



Daily PIB Summary

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1. DEPARTMENT OF PHARMACEUTICALS INVITES STAKEHOLDER COMMENTS ON PROPOSED AMENDMENTS TO THE GTE EXEMPTION LIST OF MEDICAL DEVICES



Key Highlights

- I. Proposed amendments have been issued for stakeholder consultation.
- II. Changes relate to the **General Technical Exemption (GTE) List** applicable to medical devices.
- III. The initiative seeks to:
 - A. Improve regulatory efficiency.
 - B. Promote ease of doing business.
 - C. Support domestic medical device manufacturing.
 - D. Enhance availability of medical technologies.
- IV. Stakeholder consultations form an important part of evidence-based policymaking and regulatory reform.

BACKGROUND/CONTEXT

- India is one of the fastest-growing medical device markets globally.
- Medical devices are critical components of modern healthcare systems and include diagnostic, therapeutic, monitoring, and life-support equipment.
- To ensure quality, safety, and accessibility, the sector is regulated through a combination of import controls, quality standards, licensing requirements, and regulatory approvals.
- Certain categories of imports are provided exemptions under the **General Technical Exemption (GTE)** framework to facilitate research, testing, development, manufacturing, and healthcare-related activities.
- As the medical device ecosystem evolves, periodic revisions are required to ensure that regulations remain aligned with technological developments and industry needs.

WHAT IS THE GENERAL TECHNICAL EXEMPTION (GTE)?

Definition

- General Technical Exemption (GTE) refers to specific exemptions provided from certain regulatory requirements for designated categories of imports.

Purpose

- I. Facilitate:
 - A. Research and development.
 - B. Product testing and validation.
 - C. Manufacturing processes.

- D. Innovation activities.
- E. Healthcare technology advancement.

Importance

- Reduces regulatory burden for eligible activities.
- Promotes innovation and industrial growth.
- Supports quicker access to advanced technologies.

MEDICAL DEVICES SECTOR IN INDIA

Definition

- I. Medical devices are instruments, apparatus, implants, software, or machines used for:
 - A. Diagnosis.
 - B. Prevention.
 - C. Monitoring.
 - D. Treatment of diseases and medical conditions.

Categories

- Diagnostic devices.
- Imaging equipment.
- Surgical instruments.
- Implantable devices.
- Monitoring systems.
- Life-support equipment.

REGULATORY FRAMEWORK FOR MEDICAL DEVICES

Medical Devices Rules, 2017

Medical Devices Rules, 2017

Objective

- Regulate manufacture, import, sale, and distribution of medical devices.

Regulatory Authority

Central Drugs Standard Control Organisation (CDSCO)

Functions

- Licensing and approvals.
- Quality assurance.
- Safety monitoring.
- Regulatory oversight.

NATIONAL MEDICAL DEVICES POLICY, 2023

National Medical Devices Policy, 2023

Objectives

- Strengthen domestic manufacturing.
- Enhance research and innovation.
- Improve the regulatory ecosystem.
- Promote exports.
- Reduce import dependence.

Vision

- Make India a global hub for medical device manufacturing and innovation.

SIGNIFICANCE OF THE PROPOSED AMENDMENTS

Ease of Doing Business

- Simplifies regulatory compliance for industry stakeholders.

Promotion of Innovation

- Facilitates research, testing, and product development.

Strengthening Domestic Manufacturing

- Supports the growth of India's medical device industry.

Healthcare Access

- Helps improve availability of advanced medical technologies.

Regulatory Modernization

- Aligns regulations with evolving technological and industrial requirements.

CHALLENGES

- Balancing ease of compliance with patient safety requirements.
- Ensuring quality assurance and regulatory oversight.
- Dependence on imports for high-end medical devices.
- Need for stronger testing and certification infrastructure.
- Rapid technological changes requiring frequent regulatory updates.

WAY FORWARD

- Strengthen stakeholder consultation mechanisms.
- Promote indigenous medical device manufacturing.
- Expand testing and certification infrastructure.
- Enhance regulatory transparency and predictability.
- Align Indian regulations with global best practices while ensuring patient safety.

