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BHAGWAN BIRSA MUNDA

In News

- PM pays tribute to **Bhagwan Birsa Munda** on the occasion of his **Martyr's Day.**

About Bhagwan Birsa Munda

- **Early Life:**
  - Born on 15th November 1875 in Ulihatu of the erstwhile Bengal Presidency.
  - An Indian freedom fighter, religious leader and folk hero from the Munda Tribe.
  - Learned teachings from a **Vaishnav monk.**
- **Founder of New Religion "Birsait":**
  - He believed in **One God.**
  - **Munda and Oraon community people** joined the sect & challenged British conversion activities of tribals.
  - He preached strong Anti-British sentiment through religion.
  - Also, referred to as **'Dharti Abba or Father of Earth'** by his followers.
- **Outcomes of the Munda Rebellion:**
  - In 1895, Birsa Munda was arrested for rioting and imprisoned for 2 years.
  - In 1900, Birsa Munda was arrested again and died of cholera in captivity, at the age of just 25.

Munda Rebellion

- **A tribal movement** led by **Munda** against the British **Raj.**
- Also referred to as '**Ulgulan' or the 'Great Tumult,'** to establish **Munda raj.**
- The rebellion aimed at **challenging the colonial land revenue system, Zamindari system, and forced labor imposed** on the tribals.
- The movement's primary grievances were the **introduction of the Zamindari system**, which displaced tribals from their land, and the exploitation by outsiders or Dikus who took control of tribal lands and resources.
- Birsa Munda and his followers used **guerrilla warfare tactics** to target symbols of British power, such as police stations, government buildings, and landlords' establishments.
- **Outcomes of the Rebellion:**
  - The British government introduced **the Chotanagpur Tenancy Act in 1908,** to prohibit the transfer of tribal land to non-tribals (Dikus).
  - **Lenient attitude of Britishers** towards tribals & maintaining their faith & beliefs.

Key Initiatives For Tribals

- **Janjatiya Gaurav Divas:** Celebrated on 15th November on the birth anniversary of Bhagwan Birsa Munda. This day serves to recognize and honor the contributions of tribal communities in India, particularly their role in the country's freedom struggle.
- **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN):** This initiative, launched to support Particularly Vulnerable Tribal Groups (PVTGs), aims to provide basic infrastructure in tribal areas, including pucca houses, clean drinking water, and improved roads.

Conclusion

- Bhagwan Birsa Munda remains a guiding figure for the tribal communities, especially in Jharkhand, and continues to inspire the fight for tribal rights and social justice in India.

Source: PIB

NHAI RELEASES FIRST-EVER ASSET MONETISATION STRATEGY DOCUMENT

Context

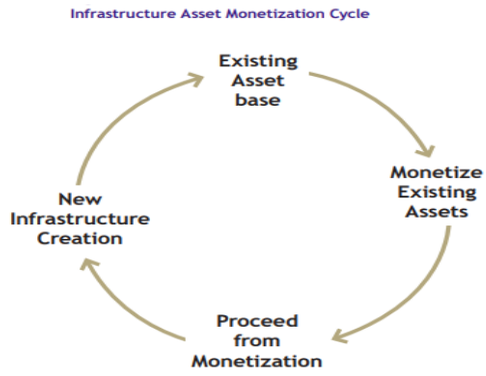
- National Highways Authority of India (NHAI) released its first ever 'Asset Monetization Strategy for the Road Sector'.

About

- NHAI monetizes assets through **three modes:** Toll-Operate-Transfer (ToT), Infrastructure Investment Trusts (InvITs), and securitisation models.
- These instruments have helped NHAI raise over **₹1.4 lakh crore** across more than **6,100 km** of National Highways under National Monetisation Pipeline.

What is Asset Monetization?

- Asset monetization, also commonly referred to as **asset or capital recycling**, is a widely used business practice globally.
- It entails a **limited period license / lease of a public sector asset** to a private sector entity for an upfront or periodic consideration through a well-defined concession/ contractual framework.
- Hence, it is a virtuous cycle where existing assets are converted into sources of funds, which are then invested in creating new assets.



