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ARTIFICIAL INTELLIGENCE FOR CULTURE AND LANGUAGES

Context

- India is institutionalising AI to bridge the digital, linguistic, and literacy divide through a suite of national platforms that transform cultural heritage into accessible digital assets.

AI Driven National Interventions

- **BHASHINI:** Launched in **2022** under the **National Language Translation Mission,** BHASHINI was developed to respond to India's wide linguistic diversity in the digital space.
  - The initiative focuses on building language and voice capabilities directly into digital systems.
- **Technology Development for Indian Languages (TDIL):** It focuses on the development and standardisation of core language technologies, including:
  - machine translation
  - optical character recognition (OCR) for Indian scripts
  - speech-to-text and text-to-speech systems
  - handwriting recognition and transliteration tools.
- **Anuvadini (AICTE):** Anuvadini is an AI-based multilingual translation platform developed by the **All India Council for Technical Education (AICTE)** to enable large-scale translation of academic, technical and knowledge content into Indian languages.
- **Gyan Bharatam Mission:** It is a national mission for the survey, documentation, digitisation and dissemination of India's manuscript heritage and traditional knowledge systems, including creation of a **National Digital Repository.**
- **Gyan-Setu:** It was launched as a national challenge to source AI-led solutions for manuscript preservation, decipherment, restoration and access.
- **Adi Vaani:** It is an AI-based platform for the preservation, promotion and revitalisation of tribal languages, which are central to India's cultural and oral heritage.

Role of AI in Conservation of Culture and Languages

- **Cultural Preservation:** AI enables high-speed scanning, OCR, metadata extraction, and intelligent cataloguing of fragile manuscripts.
  - **Example: Gyan Bharatam Mission** has documented over 44 lakh manuscripts, many

of which were previously inaccessible or at risk of decay.

- **Democratisation of Knowledge:** AI-based speech-to-text and real-time translation reduce literacy and language barriers.
  - **Example:** During **Kashi Tamil Sangamam 2.0,** speeches were translated in real time using BHASHINI, enabling seamless cross-linguistic participation.
- **Social Inclusion:** It integrates tribal and marginalised communities into digital ecosystems.
  - **Example:** The Adi Vaani platform supports languages such as Santali, Bhili, and Gondi, bringing them into the digital ecosystem.
- **Economic Empowerment:** AI strengthens livelihoods in the cultural and creative sectors by improving visibility, market access, productivity, and authenticity verification for artisans and cultural workers.
- **Digital Public Infrastructure:** AI converts India's linguistic diversity into scalable technological strength by embedding multilingual and voice-based capabilities into large-scale public systems.
  - **Example:** BHASHINI powered the Kumbh Sah'AI'yak multilingual chatbot, which provided navigation, event updates, and lost-and-found assistance in 11 languages.

What are the challenges?

- **Digital Divide:** Limited internet connectivity, low digital literacy, and lack of access to smart devices in rural and tribal regions restrict effective utilisation of AI platforms.
- **Algorithmic Bias:** AI systems trained on uneven or dominant-language datasets may distort meanings, overlook cultural nuances, or marginalise smaller linguistic communities.
- **Contextual Limitations:** Machine translation and speech recognition tools struggle with dialects, accents, idiomatic expressions, and culturally embedded knowledge systems.
- **Traditional Knowledge Protection:** Digitisation of manuscripts and oral traditions raises concerns about ownership, consent, and potential misuse of indigenous knowledge.

Way Ahead

- **Community-Centric Approach:** AI models must be developed with active participation of local communities, linguists, and tribal groups to ensure cultural sensitivity, contextual accuracy, and ownership over knowledge systems.

- **Offline and Low-Bandwidth AI Solutions:** AI systems should be designed to function effectively in remote and low-connectivity regions to bridge the digital divide.

- **Public–Private–Academic Collaboration:** Partnerships among government institutions, startups, research bodies, and civil society organisations can accelerate innovation and scalable implementation.

- **Global Leadership in Multilingual AI:** India can position itself as a global leader in inclusive multilingual AI by exporting scalable language technologies to other linguistically diverse nations.

