
- ⇒ **Promoting Alternatives:** Encourage the use of **manufactured sand** and other substitutes to reduce dependence on natural sand.
- ⇒ **Community Involvement:** Raise awareness about the environmental and social impacts of illegal sand mining.
- ⇒ **Improved Record-Keeping:** Establish proper documentation practices in **silica sand washing plants** to enhance accountability.



National Policy on Agricultural Marketing

● Why in News?

- ➔ The **Draft National Policy Framework on Agricultural Marketing** has been released.
- ➔ Prepared by a committee chaired by **Faiz Ahmed Kidwai**, it aims to create a vibrant agricultural marketing ecosystem to ensure farmers receive the best prices for their produce.

● Key Proposals

➔ Empowered Agricultural Marketing Reform Committee

Establish a committee with state agriculture ministers to promote a unified national market.

Implement a **single licensing/registration system and single fee structure** for agricultural produce.

Chaired on a rotational basis by a state agriculture minister, similar to the GST Empowered Committee.

➔ Farmer-Market Linkages

Recognize **warehouses and cold storages** as sub-market yards to improve access.

Expand and strengthen **eNAM (Electronic National Agriculture Market)** beyond APMC markets to include sub-market yards.

➔ Reforms in Agricultural Produce Market Committees (APMCs)

Encourage APMCs to increase revenue by notifying new agricultural produce and promoting food processing activities.

Discourage reliance on high market fees or cess.

➔ Strengthening Agricultural Infrastructure

Focus on **value chain-centric infrastructure** using AI, blockchain, and private sector participation.

Launch a **Price Insurance Scheme** to secure farmers' income during sowing seasons.

➔ Ease of Doing Agri-Trade

Digitize mandi processes and automate licenses for traders and private market operators.



● **Agriculture Marketing in India**

⇒ **Agricultural Marketing:** Agriculture marketing is under **State List (Entry 28, List-II, VII Schedule)** as per Article 246 of the Constitution.

⇒ **Challenges**

Inefficient and fragmented supply chains.

Poor market access and inadequate infrastructure.

Complex regulations.

⇒ **Initiatives Undertaken**

Formation of **10,000 Farmer Producer Organizations (FPOs)**.

Agriculture Infrastructure Fund to develop agri-infrastructure.

Strengthening of **Agricultural Marketing Infrastructure**.

Development of **Gramin Agricultural Markets (GrAMs)**.

● **Way Forward**

⇒ Build **consensus among states** for unified agricultural marketing policies.

⇒ **Strengthen digital and physical infrastructure** for effective supply chains.

⇒ **Promote sustainable income** and ease of trade for farmers through innovative measures.



Coastal Shipping Bill, 2024

● Why in News?

- ➔ The **Coastal Shipping Bill, 2024**, was introduced in the Lok Sabha to consolidate and amend laws governing coastal shipping in India.
- ➔ Aims to enhance **uniform regulation**, promote **coastal trade and connectivity**, and encourage **domestic participation** in the sector.

● Key Highlights of the Bill

➔ Prohibition and Licensing

Prohibits **coasting trade** by vessels without a valid license, except Indian vessels.

Allows **inland vessels** to engage in coastal trading activities.

➔ Strategic Plans and Databases

Proposes a **National Coastal and Inland Shipping Strategic Plan** for growth and promotion of coastal shipping.

Introduces a **National Database of Coastal Shipping** to ensure transparency and efficient information sharing.

➔ Licensing Provisions

Empowers the **Director-General** to issue licenses based on criteria such as citizenship of the crew & compliance with vessel building requirements.

Ensures fair procedures for suspension, revocation, or modification of licenses, with the right to be heard.

➔ Penalty and Offence Management

Includes provisions for **compounding certain offences**.

Authorizes the imposition of penalties by the principal officer.

Grants powers to the Director-General to request information on specific matters.

● Coastal Shipping Industry in India

➔ Definition

Refers to the movement of goods and passengers along India's coastlines within **territorial waters** (up to 12 nautical miles).

