

Weekly Current Affairs

07 OCTOBER 2024 TO 13 OCTOBER 2024

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Prelims Bits: B-READY 2024 Report

Why in the news?

Recently published, the B-READY 2024 report is making headlines for its comprehensive assessment of the business environment worldwide.



B-READY topics correspond to various stages of the life cycle of a firm and examine three cross-cutting themes



Business ready (B-READY): Key Facts

1. Publisher:

- B-READY is a flagship report from the World Bank Group that evaluates the global business and investment climate.
- It replaces and enhances the previous Doing Business project.

2. Purpose:

- It aims to strengthen the private sector by addressing the interests of individual firms, workers, consumers, potential new enterprises, and the natural environment.

3. Analytical Framework:

- Introduces a new framework that benchmarks economies based on three main pillars:
 - Regulatory Framework
 - Public Services
 - Operational Efficiency

B-READY pillars define the scope of the project



Pillar I

Regulatory Framework

Rules and regulations that firms must follow as they open, operate, and close a business



Pillar II

Public Services

Facilities to support regulatory compliance and institutions and infrastructure to enable business activities



Pillar III

Operational Efficiency

Ease of regulatory compliance and effective use of public services directly relevant to firms

4. Topics Covered:

- Focuses on 10 essential topics that correspond to various stages of a firm's life cycle, supporting comprehensive private sector development.

5. Cross-Cutting Themes:

- Provides insights into three important themes relevant to modern economies:
 - Digital Adoption

- Environmental Sustainability
- Gender

6. Data Collection:

- Utilizes a robust data collection process, including specially tailored expert questionnaires and firm-level surveys.

7. Geographical Coverage:

- The 2024 report covers 50 economies and is the first in a planned series that will expand both in coverage and methodological refinement over time.

8. Support for Reforms:

- Aims to support reform advocacy, provide policy guidance, and facilitate further analysis and research.

Difference between Easy of doing Business and Business ready report:

Feature	Doing Business	B-READY
Focus	Business environment for SMEs	Private sector development as a whole
Assessment Scope	Regulatory burden, some public services	Regulatory burden, quality of regulations, public services, ease of compliance
Structure	Not explicitly structured	Three pillars: Regulatory Framework, Public Services, Operational Efficiency
Firm Flexibility	Limited to individual firms	Evaluate firm flexibility and social benefits
Data Collection	11 questionnaires	21 questionnaires
Indicators Collected	Fewer than 1,200 indicators	Almost 1,200 indicators (from about 2,000 data points)
Life Cycle Coverage	Omitted critical areas (e.g., labor)	Covers all major topics related to a firm's life cycle
Data Sources	Expert consultations, case studies	Expert consultations and firm surveys
Data Type Balance	Focused on either de jure or de facto	A balanced view of both de jure and de facto aspects
Performance Assessment	Rankings and aggregate scores	Disaggregated indicators, scores by topic and pillar

Coverage	Main business city in 191 economies, 2nd largest in 11 economies	Wide coverage within and across economies, national and local regulations
Data Update Frequency	Annual updates based on expert consultations	Annual updates for expert consultations, staggered updates for firm surveys
Data Stability	Variable	Stable data for each economy over a three-year cycle

Prelims Question:

Q. Consider the following parameters:

1. Business location
2. Utility services
3. Labour
4. Getting electricity
5. Registering property
6. Protecting minority investors
7. International Trade

How many of the given above are parameters of the B-ready Report?

- A. Only two
- B. Only three
- C. Only four
- D. Only five

ANSWER:

SCO Dynamics: India's Approach to Fostering Regional Stability

WHY IS IT IN THE NEWS?

India's EAM S. Jaishankar will attend the SCO Meeting in Islamabad. He will lead the Indian delegation at the Shanghai Cooperation Organisation (SCO) 'Heads of Government' (HoG) meeting in Islamabad.

KEY FACTS ABOUT INDIA'S INVOLVEMENT IN THE SCO

1. Membership: India became a full member of the SCO in June 2017, joining Pakistan, China, Russia, and several Central Asian countries.

2. Strategic Interests: India's participation aims to enhance regional security and counter-terrorism efforts, crucial for its national security.

3. Economic Goals: India seeks to boost trade and investment opportunities in Central Asia through SCO initiatives, aligning with its "Act East" policy.

4. Cultural Exchange: India promotes cultural co-operation to foster mutual understanding among member states, engaging in people-to-people exchanges.

5. Counter-Terrorism Focus: India actively engages in the SCO's Regional Anti-Terrorist Structure (RATS) to address cross-border terrorism, especially from

neighbouring regions.

6. Diplomatic Engagement: India participates in various SCO summits, advocating for a multipolar world and enhancing its diplomatic footprint in Eurasia.

7. Geopolitical Challenges: India navigates complex relationships with China and Pakistan within the SCO framework, balancing its national interests with regional dynamics.



KEY FACTS ABOUT THE SHANGHAI COOPERATION ORGANIZATION (SCO)

- 1. Establishment:** Founded on June 15, 2001, in Shanghai, China.
- 2. Founding Members:** Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan.
- 3. Predecessor:** Originated from the Mechanism of the Shanghai Five.
- 4. Charter:** Signed in 2002; effective from September 19, 2003.
- 5. Supreme Decision-Making Bodies:**
Council of Heads of States (CHS): Annual meetings to address significant issues.
Council of Heads of Government (CHG): Annual meetings focused on economic strategies and budget approval.
- 6. Goals:**
Strengthen Mutual Trust: Enhance friendship and cooperation among member states.

Ensure Regional Stability: Joint efforts for peace and security.

Encourage Cooperation: In various fields, including politics, trade, and culture.

Promote Fair International Order: Advocate for a democratic and rational global order.

7. Principles:

Shanghai Spirit: Emphasizes mutual trust, equality, and respect for diverse cultures.

Non-Alignment: Advocates for openness and non-targeting of other nations.

8. Membership:

Current Members: 9 member states, including India, Iran, and Pakistan.

Observer States: 3 (Afghanistan, Belarus, Mongolia).

Dialogue Partners: 14 partners, including Azerbaijan, Egypt, and Qatar.

SIGNIFICANCE OF SHANGHAI COOPERATION ORGANIZATION (SCO):

- 1. Regional Security:** The SCO addresses security challenges in Eurasia, focusing on counter-terrorism, extremism, and separatism to maintain stability among member states.
- 2. Economic Cooperation:** The organization facilitates economic collaboration, promoting trade, investment, and connectivity, which enhances regional economic integration.
- 3. Political Dialogue:** The SCO provides a platform for member states to engage in dialogue, allowing countries with diverse political systems to discuss various issues.
- 4. Counterbalance to Western Influence:** The SCO serves as a counterbalance to Western alliances like NATO, promoting a multipolar world order that aligns with its members' interests.
- 5. Cultural Exchange:** The organization fosters cultural cooperation and people-to-people exchanges, enhancing mutual understanding and respect among its diverse cultures.

Member states of the Shanghai Cooperation Organisation



6. Infrastructure Development: The SCO encourages infrastructure projects, including initiatives like the Belt and Road Initiative (BRI), aimed at improving connectivity and economic development.

7. Collective Defense Initiatives: Member states conduct joint military exercises and share intelligence, enhancing their collective security capabilities against common threats.

SIGNIFICANCE FOR INDIA:

1. Regional Security: The SCO provides India with a platform to collaborate on security issues, particularly counter-terrorism, which is vital for addressing cross-border terrorism concerns.

2. Economic Opportunities: Through the SCO, India can enhance trade and investment ties with Central Asian countries, aligning with its "Act East" policy and diversifying its energy sources.

3. Cultural Diplomacy: The organization fosters cultural exchanges, allowing India to strengthen its soft power and build mutual understanding with member states.

4. Strategic Partnerships: Participation in the SCO helps India cultivate relationships with key regional players like China and Russia, facilitating dialogue on various geopolitical issues.

5. Counterbalance to China: The SCO enables India to engage with Central Asian nations to counterbalance China's influence in the region and assert its own strategic interests.