Pillars of Asset Monetization Strategy

- **Value Maximation:** The objective of this pillar is to codify and structure processes to systematically identify and offer attractive assets for monetization, so as to increase acceptance of bids that maximize value for the government.
- **Transparency:** The objective of this pillar is to codify processes that aid transparency both within the organization and in communications with investors.
- **Market Development:** The objective of this pillar is two-fold;
  - Broaden the investor base to attract more private participation.
  - Enhance stakeholder engagement to increase traction of NHAI's asset monetization program.

Key Monetisation Models Used by NHAI

Infrastructure Investment Trusts (InvITs)

- It is a pooled investment mechanism introduced in **2014** and regulated by **Securities and Exchange Board of India (SEBI).**
- **How it works:**
  - NHAI transfers toll-operating road assets into a trust structure.
  - Investors buy units of the InvIT and earn returns from toll revenues.
  - Includes an Investment Manager (financial returns) and Project Manager (Operations and Management oversight).

Toll-Operate-Transfer (ToT) Model

- It is a **public-private partnership model** introduced in **2016.**
- **How it works:**
  - Private players pay a lump sum upfront for toll collection rights of completed highways.
  - They also bear the cost of operation and maintenance.

Securitization of Toll Revenues

- It is project-based financing by using future revenue streams as collateral.
- **How it works:**
  - NHAI creates a **Special Purpose Vehicle (SPV)** to raise funds by securitizing future toll receipts.
  - E.g., Delhi-Mumbai Expressway SPV raised ₹**40,000 crore** using this mechanism.

Way Ahead

- **Scaling Up:** More highway projects can be included under the monetisation strategy to unlock additional capital.
- **Private Sector Confidence:** Ensuring transparent policies and regulatory stability is crucial to boost private participation.
- **Capacity Building:** Strengthening institutional capacity to structure and manage monetisation deals effectively.

National Highways Authority of India (NHAI)

- The National Highways Authority of India (NHAI) is an **autonomous agency** of the Government of India, set up in **1995,** under the **Ministry of Road Transport and Highways (MoRTH).**
- NHAI was created through the promulgation of the **National Highways Authority of India Act, 1988.**
- **Objective:** It is primarily responsible for the **development, maintenance, and management** of National Highways across the country.
- **Headquarters:** New Delhi

Source: PIB

FIRST STATE/UTS ENGAGEMENT WORKSHOP UNDER THE NATIONAL ONE HEALTH MISSION

Context

- The first State and Union Territory Engagement Workshop under **National One Health Mission (NOHM)** was conducted, charting a collaborative path forward for strengthening India's integrated One Health approach.

About

- The workshop was chaired by the **Principal Scientific Adviser (PSA)** bringing together a diverse array of stakeholders.

- **Key Highlights:**
  - The workshop underscored syndromic surveillance and mock drills like **Vishanu Yuddh Abhyaas** for preparedness.
  - **Gujarat and Kerala**, nominated to the mission's **governance committee,** presented their progress in building One Health infrastructure.
  - The launch of a **Youth Engagement Program** to harness the energy and innovation of the country's youth through hackathons and digital campaigns.
  - **One Health Dashboard:** A central dashboard was launched to monitor and map state and central initiatives.

What is the One Health Approach?

- One Health is an **integrated, unifying approach** that aims to sustainably balance and optimize the **health of people, animals and ecosystems.**
- It recognizes that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent.

National One Health Mission

- The National One Health Mission (NOHM) exemplifies the Government of India's commitment to **leveraging cutting-edge science in real-world** settings to **anticipate and mitigate public health risks.**
- **The key pillars** of the NOHM are:
  - Technology enabled integrated surveillance across sectors.
  - National network of **Biosafety Level 3 (BSL-3)** laboratories (for testing high-risk or unknown pathogens).
  - **Collaborative and integrated R&D** for medical countermeasures including vaccines, diagnostics, and therapeutics for human-animal-wildlife-livestock health.
  - **Data integration** across sectors.
  - **Training and capacity building** in all spheres related to One Health.

Challenges in Operationalizing One Health

- **Intersectoral Coordination:** Fragmented institutional silos between human, animal, and environmental health bodies.
- **Lack of Trained Workforce:** Shortage of epidemiologists, zoonotic disease experts, and data scientists at the district level.
- **Infrastructural Disparities:** States vary in surveillance capabilities and digital health integration.
- **Data Privacy & Sharing:** Ensuring secure and effective real-time data flow between sectors remains a concern.