● **Regulatory Framework**

- ➡ Regulated by the **Directorate General of Shipping** under the Ministry of Ports, Shipping, and Waterways.
- ➡ **Coastal Regulation Zone (CRZ)** rules influence activities in coastal regions.
- ➡ **Cabotage Policy**: Restricts foreign-flagged vessels from transporting goods within India's territorial waters.
- ➡ **Tariff Authority for Major Ports (TAMP)** regulates tariffs for major ports involved in coastal shipping.

● **Way Forward**

- ➡ Implement **efficient licensing processes** and strengthen oversight mechanisms.
- ➡ Leverage the **National Database of Coastal Shipping** to enhance coordination.
- ➡ Promote **domestic participation** in coastal trade by relaxing operational constraints.
- ➡ Develop **modern infrastructure** to support coastal and inland shipping activities.
- ➡ Align **strategic plans** with sustainable coastal development initiatives.



Effective Compliance of POSH Act, 2013

● Why in News?

- ➔ The Supreme Court has issued directions to all States and Union Territories to ensure uniform implementation of the **Sexual Harassment of Women at Workplace (Prevention, Prohibition, and Redressal) Act, 2013 (POSH Act)**.

● Directions Issued by the Supreme Court

➔ Appointment of District Officers

Notification of District Officers: States and Union Territories must designate District Officers in every district to execute responsibilities under the POSH Act.

Duties of District Officers:

Ensure the formation of **Internal Complaints Committees (ICC)** within organizations.

Constitute **Local Committees** for establishments without ICCs (e.g., fewer than 10 employees) or where complaints are against the employer.

➔ Constitution of Local Committees

As per **Section 6 of the POSH Act**, Local Committees handle complaints where ICCs are unavailable.

Extend the jurisdiction of Local Committees to the entire district.

➔ Nodal Officers

Designation of Nodal Officers: Appoint one Nodal Officer in every **Block/Taluka/Tehsil** in rural or tribal areas. Designate Nodal Officers for municipal areas in urban regions.

➔ Digital Solutions

Establish **SHe-Box (Sexual Harassment Electronic Box)**: A single-window platform enabling women to register complaints of sexual harassment.

● Key Provisions of POSH Act, 2013

- ➔ **Sexual Harassment:** Includes **physical contact, demands for sexual favors, sexually colored remarks, showing pornography**, or other forms of **unwelcome conduct** (physical, verbal, or non-verbal).

➔ Applicability

Covers all workplaces:

Government and private sector organizations.

NGOs, hospitals, and employer-provided transport.

Work-related locations visited during employment and even residential spaces.



● **Key Provisions of POSH Act, 2013**

⇒ **Complaint Committees**

Internal Complaints Committee (ICC): Mandatory for all organizations.

Local Committees (LC): For establishments lacking an ICC or cases involving the employer.

● **Way Forward**

⇒ **Strengthen Implementation:** Ensure prompt notification and functioning of District Officers, Nodal Officers, ICCs, and Local Committees.

⇒ **Awareness Campaigns:** Conduct widespread awareness programs about the POSH Act and its mechanisms.

⇒ **Expand Digital Solutions:** Promote SHe-Box and ensure its accessibility for women across the country.

⇒ **Periodic Audits:** Conduct regular audits to monitor compliance and address implementation gaps.



Ratapani Wildlife Sanctuary

● Why in News?

- ➔ Ratapani Wildlife Sanctuary, located in Raisen and Sehore districts, has been declared the 8th Tiger Reserve of Madhya Pradesh.
- ➔ Other tiger reserves in Madhya Pradesh include **Kanha, Satpura, Bandhavgarh, Pench, Sanjay Dubri, Panna, and Veerangana Durgavati.**

● About Ratapani Wildlife Sanctuary

➔ Location

Situated in **Raisen and Sehore districts** of Madhya Pradesh.

Encompasses the **Bhimbetka Rock Shelters**, a UNESCO World Heritage Site, and sites like Ginnourgarh Fort, POW camp, Keri Mahadeo, and Jholiyapur Dam.

➔ Flora and Fauna

Forest Type: Dry deciduous and moist deciduous, with 55% of the area covered by teak.

Fauna: Tigers, leopards, sloth bears, hyenas, spotted deer, sambar deer, and more.