6. Access to Afghanistan: The SCO provides a forum for India to discuss the security situation in Afghanistan, ensuring that its interests are represented in regional stability efforts.

7. Joint Military Collaboration: India can participate in joint military exercises and security initiatives, enhancing its defence capabilities and regional

presence.

ISSUES WITH THE SCO :

1. Geopolitical Rivalry: India's relationship with China and Pakistan within the SCO framework

poses challenges, especially given the historical tensions and territorial disputes.

2. Counter-Terrorism: India is concerned about cross-border terrorism and expects the SCO to take a stronger stance on this issue, particularly in the context of Pakistan's role.

3. China's Influence: India is wary of China's growing influence within the SCO and the potential for China to dominate discussions and decisions that may not align with Indian interests.

4. Limited Regional Engagement: India's influence in Central Asia is limited compared to that of China and Russia, which affects its ability to leverage the SCO effectively for regional partnerships.

5. Economic Cooperation Challenges: While the SCO promotes economic collaboration, India faces barriers such as infrastructure deficits and political instability in some member countries, hindering trade opportunities.

6. Belt and Road Initiative (BRI): India's opposition to the BRI due to sovereignty concerns complicates its participation in SCO initiatives that align with China's infrastructure projects.

7. SCO's Focus on Security: The organization's strong emphasis on security may limit discussions on economic and cultural cooperation, which are equally important for India.

FUTURE COURSE OF ACTION OF SCO REGARDING INDIA:

1. Strengthening Counter-Terrorism Efforts: The SCO may enhance counter-terrorism initiatives, allowing India to voice concerns about cross-border terrorism and collaborate on intelligence sharing.

2. Enhancing Economic Cooperation: The organization will likely promote trade and investment between India and Central Asian countries, sup-

porting India's "Act East" policy.

3. Facilitating Dialogue on Regional Security: The SCO could facilitate discussions involving India, Pakistan, and Afghanistan to address regional security concerns and promote stability.

4. Cultural and People-to-People Exchanges: Increased cultural initiatives may foster mutual understanding and strengthen ties between India and Central Asian nations.

5. Infrastructure Development Collaboration: The SCO might support projects that enhance regional connectivity, aligning with India's infrastructure development interests.

6. Engagement on Global Challenges: The organization could involve India in discussions on global issues like climate change and cybersecurity, recognizing its significant role.

7. Balancing China's Influence: The SCO may provide India with a platform to counterbalance China's influence, promoting a more equitable distribution of power among member states.

CONCLUSION:

India's involvement in the Shanghai Cooperation Organization (SCO) since 2017 offers opportunities for enhanced regional security, counter-terrorism cooperation, and economic integration with Central Asia. However, it faces challenges in navigating complex geopolitical dynamics, especially with China and Pakistan. The SCO's potential for dialogue and mutual understanding, combined with India's proactive engagement, can strengthen regional stability and address global issues. Ultimately, India's participation is vital for shaping its role in Eurasian politics while pursuing its national interests.

PRELIMS QUESTION:

Q. Which of the following initiatives is closely associated with the SCO's economic collaboration efforts?

- A. South Asian Association for Regional Cooperation (SAARC)
- B. Belt and Road Initiative (BRI)
- C. African Union Trade Agreement
- D. Comprehensive and Progressive Agreement for Trans-Pacific Partnership

Answer: B

Mains Question:

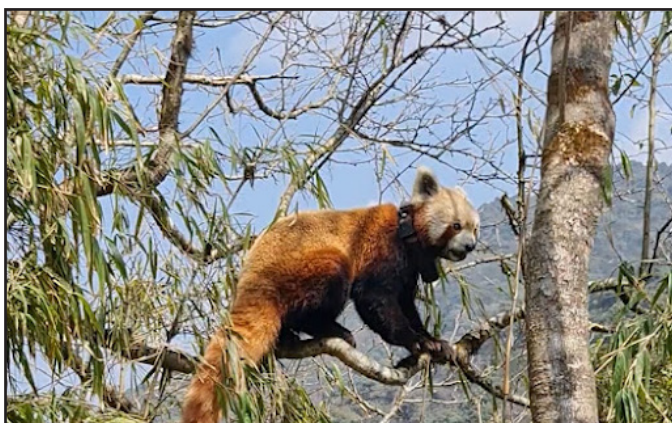
Q. Evaluate the impact of the Shanghai Cooperation Organization (SCO) on India-China relations. What challenges and opportunities does this platform present for India?

(250 words, 15 marks)

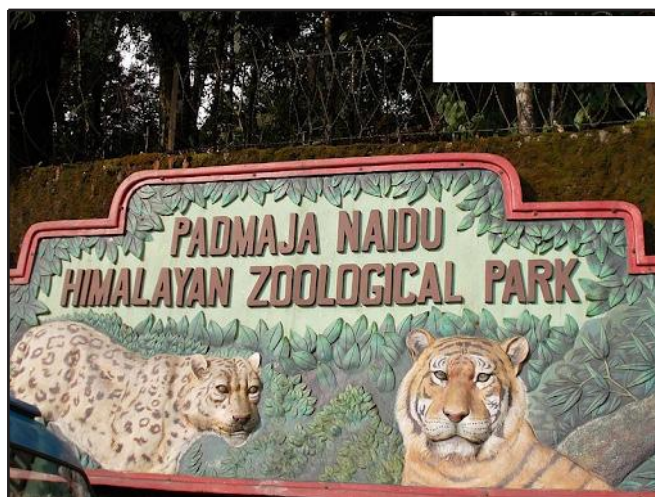
PRELIMS BITS: Red Panda.

WHY IN THE NEWS?

The Padmaja Naidu Himalayan Zoological Park's Red Panda Program has been recognized as a finalist for the World Association of Zoos and Aquariums (WAZA) Conservation Award 2024. This program highlights the zoo's commitment to conservation, evidenced by habitat restoration efforts and successful initiatives to release nine captive-bred red pandas into Singalila National Park between 2022 and 2024.



PADMAJA NAIDU HIMALAYAN ZOOLOGICAL PARK:



Establishment: Originally known as Himalayan Zoological Park on August 14, 1958.

Location: Darjeeling, West Bengal, India.

Founders: A joint venture between the Government of India (Department of Science and Technology) and the Government of West Bengal (Department of Education).

Society Registration: Converted into a registered society in January 1972 under the West Bengal Societies Registration Act, 1961.

Funding Arrangement: Maintenance costs are shared by the Central and State Governments.

Department Transfer: In May 1993, management transferred to the Department of Forests, Government of West Bengal.

Central Oversight: Operates under the Ministry of Environment and Forests at the Government of India level.

Renaming: Renamed in 1975 in memory of Late Smt. Padmaja Naidu, ex-Governor of West Bengal, by then Prime Minister Indira Gandhi.

THE WAZA:

The World Association of Zoos and Aquariums (WAZA), founded in 1935 in Basel, Switzerland, serves as the global umbrella organization for zoos

and aquariums. With its headquarters in Barcelona, Spain,

OBJECTIVES: WAZA focuses on guiding and supporting its members in animal care and welfare, environmental education, and global conservation efforts. Formerly known as the World Zoo Organization, WAZA collaborates with like-minded organizations worldwide and is a member of the International Union for Conservation of Nature (IUCN).

RED PANDA:



RED PANDA (AILURUS FULGENS)

The red panda, also known as the lesser panda, is a small mammal native to the eastern Himalayas and southwestern China. Characterized by its dense reddish-brown fur, black belly and legs, white-lined ears, and ringed tail. Well adapted for climbing, the red panda has flexible joints and curved semi-retractile claws.

CONSERVATION STATUS:

The red panda is classified as Endangered on the IUCN Red List and is listed in CITES Appendix I. **The red panda is listed in Schedule I of the Wildlife (Protection) Act, of 1972, which means it has the highest legal protection. This act prohibits hunting, poaching, killing, and trading of the red panda**

BEHAVIOR AND ECOLOGY:

Primarily solitary and arboreal, red pandas inhabit coniferous and temperate forests, favoring steep slopes with dense bamboo cover. They are largely nocturnal and crepuscular, often resting in trees.