Way Ahead

- **Decentralised Planning:** States should localize the One Health model based on regional risks (e.g., zoonotic hotspots).
- **Institutional Mechanisms:** Permanent state-level One Health Cells and convergence with existing bodies like State Disaster Management Authorities (SDMAs).
- **Public Awareness:** Leverage campaigns and youth engagement to increase awareness of One Health.
- The states/UT's should consider **creating their own One Health dashboards** and websites and link it with the central dashboard/website.

Source: PIB

HATE SPEECH

In News

- Rajya Sabha may form a panel to probe **hate speech charges against HC judge.**

Do you know?

- **Articles 124 and 217** of the Constitution provide that a judge of the Supreme Court/ High Court shall be removed by the President, on the grounds of **'proved misbehaviour' or 'incapacity'** after a motion is passed in each House of Parliament by a majority of the total membership of that House and by a majority of **not less than two thirds of the members** of that House present and voting (special majority) in the same session.

- **The Judges (Inquiry) Act, 1968** outlines the removal process for judges.
  - A motion must be signed by at least **50 Rajya Sabha member**s or 100 Lok Sabha members.
  - The Chairman or Speaker can admit or reject the motion after review and consultation.

What is 'hate speech'?

- Hate speech lacks a specific legal definition but generally refers to speech, writings, or actions that incite violence or spread hatred and disharmony between communities.
- According to the **Law Commission of India**, hate speech targets groups based on race, ethnicity, gender, religion, etc., intending to cause fear, alarm, or incite violence.
  - It is viewed as a restriction on free speech to protect individuals or groups from hate, violence, or humiliation.
- The Law Commission has proposed adding two new IPC sections—153C and 505A—to specifically criminalize hate speech.

How is it treated in Indian law?

- In Indian law, hate speech is primarily addressed under **Sections 153A (now Section 196 of the Bharatiya Nyaya Sanhita) and 505 of the IPC (now Section 353 of the Bharatiya Nyaya Sanhita)**.
  - **Section 153A** criminalizes promoting enmity between groups based on religion, race, language, etc., punishable by up to three years in prison, or five years if done in places of worship.
  - **Section 505 penalizes statements** that incite public mischief, fear, or hatred between communities, with jail terms up to three years, or five years if occurring in religious settings.

Issues and Concerns

- Enforcement of hate speech laws in India is inconsistent and often influenced by bias.
- The rise of social media has further complicated regulation by providing new platforms for spreading hate.

Suggestions and Way Forward

- India must carefully balance free speech with controlling hate speech to preserve peace, equality, and the rule of law.
  - This requires stronger laws, fair enforcement, and greater public awareness.

Source :IE

MONACO MARINE CONFERENCE

Context

- Recently, **India and Norway** reaffirmed their commitment to strengthening cooperation in **marine planning, Arctic research, and the Blue Economy** at the **Monaco Marine Conference (MCC).**

Key Points

- **Marine Spatial Planning (MSP):** India aims to scale **Marine Spatial Planning (MSP) across its coastline** reinforcing its leadership in sustainable ocean management.
  - **MSP** is a science-based framework for optimizing ocean resources, protecting biodiversity, and ensuring coastal livelihoods, ***under the Indo-Norwegian Integrated Ocean and Research Initiative.***
  - It has already yielded visible outcomes, particularly through **pilot projects in Puducherry and Lakshadweep.**
- **India-Norway Marine Pact:** Both nations emphasized the importance of joint research in polar sciences and ocean sustainability.
  - Strengthening bilateral cooperation in marine planning, Arctic research, and ocean sustainability.
  - Norway, with **70% of its exports originating** from its maritime industry, is a recognized expert in the **Ocean Economy.**
- **SAHAV Portal:** It is a **GIS-based decision support system**, recognized as a **Digital Public Good**.
  - It was introduced to mark **World Ocean Day *(i.e. 8th June).***

India-Norway Relations

- **About:** India and Norway have maintained a cordial and friendly relationship since 1947, built on shared values like democracy, human rights, and the rule of law.
- **Political and Diplomatic Engagement:**
  - **2014:** It strengthened cooperation in Earth Sciences, Culture, Defence, and Scientific Research.
  - **2019:** It led to the **signing of the India-Norway Ocean Dialogue,** reinforcing maritime collaboration.