KEY HIGHLIGHTS

- The Department of Pharmaceuticals has sought stakeholder feedback on proposed amendments to the GTE exemption list for medical devices.
- The move aims to improve regulatory efficiency and support innovation.
- Medical devices are regulated under the Medical Devices Rules, 2017.
- The National Medical Devices Policy, 2023 seeks to position India as a global medical device manufacturing hub.
- Regulatory reforms are critical for enhancing healthcare access and industrial competitiveness.

PRELIMS BOOSTER BOX

- I. **Department of Pharmaceuticals**
 - A. Functions under the **Ministry of Chemicals and Fertilizers**.
- II. **Medical Devices Rules, 2017**
 - A. Regulate manufacture, import, sale, and distribution of medical devices in India.
- III. **CDSKO**
 - A. Central Drugs Standard Control Organisation.

- B. National regulatory authority for drugs and medical devices.
- IV. **National Medical Devices Policy, 2023**
 - A. Aims to strengthen manufacturing, innovation, and exports in the medical devices sector.
- V. **Medical Devices**
 - A. Include diagnostic, therapeutic, monitoring, and life-support equipment used in healthcare.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Central Drugs Standard Control Organisation (CDSCO) is the regulatory authority for medical devices in India.
2. The National Medical Devices Policy, 2023 aims to promote domestic manufacturing and innovation in the medical devices sector.
3. The Medical Devices Rules, 2017 regulate the manufacture, import, sale, and distribution of medical devices in India.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)

2.INCOIS LAUNCHES SPECIALIZED EL NIÑO BULLETINS TO SAFEGUARD INDIA'S MARITIME SECTORS



Key Highlights

- I. INCOIS has introduced dedicated El Niño Bulletins for maritime stakeholders.
- II. The bulletins will provide:
 - A. Oceanic forecasts.
 - B. Climate-related advisories.
 - C. Marine impact assessments.
- III. Intended beneficiaries include:
 - A. Fisheries sector.
 - B. Shipping and navigation.
 - C. Coastal management agencies.
 - D. Disaster management authorities.
- IV. The initiative enhances India's marine forecasting and ocean information services.

BACKGROUND/CONTEXT

- I. El Niño is a naturally occurring climate phenomenon associated with abnormal warming of sea surface temperatures in the central and eastern equatorial Pacific Ocean.
- II. It forms part of the broader **El Niño–Southern Oscillation (ENSO)** cycle.
- III. El Niño can influence weather patterns across the globe, including:
 - A. Monsoon variability.

- B. Marine productivity.
 - C. Cyclone activity.
 - D. Ocean circulation patterns.
- IV. India's economy, agriculture, fisheries, and maritime sectors are highly sensitive to climate variability and oceanic changes.
- V. Accurate forecasting and dissemination of ocean information are essential for minimizing risks and enhancing climate resilience.

WHAT IS EL NIÑO?

El Niño

Definition

- El Niño refers to the periodic warming of sea surface temperatures in the central and eastern tropical Pacific Ocean.

Characteristics

- Weakening of trade winds.
- Altered ocean-atmosphere interactions.
- Changes in global weather patterns.

Frequency

- Typically occurs every 2–7 years.
- Can last for several months to more than a year.

EL NIÑO–SOUTHERN OSCILLATION (ENSO)

El Niño–Southern Oscillation

Components

El Niño

- Warmer-than-normal Pacific Ocean temperatures.

La Niña

- Cooler-than-normal Pacific Ocean temperatures.

Neutral Phase

- Near-normal oceanic and atmospheric conditions.

Importance

- One of the most significant drivers of global climate variability.

IMPACT OF EL NIÑO ON INDIA

Monsoon Variability

- Often associated with weaker southwest monsoon rainfall.
- Can contribute to drought-like conditions in some years.

Marine Ecosystems

- Influences ocean temperature and nutrient availability.
- Can affect fish distribution and marine productivity.

