

1. NATIONAL HANDLOOM DAY



Context

- Prime Minister Shri Narendra Modi is set to participate in the National Handloom Day celebration on 7th August.
- The National Handloom Day, **first celebrated in 2015, was initiated to honour the Swadeshi Movement launched on 7th August, 1905**, which promoted indigenous industries and handloom weavers.

Details

The Launch of "भारतीय वस्त्र एवं शिल्प कोष" e-Portal

- During the National Handloom Day celebration, Prime Minister Narendra Modi will inaugurate the e-portal of "भारतीय वस्त्र एवं शिल्प कोष" (Repository of Textiles & Crafts).
- **Developed by the National Institute of Fashion Technology (NIFT), this portal serves as a repository of information about textiles and crafts.**
- It is designed to preserve and showcase the rich heritage of Indian textiles and handicrafts, providing a platform to promote and support artisans and craftsmen across the country.

Government Interventions to Support Handloom Weavers

The Government of India has undertaken various initiatives to uplift the handloom sector and provide support to weavers and allied workers.

- **Block Level Clusters:** The block level cluster scheme focuses on the integrated development of handloom pockets through interventions like skill up-gradation,



construction of individual work sheds, design and product development, and Common Facility Centers.

- **Skill Up-Gradation:** Weavers and allied workers receive training and exposure to learn new techniques, adapt to new technology, and develop innovative designs and colors. This enables them to keep pace with changing market trends.
- **Hatkarga Samvardhan Sahayata (HSS):** HSS aims to improve fabric quality and productivity by providing upgraded looms and accessories. The scheme involves both the Government of India and respective State Governments.
- **Work Shed Construction:** Individual work sheds are constructed close to weavers' homes, providing a dedicated working space for entire weaver families. Marginalized households and female weavers receive 100% financial assistance for these sheds.
- **Engagement of Designers:** Professional designers are engaged to create new designs and products, with provisions for paying their fees and establishing marketing linkages.
- **Yarn Subsidy:** The scheme provides freight charge reimbursement and a component of 15% yarn subsidy for cotton hank yarn, domestic silk, wool, and blended yarn. This helps handloom weavers compete with power-looms in pricing.
- **MUDRA Loan:** Weavers can access subsidized loans at a concessional interest rate of 6% through banks, and the Ministry bears the credit guarantee fee to encourage lending.
- **Learning Opportunities:** MoUs have been signed between the Ministry of Textiles and National Institute of Open Schooling (NIOS) and Indira Gandhi National Open University (IGNOU) to empower weavers and the youth from weaver families through education.
- **Bunkar Mitra Helpline:** A toll-free helpline has been set up to provide a single point of contact for addressing professional queries of handloom weavers.



- **Welfare Measures:** Handloom weavers are covered under various welfare schemes, including Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) and Pradhan Mantri Suraksha Bima Yojana (PMSBY).

Handloom Sector in India

Contribution of Handlooms

- The handloom industry plays a crucial role in India's economy and society.
- According to the **Handloom Census 2019-20**, there were around **35,22,512 handloom workers across the country, with an impressive 72.29% of them being women.**
- The sector is **one of the largest unorganized economic activities**, providing employment to over 43.31 lakh weavers from rural and semi-urban areas, most of whom are women and come from economically disadvantaged backgrounds.

Strengths of the Handloom Sector

The handloom sector boasts various strengths that give it a comparative advantage over other sectors:

- **Minimal Use of Capital and Power:** The handloom industry is eco-friendly and sustainable as it requires minimal capital and power for production.
- **Diverse Premium Design Choices:** The sector enables the production of unique and customized designs, offering consumers a wide variety of premium choices.
- **High Return on Investment (ROI):** Finished handloom products command higher prices, resulting in a higher return on investment for weavers.
- **Geographical Diversity:** Handlooms are spread across India, with a significant concentration in the North East region, accounting for 65.2% of total operational handlooms.

Women Empowerment and Workforce

- Women's empowerment is at the core of the handloom industry, with over 77% of the adult weavers and allied workers being women.
- In the North East region, women dominate the workforce with a staggering 48.98% representation.



- However, despite their significant contribution, women weavers often face challenges related to their recognition, social status, and access to credit and resources.

Challenges Faced

The handloom sector faces various challenges that hinder its growth and sustainability.