HERBIVOROUS:

The red panda is largely herbivorous and feeds primarily on bamboo. Their diet mainly consists of bamboo shoots and leaves, but they also consume fruits and blossoms.

DISTRIBUTION AND HABITAT:

Red pandas are found in Nepal, India (Sikkim, West Bengal, Arunachal Pradesh), Bhutan, southern Tibet, northern Myanmar, and China's Sichuan and Yunnan provinces. Their habitat is estimated to cover about 47,100 km² (18,200 sq mi) at elevations between 2,000 and 4,300 m (6,600–14,100 ft) in temperate climates.



REPRODUCTION AND PARENTING:

Red pandas are long-day breeders, mating as daylight increases after the winter solstice. Mothers typically care for their young in sheltered locations, providing them with a safe environment to grow. Breeding occurs in early spring, with females giving birth to litters of up to four cubs in the summer.

PROTECTED AREAS FOR RED PANDAS IN INDIA

- **Khangchendzonga National Park**

- Singalila National Park
- Varsey Rhododendron Sanctuary
- Shingba Rhododendron Sanctuary
- Fambong Lho Wildlife Sanctuary
- Kyongnosla Alpine Sanctuary
- Pangolakha Wildlife Sanctuary
- Maenam Wildlife Sanctuary
- Namdapha National Park

PRELIMS QUESTION

Q. With reference to the Red Panda, Consider the following statement:

1. The Red panda, also known as the lesser panda, is a small mammal native to the Western Himalayas.
2. The Red panda is largely herbivorous and feeds primarily on bamboo.
3. They are nocturnal and crepuscular mammals.

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

ANSWER: B

Strength in Heritage: Empowering Tribal Communities for a Brighter Future

WHY IN THE NEWS?

On **October 2, 2024**, Prime Minister Narendra Modi launched the **Dharti Aaba Janjatiya Gram Utkarsh Abhiyan in Hazaribag, Jharkhand**. With an outlay of over **₹79,150 crore**, this ambitious program aims to address critical gaps in social

infrastructure, health, education, and livelihood development across approximately **63,000 tribal villages**.

KEY FACTS:

1. Population: Over 10.45 crore individuals belong to Scheduled Tribes (ST) in India, accounting for 8.6% of the total population (2011 Census).

2. Diversity: India is home to more than 705 distinct tribal groups, often residing in remote and inaccessible regions.

3. Government Initiatives:

Historical commitment to tribal development began with the Tribal Sub-Plan (TSP) in 1974-75, evolving into various programs like the Scheduled Tribe Component (STC) and the Development Action Plan for Scheduled Tribes (DAPST).

3. Financial Commitment:

DAPST budget increased from ₹25,000 crore to ₹1.2 lakh crore in 2023-24. An allocation of ₹13,000 crore for the Ministry of Tribal Affairs in the 2024-25 Union Budget, marking a 73.60% increase.

4. Major Programs: Dharti Aaba Janja

Gram Utkarsh Abhiyan: Launched on Oct

ber 2, 2024, with a budget of ₹79,150 crore,

targeting infrastructure, health, education, and livelihoods across 63,000 tribal villages.

Eklavya Model Residential Schools (EMRS): Focus on providing quality education to ST children, with 40 schools recently inaugurated and 25 more planned.

5. Socio-Economic Schemes:

Pre-Matric and Post-Matric Scholarships to reduce dropout rates. National Overseas Scholarship for ST students to pursue higher education abroad. Development programs for Particularly Vulnerable Tribal Groups (PVTGs).

6. Health Initiatives:

Sickle Cell Anaemia Elimination Mission to combat prevalent health issues in tribal communities. Mission Indradhanush for full immunization in Adivasi populations.

7. Cultural Preservation:

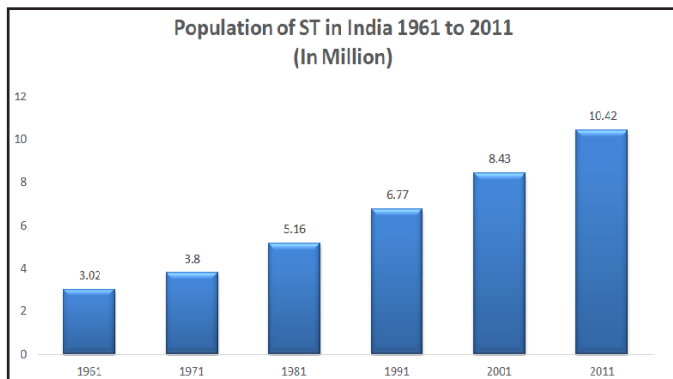
Establishment of Tribal Freedom Fighters' Museums and cultural festivals like Aadi Mahotsav to honor tribal heritage and promote economic empowerment.

8. Support Structures:

Support to Tribal Research Institutes (TRIs) for research and preservation of tribal culture. Tribal Cooperative Marketing Development Federation of India (TRIFED) to market tribal products and create livelihoods.

9. Impact:

The initiatives aim to bridge socio-economic gaps, enhance quality of life, and integrate tribal communities into India's broader development narrative while preserving their rich heritage.



KEY INITIATIVES FOR EMPOWERMENT:

1. Dharti Aaba Janjatiya Gram Utkarsh Abhiyan

Launch: October 2, 2024.

Budget: ₹79,150 crore.

Focus:

Healthcare: Establishing health centers.

Education: Building schools and improving infrastructure.

Livelihood: Promoting skill training and entrepreneurship.

2. Eklavya Model Residential Schools (EMRS)

Objective: Quality education for ST children in

remote areas.

Recent Developments: 40 EMRS inaugurated; 25 more planned.

Curriculum: Academic and vocational training.

Cultural Integration: Local art forms included in education.

Sports Development: Facilities to nurture talent.

3. Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN)

Budget: ₹1,360 crore.

Focus:

Infrastructure: Community centers and market access.

Skill Development: Training for employability.

4. Pre-Matric and Post-Matric Scholarship Schemes

Pre-Matric Scholarship: Financial support for ST students in classes IX and X to encourage secondary education.

Post-Matric Scholarship: Aid for ST

students pursuing higher education from

Class XI up to postgraduate courses.

5. National Overseas Scholarship for ST Students

Offers opportunities for meritorious ST students to pursue postgraduate, doctoral, and post-doctoral studies abroad. Allocates 20 awards annually, with 30% reserved for female candidates.

6. Particularly Vulnerable Tribal Groups (PVTGs) Development Program

Targets the most vulnerable tribal communities to improve access to healthcare, education, clean water, and electricity.

Benefits around 7 lakh PVTG families across 22,000 habitations in 200 districts.

7. Support to Tribal Research Institutes (TRIs)

Promotes research and documentation on tribal welfare, languages, and traditions.

Organizes cultural festivals and exchange programs to preserve tribal culture.

8. Development Action Plan for Scheduled Tribes

(DAPST)

Ensures all central ministries implement welfare schemes for tribes, focusing on education, healthcare, and infrastructure.

Involves coordination among 41 ministries with significant budget allocations.

9. National Scheduled Tribes Finance and Development Corporation (NSTFDC)

Provides financial assistance to ST beneficiaries at concessional interest rates for income-generating activities.

10. Tribal Cooperative Marketing Development Federation of India (TRIFED)

Promotes tribal products through TRIBES India outlets and e-commerce platforms.

Creates sustainable livelihood opportunities by linking artisans to broader markets.



CHALLENGES FACED BY TRIBAL COMMUNITIES IN INDIA:

1. Poverty

Many tribal communities struggle with poverty, lacking access to basic necessities such as food, clean water, and adequate shelter.

2. Illiteracy

High illiteracy rates hinder educational and employment opportunities, trapping many in cycles of poverty.