● Process of Declaring Tiger Reserves in India

- ➔ Governed by **Section 38V of the Wildlife (Protection) Act, 1972.**

➔ Steps involved:

Proposal submission by the State Government.

In-principle approval by the National Tiger Conservation Authority (NTCA).

Detailed proposal review by NTCA under the Act.

Final notification of Tiger Reserve by the State Government after NTCA recommendation.

● Government Efforts for Tiger Conservation

➔ National Initiatives

Project Tiger: A Centrally Sponsored Scheme under the Ministry of Environment, Forests, and Climate Change to support tiger states.

Conservation Assured Tiger Standards (CA|TS):

Ensures global standards in tiger reserve management.

As of December 2023, 23 tiger reserves in India have received CA|TS accreditation.



● **Government Efforts for Tiger Conservation**

➡ International Collaboration

International Big Cat Alliance (IBCA): Launched by India to secure the future of big cats and their habitats.

● **Way Forward**

- ➡ Strengthen conservation efforts in newly notified reserves like Ratapani.
- ➡ Enhance **community participation** to ensure coexistence and reduce human-animal conflict.
- ➡ Promote eco-tourism while preserving the habitat.
- ➡ Encourage research on **tiger movement** and genetic diversity to plan better conservation strategies.



Oilfields Amendment Bill, 2024

● Why in News?

- ⇒ Rajya Sabha passed the **Oilfields (Regulation and Development) Amendment Bill, 2024**.
- ⇒ It amends the **Oilfields (Regulation and Development) Act, 1948**, which governs exploration and extraction of natural gas and petroleum.

● Salient Features

⇒ Expanded Definitions

Mineral Oils now include hydrocarbons such as coal bed methane, shale gas/oil, in addition to petroleum and natural gas.

Excludes **coal, lignite, and helium** from the definition of mineral oils.

⇒ Key Changes

Delinking of petroleum operations from mining operations.

Introduction of "**Petroleum Lease**": Covers activities like prospecting, exploration, production, and disposal of mineral oils.

⇒ Central Government Powers

Retains authority over: Regulation of leases, Conservation efforts, Collection of royalties.

Additional powers to manage: Lease mergers, Facility sharing, Environmental safeguards, Dispute resolution mechanisms.

⇒ Decriminalization and Penalties

Decriminalizes certain offenses under the Act.

Introduces penalties with appeals directed to the **Appellate Tribunal** under the **Petroleum and Natural Gas Regulatory Board Act, 2006**.

● Significance

- ⇒ Enhances **energy access, security, and affordability**.
- ⇒ Reduces **import dependency**.
- ⇒ Encourages **private investment** in the sector.
- ⇒ Strengthens **regulatory mechanisms**.



- **About PNGRB (Petroleum and Natural Gas Regulatory Board)**

- ➡ **Genesis:** Statutory body under the **Petroleum and Natural Gas Regulatory Board Act, 2006**.
- ➡ **Functions:** Regulates the refining, transportation, distribution, storage, and marketing of petroleum products and natural gas. Ensures competitive markets for natural gas.
- ➡ **Adjudication:** Appeals against PNGRB decisions are heard by the **Appellate Tribunals for Electricity**.

- **Way Forward**

- ➡ **Streamlined Implementation:** Ensure robust monitoring and enforcement of the amended provisions.
- ➡ **Investor Confidence:** Simplify processes to attract domestic and international investments.
- ➡ **Environmental Balance:** Develop sustainable practices for petroleum and natural gas operations.



World Drought Atlas 2024

● Why in News?

- ➡ Released during UNCCD's COP16 in Riyadh by UNCCD and European Commission Joint Research Centre.
- ➡ Aims to enhance global action on land and drought resilience through a people-centric approach.
- ➡ Reports a **29% increase in droughts** since 2000 due to **climate change** and **unsustainable land and water management**.