Cyclonic Activity

- May alter cyclone formation patterns in different ocean basins.

Agriculture

- Variations in rainfall can impact crop production and water availability.

ROLE OF INCOIS

Indian National Centre for Ocean Information Services

Establishment

- Founded in **1999**.

Ministry

- Autonomous organization under the **Ministry of Earth Sciences**.

Functions

- Ocean observation and monitoring.
- Marine forecasting.
- Tsunami warning services.
- Ocean information dissemination.
- Support to fisheries, shipping, and coastal management.

SIGNIFICANCE OF SPECIALIZED EL NIÑO BULLETINS

Early Warning Capability

- Provides advance information regarding oceanic and climatic changes.

Support to Fisheries

- Assists fishermen and fisheries managers in planning operations.

Maritime Safety

- Supports shipping and navigation decisions.

Disaster Risk Reduction

- Enhances preparedness against climate-related risks.

Blue Economy Development

- Promotes sustainable utilization of marine resources.

SIGNIFICANCE

Climate Resilience

- Strengthens adaptive capacity of maritime sectors.

Scientific Decision-Making

- Enables evidence-based planning and risk management.

Economic Security

- Protects livelihoods dependent on marine resources.

Ocean Governance

- Supports sustainable marine resource management.

CHALLENGES

- Uncertainty in long-range climate forecasting.
- Need for greater awareness among stakeholders.
- Integrating forecasts into local decision-making systems.
- Enhancing last-mile dissemination of ocean information.

WAY FORWARD

- Strengthen ocean observation networks.
- Improve climate and ocean forecasting capabilities.
- Enhance stakeholder outreach and awareness.
- Integrate marine forecasts with disaster management systems.
- Promote climate-resilient planning across maritime sectors.

KEY HIGHLIGHTS

- INCOIS has launched specialized El Niño Bulletins for maritime stakeholders.
- El Niño influences climate, ocean conditions, fisheries, and maritime activities.
- The initiative supports early warning, risk reduction, and climate resilience.
- INCOIS is India's premier ocean information and marine forecasting institution.
- The bulletins contribute to sustainable Blue Economy development.

PRELIMS BOOSTER BOX

I. INCOIS

- A. Indian National Centre for Ocean Information Services.
- B. Established in 1999.
- C. Autonomous body under the Ministry of Earth Sciences.

II. El Niño

- A. Periodic warming of sea surface temperatures in the equatorial Pacific Ocean.
- B. Part of the ENSO cycle.

III. La Niña

- A. Cooling of sea surface temperatures in the equatorial Pacific.
- B. Often associated with stronger monsoon conditions in India.

IV. ENSO

- A. El Niño–Southern Oscillation.
- B. Major driver of global climate variability.

V. Blue Economy

- A. Sustainable use of ocean resources for economic growth, livelihoods, and ecosystem health.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. El Niño is associated with warming of sea surface temperatures in the central and eastern equatorial Pacific Ocean.
2. INCOIS functions under the Ministry of Earth Sciences.
3. El Niño forms part of the El Niño–Southern Oscillation (ENSO) climate system.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)

3.OFFICE OF CHIEF LABOUR COMMISSIONER (CENTRAL) ORGANIZES SPECIAL COURT CAMP AT RVNL OFFICE; TEN WAGE CLAIMS RESOLVED WITH ON-THE-SPOT PAYMENT



रेल विकास निगम लिमिटेड
Rail Vikas Nigam Limited

Key Highlights

- I. A Special Court Camp was organized by the Chief Labour Commissioner (Central).
- II. Ten pending wage claims were resolved during the camp.
- III. Workers received immediate settlement through on-the-spot payment.
- IV. The initiative promoted:
 - A. Timely wage payment.
 - B. Labour welfare.
 - C. Access to justice.
 - D. Efficient dispute resolution.
- V. It reflects efforts to strengthen labour law enforcement and worker protection mechanisms.