Source: PIB

INDIA AND GREECE BILATERAL TIES

Context

- The Defence Minister held a **bilateral meeting with his Greek counterpart in New Delhi.**

  - Both leaders reiterated that the **India-Greece Strategic Partnership** is based on shared values of peace, stability, freedom, and mutual respect.

About

- **A Joint Declaration of Intent on strengthening the defence** industrial cooperation between India and Greece was signed which is a starting point for developing a five-year roadmap.

- **A Bilateral Military Cooperation Plan for 2026** was also exchanged, charting the course for **military engagements** between **the Armed forces of both countries.**

India - Greece Bilateral Relations

- **Political Ties:** India has traditionally enjoyed friendly **bilateral ties with Greece,** mainly characterized by the political support at the international level including the United Nations.

  - Relations were upgraded to a Strategic Partnership in **2023** during PM Modi's visit to Greece.

- **Defence Ties:** Both India and Greece have engaged in **various joint naval exercises** in the Mediterranean Sea and have also participated in the multinational air force exercise named INIOCHOS-23, INIOCHOS-24 and INIOCHOS-25.

  - After India's Nuclear test in **Pokhran in 1998,** while many European nations were demanding sanctions against India, the then Greek Defence Minister signed an MoU on **India-Greece Defence cooperation in 1998.**

  - **Co-production of military hardware and technology exchanges** are under the aspirations of "Make in India", an initiative of India is being explored with Greece as well.

- **Economic Cooperation:** India and Greece aim to double their **bilateral trade by 2030,** which is valued around **US\$ 2 Billion in 2022-23**.

- **The Tourism sector** accounts for 25% of Greece revenue, and the country is emerging as a popular tourist destination with the Indians.

- **Connectivity:** Greece's vital and strategic location in the Eastern Mediterranean, and its status as Greece is member of both EU and NATO member, renders the potential gateway for India into the EU.

Challenges and Opportunities for India-Greece

- **Lower Public and Policy visibility:** Despite high profile visits from both the countries, there is an absence of India-Greece discourse in major foreign policy circles.

  - There is less people-to-people engagement between two countries due to low tourism and diaspora exchange.

- **Geographical Disconnect:** There is no direct air connectivity (flights) on maritime trade routes between the two nations, making logistics and exchanges limited.

- **Third Party Interventions:** Countries like Türkiye and its proximity and tensions with Greece can limit Indian flexibility, especially given India's balancing approach in the West Asia Region.

  - Chinese influence or China's investments in Greece through BRI would create friction or it may limit India's influence in Greece and overall Mediterranean region in crucial sectors.

- **Asymmetric Focus:** Though being supportive to India on various issues like UN Security Council reforms and Permanent UNSC seat for India, Greece is more deeply engaged with the EU, NATO and the politics of the Mediterranean region.

Opportunities

- **Strategic Maritime Convergence:** India is a key player in the Indo-Pacific region and Greece is a key player in the Eastern Mediterranean region.

  - Greek Ports can act as access points for India into Europe under the India-Middle East-Europe-Economic Corridor (IMEC).

- **Geopolitical Convergence in a Multipolar World:** Both nations are promoting multipolarity, strategic autonomy and rule-based order.
  - There can be strong alignment in UN votes on sovereignty and counter-terrorism.
- **Support on the Multilateral Issues:** Greece has consistently supported India's bid for permanent UNSC seat.
  - There is a scope for coordinated diplomacy in international law, climate change, and cultural preservation.

Way Ahead

- **Proposal of an India-Greece 2+2 Dialogue:** Begin consultations towards a 2+2 format at the level of Defence and Foreign Minister to institutionalise strategic coordination.
- **Advancing Maritime and Energy Cooperation:** Utilise Greek ports such as Alexandroupolis and Thessaloniki as European gateways for Indian goods and services under the India-Middle East-Europe Corridor (IMEC)
- **Partner in Renewable Energy and Green Transition:** Encourage Indian public and private firms to explore solar, wind and green hydrogen investments in Greece under the EU's green infrastructure goals.
- **Ensuring sustainability and continuity:** Outlining a forward-looking bilateral roadmap that transcends political cycles and it builds an institutional memory for future governments and diplomats of India and Greece.

