

NEWS TODAY

In a first, Indian Oceanographers have captured image of an active Hydrothermal Vent

This discovery is outcome of Hydrothermal Exploration Programme carried out by National Centre for Polar and Ocean Research (NCPOR) and National Institute of Ocean Technology (NIOT).

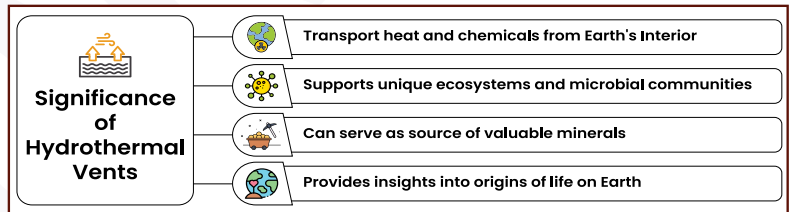
- Discovered hydrothermal vent is located 4,500 metres **below the surface of the Indian Ocean.**
- This site holds potential for mineral exploration as part of the **Deep Ocean Mission.**

About Hydrothermal vents

- Hydrothermal vents are **underwater springs** where **cold water** prevailing near the seabed **comes in close contact with magma** in a tectonically active region.
 - ⊕ When this cold water trickles through cracks and fissures on the ocean crust and admixtures with magma, it **gets heated up, dissolving minerals** from surrounding rocks.
 - ⊕ It then emerges as **hydrothermal plumes rich in trace metals, gases and minerals.**
- These are found in the **global mid-oceanic ridge system.**
- These support **diverse ecosystems and microbial communities**, serving as the foundation of the food web in deep-sea environments.

About Deep Ocean Mission

- Approved in **2021** at an estimated cost of Rs. 4077 crore for a period of **5 years.**
- **Nodal Ministry:** Ministry of Earth Sciences.
- **Major Components:**
 - ⊕ Development of Technologies for Deep Sea Mining, and Manned Submersible
 - ⊕ Development of Ocean Climate Change Advisory Services
 - ⊕ Technological innovations for exploration and conservation of deep-sea biodiversity
 - ⊕ Deep Ocean Survey and Exploration
 - ⊕ Energy and freshwater from the Ocean
 - ⊕ Advanced Marine Station for Ocean Biology



Report of Parliamentary Standing Committee on Social Justice and Empowerment (SJ&E)

The Committee tasked with considering the Demands for Grants (2024-25) of the **Department of SJ&E** comprises of **31 members** (21 Lok Sabha and 10 Rajya Sabha).

Key Concerns flagged by the report

- **Not fixing physical targets:** For some schemes like Pradhan Mantri Adarsh Gram Yojana (PMAGY), makes it **difficult to assess their outcome.**
- **Challenges in Implementation:** Significant allocations under key programmes **remained unutilized** due to **incomplete documentation, delays in release of funds** by the states, etc.
- **Improper enforcement of legislations:** Like **Protection of Civil Rights Act, 1955, SC and ST (Prevention of Atrocities) Act, 1989**, due to inability of the states to set up requisite implementation machinery.

Some Key Recommendations

- **Capacity Building:** Of State's implementing institutions for effective implementation and achieving targets.
- **Cooperative Federalism:** States to actively contribute their share of resources for the smooth execution of centrally-sponsored schemes.
- **Information, Education and Communication (IEC):** For better publicity and wider dissemination of information related to schemes.
- **Addressing State Specific issues:** Through **Regional workshops** along with sensitizing them towards submitting **State Action Plans** and **effective fund utilization.**

Major Schemes for the Welfare of Vulnerable Sections

- **Scheduled Castes:** Scholarships for Higher Education for Young Achievers Scheme (**SHREYAS**); Pradhan Mantri Anusuchit Jaati Abhyuday Yojana (**PM AJAY**), etc.
- **Other Backward Classes:** PM Young Achievers Scholarship Award Scheme for Vibrant India (**PM YASASVI**), etc.
- **Senior Citizens:** Rastriya Vayoshree Yojana (**RVY**); Atal Vayo Abhyuday Yojana (**AVYAY**)
- **Other Sections:** **SMILE** (Support for Marginalized Individuals for Livelihood and Enterprise) covering beggars, transgender persons, and the homeless.

Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) releases Nexus Assessment Report

Report is also known as the **Assessment Report on the Interlinkages Among Biodiversity, Water, Food and Health**.

