

NEWS TODAY

Rural Technology Action Group (RuTAGe) Smart Village Center (RSVC) launched in Mandaura, Haryana

RSVC was developed under aegis of Office of Principal Scientific Adviser (PSA).

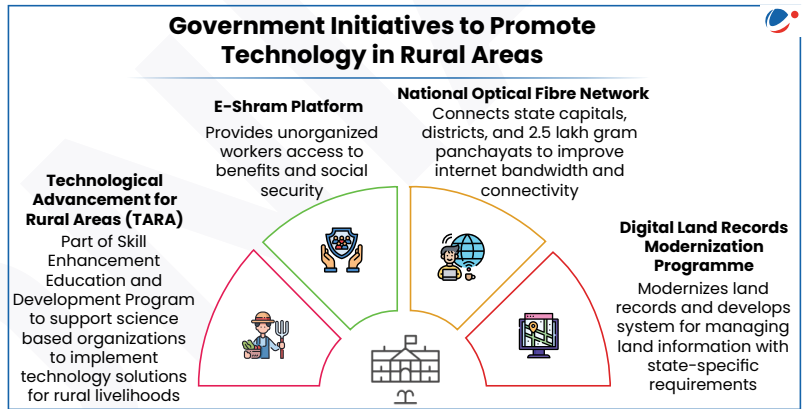
- It aims to integrate cutting-edge technologies with rural needs, enhancing quality of life and empowering communities through sustainable solutions.
- PSA conceptualized RuTAGe in 2003-04.

Key Features of RSVC Model

- Physical Presence:** Offers long-term tech support at Panchayat level, assisting 15-20 villages with 12 technology tracks, including Agriculture & Waste Management etc.
- Market Access:** Emphasizes collaboration with platforms like ONDC, Amazon, and Market Mirchi to connect rural producers with larger markets.
- Scalability:** Plans to expand with 20 new centers and empower women entrepreneurs through Techpreneurs program to ensure sustainability.

Role of Technology in Rural Growth

- Agricultural Innovation:** Platforms like e-NAM connect farmers to markets, offering better prices and transparent trade.
- Entrepreneurship:** E-commerce and 3D printing support small businesses, allowing them to access global markets and reduce dependency on imports.
- Education:** Programs like PM e-VIDYA and SWAYAM offer online education, improving access to quality learning and bridging digital divide.
- Financial Inclusion:** DBT program and PM Jan Dhan Yojana facilitate direct, cashless transfers, reducing fraud and increasing transparency.
- Water Management:** National Program on Aquifer Mapping and Management uses technology to manage groundwater resources, ensuring efficient water use in agriculture.



India-US TRUST (Transforming the Relationship Utilizing Strategic Technology) initiative launched

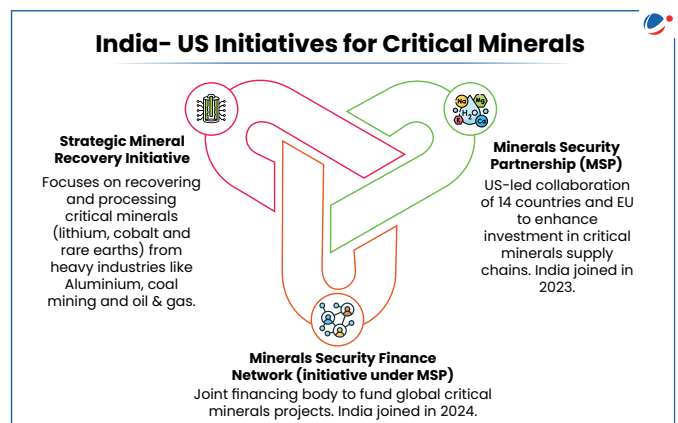
Announced during Indian Prime Minister's visit to Washington, it aims to strengthen cooperation in critical minerals, pharmaceuticals, advanced materials etc.

Significance of TRUST initiative

- Encourage public and private investments, to boost manufacturing capacity, creating jobs in both India and USA.
- Boost exports by reducing barriers to technology transfer, addressing export controls, enhancing high-tech commerce.
- Builds trusted & resilient supply chains for critical minerals, semiconductors, Active Pharmaceutical Ingredients etc.
- Recovery & processing of strategic minerals like lithium, Rare Earth Elements etc. to diversify supply chains and counter China's dominance.
- Fosters innovation, by catalysing government-to-government, academia & private sector collaboration in fields of critical & emerging technologies like defence, AI, quantum technology, etc.
- Strengthens government's National Critical Mineral Mission, encouraging public and private sector companies to acquire critical mineral assets abroad.