BACKGROUND/CONTEXT

- Wage-related disputes constitute a significant portion of labour grievances in India.
- Delays in wage payments can adversely affect workers' livelihoods, social security, and economic well-being.
- The Government has undertaken several reforms to improve labour administration, simplify compliance mechanisms, and ensure timely dispute resolution.
- Special Court Camps serve as a mechanism for expeditious settlement of labour disputes by bringing employers, workers, and labour authorities together at a common platform.
- Such initiatives align with the broader objective of promoting industrial harmony and safeguarding workers' rights.

OFFICE OF THE CHIEF LABOUR COMMISSIONER (CENTRAL)

Chief Labour Commissioner (Central)

Administrative Ministry

- Functions under the **Ministry of Labour and Employment**.

Functions

- Enforcement of labour laws under the Central Sphere.
- Prevention and settlement of industrial disputes.
- Protection of workers' rights.

- Monitoring wage payments and working conditions.
- Promoting industrial peace and harmony.

SPECIAL COURT CAMP MECHANISM

Purpose

- Facilitate quick disposal of labour-related claims and disputes.
- Ensure direct interaction among stakeholders.

Benefits

- Faster grievance redressal.
- Reduced litigation burden.
- Immediate relief to workers.
- Improved compliance by employers.

Importance

- Enhances accessibility of labour justice mechanisms.
- Strengthens confidence in labour administration.

WAGE PROTECTION IN INDIA

Importance of Timely Wage Payment

- Ensures livelihood security.
- Protects workers from economic distress.
- Supports social justice and labour welfare.

Legal Framework

Code on Wages, 2019

Code on Wages, 2019

Key Features

- Universalizes minimum wage provisions.
- Ensures timely payment of wages.
- Promotes gender-neutral wage policies.
- Covers both organized and unorganized sectors.

LABOUR REFORMS AND WORKER WELFARE

Objectives

- Simplification of labour laws.
- Improved compliance.
- Enhanced social security.
- Better dispute resolution mechanisms.

Labour Codes

India has consolidated multiple labour laws into four Labour Codes:

- Code on Wages, 2019
- Industrial Relations Code, 2020
- Code on Social Security, 2020
- Occupational Safety, Health and Working Conditions Code, 2020

SIGNIFICANCE

Worker Welfare

- Ensures protection of workers' economic rights.

Access to Justice

- Provides speedy and affordable dispute resolution.

Industrial Harmony

- Reduces labour-management conflicts.

Good Governance

- Demonstrates responsive and citizen-centric administration.

Labour Law Compliance

- Encourages employers to adhere to statutory obligations.

CHALLENGES

- Delays in dispute resolution in some cases.
- Lack of awareness among workers regarding legal remedies.
- Informal sector workers often face greater vulnerabilities.
- Need for stronger enforcement mechanisms.

WAY FORWARD

- Expand Special Court Camps across sectors and regions.
- Strengthen labour inspection and compliance systems.
- Improve legal awareness among workers.
- Promote digital grievance redressal mechanisms.
- Ensure effective implementation of labour codes.

KEY HIGHLIGHTS

Special Court Camp organized by the Chief Labour Commissioner (Central) at RVNL office.

- Ten wage claims resolved through on-the-spot payment.
- Initiative promotes timely wage payment and labour welfare.
- Supports speedy grievance redressal and industrial harmony.
- Reinforces implementation of labour laws and worker protection measures.

PRELIMS BOOSTER BOX

- I. **Chief Labour Commissioner (Central)**
 - A. Apex labour enforcement authority in the Central Sphere.
 - B. Functions under the Ministry of Labour and Employment.
- II. **Code on Wages, 2019**
 - A. Replaced four wage-related labour laws.
 - B. Provides for minimum wages and timely payment of wages.
- III. **Industrial Relations Code, 2020**
 - A. Governs trade unions, industrial disputes, and dispute resolution.
- IV. **Code on Social Security, 2020**
 - A. Extends social security provisions to wider categories of workers.
- V. **Occupational Safety, Health and Working Conditions Code, 2020**
 - A. Consolidates laws relating to workplace safety and welfare.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. The Chief Labour Commissioner (Central) functions under the Ministry of Labour and Employment.