● About Drought

- ➡ Defined as prolonged periods of **low water availability**, leading to an imbalance in water availability, quality, and demand.
- ➡ **Examples:** Great Plains, USA & Barcelona, Spain
- ➡ **Causes:** Exceptionally low rainfall, Unsustainable water extraction, Strong El Niño

● Impact of Drought

- ➡ **Water Supply:** Severe shortages causing social and economic challenges.
- ➡ **Agriculture:** Crop failures and reduced yields, leading to food insecurity and economic losses.
- ➡ **Hydropower:** Lower water levels in reservoirs disrupt electricity generation and industries.
- ➡ **Navigation:** Low river levels hinder trade and logistics via inland waterways.
- ➡ **Ecosystems:** Habitat destruction and biodiversity loss.

● Measures for Drought Management

➡ Global Initiatives

Integrated Drought Management Programme

UNCCD's DRAMP Framework

Global Drought Information System

➡ India's Initiatives

National Policy on Disaster Management

National Agricultural Drought Assessment and Monitoring System



● **Drought Risk Management and Adaptation**

⇒ **Reactive Approach**

Focus: Immediate drought impact mitigation

Measures:

- Emergency food and water aid
- Crop and livestock restoration subsidies
- Relief fund allocation

Goal: Managing impacts

⇒ **Proactive Approach**

Focus: Risk mitigation and adaptation

Measures:

- Early warning systems
- Livestock de-stocking and adjusted cropping patterns
- Seasonal micro-credit and crop insurance schemes

Goal: Reducing risks

⇒ **Prospective Approach**

Focus: Long-term systemic risk management

Measures:

- Climate-smart agricultural systems
- Disaster-resistant water supply systems
- Land-use planning for land degradation neutrality

Goal: Avoiding future risks

● **Way Forward**

- ⇒ Strengthen **global cooperation** for sustainable land and water management.
- ⇒ Promote **early warning systems** and climate-smart agriculture.
- ⇒ Develop robust **drought-resilient infrastructure**.
- ⇒ Encourage **community-led adaptation strategies** for long-term resilience.



International Debt Report (IDR) 2024

● Why in News?

- ➡ The World Bank released the International Debt Report (IDR) 2024, featuring external debt statistics and analysis for **low- and middle-income countries (LMICs)** reporting to the World Bank's **Debtor Reporting System (DRS)**.

● Key Highlights of the Report

- ➡ **Rising External Debt:** Total external debt of LMICs rose by **2.4% in 2023**, reaching **\$8.8 trillion**.

➡ Factors Driving Indebtedness

High Interest Rates:

Tight monetary policies in high-income countries raised interest rates to a **20-year high**.

Bangladesh and India saw over 90% increases in interest payments in 2023.

Other Factors:

Inflation and depreciating currencies.

Global economic uncertainty caused by **armed conflicts** and **trade fragmentation**.

➡ Impact of Rising Debt

Increased debt servicing costs led to budgetary constraints, affecting critical sectors: **Health, education, and environmental programs** faced significant funding challenges.

● Way Ahead

➡ Proposed Measures for Sustainable Debt Management

Global Financial Reforms:

Implement comprehensive reforms to avoid widespread debt crises.

Foster an **inclusive financial system** for LMICs.

Mitigating Predatory Lending:

Increase **concessional financing** to reduce reliance on high-interest loans.

Address **information asymmetry** between lenders and borrowers.

Discourage exploitative lending practices.



● **Way Ahead**

⇒ Proposed Measures for Sustainable Debt Management

Crisis Resilience Mechanisms:

Adopt **climate-resilient debt clauses** to suspend repayments during natural disasters or crises.

Introduce **standstill rules** for repayment pauses in emergencies.

Improved Debt Restructuring:

Establish **automatic restructuring rules** for better management of sovereign debt.

Set up a **Global Debt Authority** to guide and coordinate restructuring processes.

● **Significance**

⇒ Rising external debt highlights the urgency of creating **sustainable debt solutions** for LMICs.

Focus on reducing the financial strain to ensure **social sector investments** are not compromised.

The Boilers Bill, 2024

● Why in News?

- ➡ **The Boilers Bill, 2024**, which replaces the Boilers Act, 1923, has been passed by the Rajya Sabha.
- ➡ The Bill incorporates decriminalized provisions aligned with the **Jan Vishwas (Amendment of Provisions) Act, 2023**.
- ➡ Aims to enhance safety and prevent dangers arising from **steam boiler explosions**.