- It offers a scientific **assessment of complex interconnections among five nexus elements – biodiversity, water, food, health and climate change** - and explores response options to maximize co-benefits.

Key findings

- **Unaccounted-for costs** of current economic activity – reflecting impacts on nexus elements – are at least **\$10-25 trillion per year**.
 - ⊕ Existence of such unaccounted-for costs, alongside direct public subsidies, enhances **private financial incentives to invest in nature damaging economic activities**.
- **Biodiversity decline per decade** for last 30-50 years is **2-6%**, reducing ability of ecosystems to sequester carbon and accelerating climate change.
- In last 50 years, **global trends in indirect socio-economic drivers of biodiversity loss** such as increasing waste, overconsumption and population growth **intensify the direct drivers** like land and sea-use change, pollution, invasive alien species etc.
- **Unsustainable freshwater withdrawal**, wetland degradation and forest loss have decreased water quality and climate change resilience.
- Around **50% of emerging infectious diseases** are driven by **interconnections between ecosystem, animal and human health**.

Way ahead

- **Adopting synergistic approaches** restoring carbon-rich ecosystems forests, mangroves etc.
- **Management of biodiversity** to reduce risks of diseases spreading from animals to humans.
- **Others:** Reliance on urban nature-based solutions, knowledge of indigenous peoples, adopting sustainable agricultural practices, one health approach etc.

About Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)

- **Established in 2012 to strengthen the science-policy interface** for biodiversity and ecosystem services for conservation and sustainable use of biodiversity, human well-being and sustainable development.
- **Independent intergovernmental body** comprising 150 member Governments.
 - ⊕ **India is a founding member.**
- It is **not a UN body** but **UN Environment Programme** provides secretariat services to IPBES.

Site Adjacent Factory Employee (S.A.F.E.) Accommodation—Worker Housing for Manufacturing Growth Report

Released by **NITI Ayog**, it explores the role of secure and affordable accommodations for industrial workers in boosting India's manufacturing sector.

- Further, the importance of executing it under **Public-Private Partnership (PPP) model** with **Viability Gap Funding (VGF)** was emphasized in the Union Budget 2024-25.

About SAFE

- **Definition:** It includes **rented, long term dormitory-style accommodation**, exclusively for **workers** in industries, strategically located near workplaces.
 - ⊕ It includes **essential amenities** such as water, electricity, etc., and **excludes family housing**.
 - ⊕ **Ownership** of these units **cannot be transferred or sold** to workers or employers.

Some Global Best Practices

- **China:** Provides cheap housing for workers increasing their real wages.
- **Singapore:** Separate act for migrant housing and differential building regulations for workers' dormitories.
- **Vietnam:** Approved a plan to build housing units for workers in industrial parks.

Need for SAFE

- **Enhancing Productivity and Retention:** Reduces commute times, enhances overall productivity leading to lower attrition rates.
- **Attracting Global Investments:** Worker welfare and operational efficiency are taken into consideration for making investment decisions by global investors.
- **Gender inclusivity:** Enhance female labor force participation, which is currently half of countries like China.

Existing Challenges

- **Regulatory Challenges:** **Restrictive Zoning Laws** (prohibits residential housing in industrial zones unless explicitly permitted); **Conservative Building Bye-Laws** (like low Floor Area Ratios limit potential for high capacity housing), etc.
- **Economic Challenges:** **High Operating Costs** (accommodations in industrial zones are classified as commercial attracting higher taxes); **Higher capital costs**, etc.

Key Recommendations

- **Reclassify Worker Accommodations:** Designate S.A.F.E as a distinct category for GST exemptions, reduced taxes, etc.
- **Streamline Environmental Clearances and Flexible Zoning laws:** Allowing mixed-use developments.
- **Financial Viability:** Upto 30-40% of project costs (excluding land) to be provided through VGF, transparent bidding process, etc.

A study identifies nano-plastics as emerging agents in spread of antibiotic resistance

According to the study, nanoplastics derived from single-use plastic bottles (SUPBs) contribute to the spread of antibiotic resistance (AR).