3. Developmental Backwardness

Tribal areas often lack essential infrastructure, including healthcare facilities, schools, and transportation, leading to overall developmental delays.

4. Rural-Urban Divide

There is a significant gap between rural tribal regions and urban centers, limiting access to resources and opportunities.

5. Social Stigma

Discrimination and social stigma against tribal communities can result in exclusion and hinder their integration into wider society.

6. Gender Inequality

Tribal women often face gender-based discrimination, restricting their access to education, healthcare, and economic opportunities.

7. Cultural Disconnection

Many tribal individuals may feel hesitant to engage with mainstream society due to cultural differences and historical marginalization.

8. Lack of Awareness

Insufficient understanding of tribal cultures among non-tribal populations can lead to misconceptions and ineffective policies.

9. Regional Disparities

Significant inequality exists among different tribal groups, with some, such as the Munda, Gond, and Bhil, facing more challenges than others.

10. Neglect of Lesser-Known Tribes

Government initiatives often focus on a few prominent tribes, overlooking the diverse needs of less recognized groups, exacerbating disparities.

CONCLUSION:

The Indian government's initiatives for tribal empowerment have significantly enhanced the socio-economic and cultural fabric of these communities. Through these programs, the Indian

government aims to ensure that tribal communities receive the necessary support to bridge the development gap and improve their socio-economic conditions. The PM Dharti Aaba Janjatiya Gram Utkarsh Abhiyan and other initiatives like EMRS and PM-JANMAN reflect the government's commitment to empowering tribal populations and ensuring their inclusion in India's growth story.

PRELIMS QUESTION:

Q. Which of the following schemes supports the marketing of tribal products through e-commerce?

- A. Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan
- B. Tribal Cooperative Marketing Development Federation of India (TRIFED)
- C. National Fellowship for ST Students
- D. Sick Cell Anaemia Elimination Mission

Answer: B

Mains Question:

Q. Critically assess the effectiveness of the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan in addressing socio-economic disparities in tribal regions. What metrics can be used to evaluate its success?

(250 words, 15 marks)

Empowering Farmers: Unleashing the Potential of Pradhan Mantri Krishi Sinchayee Yojana

WHY IN THE NEWS?

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was approved by the Cabinet Committee on Economic Affairs (CCEA) with the motto of "Har Khet Ko Pani." It is being implemented to expand cultivated areas with assured irrigation, reduce wastage of water and improve water use efficiency.

PROGRAMME COMPONENTS PMK

1. Accelerated Irrigation Benefit Programme (AIBP): A flagship initiative providing financial support for irrigation projects to enhance infrastructure and water supply.

2. Har Khet Ko Paani (HKKP): Aims to expand cultivable areas under assured irrigation, funded through the Command Area Development & Water Management (CADWM) programme, implemented by state departments.

3. Watershed Development: Focuses on effective management of runoff water and soil moisture conservation through activities like ridge area treatment, drainage line treatment, rainwater harvesting, and in-situ moisture conservation.

4. Per Drop – More Crop (Micro Irrigation): Emphasizes maximizing water use efficiency at the farm level, promoting micro-irrigation techniques such as drip and sprinkler systems.

5. Supplementary Water Management Activities (SWMA): Involves farm-level secondary storage structures to support water management and enhance irrigation efficiency.

KEY FEATURES OF PMKSY:

1. Irrigation Infrastructure Development: Focuses on creating and upgrading irrigation facilities, including constructing canals, pipelines, and water

storage systems to enhance water accessibility.

2. Micro-Irrigation: Promotes drip and sprinkler irrigation to maximize water efficiency and minimize wastage, supporting sustainable farming practices.

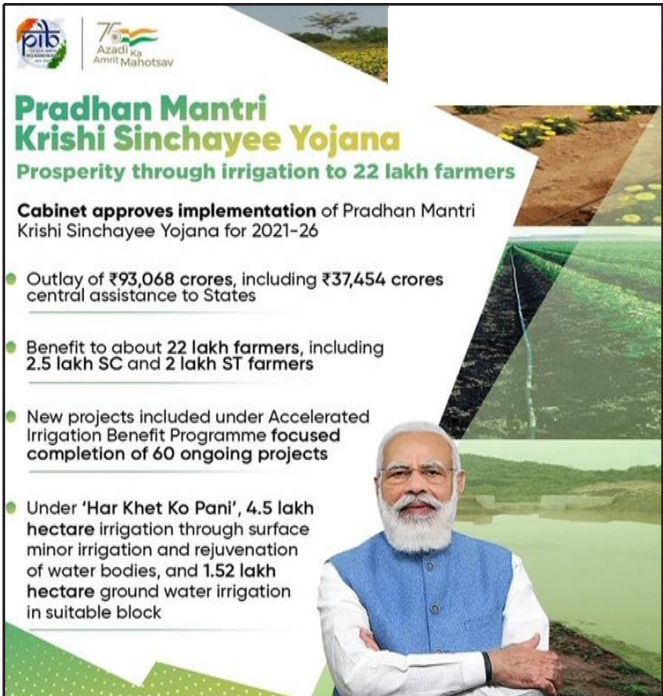
3. Water Conservation: Emphasizes rainwater harvesting and watershed development to ensure sustainable water usage and promote environmental stewardship.

4. Farmer Participation: Encourages active involvement of farmers in planning and implementation processes, ensuring that their needs and local conditions are prioritized.

Integrated Approach: Aims to synergize with other government schemes, enhancing agricultural productivity and improving farmer livelihoods through holistic support.

5. Use of Technology: Incorporates modern technologies, such as remote sensing and GIS mapping, to assess irrigation needs and monitor water resources effectively

6. Focus on Drought-Prone Areas: Targets regions vulnerable to drought, implementing tailored strategies for improved water management and irrigation.



Pradhan Mantri Krishi Sinchayee Yojana
Prosperity through irrigation to 22 lakh farmers

Cabinet approves implementation of Pradhan Mantri Krishi Sinchayee Yojana for 2021-26

- Outlay of ₹93,068 crores, including ₹37,454 crores central assistance to States
- Benefit to about 22 lakh farmers, including 2.5 lakh SC and 2 lakh ST farmers
- New projects included under Accelerated Irrigation Benefit Programme focused completion of 60 ongoing projects
- Under 'Har Khet Ko Pani', 4.5 lakh hectare irrigation through surface minor irrigation and rejuvenation of water bodies, and 1.52 lakh hectare ground water irrigation in suitable block

SIGNIFICANCE OF PMKSY:

1. Increased Crop Productivity: Improved irrigation facilities lead to higher crop yields, contributing to farmer income and food security.

2. Sustainable Practices: Promotes water conservation and sustainable farming practices, crucial for environmental sustainability.

Component of PMKSY	Central assistance (CA) released during 2016-23 (Rs. in crore)
Accelerated Irrigation Benefit Programme with pari passu implementation of Command Area Development & Water Management	18,727.78
Har Khet Ko Pani – Surface Minor Irrigation and Repair, Renovation and Restoration of water bodies	4,010.32
Har Khet Ko Pani – Ground Water Development	764.89
Per Drop More Crop	16,688.71
Watershed Development	9,559.07
Total	49,750.77

3. **Economic Development:** By empowering farmers, the scheme contributes to rural economic growth and poverty alleviation.

4. **Climate Resilience:** Enhances farmers' ability to cope with the impacts of climate change through better water management.

5. **Enhanced Food Security:** Increases crop yields and resource management, crucial for mitigating hunger and malnutrition for the growing population.

6. **Rural Employment Generation:** Develops irrigation infrastructure, creating job opportunities and enhancing skill development in rural communities.

7. **Promotion of Technological Adoption:** Encourages modern irrigation methods, fostering agricultural innovation and improving competitiveness in the sector.

CHALLENGES OF PMKSY:

1. **Implementation Issues:** Delays in project execution and bureaucratic hurdles hinder timely progress and effectiveness.

2. **Awareness and Training:** Many farmers lack knowledge of efficient irrigation techniques, limiting the adoption of modern practices.

