

# NEWS TODAY

## “Synchronizing energy transitions toward possible Net Zero for India: Affordable and clean energy for All” Report

- Report comprehensively studies methods for **minimizing cost of power at consumer end and to work out an optimum mix for all sources of power, aiming for net-zero emission.**
  - ⊖ It was launched by the **Office of the Principal Scientific Adviser to the Government of India.**
- **Key highlights of the report**
  - ⊖ **Coal** is projected to continue for next two decades as **backbone of Indian energy system.**
  - ⊖ Net-zero is not possible without **substantial nuclear power and Renewable Energy (RE) generation by 2070.**
  - ⊖ **Refurbishing, recycling, and mineral recovery** will play a vital role in meeting future mineral demands.
  - ⊖ **Need to explore carbon dioxide technologies**, such as bioenergy with carbon capture and storage and carbon capture, utilization, and sequestration (CCUS).
- **Key Recommendations**
  - ⊖ **Life cycle assessment of alternate energy system** and link incentives to net mitigation provided by them.
  - ⊖ Invest in **developing renewable and battery technologies** based on **domestically available mineral resources.**
    - ◆ e.g., Use of vanadium-based flow batteries for stationary applications and EV charging infrastructure.
  - ⊖ **Regulatory changes to reflect hydrogen blending limits** into natural gas networks.
  - ⊖ **Uranium storage facilities** for resilience to disruption of nuclear power.

### India's Net-Zero Target

- **In 2021 at COP 26 of UNFCCC**, India announced its target to achieve **net zero by 2070.**
- Additionally, **Indian Railway** has set a target of becoming **Net Zero Carbon Emitter by 2030.**

## Decline in Campus placements at Premier Institutions in India

- Reasons for decline include global economic slowdown, lack of international firms coming to campuses, etc.
- The decline in placement and increasing unemployment [8% in Feb 2024 (CMIE)] has also raised concerns regarding jobless growth in India.
- **Jobless growth** is a phenomenon where increase in employment opportunities and job creation takes place at a slower rate than that of economic growth.
- **Reasons for jobless growth in India**
  - ⊖ **Increasing investments in capital equipment and automation:** Automation is said to threaten 69% of the jobs in India (World Bank).
  - ⊖ **Sectoral inefficiencies:** Primary sector employs >50% of India's workforce while contributing <20% to GDP.
  - ⊖ **Labor market rigidity:** Pushed employers towards more capital intensive modes of production than labor-intensive ones.
  - ⊖ **Poor employability:** Only 50.3% of country's youth are considered employable. (India Skills Report, 2023)
  - ⊖ **Poor participation in Global Value Chains (GVCs):** Proportion of labor intensive sector has declined in India's GVCs linkages.
- **Way Forward**
  - ⊖ **Skilling of labor force:** To bridge the gap between demand and supply of skills and qualifications.
  - ⊖ **Incentives to labor-intensive sectors:** PLI schemes, employment subsidies, etc., to sectors such as textile, Auto sector, etc.
  - ⊖ **Modernization and diversification of Agriculture sector:** To address sectoral inefficiencies.

### Initiatives to improve employability

- **National Skill Development Mission (NSDM)** launched in 2015.
- **National Apprenticeship Promotion Scheme (NAPS).**
- **Schemes to boost manufacturing sector:** Make in India initiative; Industrial Corridor Development Programme; Production Linked Incentive scheme, etc.

## India's first homegrown gene therapy (CAR-T cell therapy) for cancer launched by the President

It is developed through collaboration between the **Indian Institute of Technology, Bombay, Tata Memorial Hospital, and ImmunoACT.**