These challenges include:

- **Shortage of Inputs and Working Capital:** Weavers face difficulties in accessing raw materials and adequate working capital.
- **Inadequate Credit Availability:** Limited availability of credit for investment in the handloom business.
- **Marketing Issues:** Lack of awareness about customer preferences, inability to distinguish handloom from power loom products, and limited promotional campaigns.
- **Quality Inconsistencies and Supply Chain Inefficiencies:** Ensuring consistent product quality and efficient supply chain management.
- **Competition from Power Looms and Mills:** The handloom industry faces tough competition from power looms and mills.
- **Technological Backwardness:** The sector needs to adopt modern technologies for better efficiency.
- **Paucity in New Designs and Reduction in Number of Weavers:** Innovating and retaining skilled weavers is crucial for the industry's growth.

Potential for Exports

- The Indian handloom products hold immense potential in the global market.
- **India stands as the second-largest exporter of handloom products, with exports valued at US\$ 353.9 million in 2017-18.**
- **The industry caters to over 125 countries worldwide, showcasing its appeal and demand internationally.**

Way Forward for the Handloom Sector

- **Recognition and Inclusion:** Recognize the significant contribution of women weavers and workers in official statistics. Include women as primary workers in



census and enumerations to improve their access to credit and government schemes.

- **Financial Inclusion:** Facilitate better access to credit and working capital for weavers through cooperative societies and self-help groups. Create specialized development programs and budgetary allocations for women weavers.
- **Skill Development and Literacy:** Conduct skill development programs and literacy initiatives to enhance the standard of living for women weavers. Empower them with knowledge and skills to improve their productivity and socio-economic status.
- **Market Intelligence and Promotion:** Provide market intelligence to weavers to understand customer preferences and trends. Promote handloom products through campaigns, exhibitions, and e-commerce platforms to reach wider audiences.
- **Quality Assurance and Supply Chain Management:** Focus on maintaining consistent product quality and streamlining supply chain processes. Invest in technology and modern practices to improve efficiency and competitiveness.
- **Innovation and New Designs:** Encourage innovation and creativity in design development to keep the handloom industry attractive and relevant to changing market demands.
- **Support from Government Schemes:** Ensure effective implementation and dissemination of various government schemes for the handloom sector. Develop a comprehensive database to track progress and measure the impact of these initiatives.
- **Regional Focus and Cluster Development:** Concentrate on region-specific development initiatives, especially in the North East, which has a significant concentration of handlooms. Implement cluster development schemes for holistic growth.
- **Women's Welfare Programs:** Implement welfare schemes related to healthcare, insurance, and social security with a specific focus on women weavers.

- **Industry and Stakeholder Collaboration:** Foster collaboration between government agencies, industry associations, chambers of commerce, producers, and consumers to address challenges and promote sustainable growth in the handloom sector.
- **Export Promotion:** Continue to leverage the export potential of Indian handloom products and explore new markets globally to enhance foreign exchange earnings.
- **Digital Transformation:** Embrace digital technology to facilitate online marketing and e-commerce for handloom products. Develop a cab aggregator-like platform to match demand and supply in the industry.

2. Zoological survey of India says, 5% of birds are endemic to India.



Context

- The Zoological Survey of India's publication "75 Endemic Birds of India" sheds light on the significance of India's endemic bird species, accounting for 5% of the country's avian diversity.



Details

- 75 Endemic Birds of India provides details of bio-geographic regions where the species are found, their conservation status, historical relevance, differences in subspecies, distinguishing traits, and preferred habitats.
- India boasts an impressive 1,353 bird species, contributing to around 12.40% of global bird diversity.
- Endemic bird species are of paramount importance in the country's biodiversity, and their preservation is essential for maintaining ecosystem health and ecological balance.

Importance of Endemic Species in India's Biodiversity

Unique Adaptations and Ecological Significance

- Endemic birds exhibit specialized adaptations to distinct local environments, reflecting diverse ecosystems across India.
- Their presence serves as vital indicators of the health and functionality of various habitats and ecosystems.
- Preservation of these species ensures the continued functioning of intricate ecological relationships.