3. **Funding Constraints:** Limited financial resources restrict the scale and outreach of PMKSY initiatives, affecting overall impact.

4. **Geographical Disparities:** Diverse regional challenges require tailored approaches, making a uniform strategy less effective.

5. **Technical Infrastructure:** Insufficient technical support and maintenance for irrigation systems can lead to inefficiencies and breakdowns.

6. **Data Gaps:** Lack of accurate data on water resources and agricultural needs complicates planning and implementation.

7. **Climate Change Impact:** Increasing variability in weather patterns poses additional challenges for irrigation planning and water management.

8. **Farmer Resistance:** Some farmers may hesitate to adopt new technologies due to traditional practices or scepticism about benefits.

WAY FORWARD FOR PMKSY:

1. **Capacity Building:** Implement comprehensive training programs for farmers on modern technologies and sustainable agricultural practices.

2. **Strengthening Collaboration:** Foster partnerships between government agencies, NGOs, and agricultural research institutions to enhance knowledge sharing and resource utilization.

3. **Monitoring and Evaluation:** Establish robust mechanisms for tracking progress and assessing the impact of PMKSY initiatives to ensure accountability and continuous improvement.

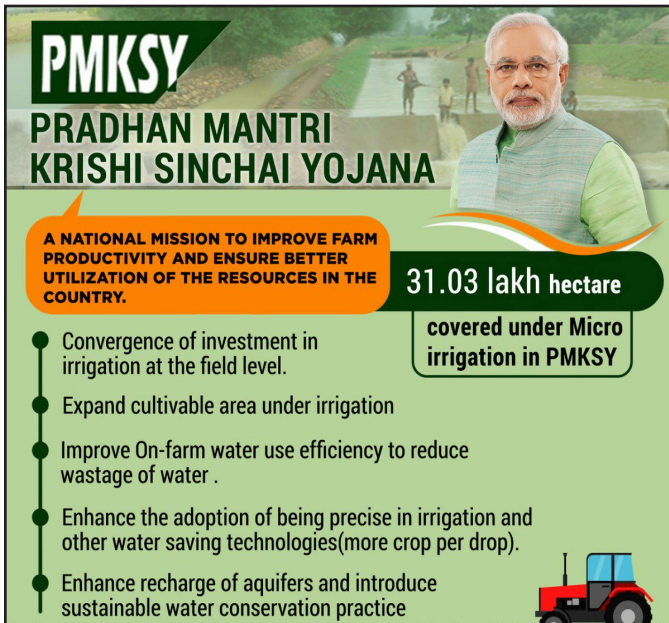
4. **Increasing Investment:** Pursue additional funding sources, including public-private partnerships, to broaden the program's reach and effectiveness.

5. **Tailored Approaches:** Develop region-specific strategies to address unique agricultural and climatic challenges faced by different areas.

6. **Farmer Engagement:** Involve farmers in decision-making processes to ensure that their insights and needs are incorporated into project planning.

7. **Technology Dissemination:** Promote the use of digital platforms for disseminating information on best practices and available resources to farmers.

8. **Policy Advocacy:** Advocate for supportive policies that enhance irrigation infrastructure and encourage sustainable practices in agriculture.



CONCLUSION:

The Pradhan Mantri Krishi Sinchayee Yojana holds significant promise for transforming Indian agriculture by addressing irrigation challenges and promoting sustainable practices. While challenges remain, a focused approach on capacity building, collaboration, and investment can help unleash the full potential of this initiative, ultimately leading to empowered farmers and enhanced food security.

Prelims Question:

Q. Consider the following statements:

1. The HKKP initiative aims to improve irrigation access for farmers.
2. HKKP is solely focused on urban agriculture.
3. The initiative is part of the broader PMKSY framework to enhance water management in agriculture.

How many of the statements given above are correct?

A. Only one

B. Only two

C. All three

D. None

Answer: A

Mains Question:

Q. How can robust monitoring and evaluation frameworks be designed to measure the success of PMKSY initiatives and inform future policy adjustments?

(250 words, 15 marks)

PRELIMS BITS: Elimination of Trachoma and Micro RNA.

WHY IN THE NEWS?

The World Health Organization has recognized India for successfully eliminating trachoma as a public health issue. India joins Nepal and Myanmar in the WHO South-East Asia Region, and 19 other countries globally have previously achieved this feat.

Key Facts about Trachoma

Cause: Trachoma is an eye disease caused by the bacterium *Chlamydia trachomatis*.

Transmission: The infection spreads through contaminated fingers, objects, and flies that contact with discharge from infected individuals' eyes or noses.

Risk Factors: Environmental factors contributing to trachoma include poor hygiene, overcrowded living conditions, and limited access to water and sanitation facilities.

Complications: Repeated infections can lead to scarring of the eyelids, causing trachomatous trichiasis, where eyelashes turn inward and touch the eyeball. This painful condition can lead to visual impairment and blindness if untreated.

Elimination Strategy: The WHO recommends the SAFE strategy (Surgery, Antibiotics, Facial cleanliness, and Environmental improvement) to eliminate trachoma as a public health problem.

Global Progress: India is one of 20 WHO-validated countries for eliminating trachoma, joining nations such as Benin, Cambodia, China, and others.

Neglected Tropical Diseases Road Map: The 2021–2030 road map aims to prevent, control, eliminate, and eradicate 21 diseases, including trachoma, by 2030.

Why in the news?

The 2024 Nobel Prize in Physiology or Medicine has been awarded to US scientists Victor Ambros and Gary Ruvkun for their work on the discovery of microRNA.

Key Facts about Ribonucleic Acid (RNA)

Definition: RNA is a molecule found in most living organisms and viruses, crucial for various biological functions.

Structure: Composed of nucleotides made of ribose sugars, phosphate groups, and nitrogenous bases.

Typically single-stranded, though some RNA viruses are double-stranded.

Function: Serves primarily as a messenger, transmitting instructions from DNA for protein synthesis.

Regulates gene expression, catalyzes biological reactions, and responds to cellular signals.

Types of RNA:

Messenger RNA (mRNA): Carries genetic information from DNA to ribosomes.

Ribosomal RNA (rRNA): Forms the core of ribo-

some structure and function.

Transfer RNA (tRNA): Delivers amino acids to ribosomes during protein synthesis.

Relationship to DNA: Structurally similar, with RNA's backbone made of ribose and DNA's backbone made of deoxyribose. Both share adenine (A), guanine (G), and cytosine (C), but RNA contains uracil (U) instead of thymine (T).

Therapeutic Potential: Certain RNA molecules may have applications in treating human diseases.

RNA interference (RNAi) screening can analyze entire genomes and pathways on an industrial scale.

Key Facts about micro-RNA (miRNA)

Definition: miRNAs are a class of non-coding RNAs that regulate gene expression.

Biogenesis: Transcribed from DNA into primary miRNAs.

Processed into precursor miRNAs and then matured into functional miRNAs.

Extracellular Functions: miRNAs can be secreted into extracellular fluids and transported to target cells via vesicles (e.g., exosomes) or by binding to proteins like Argonautes. Function as chemical messengers, facilitating cell-cell communication

Significance of micro-RNA (miRNA) in Human and Animal Diseases

1. Inherited Diseases

Hearing Loss: A mutation in the seed region of miR-96 is linked to hereditary progressive hearing loss.

Keratoconus and Cataracts: A mutation in the seed region of miR-184 is associated with hereditary keratoconus and anterior polar cataracts.

Skeletal Defects: Deletion of the miR-17~92 cluster results in skeletal and growth abnormalities.

2. Cancer

Cell Proliferation Control: Many miRNAs directly target and inhibit cell cycle genes, regulating cell proliferation.

Chronic Lymphocytic Leukemia: The first human disease connected to miRNA deregulation; several other miRNAs, termed “oncomirs,” are also linked to cancer.

Role in B Cells: In malignant B cells, miRNAs are involved in critical pathways such as B-cell receptor (BCR) signaling, migration, adhesion, and immunoglobulin production and class-switching. They influence various stages of B cell development, including pre-B, marginal zone, follicular, B1, plasma, and memory B cells.