2. The Code on Wages, 2019 seeks to ensure timely payment of wages and minimum wage protection.
3. The Industrial Relations Code, 2020 deals with trade unions and industrial dispute resolution.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)

4.ETHANOL BLENDING PROGRAMME IS SCIENTIFICALLY VALIDATED AND CLOSELY MONITORED BY THE GOVERNMENT; MISLEADING CLAIMS AND OLD IMAGES BEING CIRCULATED ON SOCIAL MEDIA



Key Highlights

- I. The Ethanol Blended Petrol Programme is based on scientific studies and technical evaluations.

- II. Ethanol blending levels are monitored and implemented in accordance with prescribed standards.
- III. The programme contributes to:
 - A. Energy security.
 - B. Reduction in crude oil imports.
 - C. Lower carbon emissions.
 - D. Additional income opportunities for farmers.
- IV. Government agencies regularly assess the programme's performance and environmental impact.

BACKGROUND/CONTEXT

- I. India is among the world's largest importers of crude oil, making energy security a major policy priority.
- II. To reduce dependence on imported fossil fuels and promote cleaner energy sources, the Government launched the **Ethanol Blended Petrol (EBP) Programme**.
- III. Ethanol, a renewable biofuel, is blended with petrol in specified proportions.
- IV. The programme aligns with India's commitments towards:
 - A. Sustainable development.
 - B. Climate action.
 - C. Energy transition.
 - D. Atmanirbhar Bharat.
- V. Over the years, ethanol blending has expanded significantly through policy support, production incentives, and infrastructure development.

ETHANOL BLENDED PETROL (EBP) PROGRAMME

Definition

- The EBP Programme involves blending ethanol with petrol to create a cleaner and more sustainable transportation fuel.

Objectives

- Reduce crude oil import dependence.
- Improve energy security.
- Reduce greenhouse gas emissions.
- Promote renewable fuels.
- Enhance farmers' income.

Implementation

- I. Coordinated by:
 - A. Ministry of Petroleum and Natural Gas
 - B. Ministry of Consumer Affairs, Food and Public Distribution
 - C. Oil Marketing Companies (OMCs).

WHAT IS ETHANOL?

Ethanol

Characteristics

- Renewable biofuel.
- Produced through fermentation of sugar-rich and starch-rich feedstocks.
- Can be blended with petrol.

Major Feedstocks

- Sugarcane juice.
- Molasses.
- Damaged food grains.
- Maize.
- Surplus agricultural produce.

BENEFITS OF ETHANOL BLENDING

Energy Security

- Reduces dependence on imported crude oil.

Environmental Benefits

- Lower carbon monoxide and hydrocarbon emissions.
- Supports cleaner fuel use.

Farmer Welfare

- Creates additional demand for agricultural feedstocks.
- Enhances income opportunities for farmers.

Foreign Exchange Savings

- Reduces expenditure on petroleum imports.

Rural Development

- Promotes investment in biofuel infrastructure and rural industries.

NATIONAL POLICY ON BIOFUELS

National Policy on Biofuels

Objectives

- Accelerate biofuel adoption.
- Promote advanced biofuels.
- Strengthen energy security.
- Support environmental sustainability.

Key Features

- Expanded feedstock eligibility.
- Promotion of second-generation biofuels.
- Support for ethanol production capacity.

ETHANOL BLENDING TARGETS

Achievements

- India has achieved substantial increases in ethanol blending over the past decade.

Long-Term Goal

- Achieve higher levels of ethanol blending in transportation fuels while ensuring compatibility with vehicle and fuel standards.

SCIENTIFIC VALIDATION AND MONITORING

Technical Evaluation

- I. Ethanol blending levels are assessed for:
 - A. Engine compatibility.
 - B. Fuel performance.
 - C. Environmental impact.