About Critical Minerals

- They are elements that are building blocks of essential modern-day technologies and are at risk of supply chain disruptions due to limited global production & geopolitical factors.
- Importance:**
 - Defence:** Neodymium, samarium for high-performance magnets used in missiles, fighter jets, and radars.
 - Energy:** Lithium, cobalt power are used in advanced batteries for energy storage and electric vehicles.
 - Medical:** Europium, Terbium enhances biotech imaging and medical diagnostics.



India's first Intertidal Bioblitz concluded recording several intertidal species

Coastal Conservation Foundation and the East Coast Conservation Team jointly conducted the **Intertidal Bioblitz**, a citizen science initiative for documenting the **biodiversity of India's intertidal zones**.

- It recorded a flatworm – **Pseudoceros bifascia** – for the first time from mainland India (Andhra Pradesh Coast).

About Intertidal Zone

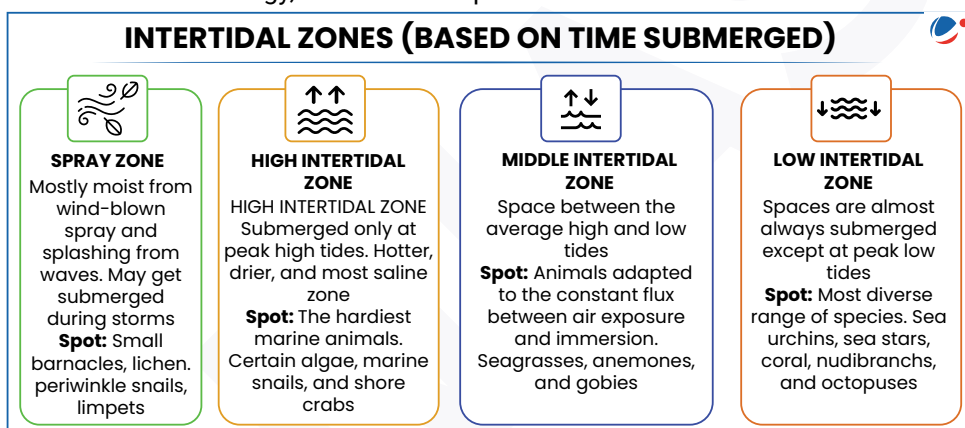
- The intertidal zone marks the **dynamic boundary where ocean meets land** - a unique area that alternates between being **submerged during high tide** and **exposed to air when the tide retreats**.
- It is an **extreme ecosystem** and any species living in the intertidal zone must be able to **survive changes in moisture, temperature, and salinity** and **withstand strong waves**.

Importance of Intertidal zones

- Essential breeding grounds for marine life**, providing protected nurseries for juvenile fish, crustaceans, etc.
- Acts as a natural buffer against coastal erosion**, helping absorb wave energy and stabilize shorelines.
- Important source of primary production** and a conduit for energy, nutrients and pollutants between terrestrial and marine environments.
- Significant **source of carbon sequestration**.

Threats to Intertidal Zones

- Climate change:** Intensified storms, rising seas, and temperature increase leads to die-offs and threatens entire food chain.
- Human disturbances:** Oil spills, beach tourism, harvesting activities, pollutants from terrestrial, airborne and marine sources, and shoreline developmental activities.



India aims for threefold increase in its textile exports to Rs. 9 lakh crore by 2030: Prime Minister

While addressing **Bharat Tex 2025 at Bharat Mandapam in New Delhi**, Prime Minister of India stated that **Rs. 9 lakh crore by 2030 target** can be achieved earlier with vision of **"Five Fs i.e. farm, fiber, fabric, fashion, and foreign"**.

- Bharat Tex 2025** is textile industry's premier event, featuring comprehensive mega expo that **showcases entire textile value chain from raw materials and accessories to finished products** under one roof.

Status of Textile Sector

Economic Survey 2024-25:

- Textiles and apparel industry contributes **2.3% to country's GDP**, and **13% to industrial production** and **12% to exports**.
- One of the **largest employment generators** after agriculture, with **over 45 million people employed directly**.

- India ranks **sixth-largest exporter of textiles and apparel** in world and world's **second-largest producer** of textiles and garments. (CII data)

Challenges wrt Textile Sector

- Expensive Raw material (fibre):** Fibre constitutes 60-70% of manufacturing cost, which has become expensive in India.
- Pollution:** More than 10% of the world's carbon emissions and second-largest industrial polluter are attributed to clothing manufacturing.
- Structural concerns:** Highly fragmented industry with large number of MSME players; Lack of product diversification; Inefficient productivity compared to its competitors like China, Bangladesh, Vietnam, etc.

Government Initiatives to Boost Textile Sector

- Mission for Cotton Productivity:** Announced in Union Budget 2025-26 to facilitate **improvements in productivity and sustainability of cotton farming**.
- Scheme for Capacity Building in Textile Sector (SAMARTH) scheme:** Incentivize and supplement efforts of industry in creating jobs in the organized textile and related sectors.
- Scheme for Integrated Textiles Park:** Provide state of art world-class infrastructure facilities for setting up their textile units.
- GI tagging for handloom products:** E.g. Uppada Jamdani Sarees, Muga Silk of Assam, Kashmir Pashmina etc.