3. Heart Disease

Developmental Role: Conditional inhibition of miRNA maturation in the murine heart indicates that miRNAs are essential for heart development and function.

4. Nervous System

Neuronal Development: miRNAs play a crucial role in the healthy development and function of the nervous system, regulating neuronal differentiation and maturation at various stages.

PRELIMS QUESTION?

Q.1, With reference to the trachoma disease, Consider the following statement:

1. Trachoma is a viral disease affecting the lungs and kidneys.
2. India is the first country in South Asia which declared Trachoma free by WHO.
3. Poor hygiene is one of the factors in the spread of trachoma in many parts of the world.

How many of the above-given statements are correct?

- A. Only one
- B. Only two
- C. All three
- D. None

Q.2. Consider the following diseases:

1. Cancer
2. Hearing Loss
3. Cardiac arrest
4. Skeletal Defects

How many of the above-mentioned diseases are associated with the functioning of the Micro RNA?

- A. Only one
- B. Only two
- C. Only three
- D. All four

ANSWER:

1. A
2. D

UNFPA Recognizes India's Commitment to Advancing Maternal Health and Family Planning"

WHY IN THE NEWS?

The Ministry of Health and Family Welfare is implementing a number of programmes to improve maternal health outcomes toward achieving zero preventable maternal deaths. These include assured quality and respectful maternity care under the Surakshit Matritva Aashwasan Yojana (SUMAN),

Pradhan Mantri Surakshit Matritva Abhiyan (PMS-MA) and the Midwifery Services Initiative.



KEY FACTS:

- 1. Global Standing:** India is one of the most significant contributors to global maternal mortality, highlighting the urgent need for improved healthcare strategies.
- 2. Progress in Numbers:** The Maternal Mortality Ratio has decreased significantly from 374 per 100,000 live births in 2016-18 to around 97 per 100,000 live births in recent years, showcasing substantial improvements.
- 3. Disparities in Access:** There are significant regional disparities in maternal health outcomes, with rural areas often facing higher MMR due to a lack of access to quality healthcare facilities.
- 4. Government Spending:** The Indian government has increased its budget for health services, particularly maternal health, emphasizing the importance of comprehensive care during pregnancy and childbirth.
- 5. Focus on Adolescents:** Initiatives aimed at educating adolescents about reproductive health and family planning are being emphasized to reduce early pregnancies and improve maternal health outcomes.
- 6. Partnerships:** Collaboration with NGOs and international organizations, including UNFPA, has been instrumental in implementing maternal health programs and improving family planning services.
- 7. Innovative Solutions:** The use of technology, such as mobile health applications and telemedicine, has been introduced to reach remote populations and provide timely healthcare information and services.

8. Awareness and Education: Community-based programs have been launched to educate families about the importance of maternal health, leading to increased utilization of healthcare services.

GOVERNMENT INITIATIVES:

- 1. Janani Suraksha Yojana (JSY):** A cash incentive program encouraging institutional deliveries among pregnant women, particularly in rural areas, to reduce MMR.
- 2. National Family Planning Program:** Aimed at providing a range of contraceptive choices, ensuring informed and voluntary decisions for family planning among couples.
- 3. Pradhan Mantri Matru Vandana Yojana (PM-MVY):** A maternity benefits program providing financial assistance to pregnant women to ensure proper nutrition and healthcare during pregnancy.
- 4. Maternal Health Program:** An initiative focusing on antenatal care, skilled birth attendance, and postnatal care to enhance overall maternal health outcomes.
- 5. ASHA (Accredited Social Health Activist) Program:** Mobilizes community health workers to promote maternal health services, educate families, and facilitate access to healthcare facilities.
- 6. Swasthya Sathi Scheme:** A health insurance program that aims to provide coverage for maternal health services, reducing the financial burden on families.
- 7. Digital Health Initiatives:** Integration of technology in maternal health services, including the use of mobile apps and telemedicine to provide education and consultations for expectant mothers.
- 8. State-specific Initiatives:** Various states have launched tailored programs addressing local maternal health challenges, demonstrating a decentralized approach to healthcare delivery.

ARTICLE 47 OF THE INDIAN CONSTITUTION:

- 1. Directive Principles of State Policy:** Article 47 emphasizes the state's responsibility to raise the level of nutrition and standard of living and to improve public health, particularly among vulnerable populations.

2. Focus on Maternal and Child Health: This article mandates the government to prioritize maternal and child health as part of its broader health initiatives, reflecting the importance of these issues in national policy.

MEASURES TO IMPLEMENT ARTICLE 47:

1. Integrated Healthcare Services: Establishing comprehensive healthcare systems that provide maternal and child health services as part of general healthcare to ensure accessibility and continuity of care.

2. Public Health Campaigns: Launching nationwide campaigns to raise awareness about maternal health, nutrition, and the importance of antenatal and postnatal care, targeting both urban and rural populations.

3. Strengthening Infrastructure: Investing in healthcare infrastructure, particularly in rural and underserved areas, to provide essential services like maternal health clinics and birthing centres.

4. Capacity Building for Healthcare Providers: Continuous training and skill development for healthcare workers to ensure high-quality maternal care and adherence to best practices.

5. Monitoring and Evaluation Systems: Establishing robust systems to monitor maternal health indicators, evaluate the effectiveness of existing programs, and identify areas for improvement.

REASONS FOR PERSISTENTLY HIGHER MMR:

1. Lack of Skilled Birth Attendants: Many

births occur at home without the presence of skilled healthcare professionals, increasing the risk of complications during delivery.

2. Delay in Seeking Care: Women may delay seeking medical help due to a lack of awareness, fear, or stigma associated with maternal health issues, leading to worsening conditions.

3. Limited Access to Emergency Services: Insufficient availability of emergency obstetric care in rural areas hampers timely intervention for complications such as haemorrhage or eclampsia.

4. Transportation Challenges: Poor transportation infrastructure can delay access to healthcare facilities, particularly in emergencies, resulting in adverse maternal health outcomes.

5. Health System Inequities: Disparities in healthcare access based on caste, gender, and economic status can prevent marginalized groups from receiving adequate maternal care.

6. Inadequate Postnatal Care: Limited focus on postnatal care leaves many women without essential follow-up services after childbirth, which is crucial for identifying and managing complications.

7. Infectious Diseases: A high prevalence of communicable diseases (e.g., malaria, tuberculosis) can complicate pregnancies and increase the risk of maternal mortality.

8. Family Planning: High rates of unintended pregnancies due to inadequate access to contraceptive services can lead to higher maternal health risks, especially among young and undernourished women.

WAY FORWARD:

1. Enhancing Training and Education: Implement ongoing training programs for healthcare providers to ensure they are equipped with the latest knowledge and skills in maternal and child health care.

2. Telemedicine and Digital Health Solutions: Expand the use of telemedicine and mobile health applications to provide remote consultations and health education, particularly in rural areas with limited access to healthcare.

3. Improving Data Collection and Monitoring: Establish robust data systems for monitoring maternal health indicators, enabling evidence-based decision-making and targeted interventions.

4. Nutrition Support Programs: Implement comprehensive nutrition programs for pregnant and postpartum women to address malnutrition and improve health outcomes.

5. Public Awareness Campaigns: Launch campaigns to educate the public about maternal health, family planning, and the importance of institutional deliveries, thereby encouraging positive behaviour changes.

6. Involvement of Private Sector: Engage private healthcare providers in maternal health initiatives to enhance service delivery and expand access to quality care.

7. Financial Incentives and Insurance Schemes: Expand health insurance coverage and financial incentives for families to encourage them to seek institutional care during childbirth.

8. Focus on Mental Health: Integrate mental health services into maternal care to address issues such as postpartum depression and anxiety, ensuring holistic support for mothers.