Monitoring Mechanisms

- Continuous oversight by relevant ministries and oil marketing companies.
- Compliance with fuel quality standards.

Regulatory Safeguards

- Implementation based on scientific evidence and established protocols.

SIGNIFICANCE

Energy Transition

- Supports India's shift towards cleaner and renewable energy sources.

Climate Action

- Contributes to reduction in greenhouse gas emissions.

Atmanirbhar Bharat

- Reduces dependence on imported fossil fuels.

Agricultural Growth

- Creates new market opportunities for farmers.

Economic Benefits

- Generates savings in foreign exchange expenditure.

CHALLENGES

- Feedstock availability and sustainability.
- Balancing food security with fuel production.
- Water-intensive nature of some feedstocks.
- Need for expansion of ethanol production infrastructure.
- Regional disparities in production capacity.

WAY FORWARD

- Diversify feedstock sources, including grain-based and second-generation biofuels.
- Enhance ethanol production capacity.
- Promote water-efficient feedstocks and technologies.
- Strengthen scientific monitoring and public awareness.
- Encourage innovation in advanced biofuels and sustainable energy solutions.

KEY HIGHLIGHTS

- Government has reaffirmed that the Ethanol Blended Petrol Programme is scientifically validated and continuously monitored.
- Ethanol blending enhances energy security and reduces crude oil imports.
- The programme supports climate goals and rural economic development.
- Ethanol is produced from agricultural feedstocks such as sugarcane, molasses, and grains.
- The initiative forms an important component of India's broader biofuel and energy transition strategy.

PRELIMS BOOSTER BOX

- Ethanol**
 - A. Renewable biofuel produced through fermentation of biomass-based feedstocks.
- Ethanol Blended Petrol (EBP) Programme**
 - A. Seeks to blend ethanol with petrol to reduce fossil fuel dependence and emissions.
- National Policy on Biofuels**
 - A. Promotes biofuel production and adoption.

- B. Encourages advanced and second-generation biofuels.
- Second-Generation (2G) Biofuels**
 - A. Produced from agricultural residues, crop waste, and non-food biomass.
- Oil Marketing Companies (OMCs)**
 - A. Include entities such as Indian Oil Corporation, Bharat Petroleum Corporation Limited, and Hindustan Petroleum Corporation Limited.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Ethanol is a renewable biofuel that can be blended with petrol.
2. The Ethanol Blended Petrol Programme aims to reduce dependence on imported crude oil.
3. Second-generation biofuels are produced from agricultural residues and non-food biomass.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)

5.INDIA'S CRITICAL MINERAL MISSION GAINS MOMENTUM: 56 CRITICAL MINERAL BLOCKS AND 11

EXPLORATION LICENCE BLOCKS SUCCESSFULLY AUCTIONED



Key Highlights

- I. 56 Critical Mineral Blocks and 11 Exploration Licence Blocks have been successfully auctioned.
- II. The initiative seeks to accelerate exploration and development of critical mineral resources.
- III. Critical minerals are essential for:
 - A. Electric vehicles (EVs).
 - B. Renewable energy systems.
 - C. Advanced electronics.
 - D. Semiconductors.
 - E. Defence technologies.
- IV. The auctions are part of India's broader strategy to ensure long-term mineral security and support industrial growth.

BACKGROUND/CONTEXT

- The global transition towards clean energy and advanced technologies has significantly increased demand for critical minerals.
- These minerals are essential inputs for batteries, solar panels, wind turbines, semiconductors, telecommunications equipment, and defence systems.
- Many critical minerals are concentrated in a limited number of countries,

creating supply-chain vulnerabilities and geopolitical risks.

- Recognizing their strategic importance, India has launched initiatives to identify, explore, and develop domestic reserves while diversifying global supply sources.
- The auction of critical mineral blocks marks a significant step towards achieving resource security and technological self-reliance.

WHAT ARE CRITICAL MINERALS?