India and USA announced Autonomous Systems Industry Alliance (ASIA) initiative for Underwater Domain Awareness (UDA)

Autonomous Systems Industry Alliance (ASIA), announced during Indian Prime Minister's recent visit to USA, aims to scale industry partnerships and production in the Indo-Pacific.

- India is the first country with whom the U.S. has offered to work with on UDA technologies.

About UDA

- It is a maritime concept that involves using technology, strategies, policies etc. to monitor everything under the sea.
- **Significance for India:**
 - ⊕ Strengthens regional security such as piracy, terrorism, interstate conflicts etc. through detection of possible security risks and prompt responses.
 - ⊕ Ensures economic and sustainability interests with opportunities in blue economy, and environmental management.
 - ⊕ Strengthens India's regional diplomacy by building trust and cooperation in maritime domain.

Technologies in UDA

- **Unmanned Underwater Vehicles (UUVs):** Include Remotely Operated UUVs and Autonomous UVs, equipped with sophisticated sensors and cameras.
 - ⊕ India developed UUVs like MAYA, AMOGH and ADAMYA.
- **Acoustic Surveillance:** Sonar systems, Sonobuoys, Sea Picket autonomous surveillance system etc.
 - ⊕ India's BEL has signed agreement for co-production of **Multistatic Active (MSA) sonobuoys** with USA's Ultra Maritime and for **active towed array sonar systems** with USA's L3 Harris.
- **Light Detection and Ranging (LIDAR):** Bathymetric LIDAR uses **water penetrating green light** to measure seafloor and riverbed elevations.

Key Challenges for UDA

- ⊗ **Reliance on Foreign Technology**
Issues with dependability, delays and compatibility problems
- ⊗ **Specialized Acoustic Requirements**
Challenges from tropical environments and underwater topography
- ⊗ **Lack of Coordination**
Impaired cooperation efficiency between maritime security agencies

External Affairs Minister of India attended 8th Indian Ocean Conference

Indian Ocean Conference was started by India Foundation in 2016 in Singapore with participation from 30 countries.

- It has emerged as a **flagship consultative forum** for countries in the Indian Ocean Region (IOR) over regional affairs and deliberate upon regional cooperation for **Security and Growth for All in the Region (SAGAR)**.

India's Role in the IOR

- **First Responder Role:** India helps in stabilising economies under stress such as Sri Lanka and quickly provides aid during disasters and conflicts through supply of essential items such as medicines, vaccines, fuel and fertilizers etc.
- **Connectivity Initiatives:** India leads key regional projects like the IMEC, IMTT, and INSTC to enhance connectivity.
- **Encouraging Plurilateral Cooperation:** Focusing on maritime security and disaster management cooperation through Quad, ReCAAP centre at Singapore, International Maritime Fusion Centre, White Shipping Agreements etc.
- **Maritime Deployments:** In Northern Arabian Sea and Gulf of Aden.
- **Institution-Building:** India's role in Indian Ocean Rim Association (IORA), Indian Ocean Naval Symposium (IONS), Colombo Security Conclave etc.

Significance of IOR for India:

- **Economic Interests:** India relies on Indian Ocean for 80% of external trade, 90% of energy imports, and crucial fishing and tourism.
- **Strategic Goals:** India seeks to keep the region a **zone of peace, economic prosperity and maritime sustainability** through strengthening of ties with neighbours.
- **Control of Choke Points:** India's central location in IOR gives it a significant role in controlling critical maritime chokepoints including Suez Canal, Bab el-Mandeb, Strait of Hormuz, Strait of Malacca etc.



Also In News

Ovoid cells

Researchers have discovered a new type of brain cells, named **Ovoid cells**.

About Ovoid cells

- Type of **neuron** that plays a **fundamental role in recognition memory** – the process by which the brain differentiates between new and familiar objects and forms long-term memories.
- Ovoid cells, named for their **distinct egg-like shape**, are present within the **hippocampus of humans, mice, and other animals**.
- These cells activate whenever we encounter something new, **triggering a process** that stores objects in memory.
- Finding could aid in the treatment of **brain conditions related to object recognition**, such as **Alzheimer's disease, Autism Spectrum Disorder, and Epilepsy**.

World Organisation for Animal Health (WOAH)

Department of Animal Husbandry & Dairying in collaboration with WOAH have set a roadmap for Public-Private Partnerships in Livestock Sector.