● Key Provisions of the Bill

➡ Regulation and Oversight

Establishment of a **Central Boilers Board** by the central government to regulate: **Design, manufacture, erection, and use** of boilers and components.

➡ Inspection Mechanism

Inspections can be conducted by **State-appointed inspectors** or **Authorized third-party agencies**.

➡ Ease of Doing Business (EoDB)

Of the **seven offences** under the previous Act, only **four serious offences** involving loss of life or property retain criminal penalties.

For **non-criminal offences**, fines are replaced by **penalties**, to be imposed through an **executive mechanism** instead of courts.

● Issues Associated with the Bill

➡ Safety Concerns

States can **exempt areas** from the Bill's purview, raising concerns about safety in these zones.

➡ Limited Judicial Recourse

Decisions made by:

Central government or state-appointed inspectors **cannot be challenged in regular courts**.

Individuals must file **writ petitions in High Courts** under **Article 226 of the Constitution** for redress.

➡ Hindrance to EoDB

Lack of defined **timelines** for inspections or approvals for alterations, repairs, or erection of boilers.



● **About Boilers**

⇒ **Definition:** A boiler is a vessel generating steam under pressure.

⇒ **Boilers in India:**

As of 2024, India has about **40 lakh steam boilers**.

Boilers are a **Concurrent List** item under the Constitution.

● **Way Forward**

⇒ **Strengthen Safety Norms:** Ensure safety standards are uniformly applied, even in exempted zones.

⇒ **Establish Clear Timelines:** Mandate timelines for inspections and approvals to enhance transparency and boost EoDB.

⇒ **Expand Judicial Recourse:** Allow for challenges in regular courts to ensure accountability in decisions.

⇒ **Awareness and Training:** Conduct training programs for boiler operators and ensure awareness of new regulations.

● **Global Context**

⇒ **China:** Known for strict regulatory norms for boiler safety.

⇒ India can adopt best practices from countries with advanced boiler safety frameworks to improve industrial standards.



UGC Draft Regulations, 2024

● Why in News?

- ➡ **University Grants Commission (UGC)** has released the draft (**Minimum Standards of Instruction for the Grant of UG and PG) Regulations, 2024.**
- ➡ The draft regulations are framed under the **University Grants Commission Act, 1956.**
- ➡ Aimed at aligning Indian higher education with **global standards**, while fostering **inclusivity** and **flexibility**, in line with **NEP 2020.**

● Major Proposed Changes

➡ Biannual Admission System

Higher Education Institutes (HEIs) can admit students **twice a year**, enhancing flexibility in enrolment.

➡ Flexibility in Discipline Selection

Students can choose **any discipline**, irrespective of their schooling stream (12th-grade subjects).

Admission eligibility determined by a **National or University-level entrance examination.**

➡ Recognition of Prior Learning (RPL)

Non-formal learning experiences, such as workplace training or community knowledge, can be assessed and recognized for admissions.

➡ Credit Structure

50% credits to be earned from the primary discipline.

Remaining **50% credits** to come from **Skill Courses** and **Apprenticeships.**

➡ Multiple Learning Options

Flexibility to pursue **two UG/PG programs simultaneously.**

Provision for **multiple entry and exit options** in courses.

Students can switch between disciplines, institutions, and **learning modes.**



● **Accelerated and Extended Degree Programs (ADP and EDP)**

⇒ About ADP and EDP

These programs modify the **duration of degrees** without altering:

Curriculum content.

Total credits.

Examination and evaluation systems.

Applicable only at the **UG level**, and students must opt for it by the **end of the 1st or 2nd semester**.

⇒ Features

ADP: Students earn **more credits per semester** for faster completion.

EDP: Students earn **fewer credits per semester**, extending the duration of the program.

● **Way Forward**

⇒ **Implementing Robust Frameworks:** Develop comprehensive systems for **RPL assessments** and credit transfers.

⇒ **Awareness Campaigns:** Educate stakeholders (students, educators, and institutions) about the new regulations and their benefits.