Definition

- I. Critical minerals are minerals that are:
 - A. Essential for economic development and strategic sectors.
 - B. Vulnerable to supply disruptions.
 - C. Difficult to substitute.

Importance

- Support emerging technologies.
- Enable energy transition.
- Strengthen national security.
- Promote industrial competitiveness.

MAJOR CRITICAL MINERALS

Lithium

Lithium

- Used in lithium-ion batteries.
- Essential for electric vehicles and energy storage systems.

Cobalt

- Important component of rechargeable batteries.

Nickel

- Used in batteries, alloys, and stainless steel production.

Graphite

- Key input for battery manufacturing.

Rare Earth Elements (REEs)

Rare Earth Elements

- Used in:
 - Electronics.
 - Defence systems.
 - Wind turbines.
 - Permanent magnets.

NATIONAL CRITICAL MINERAL MISSION

National Critical Mineral Mission

Objectives

- Enhance domestic exploration.
- Promote mining and processing capabilities.
- Strengthen supply-chain resilience.
- Reduce import dependence.
- Support advanced manufacturing sectors.

Focus Areas

- Exploration and resource mapping.
- Technology development.
- International partnerships.

- Recycling and resource efficiency.

EXPLORATION LICENCE (EL) BLOCKS

Purpose

- Facilitate private sector participation in mineral exploration.

Significance

- Encourages investment in mineral discovery.
- Improves geological knowledge.
- Accelerates resource development.

Expected Outcomes

- Identification of new mineral deposits.
- Expansion of India's critical mineral resource base.

LEGAL AND POLICY FRAMEWORK

Mines and Minerals (Development and Regulation) Act, 1957

Mines and Minerals (Development and Regulation) Act, 1957

Objectives

- Regulate mining activities.
- Promote scientific mineral development.
- Facilitate transparent allocation of mineral resources.

Recent Reforms

- Introduction of exploration licences.
- Increased private sector participation.
- Simplified auction mechanisms.

SIGNIFICANCE

Energy Transition

- Supports electric mobility and renewable energy deployment.

Atmanirbhar Bharat

- Reduces dependence on imported strategic minerals.

Industrial Growth

- Strengthens manufacturing and technology sectors.

Strategic Security

- Enhances resilience against global supply disruptions.

Economic Development

- Generates investment, employment, and value addition opportunities.

CHALLENGES

- Limited domestic reserves of certain critical minerals.
- Long gestation periods for exploration and mining.
- Environmental and social concerns.
- Technological challenges in extraction and processing.
- Global competition for access to mineral resources.

WAY FORWARD

- Accelerate geological exploration and resource mapping.
- Strengthen processing and refining capabilities.
- Promote recycling and circular economy approaches.
- Enhance international mineral partnerships.
- Encourage research and innovation in critical mineral technologies.

KEY HIGHLIGHTS

- India has successfully auctioned 56 Critical Mineral Blocks and 11 Exploration Licence Blocks.
- Critical minerals are vital for clean energy, advanced manufacturing, and strategic sectors.
- The National Critical Mineral Mission aims to strengthen mineral security and technological self-reliance.
- Exploration licences encourage greater private sector participation in mineral exploration.
- The initiative supports India's energy transition and Atmanirbhar Bharat goals.

PRELIMS BOOSTER BOX

I. Critical Minerals

- A. Minerals essential for economic and strategic sectors with high supply-risk concerns.

II. Lithium

- A. Key component of lithium-ion batteries used in EVs and energy storage systems.

III. Rare Earth Elements (REEs)

- A. Group of strategically important elements used in electronics, defence, and renewable energy technologies.

IV. **Exploration Licence (EL)**

- A. Introduced to facilitate private participation in mineral exploration.

V. **MMDR Act, 1957**

- A. Principal legislation governing mining and mineral development in India.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Lithium is an important mineral used in lithium-ion batteries.
2. Rare Earth Elements are widely used in electronics, renewable energy technologies, and defence systems.
3. Exploration Licences are intended to encourage private sector participation in mineral exploration.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)