



## **DAILY CURRENT AFFAIRS 16-05-2025**

### **GS-1**

1. Dirang Geothermal Well
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### **GS-2**

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## **Dirang Geothermal Well**

**Syllabus: GS-1: Renewable Energy Resource.**

### **Context:**

In a major stride for renewable energy in Northeast India, the Centre for Earth Sciences and Himalayan Studies (CESHS) has successfully drilled the region's first geothermal production well in Arunachal Pradesh's Dirang which is situated in the West Kameng district.

### **Dirang Geothermal Well – Northeast India's First Geothermal Production Well**

#### **Location:**

- **Dirang**, West Kameng district, **Arunachal Pradesh**
- Located in the **eastern Himalayan terrain**, a seismically active and geothermally favorable zone

#### **What is it?**

- A **renewable geothermal energy project** utilizing the **closed-loop binary Organic Rankine Cycle (ORC)**.
- It taps into the Earth's **subsurface heat** to generate energy for:
  - **Electricity generation**
  - **Space heating**
  - **Agricultural processing**



### Key Features:

- **Temperature Reservoir:** ~115°C
  - Ideal for **direct-use geothermal technologies** rather than high-enthalpy electricity generation.
- **Drilling Technique:**
  - **Low-impact** and **precision-targeted** drilling focused on fault zones between **quartzite** and **schist** formations.
- **Technology Used:**
  - **Binary Organic Rankine Cycle (ORC)** – suitable for low to medium-temperature geothermal sources.
- **Developed By:**
  - Centre for Earth Sciences and Himalayan Studies (CESHS), Itanagar
- **Supported By:**
  - Ministry of Earth Sciences (MoES)
  - Government of Arunachal Pradesh
  - International collaboration with scientists from:
    - Norway
    - Iceland
    - Guwahati (India)

### Significance:

- **First geothermal production well in Northeast India**
- **Sustainable energy source** that can **power Dirang** independently
- **Reduces dependency on:**
  - **Diesel** generators
  - **Wood-burning**, common in high-altitude Himalayan winters
- **Improves rural livelihoods and agricultural productivity**
- Suitable for **24×7 base-load energy** — an advantage over intermittent solar/wind sources

- Contributes to tapping India's **geothermal potential** (~10,600 MW)

#### Strategic & Environmental Impact:

- Promotes **decentralized clean energy access** in remote border areas.
- Reduces **carbon footprint** and **deforestation** from fuelwood use.
- Enhances **climate resilience** and energy security in ecologically fragile zones.

#### Prelims Fact Box:

Feature	Detail
Location	Dirang, West Kameng, Arunachal Pradesh
Project Type	Geothermal (Binary ORC)
Reservoir Temperature	~115°C
Developed by	CESHS, Itanagar
Supported by	MoES, Arunachal Govt, Norway, Iceland, Guwahati
Unique Aspect	First geothermal well in Northeast India
National Geothermal Potential	~10,600 MW

## Women's Rights Organisations Face Funding Crisis Worldwide

**Syllabus: GS-1: Society- Woman empowerment.**

#### Context:

A UN Women report brought into light a critical situation for women-led organisations amidst humanitarian crises.



### Funding Crisis for Women-Led Organisations

- **Severe Financial Strain:** 90% of 411 surveyed organisations face funding cuts, with nearly half at risk of shutting down within six months.
- **Service Reductions:** Critical programs (e.g., gender-based violence support) are being suspended, and 70% of organisations have laid off staff.

### Disproportionate Impact on Women & Girls

- Rising violence and harmful practices (child marriage, survival sex) are escalating in crises.
- Marginalised groups—refugees, LGBTIQ+, women with disabilities, Indigenous communities—rely heavily on these organisations for survival.

### Resilience & Calls for Action

- Organisations are adapting strategies and advocating for international support.
- The report urges donors to **centre women-led groups in humanitarian responses**, not exclude them.

### Long-Term Risks

- Collapse of these organisations could **reverse progress on gender equality**, leaving women and girls more vulnerable in crises.
- A **wake-up call for donors** to prioritise flexible, sustainable funding.

**Key Takeaway:** Immediate action is needed to protect these lifelines for women in humanitarian settings.

## **NOTA**

**Syllabus: GS-2: Indian Polity – Elections.**

**Context:**

Vidhi Centre for Legal Policy filed a Public Interest Litigation (PIL) for including NOTA as an option compulsorily in every election, even if there is only one single candidate.

### **NOTA (None of the Above) in Indian Elections**

**What is NOTA?**

- **Full Form:** None of the Above
- **Introduced:** 2013
- **Introduced by:** Following a Supreme Court judgment on a PIL by People's Union for Civil Liberties (PUCL)
- **Purpose:** To allow voters to reject all candidates while maintaining secrecy.



### Legal Backing

- NOTA does **not have statutory or constitutional backing**.
- It was introduced based on **Supreme Court direction**, not by an amendment to the **Representation of the People Act, 1951**.

### Role in Uncontested Elections

- EC data shows **only 6 uncontested Lok Sabha elections since 1971, and 9 such cases since 1952**.
- PIL filed by **Vidhi Centre for Legal Policy (2024)** seeks to **make NOTA compulsory even in single-candidate elections**.