Contribution to Ecosystem Services

- Endemic bird species play crucial roles in pollination, seed dispersal, insect control, and natural pest regulation.
- For example, the Malabar Grey Hornbill, found in the Western Ghats, contributes to forest regeneration through seed dispersal.
- The Nicobar Megapode, endemic to the Nicobar Islands, plays a unique role in nesting behavior, burying its eggs to hatch through natural heat.
- Ensuring their survival supports essential ecosystem services that benefit both wildlife and human populations.

Conservation Status and Challenges Faced by Endemic Birds

Critically Endangered Species

Manipur Bush Quail (*Perdica manipurensis*)

- Last Recorded Sighting: 1907



- Description: This quail species is small and elusive, with a unique bush-dwelling habitat in the Manipur region
- Threats: Habitat loss due to deforestation and agriculture are major concerns for this species.

Himalayan Quail (*Ophrysia superciliosa*)

- Last Recorded Sighting: 1876
- Description: The Himalayan Quail is a medium-sized bird known for its striking plumage. It was once found in the foothills of the Himalayas.
- Threats: Habitat destruction and hunting are believed to have contributed to its decline.

Jerdon's Courser (*Rhinoptilus bitorquatus*)

- Last Confirmed Sighting: 2009
- Description: Jerdon's Courser is a nocturnal bird with long legs and a distinctive double collar marking.
- Threats: Habitat loss and disturbance due to human activities have severely impacted its population.

Endangered, Vulnerable, and Near Threatened Species

- Several endemic birds are classified as 'Endangered,' 'Vulnerable,' or 'Near Threatened.'
- The **Malabar Parakeet, found in the Western Ghats**, is listed as 'Near Threatened,' primarily due to habitat loss and trapping for the pet trade.
- The **Andaman Crake, found only in the Andaman Islands**, is also classified as 'Near Threatened' due to habitat loss and disturbance.

The Role of Public Awareness and Education

Dissemination of Information through the Publication

- "75 Endemic Birds of India" aims to educate the general public, particularly students, about these unique species.
- Detailed information in the publication includes etymology, historical relevance, distinguishing traits, and preferred habitats.



- Increased awareness fosters a sense of responsibility and generates public support for conservation efforts.

Importance of Public Engagement

- Educating the public fosters appreciation for India's avian heritage and encourages responsible behavior towards wildlife and habitats.
- Students and youth can become future conservation leaders, contributing to long-term sustainability and awareness.

Enhancing Conservation Efforts

Establishing Protected Areas and Habitats

- Creation and proper management of national parks and wildlife sanctuaries to safeguard critical bird habitats.
- Efforts to restore degraded habitats and establish ecological corridors to connect fragmented areas.

Sustainable Development Practices

- Promoting sustainable land use and resource management that balances development and conservation needs.
- Engaging with local communities to implement eco-friendly practices.

Involving Local Communities

- Collaborating with local stakeholders in decision-making processes and conservation initiatives.
- Providing economic incentives for communities to participate in conservation efforts.

Responsible Ecotourism

- Promoting ethical birdwatching and nature tourism that minimizes disturbances to bird habitats.
- Generating economic benefits for local communities and conservation projects.

Strengthening Research and Monitoring

- Conducting regular surveys to monitor population trends, distribution, and threats to endemic bird species.



- Utilizing scientific data to inform conservation strategies and adaptive management.

Zoological Survey of India

- The Zoological Survey of India (ZSI) is a **premier scientific organization under the Ministry of Environment, Forest and Climate Change, Government of India.**
- It was **established in 1916 with the primary objective of surveying, exploring, and documenting the fauna of the Indian subcontinent.**
- ZSI plays a crucial role in biodiversity research, conservation, and management, particularly in the field of zoology.

Key Functions of the Zoological Survey of India

- **Faunal Surveys:** ZSI conducts extensive field surveys and research across various ecosystems in India to document and study the diversity of animal species, including insects, birds, mammals, reptiles, and amphibians.
- **Taxonomy and Classification:** The organization is responsible for taxonomic research, describing new species, and updating the classification of existing ones. The accurate identification and classification of species are essential for understanding biodiversity.
- **Endangered Species Conservation:** ZSI plays a pivotal role in identifying and assessing the conservation status of endangered and threatened species, including endemic species, through the IUCN Red List.
- **Biodiversity Monitoring:** ZSI regularly monitors changes in species distribution, population trends, and habitat status to understand the impacts of human activities and climate change on biodiversity.
- **Publication of Faunal Records:** ZSI publishes comprehensive scientific literature, reports, and catalogs on the fauna of India, contributing to the knowledge base of the scientific community and conservationists.
- **Wildlife Research and Management:** The organization collaborates with various government and non-governmental agencies to conduct research on wildlife and recommend conservation strategies.