CONCLUSION:

In conclusion, improving maternal health in India demands sustained commitment from both the government and international organizations. An integrated approach that links maternal health initiatives with overall health system strengthening is crucial. Establishing robust monitoring and evaluation mechanisms will help identify gaps and drive improvements. Engaging communities and prioritizing marginalized populations will enhance accessibility and effectiveness. By investing in education, training, and infrastructure, India can foster a supportive environment for maternal health, leading to better outcomes for women and their families.

Prelims Question:

Q. Consider the following statements:

Statement I: Article 47 mandates the establishment of maternal health insurance schemes.

Statement II: Article 47 emphasizes the state's responsibility to improve public health and nutrition standards.

Which one of the following is correct in respect of the above statements?

- A. Both Statement I and Statement II are correct, and Statement II is the correct explanation for Statement I
- B. Both Statement I and Statement II are correct, and Statement II is not the correct explanation for Statement I
- C. Statement I is correct, but Statement II is incorrect
- D. Statement I is incorrect, but Statement II is correct

Answer: D

Mains Question:

Q. Discuss the impact of the National Health Mission (NHM) on maternal health outcomes in India. How does the mission align with the goals set forth by UNFPA, and what measures can be further implemented to

enhance its effectiveness?

(250 words, 15 marks)

Lifestyle for Environment Initiative: Ecomark Rules Set to Transform Consumer Choices”

WHY IN THE NEWS?

The Ministry of Environment, Forest and Climate Change has announced Ecomark Rules under the Lifestyle for Environment (LiFE) initiative. These rules aim to promote eco-friendly products through a certification system, encouraging sustainable consumption. By setting standards for various product categories, the initiative seeks to raise awareness of environmentally responsible choices and reduce the ecological footprint in India.

WHAT IS ECOMARK?

Ecomarks is an environmental certification mark launched by India's Ministry of Environment, Forest and Climate Change. It identifies products with reduced environmental impact, promoting eco-friendly choices across categories like food, personal care, textiles, and household items. Ecomarks aims to raise sustainability awareness, support manufacturers in adopting greener practices, and foster a more sustainable marketplace.



OBJECTIVES OF ECOMARKS:

1. Promote Sustainable Consumption: Encourage

responsible choices to reduce global plastic waste, which exceeds 300 million tons annually.

2. Enhance Product Awareness: Help consumers identify eco-friendly products, aiming to boost the sustainable goods market to \$150 billion in India by 2025.

3. Support Eco-Friendly Manufacturing: Promote practices that align with India's goal to reduce emissions intensity by 33-35% by 2030.

4. Reduce Environmental Footprint: Address the 62 million tons of municipal solid waste generated annually in India, promoting better waste management.

5. Foster Market Competition: Drive innovation in sustainability, as 66% of global consumers are willing to pay more for eco-friendly brands.

6. Educate Consumers: Increase awareness of sustainability, currently at only 39% among Indian consumers.

7. Align with National Goals: Support India's commitment to achieve 50% of power capacity from non-fossil sources by 2030.

8. Promote Local Products: Enhance local manufacturing under the "Make in India" initiative, targeting a GDP contribution increase from 16% to 25% by 2025.

PRODUCTS COVERED UNDER THE ECOMARK SCHEME:

1. Food Products: Organic and sustainably sourced food items that minimize chemical use.

2. Beverages: Eco-friendly packaging and production methods for drinks.

3. Household Items: Cleaning agents, detergents, and other household products made from biodegradable or non-toxic ingredients.

4. Personal Care Products: Cosmetics and toiletries that are free from harmful chemicals and are sustainably produced.

5. Textiles: Clothing and fabrics made from organic or recycled materials.

6. Packaging Materials: Eco-friendly packaging solutions that reduce plastic waste.

7. Stationery: Products like paper and writing instruments made from recycled or sustainable materials.

8. Building Materials: Eco-friendly construction materials that promote energy efficiency and sustainability.

RULES OF ECOMARKS:

1. Certification: Ecomarks is a certification mark for environmentally friendly products in India, indicating lower environmental impact.

2. Consumer Awareness: Aims to educate consumers about sustainable choices, helping them identify eco-friendly products easily.

3. Product Categories: Covers a wide range of products, including food, personal care, textiles, and household items.

4. Sustainable Practices: Encourages manufacturers to adopt eco-friendly production methods and use sustainable materials.

5. Market Growth: Supports the growing demand for sustainable products, aligning with global trends towards environmental responsibility.

6. Regulatory Framework: Developed by the Ministry of Environment, Forest and Climate Change to promote sustainability in consumer goods.

7. Waste Reduction: Focuses on reducing waste and pollution, contributing to better waste management practices in India.

8. Support for Local Businesses: Encourages local artisans and manufacturers to produce sustainable products, boosting local economies.

SIGNIFICANCE OF ECOMARKS:

1. Promotes Sustainable Choices: Ecomarks helps consumers identify and choose products that are environmentally friendly, encouraging a shift toward sustainable consumption.

2. Supports Environmental Goals: The initiative aligns with India's broader environmental objectives, contributing to efforts to reduce pollution and conserve natural resources.

3. Encourages Eco-Friendly Manufacturing: By incentivizing manufacturers to adopt sustainable practices, Ecomarks drive innovation and reduce the environmental impact of production processes.

4. Enhances Consumer Awareness: Ecomarks raise awareness about the importance of sustainability, helping consumers understand the environmental consequences of their purchases.

5. Boosts Market for Green Products: The certification can stimulate demand for eco-friendly products, leading to growth in the green economy and supporting local businesses.

6. Improves Waste Management: By promoting products with sustainable packaging and reduced waste, Ecomarks contributes to better waste management practices.

7. Strengthens Brand Reputation: Products with Ecomark certification can enhance brand credibility and attract environmentally conscious consumers.

8. Facilitates Compliance: Ecomarks provide a framework for businesses to comply with environmental regulations and standards, promoting corporate responsibility.

CHALLENGES:

1. Consumer Awareness: Limited awareness and understanding of Ecomark among consumers may hinder its adoption and impact.

2. Compliance Costs: Manufacturers may face high costs associated with meeting Ecomark standards and obtaining certification, particularly small and medium enterprises.

3. Market Acceptance: Resistance from consumers accustomed to traditional products could slow the shift toward eco-friendly alternatives.

4. Verification and Monitoring: Ensuring compliance with Ecomark standards requires effective monitoring and verification mechanisms, which can be resource-intensive.

5. Limited Product Range: Initially, the availability of Ecomark-certified products may be limited, reducing consumer options.

6. Misleading Claims: The potential for "greenwashing," where products falsely claim to be eco friendly, could undermine the credibility of the Ecomark certification.

7. Integration into Supply Chains: Manufacturers may struggle to integrate sustainable practices into existing supply chains, affecting their ability to obtain Ecomark certification.

8. Regional Disparities: Variations in environmental practices and awareness across different regions in India can lead to uneven implementation and impact of the initiative.

WAY FORWARD:

1. Awareness Campaigns: Implement targeted educational campaigns to inform consumers about Ecomark, its benefits, and how to identify certified products.

2. Financial Support: Provide subsidies or financial assistance to small and medium enterprises (SMEs) to help them cover compliance costs for obtaining

Ecomark certification.

3. Incentives for Adoption: Introduce incentives, such as tax breaks or marketing support, for businesses that adopt and promote Ecomark-certified products.

4. Robust Monitoring Systems: Develop efficient verification and monitoring systems to ensure compliance with Ecomark standards, possibly utilizing technology for tracking.

5. Expand Product Range: Encourage a wider variety of manufacturers to apply for Ecomark certification, increasing the range of certified products available to consumers.

6. Combat Greenwashing: Establish clear guidelines and penalties for false claims about sustainability to maintain the credibility of Ecomark certification.

7. Training and Resources: Provide training and resources for manufacturers to help them integrate sustainable practices into their supply chains effectively.

8. Tailored Regional Strategies: Design and implement strategies that cater to regional differences in environmental practices and consumer behaviour to ensure effective implementation of the initiative.