Conclusion

- The India-Greece relations in the last 2 years have grown significantly upgrading it to "Strategic Partnership".
- In recent years, India has made and diversified its partnerships in the continent through various engagements with countries in the Mediterranean region.
- India and Greece have built a strong foundation for their diplomatic ties, there is a potential for further deepening cooperation in trade, investment, tourism and international law.

Source: PIB

INDIA TO CHAIR KIMBERLEY PROCESS

Context

- **India** has assumed the **chair of the Kimberley Process (KP)** for the **year 2026.**

  - The chair oversees the **implementation of the Kimberley Process Certification Scheme (KPCS)** and operations of the working groups, committees and administration that activate the KP.

Kimberley Process (KP)

- The KP is a multinational mechanism or structure for governing the trade of **'conflict diamonds'.**
  - These are rough (or pre-polished) diamonds which are **used illegally by rebel or insurgent groups** across the world to undermine or threaten legitimate governments.
- The KP was initiated in **2000** when the countries of southern Africa initiated dialogues to prevent the trade in conflict diamonds.
- **Negotiations with 37 signatory parties,** in 2003, led to the **Kimberley Process Certification Scheme (KPCS).**
  - **KPCS** is the mechanism the KP uses to prevent the trade of conflict diamonds.
  - It is enforced **individually by KP Participant countries** to ensure that rough diamonds in the legitimate supply chain are KP-compliant.
- **The KP has 60 participants,** representing 86 countries, and accounts for approximately 99.8% of the global rough diamond production.

Trade in Rough Diamonds

- The trade is permitted **only between certified KP members** who comply fully with these international standards.
- **Obligations for Countries:** Participant countries are obliged to share timely and accurate statistical data for diamond production and trade.

Enforcement of regulations

Participant countries must enforce stringent legal and regulatory standards to control the import and export of rough diamonds and ensure adherence to KP requirements.

Principles of transparency

Participants commit to transparent practices, which are crucial for the integrity of the diamond supply chain, by exchanging accurate and timely statistical data.

Selective trading protocol

Trade is permitted only between certified KP members who comply fully with these international standards, safeguarding the legitimacy of the diamond trade.

Verification of exports

Every diamond export is closely inspected and must be accompanied by a valid KP certificate, certifying that the diamonds are conflict-free to prevent the entry of illicit stones into the market.

- **Major Producer:** Angola, Botswana, Canada, Congo, Namibia and Russia alone account for more than 85% of the production of rough diamonds, in quantity and value terms.

- **Though India is not a producer,** it is a **major importer** of rough diamonds, importing roughly 40% of the total global imports.
  - India is a leading cutting and polishing hub, centered in Surat and Mumbai.
  - India re-exports polished diamonds to major markets which include China, Hong Kong, Israel, the United Arab Emirates and the United States.
- **India's Relevance to KP:** India's strategic position, at the heart of the global diamond value chain, gives it unique leverage within the KP to steer meaningful reforms in global diamond governance.

Concerns

- **Definition of Conflict Diamonds:** Its scope is very narrow, capturing only the financial mechanism between rebel groups and governments, while ignoring the illicit use of rough diamonds in state-linked abuses, human rights violations and human trafficking, environmental harm, abuses in artisanal mining, and illicit trade channels.
- **Decision Making Process:** Consensus-based system allows any participant to exercise a political veto, this weakens enforcement and credibility of KP decisions.

How India can Bring Reforms?

- **Agenda Expansion:** As KP Chair, India can form a technical working group on violence and human rights risks beyond rebel insurgencies, building evidence and consensus before any redefinition of "conflict diamonds," without reopening political deadlocks.
- **Technology-Led Transparency:** India can leverage its digital strengths to introduce tamper-proof, blockchain-based KP certification, with unique, time-stamped shipment records and harmonised customs data exchange to curb fraud and modernise KP operations.
- **Capacity Building over Punitive Measures:** Establish regional KP technical hubs in central and eastern Africa to provide training, IT support, certification assistance and forensic capacity, making compliance collaborative rather than coercive.
- **Institutional Accountability Reforms:** Promote independent or third-party audits for selected KP participants and push for full public disclosure of granular KP statistics to enhance credibility and trust.

- **From Restriction to Responsibility:** Reorient KP's narrative from merely blocking conflict diamonds to enabling a responsible, inclusive and community-benefiting diamond trade, ensuring revenues support health, education and local infrastructure in mining regions.