- **Capacity Building and Training:** ZSI actively engages in capacity building and training programs for students, researchers, and field personnel to enhance the understanding and conservation of biodiversity.

3. NEERAKSHI



Context

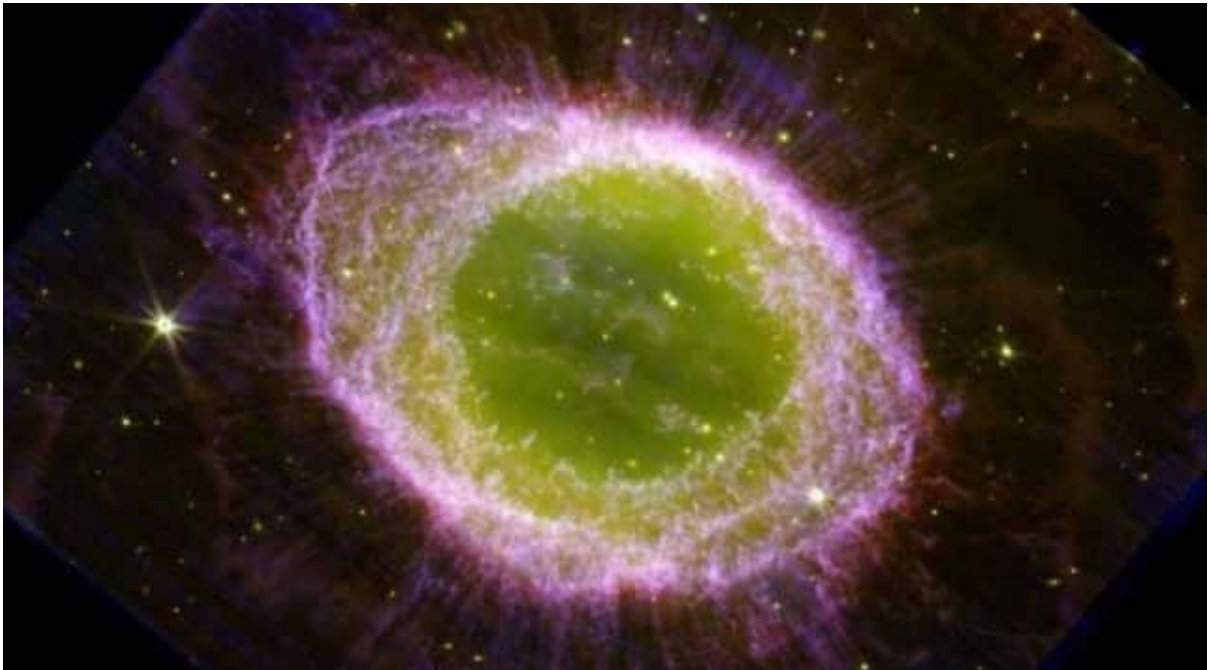
- An autonomous underwater vehicle (AUV) designed to detect mines and a first of its kind in the country was launched.

Details

- The AUV named 'Neerakshi' is a collaboration of Kolkata-based warship maker Garden Reach Shipbuilders and Engineers (GRSE) Ltd and MSME entity AEPL.
- The AUV was named **“Neerakshi” (meaning “Eyes in the Water”)**
- The lightweight and man-portable AUV has been designed to operate in a totally autonomous manner and its modular design enables it to carry out a variety of roles depending on the payload.
- The 2.15m long AUV will have an endurance of nearly 4 hours and is **capable of operating up to a depth of 300m.**
- These AUVs once in operation by our Armed Forces, could play an important role in mine countermeasure operations and also make excellent reusable targets during Anti-Submarine Warfare (ASW) practices by warships.

- They can also be deployed for passive acoustic monitoring during which they could remain in position for prolonged durations, monitoring the possible movement of sub-surface platforms.
- This can be used for a variety of functions ranging from mine detection to mine disposal to underwater survey.
- Once the user trials are complete, and user requirements are incorporated, commercial production of the AUV will commence.
- Efforts are in place to increase its endurance by 200-300%, enabling it to be deployed for coastguard duties either from a mother ship or the coast.