⇒ **Monitoring and Feedback:** Establish mechanisms to monitor the implementation of these changes and incorporate feedback for further refinements.

⇒ **Digital Infrastructure:** Invest in digital tools to facilitate **multiple entry-exit systems** and simultaneous program enrollments.

● **Significance**

⇒ Enhances **global competitiveness** of Indian higher education.

⇒ Promotes **inclusive learning** for diverse learner needs.

⇒ Encourages **skill-based education** and prepares students for evolving industry requirements.



Female Labour Force Participation (LFPR)

● Why in News?

- ➔ The **Economic Advisory Council to the Prime Minister (EAC-PM)** published a '**Working Paper on Female Labour Force Participation (LFPR)**'.
- ➔ The paper examines female LFPR trends using **Periodic Labour Force Survey (PLFS)** data from 2017-18 to 2022-23.

● Understanding LFPR

- ➔ **Definition:** LFPR is the percentage of **employed and unemployed individuals (seeking/available for work)** relative to the total population aged 15 years and above.

● Key Highlights

➔ Current Status

Improved Participation: Female LFPR has increased across most states, though with noticeable variation.

➔ Rural-Urban Variation

Rural Areas: Female LFPR surged from 24.6% to 41.5% (~69% growth).

Urban Areas: Modest increase from 20.4% to 25.4% (~25% growth).

➔ Regional Variation

States like Jharkhand and Bihar recorded significant increases.

Regions such as Goa and Lakshadweep observed marginal declines in rural female LFPR.

● Factors Influencing Female LFPR

➔ Age

Bell-shaped Curve: Participation increases during **20–30 years**. Peaks at **30–40 years**, followed by a sharp decline.

In contrast, **male LFPR** remains high (~100%) from ages **30–50 years** and declines gradually.

➔ Marriage

Negative Impact: Marriage lowers female LFPR significantly. The decline is more pronounced in **urban areas** than in rural ones.



● **Factors Influencing Female LFPR**

⇒ **Parenthood**

Impact of Children: Presence of children under 14 years significantly affects female LFPR. This effect is stronger for **younger women (20–35 years)** and in urban areas.

● **Initiatives to Improve Female LFPR**

⇒ **Economic Empowerment**

Pradhan Mantri Mudra Yojana (PMMY).

Stand-Up India Scheme.

⇒ **Women in STEM**

Women in Science and Engineering-KIRAN (WISE-KIRAN).

SERB-POWER: Promoting Opportunities for Women in Exploratory Research.

⇒ **Skilling Programs**

NAMO Drone Didi: Aims to provide drones to 15,000 women Self-Help Groups.

Women Industrial Training Institutes (ITIs): Focus on industrial skills training.

● **Way Forward**

⇒ **Policy Support:** Introduce policies addressing **marital and parental challenges** that lower female LFPR.

⇒ **Skill Development:** Expand skill training programs targeting women in **emerging industries** like STEM and technology.

⇒ **Workplace Flexibility:** Promote remote working options and **family-friendly workplace policies** to improve participation.

⇒ **Regional Tailoring:** Develop region-specific initiatives to address disparities in rural and urban LFPR trends.

⇒ **Public Awareness:** Foster campaigns to challenge societal norms that deter female workforce participation.

Hanle, Ladakh: A Potential Hub for Satellite-based Quantum Communications

● Why in News?

- ➔ A study identifies the **Indian Astronomical Observatory (IAO)** in Hanle, Ladakh, as an ideal site for **satellite-based quantum communications**, including **Quantum Key Distribution (QKD)**.

● Understanding Satellite-based Quantum Communication

➔ What It Is

Quantum Communications: A promising technology leveraging quantum physics to enhance data transmission security.

Quantum Key Distribution (QKD): A secure method for exchanging encryption keys known only to the involved parties.

➔ How It Works

Operates using **quantum signals** at **Tera Hertz (Hz)** frequency, surpassing traditional satellite communication at **Mega or Giga Hz**.

Quantum signals rely on **Qubits (Quantum bits)**—primarily photons of light—that leverage properties like:

Superposition: Existing in multiple states (0s and 1s) simultaneously.