CONCLUSION:

The Ecomark initiative promotes sustainability in India by certifying eco-friendly products, raising consumer awareness, and supporting manufacturers in adopting greener practices. Despite challenges like limited awareness and compliance costs, targeted campaigns and financial support can enhance its effectiveness. Ecomark aims to create a sustainable marketplace and align with national environmental goals, contributing to global efforts for responsible consumption and a greener future for India.

Prelims Question:

Q. The Ecomark initiative contributes to which of the following Sustainable Development Goals (SDGs)?

- A. SDG 2: Zero Hunger
- B. SDG 12: Responsible Consumption and Production
- C. SDG 4: Quality Education
- D. SDG 10: Reduced Inequalities

Answer: B

Mains Question:

Q. Discuss the challenges faced by small and medium enterprises (SMEs) in obtaining Ecomark certification. What strategies can be implemented to support these businesses?

Chasing the Northern Lights: A Journey into the Aurora Borealis

WHY IN THE NEWS?

Recently, Auroras, which are typically visible in high-latitude regions such as the North and South Poles, have been observed worldwide, including in areas where they are uncommon. In India, they were observed through all-sky cameras positioned around the Indian Astronomical Observatory (IAO) in Hanle, Ladakh.

WHAT IS THE AURORA PHENOMENON?

Auroras are bright and colourful lights formed due to an active interaction in Space between charged solar winds and the Earth's magnetosphere. They occur when violent solar events

eject charged particles into space, which become trapped in Earth's magnetic field and interact with atmospheric atoms, ultimately resulting in geomagnetic storms and the creation of aurora. The constantly changing inputs from the sun, the varying responses from the Earth's upper atmosphere, and the motion of the planet and particles in near-Earth space all work together to create different auroral motions and shapes. The phenomenon in the Northern Hemisphere is called the Northern Lights (aurora borealis); in the Southern Hemisphere, it's called the Southern Lights (aurora australis).



MECHANISM OF AURORA BOREALIS:

- 1. Electrical Connection:** Auroras result from the Earth's electrical connection to the Sun, showcasing how solar energy affects our planet.
- 2. Charged Particles:** They are triggered by electrically charged particles (primarily electrons) from the Sun, which are trapped in Earth's magnetic field.
- 3. Collisions:** The typical aurora results from collisions between these fast-moving electrons and gases (oxygen and nitrogen) in the upper atmosphere.
- 4. Energy Transfer:** Electrons from the magnetosphere transfer energy to atmospheric gases, exciting them.
- 5. Photon Emission:** As the gases return to their normal state, they emit photons (light bursts), creating the visible auroral display.
- 6. Intensity:** A significant electron influx can make

bright auroras visible to the naked eye.

7. Origin of Auroras: Originate at altitudes of 100 km to over 400 km. Colours and Shapes of Auroras Colour depends on the gas (oxygen or nitrogen) being excited. Energy levels of electrons affect emitted colours.

8. Common Colors: Green: High-energy electrons exciting oxygen.

Red: Low-energy collisions with oxygen.

Blue: Emitted by nitrogen.

A blending of emissions can create purples, pinks, and whites.

Ultraviolet light emissions are detectable by satellites.

AURORA BOREALIS IN INDIA:

- 1. Leh-Ladakh:** This high-altitude desert region offers some of the clearest skies in India, making it a fantastic spot for stargazing. While the Aurora Borealis is unlikely, the stunning night sky filled with stars can be mesmerizing.
Best Time: October to March, when the skies are clear and the nights are long.
- 2. Kashmir:** Known for its breathtaking landscapes, areas in Kashmir, especially around Gulmarg and Pahalgam, provide opportunities for clear night skies.
Best Time: Winter months are ideal for clearer visibility.
- 3. Nubra Valley:** Located in Ladakh, Nubra Valley offers stunning views and minimal light pollution, making it an excellent location for stargazing.
Best Time: Summer months, especially during clear nights.
- 4. Mount Abu:** Mount Abu has relatively clear skies as the only hill station in Rajasthan. While Auroras are not visible, the stargazing experience can still be rewarding.
Best Time: October to March.
- 5. Rann of Kutch:** The white salt desert of Kutch in Gujarat offers unique night skies, especially during

the Rann Utsav festival, which attracts many tourists for its cultural performances and clear skies. Best Time: November to February.

SIGNIFICANCE OF AURORA BOREALIS:

1. Solar-Earth Connection: Provides insights into the interaction between solar winds and Earth's magnetic field.

2. Atmospheric Studies: Helps researchers understand atmospheric composition and dynamics at high altitudes.

3. Space Weather Monitoring: Acts as a natural indicator of space weather events, aiding in forecasting potential impacts on satellite and communication systems.

4. Indigenous Lore: Holds cultural importance in many indigenous Arctic communities, often featured in folklore and mythology.

5. Inspiration: Inspires art, literature, and scientific exploration, reflecting humanity's fascination with nature.

- **Ecosystem Impact:** Affects local ecosystems by influencing weather patterns and animal behaviours in polar regions.

6. Climate Change Indicators: Changes in auroral activity may signal climate and atmospheric conditions shifts.

7. Tourism Attraction: Drives eco-tourism in regions like Norway, Iceland, and Canada, boosting local economies.

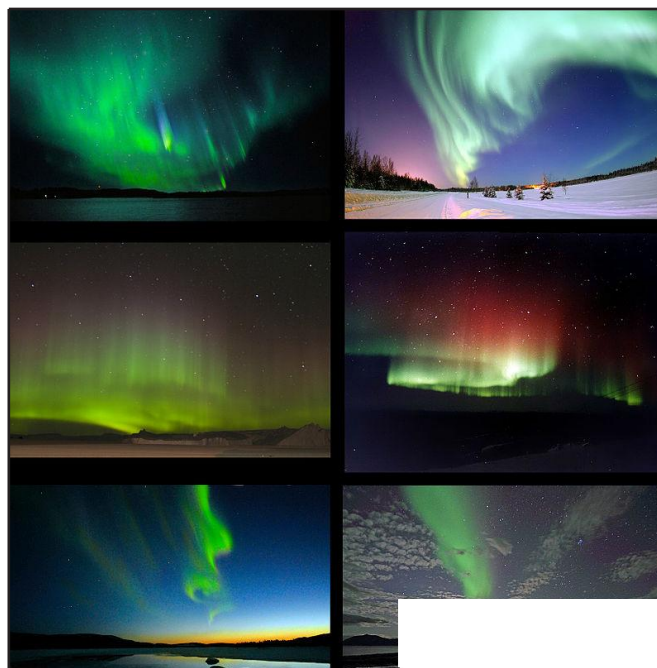
8. Educational Opportunities: Provides unique learning experiences for tourists and researchers, promoting awareness of atmospheric science.

9. Emotional Impact: Witnessing the aurora can evoke feelings of awe and wonder, contributing to mental well-being and a deeper appreciation for nature.

EFFECTS:

1. Auroras affect communication lines, radio lines and power lines.
2. It should also be noted here that the Sun's ener-

gy, in the form of solar wind, is behind the whole process.



CONCLUSION:

Chasing the Northern Lights is not merely about witnessing a natural phenomenon; it's a journey into the heart of our planet's beauty and complexity. The science behind the Aurora Borealis and its cultural significance and environmental considerations create a rich tapestry of experiences for those fortunate enough to embark on this adventure. Whether standing under the vivid lights in a remote Arctic landscape or learning about its wonders from a knowledgeable guide, the Aurora Borealis offers a profound reminder of the mysteries of our universe and the beauty of the natural world.

Prelims Question:

Q. Consider the following statements: (2018)

1. The Earth's magnetic field has reversed every few hundred thousand years.
2. When the Earth was created more than 4000 million years ago, there was 54% oxygen and no carbon dioxide.

3. When living organisms originated, they modified the Earth's early atmosphere.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

Answer: C

Mains Question:

Q. Critically assess the environmental and economic implications of increasing tourism focused on the Aurora Borealis. What measures can be taken to promote sustainable tourism in these regions?

(250 words, 15 marks)