4.



Context

- Astronomers used the James Webb Space Telescope to capture this striking new image of Messier 57, more popularly known as the Ring Nebula.
- The nebula in the image is actually the glowing remains of a sun-like star and at its centre is the star's hot core, which is called a white dwarf.

Details

- The Ring Nebula, also **known as Messier 57 or M57**, is one of the most famous and visually striking objects in the night sky.



- Located in the constellation Lyra, approximately 2,000 light-years away from Earth, the Ring Nebula is a planetary nebula formed from the remnants of a dying star.

Formation and Structure of the Ring Nebula

Stellar Evolution

- The Ring Nebula was once a main-sequence star, similar to our Sun, that exhausted its nuclear fuel.
- As the star's core ran out of hydrogen, it underwent a series of nuclear fusion reactions, causing it to expand into a red giant.

Shedding Outer Layers

- In the red giant phase, the star expels its outer layers into space through powerful stellar winds.
- These expelled layers form an expanding shell of ionized gas and dust, creating the iconic ring-like structure.

The Appearance of the Ring Nebula

Visual Observations

- The Ring Nebula appears as a vividly colored, donut-shaped structure with a dark center.
- It is most prominently visible through telescopes with a diameter of 8 inches or more.

Colors and Composition

- The striking colors of the Ring Nebula are due to ionized gases, primarily hydrogen and helium, emitting light at different wavelengths.
- The central dark region is a result of the shadow cast by the dense, cooler dust and gas in the nebula.

Scientific Significance and Study of the Ring Nebula

- Stellar Evolutionary Insight
- Planetary nebulae like the Ring Nebula provide crucial information about the final stages of a star's life.
- Studying their structures and composition helps astronomers understand the processes that occur during stellar death.



- Distance Determination
- The Ring Nebula has been extensively studied to determine its distance from Earth, helping refine the cosmic distance ladder.
- Accurate distance measurements to such celestial objects aid in calculating distances to other distant celestial bodies.

Observing the Ring Nebula

Amateur Observations are:

- The Ring Nebula is a popular target for amateur astronomers due to its distinct appearance.
- Observers with moderately-sized telescopes can capture its beauty and learn about the basics of astrophotography.
- Professional Observations
- Advanced telescopes, such as the Hubble Space Telescope, have captured detailed images of the Ring Nebula, revealing intricate structures within the nebula.
- These high-resolution images help scientists study the complex dynamics and evolution of the nebula.

James Webb Telescope

- The James Webb Space Telescope (JWST) is a revolutionary space observatory and one of NASA's most ambitious and complex missions.
- It is designed to be the successor to the Hubble Space Telescope and promises to significantly enhance our understanding of the universe.
- **The JWST is a collaboration between NASA, the European Space Agency (ESA), and the Canadian Space Agency (CSA).**

Key Features and Objectives

- **Advanced Technology:** The JWST features state-of-the-art technology, including a large segmented mirror, which is 6.5 meters (21.3 feet) in diameter, and four advanced scientific instruments. The telescope is designed to operate in the infrared range, enabling it to see through dust clouds and observe distant objects with greater clarity.



- **Deep Space Exploration:** The primary objective of the JWST is to explore the distant universe, including the formation of the first galaxies, stars, and planetary systems. It will peer back in time to observe celestial objects that formed shortly after the Big Bang.
- **Studying Exoplanets:** The JWST will study exoplanets, planets orbiting stars beyond our solar system, to characterize their atmospheres and potential habitability. It will help astronomers search for signs of life on other planets and understand the diversity of exoplanetary systems.
- **Understanding Star and Galaxy Formation:** By observing star-forming regions and distant galaxies, the JWST will provide insights into the processes that govern the formation and evolution of stars and galaxies throughout cosmic history.
- **Investigating Solar System Objects:** The telescope will also study objects within our solar system, such as asteroids, comets, and the outer planets. It will contribute to our understanding of the solar system's origins and evolution.

Launch and Deployment

- The JWST was launched on December 25, 2021, aboard an Ariane 5 rocket from the Guiana Space Centre in French Guiana.
- The telescope is currently positioned at the second Lagrange point (L2), located about 1.5 million kilometers (nearly 1 million miles) from Earth.