Source: TH

NEED FOR STRUCTURAL REFORMS IN INDIA'S SKILLING ECOSYSTEM

Context

- The Ministry of Skill Development and Entrepreneurship (MSDE) has blacklisted 178 Training Partners (TPs) and Training Centres (TCs) under Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 4.0, citing non-adherence to operational norms.

Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

- PMKVY is the **flagship skill certification scheme** launched under the **Skill India Mission** to enhance employability among youth.
- The scheme is implemented by the **National Skill Development Corporation (NSDC)** under the **Ministry of Skill Development and Entrepreneurship**.
- It seeks to provide **industry-relevant short-term training**, **Recognition of Prior Learning (RPL)**, and special projects.
  - Training programmes generally range between **300 to 600 hours,** depending on sectoral requirements.
- **PMKVY 4.0,** launched in **2022,** aims to integrate emerging sectors such as green jobs, drones, AI, robotics, and digital skills while strengthening monitoring systems.

Nature of Irregularities Identified

- Several training centres were **found to be closed during official working hours** even though attendance had been recorded through the biometric system
- There were alleged **manipulations of Aadhaar-based biometric attendance** systems.
- Certain centres were found to have **operational irregularities**, including the unauthorised merging of two or more training centres within a single premises, which was in violation of prescribed guidelines.
- There were **failures to adhere to infrastructure and training** norms prescribed under PMKVY guidelines.

Impacts of the Identified Irregularities

- **Erosion of Institutional Credibility:** The detection of biometric manipulation, undermines the credibility of PMKVY and weakens public trust in government-funded skilling initiatives.

- **Misallocation of Public Funds:** Fraudulent attendance marking and non-compliance with norms leads to improper release of funds, resulting in direct financial losses to the exchequer.

- **Reduced Youth Confidence in Skill Certification:** Youth may become reluctant to enrol in short-term training programmes if employment outcomes remain uncertain.

- **Impact on India's Demographic Dividend:** Governance lapses and structural inefficiencies reduce the ability of skilling programmes to convert demographic advantage into productive economic output.

Technological and Policy Measures to Improve the System

- **AI-Based Attendance Analytics tools** can be deployed to detect abnormal attendance patterns, such as sudden spikes in biometric entries or repeated clustering of attendance at unusual hours.

- **Mandatory CCTV recording with secure cloud storage** during training hours can provide visual verification during random audits.

- **Blockchain-Based Certification:** Blockchain technology can be used to issue tamper-proof digital certificates that can be verified by employers, ensuring credibility and reducing duplication.

Way Ahead

- **Shift Towards Outcome-Based Evaluation:** Evaluation metrics should prioritise sustained employment, wage progression, and employer satisfaction rather than enrolment numbers alone.

- **Establish Robust Grievance Redressal Mechanisms:** A transparent appellate mechanism should be institutionalised to address disputes related to inspections, penalties, and blacklisting decisions.

- **Enhance Capacity Building:** Regular trainer certification, digital infrastructure support, and quality audits should accompany compliance monitoring.

- **Differentiate Between Fraud and Procedural Lapses:** Policy responses must proportionately distinguish between deliberate financial misconduct and minor procedural deviations to maintain fairness.

Source: IE

INDIA'S NET-ZERO PATHWAY: AMBITION, INVESTMENT, AND REFORM

Context

- According to the **NITI Aayog's Scenarios Towards Viksit Bharat and Net Zero,** India can achieve **net-zero emissions by 2070** while becoming a **developed economy by 2047,** but this transition will require massive financial and structural shifts.

What is Net Zero?

- **Net Zero** refers to the state where the **amount of GHGs released into the atmosphere is balanced by the amount removed** over a given period.

- It is achieved through a combination of:

  - **Emissions reduction** by shifting from fossil fuels to **renewable energy,** improving **energy efficiency,** electrifying transport and industry, adopting cleaner technologies; and

  - **Emissions removal** by **natural sinks** such as forests, soils, and wetlands, and **technological solutions** like carbon capture, utilisation, and storage (CCUS).

- It covers **all greenhouse gases** (CO_2, methane, nitrous oxide, etc.) and focuses on deep, economy-wide decarbonisation.