Quantum Entanglement: Ensuring that tampering with one particle affects its paired counterpart, ensuring data security.

➔ Importance of Site Selection

Sending quantum signals requires locations with minimal atmospheric interference for reduced **signal losses**.

● Why Hanle is Suitable

➔ Favorable Atmospheric Conditions

Dry and Cold Climate:

Desert-like conditions with winter temperatures between **-25°C to -30°C**.

Low levels of **atmospheric water vapour** and **oxygen concentrations**, ensuring clearer signal transmission.



● **Why Hanle is Suitable**

⇒ **Natural Advantages**

Ideal for establishing ground stations for long-distance quantum communication.

⇒ **Lesser Signal Loss**

Signal Attenuation:

Hanle: 44 dB (lowest among studied locations).

Comparisons: Mt. Abu: **47 dB**. Nainital: **48 dB**.

● **Way Forward**

- ⇒ **Leveraging Hanle's Potential:** Establish dedicated **quantum communication infrastructure** to exploit the site's unique advantages.
- ⇒ **Collaborative Research:** Promote joint projects with international organizations to advance quantum communication technologies.
- ⇒ **Policy and Funding:** Secure government support for investments in **quantum technology research** and **infrastructure development**.
- ⇒ **Training and Awareness:** Train experts and create public awareness about **quantum communications** and their security benefits.
- ⇒ **Strategic Integration:** Incorporate quantum technologies into national and international **communication networks** for secure data transfer.



Declining Cloud Cover Linked to Higher Global Temperatures

● Why in News?

- ➔ A recent study published in The Science journal connects the **decline in low-altitude cloud cover** to the rise in **global mean temperatures in 2023**, with temperatures nearly reaching **1.5°C above pre-industrial levels**.

● Key Findings of the Study

➔ Impact of Low-altitude Cloud Decline

Global Mean Temperature Rise:

A **0.2°C** rise in global temperatures in 2023 can be attributed to declining low-altitude cloud cover.

1.5% decrease in global low-altitude cloud cover in 2023, continuing a **decade-long decline of 1.27%**.

This reduction has led to a **drop in planetary albedo**, meaning less sunlight is being reflected back into space.

➔ Regional Impact

Decline in Cloud Cover: Most significant in **northern mid-latitudes** and **tropical oceans**, particularly in the **Atlantic region**.

Arctic Ice Loss: About **15% of the albedo decline** is linked to the **loss of Arctic snow and sea ice**, which are crucial for reflecting sunlight.

➔ Causes of Cloud Cover Decline

Likely due to **lower concentrations of anthropogenic aerosols** in the atmosphere, especially following **stricter marine fuel regulations**.

Aerosols (small particles suspended in the air) influence climate and weather patterns, and their reduction is connected to cloud cover decline.

● **Types of Clouds**

➡ **Low-altitude Clouds**

Formation: Within **2 km** of Earth's surface.

Key Properties:

Reflects sunlight (short-wave energy) effectively.

Does not prevent long-wave energy (heat) from escaping into space.

Main Types:

Stratus: Horizontally developed.

Cumulus: Vertically developed.

➡ **High-altitude Clouds**

Formation: Above **6 km** from the mean sea level in cold atmospheric layers.

Key Properties:

Act as a **heat trap**, blocking long-wave radiation (heat).

Poor reflectors of sunlight (short-wave energy).

Main Types:

Cirrus

Cirrostratus

Cirrocumulus

● **Way Forward**

➡ **Addressing Aerosol Regulations:** Review and adjust **marine fuel regulations** to manage aerosol concentrations and their influence on cloud cover.

➡ **Focus on Arctic Conservation:** Implement stronger measures to **protect Arctic snow and sea ice**, as their loss contributes to the decline in planetary albedo.

➡ **Cloud and Climate Monitoring:** Enhance global monitoring systems to track **cloud cover changes** and their impact on the Earth's temperature.

➡ **Mitigate Climate Change:** Take immediate action to limit global temperature rise, focusing on **reducing greenhouse gas emissions** to combat the observed trends in cloud cover decline.






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