Key findings of Study

- Nanoplastics and microorganisms **coexist in diverse environments, including the human gut.**
- Polyethylene Terephthalate Bottle-derived Nanoplastics (PBNPs) can facilitate the cross-species gene transfer from *E. coli* to *Lactobacillus acidophilus*, a significant beneficial bacteria found in human gut microbiota, through a **process called horizontal gene transfer (HGT).**
 - ⊕ HGT is the **movement of genetic information or material between organisms** (except for those from parent to offspring).
- **Two mechanisms** through which PBNPs facilitate AR gene transfer include:
 - ⊕ **Direct transformation pathway**, in which PBNPs act as physical carriers, transporting AR plasmids across bacterial membranes.
 - ⊕ **Outer Membrane Vesicle (OMV) – Induced Transfer Pathway**, in which PBNPs induce oxidative stress and damage to bacterial surfaces, **increasing OMV secretion** facilitating gene transfer.

About Nanoplastics

- Nanoplastics are solid particles of **synthetic or heavily modified natural polymers** with sizes between 1 nm (nanometer) and 1000 nm.
- **Sources:** Primary sources like cosmetics, paints, drugs, electronics, and secondary sources from breakdown and fragmentation of microplastics.
- **Impact:** More easily penetrate cells and tissues in living organisms, and have been found in human blood, liver and lung cells, and in reproductive tissues.



State Finances: A Study of Budgets of 2024-25 (Fiscal Reforms by States) Report released by RBI

Report provides a **comprehensive analysis** of the fiscal position of State governments covering the period 2022-23 (actuals) to 2024-25 (budget estimates) with focus on 'Fiscal Reforms by States'.

Overview of the Fiscal position of the States

- **Gross Fiscal Deficit (GFD): 2.9% of the GDP (Gross Domestic Product)** in 2023-24 compared to 2.7% (2022-23).
 - ⊕ **GFD** is the difference between **total expenditure** (Revenue and Capital) and the **Revenue receipts** including the **Non-debt creating capital receipts.**
- **Revenue Receipt:** Declined marginally in 2022-23, due to lower tax devolution, etc.
 - ⊕ It refers to **non-redeemable receipts** that do not lead to a claim on the government.
- **Capital expenditure:** Improved further with capital outlay increasing to **2.6% of GDP** in 2023-24 from 2.2 per cent in 2022-23.
 - ⊕ It refers to expenditure that leads to creation of **physical/financial assets.**
- **Overall Debt:** Declined to 28.5% of GDP (March 2024) from 31.8% GDP (March 2004)
 - ⊕ **Fiscal Responsibility and Budget Management (FRBM) Review Committee (2017)** recommends it to 20%

Key Reforms taken by the States

- **Institutional reforms:** Setting up of State Institutions of transformation under **State Support Mission** of NITI Aayog, etc.
- **Expenditure Reforms:** Use of **Direct Benefit Transfers (DBT).**
 - ⊕ E.g., States like Telangana is implementing **Rythu Bandhu** scheme through DBT)
- **Borrowing Reforms:** **Increased shift towards market borrowings** in the financing of GFD from 17% in 2005-06 to 79% in 2024-25 (BE)

Key Recommendations

- **Rationalisation of Subsidies:** Like on Electricity, farm loan waiver, etc. to avoid crowding out of more productive expenditure.
- **Rationalisation of Centrally Sponsored Schemes:** To free up budgetary space for state-specific expenditure.
- **Others:** Debt Consolidation, Timely data availability, Adoption of Climate Budgeting, Outcome budgeting, etc.

Also In News



Protected Area Regime (PAR)

Recently, Union Government **re-imposed PAR regime in 3 north-eastern states** (Manipur, Mizoram and Nagaland).

- It was **scrapped in 2011 to boost tourism in the states.**

About PAR

- **Legal Framework:** **Foreigners (Protected Areas) Order, 1958.**
- **Areas Covered:** All areas falling between the 'Inner line' and the International Border of the State.
 - ⊕ Also covers whole of Arunachal Pradesh, parts of Himachal Pradesh, Rajasthan, Uttarakhand, etc.
- **Regulation:** Foreign national is to obtain a special permit from a competent authority to visit these areas.
- **Issuing Authority:** Union Ministry of Home Affairs
- **Validity:** 10 days



Phewa Dialogue

Recently, Nepal and China launched the "Phewa Dialogue" series.

About Phewa Dialogue

- It derives its name from the famous **Phewa Lake** there.
 - ⊕ It is **one of the largest lakes** of Nepal situated in **Pokhara Valley.**
 - ⊕ **Perennial spring** - Harpan Khola and Seti Khola, provide inflows to the lake.
- It seeks to address issues like South Asia's global industrial shift and its needs.
- This will be Nepal's first official think tank forum **dedicated to South Asia Regional Economic Integration.**



MedTech Sector

Medical device sector is recognized as a **sunrise sector** in India.