- **India-Nordic Summit (2022):** It focused on blue economy, renewable energy, green hydrogen, and sustainable shipping.

- **Trade and Investment:**
  - In March 2025, Norway's exports to India increased by 48% year-on-year. Key Norwegian exports include non-ferrous metals (like raw nickel), chemical materials, and metalliferous ores.
  - The recent signing of the India-EFTA Trade and Economic Partnership Agreement (TEPA) in March 2024 is a significant milestone, expected to boost trade and investment between India and Norway.
- **Scientific and Environmental Cooperation:**
  - India and Norway collaborate on **polar research, marine spatial planning, and climate action.**
  - India has undertaken three **Arctic Missions to Norway** (in 2007, 2008, and 2009). India's Polar Research Station, "Himadri," is located at Ny Alesund, Spitsbergen Island, Norway.
- **Export Control Regimes:** Norway has supported India's membership in key export control regimes, including the Missile Technology Control Regime (MTCR), the Wassenaar Arrangement (WA), and the Australia Group (AG).

What is the Blue Economy?

- **Blue Economy** refers to the **sustainable use of ocean resources** for economic growth, improved livelihoods, and environmental health.
  - **India's vision** aligns with global efforts to balance economic development with marine ecosystem protection.
- The **Blue Economy** is also reflected in **Sustainable Development Goal (SDG 14)**, which advocates for the conservation and sustainable use of oceans, seas, and marine resources for sustainable development.
- For India, with its **extensive coastline of 11,098km** spanning nine states and two union territories, and an **Exclusive Economic Zone (EEZ)** of 2.02 million sq.km, the Blue Economy holds significant potential.

Key Policy Frameworks and Initiatives

- **National Blue Economy Policy Framework:** It was outlined by the **Economic Advisory Council** to the Prime Minister, focusing on marine fisheries, coastal tourism, and ocean-based industries.
- **Pradhan Mantri Matsya Sampada Yojana (PMMSY):** It aimed at boosting fisheries and aquaculture, contributing to India's Blue Economy.

Source: PIB

GOVT NOTIFIES SEZ REFORMS TO BOOST SEMICONDUCTOR, ELECTRONICS COMPONENT MANUFACTURING

In News

- The Union government notified key amendments to the Special Economic Zones (SEZ) Rules, 2006, to ease the **establishment of semiconductor and electronics component manufacturing units.**

Major Reforms in SEZ Regulations

- **Reduction in Minimum Land Requirement:** Rule 5 has been amended to reduce the minimum land requirement for semiconductor and electronics component manufacturing SEZs from 50 hectares to 10 hectares.
  - **Impact:** This change lowers the entry barrier for firms looking to set up operations in this crucial sector, making it easier for smaller players to enter the market.
- **Relaxation on Land Encumbrance Requirements:** Rule 7 now allows the Board of Approval to relax the condition of requiring SEZ land to be encumbrance-free.
  - **Impact:** This flexibility will help overcome land acquisition challenges for companies.
- **Inclusion of Free Goods in Net Foreign Exchange (NFE) Calculations:** Amended Rule 53 to allow free-of-cost goods to be included in the Net Foreign Exchange (NFE) calculations for SEZ units.
  - NFE is the **net amount of foreign exchange** that a company earns through its exports (such as the sale of goods or services to foreign markets) after deducting its imports (such as the purchase of goods or services from foreign countries).

About Special Economic Zones (SEZs)

- **Definition:** They are designated areas within a country that operate under different economic regulations compared to the rest of the nation.
- **Purpose:** The primary goal of establishing SEZs is to promote rapid economic growth by

attracting domestic and foreign investment, boosting exports, and generating employment opportunities.

- **Legalisation:** India was one of the first countries in Asia to adopt the EPZ model in 1965 with the Kandla EPZ. The Special Economic Zones Act was passed in India in 2005 to provide a legal framework.
- **Baba Kalyani Committee (2018):** Formed to review the SEZ policy and make recommendations for its revitalization, including making it WTO-compatible, maximizing land utilization, and integrating it with other government schemes.
- **Proposed DESH Bill (Development of Enterprise and Service Hubs):** Aims to replace the existing SEZ Act.