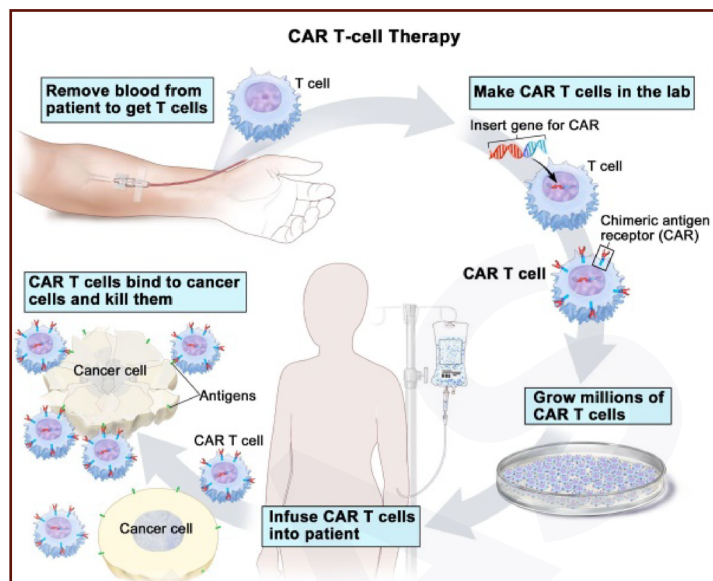
### About Chimeric antigen receptor (CAR-T) cell therapy

- ⊕ It modifies immune cells, specifically T-cells, by turning them into potent cancer fighters known as **CAR-T cells.**
  - ◆ T-cells are special cells (types of white blood cells) whose primary function is cytotoxic, meaning killing other cells.
- ⊕ T cells are taken from patient blood and are changed in lab by **adding a gene for a man-made receptor (called CAR).**
  - ◆ CARs are proteins that assist the T-cells to **recognise and attach to a specific protein present on cancer cells.**
- ⊕ **CAR-T cells** are then given back to the patient.

### Benefits of the CAR-T Cell therapy

- ⊕ Can treat cancer for an extended period.
- ⊕ It has the potential to cure specific cancers completely.
- ⊕ Short treatment time is needed and more rapid recovery.

**Challenges:** CAR-T cell therapy for one cancer won't work for another type of cancer, can have negative effects on the nervous system, risk of infection, etc.



## Agni-prime the new generation ballistic missile flight tested successfully

It was conducted by **Strategic Forces Command (SFC)**, along with the **Defence Research and Development Organisation** from Dr. APJ Abdul Kalam Island.

⊕ SFC is responsible for the management and administration of the **country's tactical and strategic nuclear weapons stockpile.**

### About Agni prime

- ⊕ **Two-stage canisterised solid propellant** ballistic missile, with a maximum range of 1,000 to 2,000 km.
- ⊕ **A nuclear-capable** advanced variant of the Agni class of missiles.
- ⊕ Lighter than **all the earlier Agni series of missiles** and will be guided by inertial navigation systems (INS) based on advanced ring-laser gyroscopes.
- ⊕ First of the new generation of missiles after the end of the **Integrated Guided Missile Development Program (IGMDP).**

### Significance

- ⊕ **As the warhead is preloaded**, it offers the ability to launch with minimal preparation time.
- ⊕ It can be **stored for many years together**, with minimum inspection at periodic intervals.
- ⊕ It has **very high accuracy**, which is useful for precise targeting.

#### About IGMDP

It was started in 1983 to enable India to attain **self-sufficiency in the field of missile technology.**

#### The missiles developed under the program were

- ⊕ Short-range surface-to-surface ballistic missile **Prithvi.**
- ⊕ Intermediate-range surface-to-surface ballistic missile **Agni.**
- ⊕ Short-range low-level surface-to-air missile **Trisul.**
- ⊕ Medium-range surface-to-air missile **Akash.**
- ⊕ Third-generation anti-tank missile **Nag.**

## Uttarakhand Government to evaluate risk of Glacial Lake Outburst Floods (GLOFs)

State Government of Uttarakhand has constituted two expert teams to evaluate risk posed by 5 potentially hazardous glacial lakes in the region.

**GLOF:** It is a term used to describe a sudden release of water retained in a glacial lake that can be located in front, at the side, underneath, within, or on top of a glacier. e.g., GLOF in Sikkim (Oct 2023) triggered by bursting of South Lhonak Lake.