Why Net Zero Matters?

- It is essential to **limit global warming** to 1.5–2°C, as outlined in the **Paris Agreement**.

- It helps reduce **climate risks** such as extreme weather, sea-level rise, and ecosystem loss.

- It encourages **clean energy transition**, innovation, and sustainable economic growth.

Key Concerns Highlighted in NITI Aayog's Report

- **Large Financing Gap:** Achieving net zero by 2070 requires **$22.7 trillion**, leaving a **$6.53 trillion gap** even after domestic mobilisation.

  - Heavy dependence on **international climate finance** raises risks around availability, timing, and conditionalities.

- **Insufficient Current Climate Investment:** Present climate investment flows (**~$135 billion annually**) are far below what is needed for long-term decarbonisation.

- ◆ Clean energy funding remains inadequate relative to future demand growth.
- **Power Sector Transition Risks:** Scaling renewables to **6,500–7,000 GW** poses challenges related to **grid stability, storage, and transmission infrastructure**.
  - ◆ Continued reliance on coal as a transitional fuel creates tension between energy security and emissions reduction.
- **Rising Energy Demand:** Rapid growth in **cooling, industry, and data centres** could offset efficiency gains.
  - ◆ Cooling alone emerged as a major driver of residential electricity demand.
- **Technology Uncertainty in Industry:** Hard-to-abate sectors depend on **green hydrogen, carbon capture, and other emerging technologies** that are still costly and not widely deployed till now.
- **Dependence on Critical Minerals:** Transition to clean energy increases reliance on **lithium, copper, nickel, and other critical minerals**.
  - ◆ Risks linked to **import dependence, supply chain concentration, and price volatility**.
- **Financial System Constraints:** India's **corporate bond market** and **financialisation of household savings** are currently too shallow to support the scale of investment required.
  - ◆ Lack of a dedicated green finance institution limits coordinated capital deployment.
- **Policy and Implementation Challenges:** Achieving net zero requires **long-term policy consistency**, cross-sector coordination, and strong enforcement.
  - ◆ Delays in reforms could significantly raise transition costs.

Key Suggestions Made in NITI Aayog's Report

- **Establish a National Green Finance Institution:** Create a **dedicated National Green Finance Institution** to mobilise, aggregate, and deploy large-scale capital for India's net-zero transition.
  - ◆ The institution would help de-risk projects and attract private and international investment.
- **Mobilise International Climate Finance:** Developed countries should provide **$6.53 trillion** in climate finance to bridge India's funding gap.
  - ◆ Strengthen India's integration with **global capital markets** to increase the share of international finance.
- **Deepen Domestic Financial Markets:** Expand the **corporate bond market** from ~16% of GDP to ~30% by 2070.

- ◆ Increase **financialisation of household savings** from ~60% to 75% to unlock long-term capital.
- **Accelerate Renewable Energy Expansion:** Scale **solar and wind capacity** to **6,500–7,000 GW by 2070**.
  - ◆ Invest in **battery storage and pumped hydro** to ensure grid stability.
- **Promote Electrification Across Sectors:** Make **electrification** the backbone of decarbonisation, especially in **transport and industry**.
  - ◆ Target **over 70% electrification of road transport** under the net-zero pathway.
- **Strengthen Demand-Side Management:** Implement stricter **appliance efficiency standards** and **building energy codes**.
  - ◆ Encourage **behavioural changes** to manage rising energy demand, particularly for cooling.
- **Support Industrial Decarbonisation:** Improve **energy efficiency** and promote **circular economy practices**.
  - ◆ Accelerate adoption of **green hydrogen and carbon capture** for hard-to-abate sectors.
- **Ensure Critical Mineral Security:** Boost **domestic exploration, recycling**, and **diversified import sources** for critical minerals like lithium, copper, and nickel.
- **Maintain Energy Security During Transition:** Use **coal as a transitional fuel** while expanding nuclear and renewables to ensure reliable power supply.

Conclusion

- NITI Aayog's analysis underscores that India's net-zero ambition is achievable, but only with bold reforms at home and substantial financial support from developed countries.
- Coordinated action across finance, energy, industry, and global cooperation will determine whether India can align climate leadership with economic development.