Key Initiatives for Semiconductor and Electronics Manufacturing

- **India Semiconductor Mission (ISM):** Launched in December 2021, ISM is the nodal agency for the efficient and seamless implementation of semiconductor and display schemes.
- **Design Linked Incentive (DLI) Scheme:** Offers financial incentives and design infrastructure support across various stages of development and deployment of semiconductor designs.
- **PLI for Large Scale Electronics Manufacturing:** Notified in April 2020, it offers an incentive of 4% to 6% on incremental sales (over base year) of goods manufactured in India.
- **Semi-Conductor Laboratory (SCL), Mohali:** To enhance its efficiency and cycle time, contributing to indigenous R&D and specialized fabrication.

Source: TH

NEWS IN SHORT

POSON POYA FESTIVAL

Context

- Sri Lanka is celebrating the sacred Poson Poya festival, marking the historic arrival of Buddhism over 2,000 years ago.

About the festival

- Observed on the **June full moon**, the festival commemorates the **first sermon** preached by **Arahat Mahinda**, son of Emperor Ashoka, to King Devanampiyatissa at Mihintale.
- Thousands of devotees gather at the **Mihintale Hill** and other sacred sites such as **Anuradhapura**, which are central to the celebrations.
- One of the significant qualities that ought to be emphasized among the values celebrated on Poson Poya is **non-violence**. In a world where violence continues to afflict humanity on many fronts, this festival reminds us that 'Ahimsa' is a timeless value that safeguards both one's own and others' right to life and freedom.

Do you know?

- Buddhism, a major world religion, originated in **India** in the **6th century BCE**. It was founded by **Siddhartha Gautama**, who is widely known as the Buddha.

Source: AIR

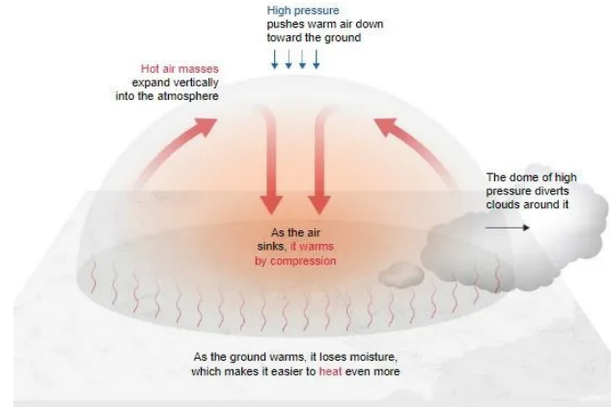
HEAT DOME

Context

- A recent study has highlighted that nearly 76% of India's population is at high to very high risk from extreme heat, which may be attributed to the Heat Dome Effect.

What is a Heat Dome?

- A Heat Dome is a meteorological phenomenon in which a **high-pressure system traps hot air underneath it**, acting like a lid or dome over a region.
- The trapped air becomes increasingly hotter, and the system can persist for days or even weeks, leading to prolonged heatwaves.



Reasons Behind the Heat Dome Formation

- **Climate Change:** Rising global temperatures increase the frequency and intensity of such high-pressure systems.

- **Jet Stream Anomalies:** A weakened or meandering jet stream can cause heat domes to remain stationary for extended periods.
- **Urban Heat Island Effect:** Amplifies heat in cities due to concrete structures and lack of vegetation.

Government Measures

- **National Action Plan on Climate Change (NAPCC)** with missions like National Mission on Sustainable Habitat and National Water Mission.
- **Heat Action Plans (HAPs)** adopted by cities like Ahmedabad and states like Odisha.
- **IMD Heatwave Alerts** and early warning systems.

Source: IE

WORLD ACCREDITATION DAY 2025

In News

- **World Accreditation Day (WAD) 2025** was celebrated by the **Quality Council of India (QCI) on June 9th**, with the theme **"Accreditation: Empowering Small and Medium Enterprises (SMEs)".**
  - Accreditation is a **formal process that verifies an institution's adherence to quality** standards in areas such as testing, inspection, or certification.

More about the News

- On this day, QCI introduced key initiatives:
  - **Revamped NABL Portal:** This updated portal is designed to improve digital access to accreditation for Micro, Small & Medium Enterprises (MSMEs).
  - **Gunvatta Samarpan Initiative:** This initiative promotes a public commitment to quality standards.