⊕ GLOFs are recognized as a **potential climatological disaster** in **National Disaster Management Plan (NDMP) 2019 of India.**

**GLOF vulnerability in India:** Includes Himalayan states and UTs such as **Jammu & Kashmir, Ladakh, Himachal Pradesh, Uttarakhand, and Sikkim.**

⊕ In 2021, Geological Survey of India found **13 out of 486 glacial lakes in Uttarakhand to be vulnerable to GLOFs.**

### Reasons for GLOFs

- ⊕ **Geological:** Earthquake, breach of moraine dams, etc.
- ⊕ **Morphological:** Mass movement into glacial lakes, water seepage through glacial structures, etc.
- ⊕ **Physical:** Excessive precipitation, Cryoseism (non-tectonic seismic event of the glacial cryosphere), etc.
- ⊕ **Anthropogenic:** Climate Change and global warming, etc.

**Strategies to manage GLOF risks:** Hazard risk zonation and mapping, monitoring of glacial lakes using remote-sensing, GIS technology, etc., restrictions and regulations of construction activities in hazard-prone areas, etc.

## The government sought technical assistance from ILO to create a framework for living wage

- Presently, India follows the **minimum wage**, which has remained stagnant since 2017.
- The **Code on Wages passed (2019)**, proposed a universal wage floor which shall apply to all states once implemented.
- **Issues with the present system**
  - ⊖ The Minimum Wages Act, 1948 provides guidelines but **does not specify the minimum wage**.
  - ⊖ **Fixing minimum wages in some jobs** falls under both the Minimum Wages Act, 1948, and the Contract Labour (Regulation and Abolition) Act, 1970, leading to potential confusion.
  - ⊖ **Wage payment discrepancies** due to the lack of enforceability of the national wage floor across states.
  - ⊖ **Gender disparity** as scheduled employment with more women workers has lower minimum wages than those with more men.
- **Advantages of Living Wage:**
  - ⊖ **Accelerate Poverty alleviation efforts**, aligning with **Sustainable Development Goals (SDGs)**.
  - ⊖ **Addresses wage insufficiency**, especially considering inflation, and fosters a more equitable and sustainable economy.
- **Challenges of Living Wage:**
  - ⊖ **Implementing a national living wage framework** across states due to the **diversity of living costs in different regions** of India.
  - ⊖ **Financial strain especially for small businesses and MSMEs**, due to increased labour costs.

### Difference between living wage and minimum wage

Differential Aspects	Living Wage	Minimum Wage
Definition	The wage level necessary to afford a <b>decent standard of living for workers and their families</b> .	<b>The lowest legal hourly</b> wage that employers must pay their workers.
Aim	To improve workers <b>quality of life</b>	To protect workers from <b>exploitation</b> .

## Also in News



### National Organ and Tissue Transplant Organisation (NOTTO)

- Centre plans to create a national digital database of organ donors for smooth transplants.
  - ⊖ As per the **NOTTO data**, India witnessed **16,041 organ transplants in 2022**, as against the **wait list of nearly 500,000 organ failure recipients**.
- **About NOTTO**
  - ⊖ **National level organization** set up under **Directorate General of Health Services, Ministry of Health and Family Welfare**.
  - ⊖ **Functions:**
    - ◆ All India activities of **coordination and networking for procurement and distribution of Organs and Tissues**.
    - ◆ **Registry of Organs and Tissues** Donation and Transplantation.



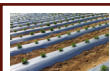
### Plankton crash

- The red color of **Promenade beach in Puducherry** last year was connected to **plankton crash**, an expert panel told National Green Tribunal (NGT).
- **Noctiluca scintillans**, a type of phytoplankton, turn to **red color when in large numbers experienced a crash**, leading to the **release of colored pigment from their cells**.
  - ⊖ These pigments then **stick to rocks and the sea floor**, forming a **biofilm-like layer and causing 'red tides'**.
- Plankton crashes happen **due to a lack of nutrients or lack of CO<sub>2</sub> in the earlier part of the production cycle**.
  - ⊖ Plankton may also die later in the cycle due to **sudden change in water quality**.