About WOAH (HQ: Paris, France)

- **Genesis:** An **intergovernmental organisation** founded in 1924.
- **Mission:** Ensure transparency on global animal diseases; Collect, analyse and disseminate veterinary scientific information; Encourage international solidarity in the control of animal diseases etc.
- **Membership:** 183 members including India.
- **Governance:** **World Assembly of Delegates** is highest authority.
- **International standards:** WOAH is **WTO reference organisation for standards** relating to animal health and zoonoses.



Loggerhead Turtles (Caretta caretta)

As per a study, loggerhead turtle can learn and remember the magnetic signature of different geographic regions.

About Loggerhead Turtles

- **Appearance:** Large heads with powerful jaws.
- **Habitat:** Subtropical and temperate waters in Atlantic, Pacific, Indian Oceans, and Mediterranean Sea.
- **Lifespan:** 70 to 80 years or more.
- **Behavior**
 - ⊕ Like all sea turtles, they are **marine reptiles** and must **come to surface to breathe air**.
 - ⊕ **Carnivores** and only occasionally consuming plant material.
 - ⊕ **Remarkable navigators**, often returning to feeding sites after long migrations.
- **Conservation Status**
 - ⊕ **Indian Wildlife (Protection) Act, 1972:** Schedule I.
 - ⊕ **IUCN:** Vulnerable.



Exercise Komodo

Multilateral naval exercise Komodo started in **Bali, Indonesia**.

About Exercise Komodo

- Aimed at **enhancing maritime interoperability** and regional security cooperation.
- **INS Shardul** and **Long Range Maritime Surveillance P8I** aircraft will participate in it.
- First launched in 2014, it is a **non-combat military exercise organized by Indonesian Navy** to foster maritime cooperation among friendly nations.



Neutrinos

Recently, researchers have **detected High-energy cosmic neutrinos under Mediterranean Sea**.

About Neutrinos

- **Nature:** **Subatomic particles** (often called as ghost particles) that have **zero electrical charge, zero size, almost zero mass and almost zero interaction**.
- **Occurrence:** **Second-most abundant particles** after photons (particles of light) and most abundant among particles found in universe.
- **Detectability:** Difficult to detect as they only **interacts with matter via weak nuclear force**.
- **Feature:** Undisturbed by even the strongest magnetic field; Travel in straight lines from their source etc.



Project Waterworth

Meta has introduced its **world's longest undersea cable system - Project Waterworth**.

About Project Waterworth

- **Length:** 50,000 km subsea cable will **connect five continents**, enhancing connectivity between U.S., India, Brazil, South Africa, and other regions.
- **Depth:** Cable will reach **depths of up to 7,000 meters** in deep waters.
- **Techniques:** Enhanced burial methods will be used in high-risk areas, like shallow coastal waters, to protect cable from ship anchors and other hazards.
- **Significance:**
 - ⊕ **Strengthen scale and reliability of world's digital highways** by opening three new oceanic corridors with high speed connectivity.
 - ⊕ **Facilitate greater economic cooperation, digital inclusion** etc.

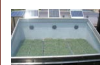


Gulf of Aqaba

New study has **uncovered a significant pause in coral reef growth in the Gulf of Aqaba** during the late Holocene period.

About Gulf of Aqaba (Gulf of Eilat)

- **Location:** Northeastern extension of **Red Sea, penetrating between Arabia peninsula & Sinai Peninsula**.
 - ⊕ **Tiran Strait** connects Gulf of Aqaba with Red Sea.
 - ⊕ It is **integral part of East African Rift System**.
- **Bordering countries:** Israel, Jordan, Egypt & Saudi Arabia.
- **NEOM Brine Pools** (salty underwater lakes) have been discovered in Gulf of Aqaba.



Solar Dehydration Technology

IIT Kanpur develops an innovative **Solar Dehydration Technology aimed at preserving agricultural produce using sustainable energy**.

About Solar Dehydration Technology

- It is a **process that uses sunlight to remove moisture** from the food.
- It allows **farmers to preserve fruits & vegetables** for longer periods **through solar energy**.
- **Significance:**
 - ⊕ Provides **cost-effective solutions to fluctuating market prices**, hence **boosting farmer's income**.
 - ⊕ **Reduces wastage, increases shelf life & enhances marketability** of produce.

Place in News



Lebanon (Capital: Beirut)

Lebanon condemned a recent attack on a **United Nations Interim Force in Lebanon (UNIFIL)** convoy in Beirut.

Political Features

- **Location:** A narrow strip of territory in the **Levant region of West Asia**.
- **Bordering Countries:** Syria (North and East) and Israel (South).
- **Bordering Water Bodies:** Mediterranean Sea.

Geographical Features

- **Major Rivers:** Litani, Orontes, Baalbek.
- **Highest Peak:** Qurnet Al Sawda.
- **Major Valley:** Bekaa (Al-Biqa).
- **Mountains:** Lebanon Mountains (Jabal Lubnan), Hermon Ranges.