About Quality Council of India (QCI)

- QCI is an autonomous body established in 1997 under the **Department for Promotion of Industry and Internal Trade (DPIIT)**, Ministry of Commerce and Industry.
- The chairperson is appointed by the **Prime Minister** based on recommendations from the industry.
- Its mandate is to develop and manage the **National Accreditation Structure (NAS)** for conformity assessment bodies across sectors like health and education, and to promote quality.
- QCI has two primary **accreditation boards:**
  - National Accreditation Board for Certification Bodies (NABCB)
  - National Accreditation Board for Testing and Calibration Laboratories (NABL).

Source: PIB

HEENG OR ASAFOETIDA (FERULA ASSA-FOETIDA)

In News

- Recently, CSIR-Institute of Himalayan Bioresource Technology (IHBT) developed a tissue culture unit to boost large-scale heeng propagation.

Heeng (asafoetida)

- Heeng plants thrive in **cold, arid environments** suited to the native regions in **Iran, Afghanistan, and Central Asia**.
- The plant prefers **sandy**, **well-drained soil** with **low moisture**, ideally receiving annual rainfall of **200 mm or less**, though it can tolerate up to 300 mm in cultivated regions like the Indian Himalayas.
- It flourishes in temperatures of **10-20° C**, tolerates **highs of up to 40° C,** and withstands **winter lows down to –4° C**.
  - In extremely dry and cold weather, heeng plants typically become dormant to survive.
- Heeng is obtained from the **oleo-gum resin of the plant's taproot** and rhizome, which forms **40–64% of the dried gum**.
  - The perennial plant takes about five years to mature and flower.

Benefits

- Heeng is a widely used spice in Indian cooking, typically added to hot oil at the start of preparation.
- Its use is deeply rooted in Indian tradition, with references in ancient texts like the **Mahabharata and Ayurveda**, which highlight its benefits for **digestion**, **relieving abdominal pain,** and **enhancing taste**.
- It is also mentioned in the **Pippalada Samhita** and **by Panini**.

Cultivation in India

- Heeng was historically imported from countries like Afghanistan and Iran despite India being its largest consumer.
  - The government launched a mission in Himachal Pradesh to cultivate heeng domestically to reduce this dependency,
- The first Indian heeng seedling was planted in **Lahaul Valley in 2020**.

- In May 2025, the first successful flowering and seed set in Palampur marked a major milestone, proving heeng's adaptability and paving the way for sustainable cultivation in India.

Source :TH

EXTRACTING AND PRODUCTION OF NICKEL

In News

- The recent study by researchers at the Max Planck Institute for Sustainable Materials in Düsseldorf, Germany offers a promising, sustainable alternative to **conventional nickel extraction methods.**

Nickel

- Nickel is a chemical element with symbol Ni and atomic number 28.
- It is silvery white and hard, malleable, ductile, somewhat ferromagnetic, and a fair conductor of heat and electricity.
- It is a transition element that exhibits a mixture of **ferrous and nonferrous metal properties**.
  - It is both siderophile (i.e., associated with iron) and chalcophile (i.e., associated with sulfur).
- It was discovered by the Swedish chemist Axel Fredrik Cronstedt in the mineral niccolite (NiAs) in 1751.

Importance

- Nickel is a hard, corrosion-resistant metal used for protective coatings, catalysts, colored glass, coins, and batteries.
- It is alloyed with metals like steel and copper to enhance strength and corrosion resistance.
- It is an important metal used in several clean energy technologies, especially **Electric Vehicles (EVs)**, and the demand for it is expected to surpass six million tonnes a year by 2040.
- India has significant laterite nickel reserves, especially in Odisha's Sukinda region, though these low-grade deposits are often overlooked by traditional extraction methods.

Findings of Recent study

- The new study focused on **laterite ores**, a type of soil-rich rocks that contain metals like **nickel**.
  - They **form in hot, tropical regions** when rain and heat break down rocks over time, leaving behind metal-rich layers.
    - They are abundant but tough to process.
- It introduced a single-step nickel extraction method using **hydrogen plasma instead of carbon,** making the process up to 18% more energy-efficient and reducing CO_2 emissions by 84%.
  - **Traditional nickel extraction** involves multiple steps and emits significant carbon dioxide by heating nickel oxide with carbon.
    - extraction is currently carbon-intensive, producing over 20 tonnes of CO_2 per tonne of nickel.
  - It is especially important for India, which seeks to balance rapid industrial growth with climate goals and reduce reliance on imported high-grade ores by utilizing its domestic reserves.