- MedTech (or Medical Technology) is a segment of healthcare systems that focuses on designing and manufacturing a wide range of medical products/devices for diagnosis, prevention, treatment etc.
- **Present status:**
 - ⊕ India is the **fourth largest medical devices market in Asia** after Japan, China, and South Korea.
 - ⊕ Estimated to be around \$14 billion and is **expected to grow to \$30 Billion by 2030.**
 - ⊕ **Initiatives:** 100% FDI under automatic route, National Medical Device Policy 2023, Centres of Excellence etc.



Banning of Unregulated Lending Activities (BULA)

Department of Financial services, under Ministry of Finance, has circulated the draft **Banning of Unregulated Lending Activities (BULA) Bill** for public consultation.

About draft BULA Bill

- **Drafted in accordance with the RBI's Working Group on Digital Lending (WGDL) report.**
- **Objective:** To **curb unregulated lending activities** and to protect the interest of consumers.
- It envisages to **ban all persons/ entities not authorised by RBI/ other regulators** and not registered under any other law from **undertaking public lending business activity.**
- It provides for **creation of a Central Database** for information on lenders operating in India.



Fir and Birch Tree

A recent study shows climate change is altering the tree line landscape of the central Himalayas.

- **Birch trees, that dominates the region,** are being **replaced by fir,** a slow-growing evergreen conifer.

About Birch Tree

- It is a fast-growing **deciduous broadleaved species** found growing in the Himalayas.
- It prefers **moist or wet** but well-drained rocky or sandy soil conditions.

About Fir Tree

- It is a **conifer species** and an important constituent of high-elevation forest ecosystems.
- These can be found across **North America, Europe, Asia and North Africa.**



Yuga Yugeen Bharat National Museum

The Ministry of Culture has partnered with France Museums Développement (FMD) to develop the Yuga Yugeen Bharat National Museum into a world-class cultural institution.

About Yuga Yugeen Bharat National Museum

- It is part of the **Central Vista Redevelopment Project,** it spans across New Delhi's North and South Blocks.
- Museum will showcase **India's heritage.**
- It will be developed using **Adaptive Reuse,** ensuring **preservation of architectural heritage** of North and South Blocks.
 - ⊕ This approach mirrors **France's "Grands Projets" initiative,** which saw the transformation of government buildings into iconic cultural spaces.



Eklavya Model Residential Schools (EMRS)

Recent data shows EMRS fall short of **5% sub-quota for PVTGs (Particularly Vulnerable Tribal Groups).**

- PVTGs include **75 tribal communities** as (PVTGs) based on the recommendations of the **Dhebar Commission** meeting specified criteria.

About EMRS

- **About:** Started in the year **1997-98** to impart quality education to ST (Scheduled Tribes) children in remote areas.
 - ⊕ Capacity of 480 students from Class VI to XII for each school.
- **Expansion**
 - ⊕ By 2022, every block with more than **50% ST population** and at least **20,000 tribal people** to have an EMRS.
 - ⊕ In par with Navodaya Vidyalaya.
- **Ministry:** Ministry of Tribal Affairs



Distributed Ledger Technology (DLT)

Telecom Regulatory Authority of India (TRAI) has implemented a **Block chain-based Distributed Ledger Technology (DLT) framework** to trace all commercial SMS.

- It requires all Principal Entities (PEs) like businesses, etc., along with their Telemarketers (TMs), to register their message transmission paths through DLT
- It would create a **safer and spam-free Commercial messaging ecosystem.**

About DLT

- It allows users to **carry out digital transactions** without a centralized authority. E.g., Blockchain.
- It is **"distributed"** because multiple participants in a network share and synchronize copies of the ledger.
- New transactions are **cryptographically secured,** permanent, and visible to all in real time.



GLP-1 Receptor Agonists

Scientists at the World Health Organisation (WHO) have endorsed a **new class of medicines known as GLP-1 receptor agonists.**

- Glucagon-Like Peptide (GLP)-1 receptor agonists are utilized in **treating type 2 diabetes and obesity.**
- These interact with **GLP-1, a key hormone** that plays an integral role in regulating blood glucose levels, lipid metabolism, and several other crucial biological functions.
 - ⊕ GLP-1 is **produced in the intestine** and released in response to food.
 - ⊕ It causes **reduced appetite and release of insulin.**