Source: DD News

═══ NEWS IN SHORT ═══

BASTAR PANDUM FESTIVAL

Context

- Prime Minister Narendra Modi congratulated the people of Chhattisgarh for the special celebration of **'Bastar Pandum' festival.**

About the Festival

- Bastar Pandum is a cultural festival celebrated in the Bastar region of Chhattisgarh showcasing tribal heritage and cultural traditions.
- Held from **February 7 to 9**, the festival has emerged as a major cultural platform highlighting Bastar's tribal identity through **art, music, dance, handicrafts, and indigenous cuisine**.
- More than **700 artists from 84 teams** participated in divisional-level competitions across twelve cultural disciplines, including traditional tribal dances, folk music, handicrafts, indigenous musical instruments, and traditional cuisine.

Source: DDNews

FORM 7 CONTROVERSY

Context

- The bulk submission of Form 7 applications by anonymous or fraudulent actors during the ongoing Special Intensive Revision (SIR) of electoral rolls has triggered controversy over possible misuse of the voter deletion process.

What is Form 7?

- Form 7 is used to **object to the inclusion of a name in the electoral roll**, including one's own name.
- Grounds for objection include: death of the voter, duplicate entry, shifting of residence, ineligibility due to age, citizenship, or misrepresentation.
- **Legal Basis:** Governed by Section 13(2) of the Registration of Electors Rules, 1960, framed under the Representation of the People Act, 1950.
    - An objection must be filed by a person whose name is already included in the electoral roll.
    - **Booth Level Agents (BLAs)** are also permitted to file objections.
- **Recent Change:** In **2022**, the Election Commission amended Form 7 rules to allow **any voter within a constituency** to file objections, instead of restricting it to voters from the same polling booth, thereby widening its scope.
- **Verification Process:** After submission, Booth Level Officers (BLOs) conduct physical verification.
    - **In case of death:** Death certificate and confirmation by three neighbours are required.
    - **If the voter is absent:** BLO must make three visits to verify shifting of residence.
    - The concerned voter is issued a notice and given an opportunity for hearing.

- Appeals against the Electoral Registration Officer (ERO)'s decision can be filed before the District Magistrate within 15 days.

Do You Know?

- Filing a false declaration is punishable under **Section 32 of the Representation of the People Act, 1950**, with imprisonment up to one year, or fine, or both.

Source: TH

BONDED LABOUR ABOLITION ACT 1976: 50 YEARS OF ABOLITION LAW

Context

- **February 9, 1976,** marked an important milestone in equality in Indian society with the enactment of the **Bonded Labour System (Abolition) Act (BLSA).**

About

- **Bonded labour (or debt bondage)** is defined as a **condition** where money is lent in such a way that the debtor is forced to **pay back through labour instead of money.**
- BLSA is enacted to give effect to **Article 23 of the Constitution** (prohibition of trafficking and forced labour).
- **Bonded labour was deeply entrenched** due to poverty, caste hierarchies, landlessness, and indebtedness.
- **India ratified ILO Convention No. 29** (Forced Labour) in 1954, strengthening the legal obligation.
- **Objectives:**
    - Abolish the bonded labour system.
    - Free bonded labourers and extinguish their debts.
    - Prevent economic and social exploitation.
    - Provide a legal framework for rehabilitation.

Source: IE

INDIA ANNOUNCES 175-MILLION-DOLLAR SPECIAL ECONOMIC PACKAGE FOR SEYCHELLES

Context

- Prime Minister Narendra Modi announced a $175 million Special Economic Package for Seychelles during the visit of Seychelles President Dr. Patrick Herminie to India.

About

- India and Seychelles have also signed **7 Memoranda of Understanding (MoUs)** across various sectors, including Health, Meteorology, Electronics and Information Technology and Good Governance.

- The agreements include technical and scientific collaboration between the **India Meteorological Department** and the **Seychelles Meteorological Authority.**

Strategic Importance of Seychelles for India

- **Geostrategic Location in the Indian Ocean:** Seychelles lies near major sea lanes of communication (SLOCs) in the western Indian Ocean.

    - It is critical for maritime domain awareness (MDA) and anti-piracy operations.

- **Vision MAHASAGAR (Mutual and Holistic Advancement for Security and Growth Across Regions):**

    - Focuses on maritime security, sustainable development, and regional stability.