Source :TH

TARDIGRADES

Context

- ISRO is sending tardigrades to the International Space Station (ISS) under the **Voyager Tardigrades experiment** as part of the **Axiom-4 mission** to study their survival in space.

About

- **Tardigrades, also called water bears or moss piglets**, are micro-animals known for their extraordinary resilience to extreme environmental conditions.
  - They can withstand temperatures as low as **minus 272.95 degrees Celsius** or as high as **150 degrees Celsius;** endure ultraviolet radiation of space and pressures of **40,000 kilopascals.**
- They were first discovered in **1773 by German zoologist Johann August Ephraim Goeze.**
- **Characteristics:** These creatures are usually between **0.3 mm to 0.5 mm long**.
  - They have **eight legs with claws** and segmented bodies protected by a cuticle.
  - Tardigrades can **survive extreme temperatures,** and can endure high radiation, desiccation, vacuum of space, and even intense pressure.

Why are tardigrades so resilient?

- **Cryptobiosis:** A survival strategy in which metabolic activity is nearly halted.
- **In anhydrobiosis,** they lose over 95% of body water, enabling survival without moisture.

- **Protective Proteins:** Tardigrades produce C**ytoplasmic Abundant Heat Soluble (CAHS) proteins.**
  - These proteins form a glass-like matrix, stabilizing cellular components during stress.

Source: IE

CLIMATE-RESILIENT FARM PONDS

Context

- In Rajasthan's Amber block, climate-resilient farm ponds in Kukas village aim to conserve 10 crore litres of monsoon run-off, ensuring sustainable irrigation for farmers.

What Are Climate-Resilient Farm Ponds?

- Climate-resilient farm ponds are **water bodies designed to collect and store rainwater**, enhancing water security and promoting climate-resilient agriculture, especially in areas with limited water resources or erratic rainfall patterns.
- These are around **10-foot deep**, plastic-lined water retention structures, built on 5% of individual farmers' land, and surrounded by protective fencing.

Significance of the initiative

- This initiative aligns with several national missions and priorities:
  - **Jal Shakti Abhiyan and Atal Bhujal Yojana** (Groundwater sustainability),
  - National Mission for Sustainable Agriculture (NMSA),
  - **Doubling Farmers' Income** target by improving productivity and reducing risk,
  - Climate-resilient infrastructure under India's commitment to **SDG-6 (Clean Water)** and **SDG-13 (Climate Action).**

Source: TH

PROJECT CHEETAH

In News

- Wildlife officials and scientists from the National Tiger Conservation Authority (NTCA) published a paper defending **Project Cheetah against ongoing criticism**, calling some objections ideologically biased.

Project Cheetah

- Project Cheetah is a landmark wildlife conservation initiative launched on September 17, 2022 aimed at reintroducing cheetahs to India after their extinction in the late **1940s and early 1950s**.
- It is the world's first intercontinental large wild carnivore translocation project.
- It operates under the umbrella of **Project Tiger and aligns with the Cheetah Action Plan to restore and conserve the species**.
  - Efforts are underway to expand suitable habitats, ensuring long-term survival and ecological balance in India's grassland ecosystems.

Key Achievements

- In September 2022, eight cheetahs from **Namibia** were translocated to Kuno National Park, followed by twelve cheetahs from **South Africa in February 2023**.
  - The majority of these **cheetahs have adapted** well to their new environment, exhibiting natural behaviours such as hunting, territory establishment, and mating.
- Notably, a female cheetah gave birth to cubs on Indian soil after 75 years, with one surviving cub reported to be six months old and showing normal growth patterns as of September 2023.
- On 3rd January, 2024 three cubs were born to Namibian Cheetah Aasha at the Kuno National Park.
- The **project has actively involved local communities,** providing direct and indirect employment opportunities.
  - Over 350 '**Cheetah Mitras' (Cheetah Friends)** from surrounding villages have been engaged to educate the public on cheetah behaviour and human-wildlife conflict mitigation, fostering peaceful coexistence.

Source :IE