### Voter Turnout for NOTA

- **Lok Sabha Elections (2014, 2019, 2024)**: Slightly above **1%** voters chose NOTA.
- **State Highs**:
  - Bihar (2015): **2.48%**
  - Gujarat (2017): **1.8%**

### Is NOTA relevant in Indian democracy?

#### Yes, because:

- Even in **single-candidate elections**, voters deserve a right to express dissent.
- Promotes **electoral accountability and responsiveness**.
- Symbolic but **democratic tool** for voicing disapproval of candidates.

#### No, because:

- **Low percentage** of votes undermines its effectiveness.
- EC argues NOTA has **not influenced electoral outcomes** meaningfully.
- Requires **legislative changes** for giving it more power (e.g., re-election mandate).

### EC's Stand

- **Opposes making NOTA compulsory** in single-candidate constituencies.
- **Reason**: Rare occurrence of uncontested elections; administrative burden unjustified.

- **Legal Limitation:** Representation of the People Act, 1951, and Conduct of Election Rules, 1961 would require **amendment**.

### **Suggested Electoral Reforms Involving NOTA**

- **Minimum Vote Threshold:** Fix a **minimum % of votes** required to win, based on constituency size.
- **Re-election Provision:** If NOTA exceeds a defined % (e.g., 10%), **re-election may be mandated**.
- **Candidate Disqualification:** Disqualify all candidates if NOTA wins and **bar them from re-contesting** in the repeat election.

## **Bhargavastra Counter-Drone System**

**Syllabus:GS-3: Science and Technology –Defence Technology.**

### **Context:**

A new low-cost counter drone system 'Bhargavastra', has been designed and developed by Solar Defence and Aerospace Limited (SDAL), signifying a substantial leap in countering the escalating threat of drone swarms.

### **Key Highlights of Bhargavastra:**

- **Purpose:**
  - Designed to detect and destroy hostile drones, including **swarm drones**, using **guided micro-missiles**.
  - Aims to provide a **low-cost, rapid-response** solution for border security and conflict zones.
- **Developers:**
  - **Solar Defence and Aerospace Ltd (SDAL)** in collaboration with **Economic Explosives Ltd (EEL)**.
- **Standout Features:**
  - **Long Detection Range:** Identifies small drones **beyond 6 km**.
  - **High Firepower:** Can launch **64 micro-missiles simultaneously** to engage multiple threats.

- **Salvo Launch:** Tested firing **two rockets in 2 seconds** for rapid engagement.
- **Mobile & Versatile:** Mounted on a mobile platform for deployment in **high-altitude and rugged terrains**.
- **Extended Strike Range:** Engages targets **beyond 2.5 km**, ensuring safe stand-off distance.

➤ **Strategic Significance:**

- **First Indigenous System:** India's **first micro-missile-based** counter-drone system for Army Air Defence.
- **Fills Critical Gap:** Addresses the lack of cost-effective anti-drone solutions against low-cost UAV threats.
- **Cost-Effective:** Cheaper than traditional air defence systems, ideal for **mass deployment**.
- **Multi-Service Interest:** **Indian Army and Air Force** have shown interest, indicating cross-service utility.
- **Global Rarity:** Few comparable systems exist worldwide, positioning India as a leader in **drone warfare tech**.

**Why It Matters?**

- With rising drone threats (e.g., Pakistan-based drone infiltrations), Bhargavastra strengthens India's **border security** and **military preparedness**.
- Reduces reliance on expensive imported systems, aligning with **Atmanirbhar Bharat** in defence.
- Potential for **exports**, given the global demand for affordable counter-drone solutions.

This innovation underscores India's growing prowess in **indigenous defence manufacturing** and tactical warfare systems.

## **Tsarap Chu Conservation Reserve**

**Syllabus: GS-3: Protected Areas – Conservation Reserve.**

### **Context:**

- The Tsarap Chu Conservation Reserve was officially notified on May 7, 2025.
- The **Tsarap Chu Conservation Reserve** has been officially declared as India's largest conservation area, aiming to safeguard the region's unique biodiversity and ecological integrity.
- Its establishment prioritizes the protection of endangered species like the **snow leopard** and follows a **community-driven process**, involving local stakeholders in planning and management.

### **Geographical Significance**

The reserve is strategically positioned, bordered by:

- **North:** Union Territory of Ladakh
- **East:** Kibber Wildlife Sanctuary
- **South:** Kabjima Nala
- **West:** Chandratat Wildlife Sanctuary

It encompasses the confluence of the **Unam River** and **Charap Nala**, serving as a critical **wildlife corridor** linking multiple protected areas.



### **Biodiversity Hotspot**

Tsarap Chu hosts a rich array of high-altitude species, including:

- **Mammals:** Snow leopard, Tibetan wolf, bharal (blue sheep), Himalayan ibex, kiang (Tibetan wild ass), Tibetan argali.
- **Birds:** Rose Finch, Yellow-billed Chough, and other rare avifauna.

The reserve's **rocky, snow-covered terrain** provides an ideal habitat for these species, making it a priority for **national and global conservation efforts**.

### Community-Led Conservation

- The reserve's creation involved **extensive consultations** with local **Gram Panchayats**, ensuring alignment with community needs.
- A **Conservation Reserve Management Committee** (with local representation) will oversee management, balancing ecological goals with livelihood interests.

### Sustainable Development Opportunities

The reserve is expected to boost:

- **Eco-tourism**, trekking, and wildlife photography.
- **Livelihood diversification** for residents through conservation-linked initiatives.

### Future Outlook

Tsarap Chu sets a benchmark for **community-based conservation** in India, demonstrating how grassroots involvement can enhance environmental protection. This model may inspire similar initiatives in other ecologically sensitive regions.