    - Expands upon India's earlier **SAGAR (Security and Growth for All in the Region)** doctrine.

    - Strengthens India's role as a net security provider in the Indian Ocean.

About Seychelles

- **Seychelles** is an archipelago nation of **115 islands** in the **western Indian Ocean,** northeast of **Madagascar**, known as **Africa's smallest** and least populous country.

    - Its capital is Victoria on **Mahé island.**

- **Biodiversity:** It is known for rare species like the **Coco de Mer, the Aldabra giant tortoise**, and the **rare black parrot.**

'NEXT-GENERATION SYSTEM': TO STRENGTHEN TSUNAMI MONITORING

Context

- India is working towards setting up a **Regional Service Centre (RSC)** in the **Andaman and Nicobar islands,** aiming to strengthen its existing tsunami monitoring and warning system.

About

- **Present System:** The current system is designed to **mainly detect tsunamis triggered by earthquakes.**

    - **Indian National Centre for Ocean Information Services (INCOIS) receives earthquake signals and processes** its tsunami potential at its Hyderabad centre.

    - But this method of marine data gathering **poses limitations with surface buoys often getting stolen or vandalised.**

    - Sometimes, data from satellites is also **insufficient.**

- India is now working on developing a good strategy, where the system will be able to **also detect tsunamis triggered by non-seismic causes.**

    - This new centre will also **offer services to partnering countries,** including **Sri Lanka,** having coasts along the Indian Ocean.

- **INCOIS** is the nodal agency operating the Indian Tsunami Early Warning Centre (ITEWC).

- Globally, **80% of tsunamis** are triggered by undersea earthquakes and the remaining occur following **non-seismic causes** like landslides, submarine volcanic activity and mudslides.

- **Significance:** The latest infrastructure can further facilitate the monitoring of acoustic signals, which are faster in capturing earthquake signals than the existing network.

Reasons for Choosing Andaman & Nicobar

- India's only known volcano, at the **Barren islands** located along the Andaman Sea, may be largely dormant but **holds potential threat.**

    - In case the epicenter of the earthquake or the volcanism is located close to the Andaman and Nicobar islands, then the **severest to be affected by tsunami would be the islanders.**

- This is why India is heavily investing in the Andaman and Nicobar.

Source: IE

RIGHT OF WAY (ROW) DELAYS

Context

- Delays arising from Right of Way (RoW) issues have emerged as a major hurdle in India's power transmission expansion, particularly affecting renewable energy evacuation projects.

What is Right of Way (RoW)?

- Right of Way refers to the **strip of land beneath and adjacent to a transmission line required for construction, operation, and maintenance.**
  - It is also known as the **transmission corridor,** which ensures minimum safety clearances.
- RoW ensures compliance with **electromagnetic field exposure norms and safety standards.**
- It allows utilities to **prevent obstruction from tall trees, buildings, or other structures** that may interfere with transmission lines.

Constraints Leading to RoW Delays

- **Land Acquisition Issues:**
  - Resistance from landowners demanding higher compensation.
  - Disputes over valuation of land under transmission corridors.
- **Forest and Environmental Clearances:**
  - Delays in forest clearances for lines passing through protected areas.
  - Restrictions in ecologically sensitive zones, including Great Indian Bustard (GIB) habitats.

Source: IE

MANGROVE CLAM (GELOINA EROSA)

In News

- ICAR-Central Marine Fisheries Research Institute achieved a global first by inducing captive breeding of **Geloina erosa (mangrove/mud clam)**, offering hope for restoring overexploited populations in Indian mangroves.

About

- Geloina erosa (also Polymesoda erosa) is a large bivalve (up to 10 cm shell width) inhabiting organic-rich, muddy intertidal zones of mangroves and estuaries across South and Southeast Asia.
- It is known locally as **"Kandal Kakka" in northern Kerala**, it serves as an efficient filter feeder, recycling nutrients, stabilizing sediments via burrowing, and bolstering ecosystem resilience.
- Ecologically, it acts as an efficient filter feeder, improving estuarine water quality through nutrient recycling.
- Its burrowing behaviour stabilises sediments, enhances nutrient cycling, and strengthens mangrove ecosystem resilience.

Source: TH