### North Atlantic Treaty Organisation (NATO)

- **NATO marked 75 years** of conception.
- **About NATO**
  - ⊖ Founded in 1949
  - ⊖ **Headquarters:** Brussels (Belgium)
  - ⊖ Currently has **32 countries from Europe and North America**.
    - ◆ **Sweden** is the latest to join.
  - ⊖ **Founded on the principle of collective defense**, meaning that if one NATO ally is attacked, then all NATO allies are attacked.
  - ⊖ **Largest peacetime military alliance** in the world.



### Mulching

- In **Phey village in Ladakh**, farmers use mulching to grow **organic watermelon**.
  - ⊖ It is significant because **Ladakh is a cold desert and watermelon is a hot climate plant**.
- **About Mulching**
  - ⊖ It is the **process of covering the topsoil with plant material** such as **leaves, grass, twigs, crop residues, straw**, etc.
  - ⊖ Helps create a **soil structure with smaller and larger pores** through which rainwater can easily infiltrate into soil, **reducing surface runoff**.
  - ⊖ **Benefits:** Prevents soil erosion, increases organic matter in the soil, etc.





### Hydroponics

- Hydroponics has emerged as a **linchpin in the expansion of India's sustainable food sector.**
- **About Hydroponics**
  - ⊕ It is a **soil-less farming technique** where plants are grown using a **water-based nutrients.**
  - ⊕ Can include an **aggregate substrate, or growing media,** such as vermiculite, coconut coir, perlite, etc.
  - ⊕ **Significance:** Can save water, land, and other resources, enhanced plant yields, etc.
  - ⊕ **Challenges:** Lack of technical knowledge, higher initial set-up cost, need of constant human intervention, etc.



### OpenAI's new Voice Engine

- OpenAI has introduced a **new AI model known as Voice Engine** that can replicate any voice in any language.
- It lets users upload brief audio samples and generate audio in the **same voice and manner of speaking.**
- It is **yet to be released for public use.**
- **Application:** Providing reading assistance, Translating content, helping patients recover their voice, etc.
- **Disadvantages:** Misuse like cloning public figures' voices, privacy-related issues, lack of regulations, etc.



### Coordinated Lunar Time (LTC)

- NASA to create **Coordinated Lunar Time** for the moon and other celestial bodies.
- **Coordinated Lunar Time**
  - ⊕ It aims to provide a **consistent time-keeping benchmark** for lunar missions and space activities.
  - ⊕ **An Earth-based clock on the moon** would lose an average of 58.7 microseconds per Earth-day **due to time dilation.**
- **Time Dilation** refers to the fact that **time passes at different rates for different observers, depending on their relative motion or positions in a gravitational field.**



### Kumittipathi rock painting

- Miscreants have damaged rock art paintings at the cave at Kumittipathi, Tamil Nadu.
- **About Kumittipathi rock painting:**
  - ⊕ Believed to be **3000 years old,** the artists have used an **inorganic white pigment, along with natural gum,** to paint the figures.
  - ⊕ They depict an elephant, ther (a chariot, some say it is a peacock), and the lives of early dwellers.
  - ⊕ While most of the rock painting sites in **Tamil Nadu are found on rock shelters,** those at **Kumittipathi are drawn inside a cave.**

## Place in News



### Romania (Capital: Bucharest)

- A research center in Romania developed world's most powerful LASER, which promises revolutionary advances in sectors like health, space, etc.
- **Political features**
  - ⊕ Located in **Southeastern Europe.**
  - ⊕ Bordered by **Ukraine** (north), **Moldova** (northeast), **Bulgaria** (south), **Serbia** (southwest), and **Hungary** (west).
  - ⊕ Bounded by **Black Sea to the Southeast.**
  - ⊕ Joined **NATO in 2004** and **European Union in 2007.**
- **Geographical features**
  - ⊕ Climate is **temperate** and marked by **four distinct seasons.**
  - ⊕ Relief is dominated by the **Carpathian Mountains.**
  - ⊕ **Major rivers:** Danube, Tisza, Prut, etc.
  - ⊕ **Highest peak:** Mount Moldoveanu.

