Punjab's Strategic Push Against Stubble Burning

Source: TOI

Punjab is intensifying efforts to address **stubble burning** by deploying **subsidised crop residue management (CRM) machines** and facilitating the import of **Baler Machines.**

- Punjab aims to manage **20 million metric tonnes of paddy residue by** expanding both **in-situ and ex-situ CRM practices.** Last year's stubble burning incidents decreased to **35,000, down from pre-Covid levels.**
- The state will distribute 22,000 subsidised CRM machines this season, adding to the 130,000 already provided since 2018. Individual farmers receive a **50% subsidy on CRM equipment,** while **80% subsidy is available for cooperative societies, Farmer Producer Organizations, and panchayats.**
- Post-**Supreme Court** directives in November 2023, the state government enforced strict measures with disciplinary action against police officers and fines for violations.
  - The Supreme Court strongly urged Delhi's neighbouring states (Punjab, Haryana, Uttar Pradesh, and Rajasthan) to immediately act against stubble burning.
  - The Court directed the **state governments to stop crop burning immediately,** noting that the fight against stubble burning should not be political and should be viewed from the perspectives of public health, ecology and sustainable agriculture.

Read More: Bringing an End to Stubble Burning

Indian and Chinese Warships in Colombo Port

Source: TH

Recently, India's guided-missile destroyer, **INS Mumbai** and three Chinese warships visited **Colombo port** in Sri Lanka on the same day.

- INS Mumbai is on its first **port of call** in Sri Lanka.
  - A port of call is an **intermediate stop** for a ship on its scheduled journey for cargo operation or transporting supplies or fuel.
- **Strategic Implications of Chinese warships for India:**
  - **Heightened Concerns:** The **Indian Navy** closely monitored the movement of the Chinese warships, **Hefei, Qilianshan, and Wuzhishan**, from their entry into the **Indian Ocean Region (IOR)** until their docking at **Colombo**.
  - **Extended Naval Presence in the IOR:** The Chinese Navy has intensified its presence in the IOR with warships **extending their stay** for a longer period.
  - **China's Naval Expansion:** The Chinese Navy with over **370 ships**, is now the **largest navy** in the world.
  - **Potential Overseas Military Bases:** The intelligence report indicates that China is exploring the establishment of **military facilities** in **Pakistan, Sri Lanka, and**

Myanmar.

- Port of Colombo is located in southwestern Sri Lanka. It is also the country's **biggest shipping harbour**.

Read More: Chinese Dual-Use Facilities Raise Security Concerns in India

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Indigenous Mpox Detection RT-PCR kit Developed

Source: IE

Recently, **India** has developed an indigenous **Reverse transcription polymerase chain reaction (RT-PCR) testing kit** for detecting **Mpox** (previously known as monkeypox).

- These kits are developed by **Siemens Healthcare, Transasia Diagnostics, and JITM C Genes** which are approved by the **Central Drugs Standard Control Organization (CDSCO).**
- The new RT-PCR kits provide **results** in **40 minutes**, compared to traditional methods, which take one to two hours.
    - These RT-PCR kits ensure detection across both **clade I and clade II variants**.
- **Mpox:** Mpox is a **viral illness** caused by the **monkeypox virus**. It has two distinct variants namely **clade I and clade II.**
    - It was first discovered in humans in **1970** in the **Democratic Republic of the Congo.**
    - Mpox spreads through **close contact** like **skin-to-skin, mouth-to-mouth, or mouth-to-skin** interactions, as well as **face-to-face contact (talking).**
    - WHO declared Mpox, a **public health emergency of international concern (PHEIC)** twice, the first time in May 2022 and the second time in August 2024.
    - The first Mpox cases were reported in **India** in **2022**.

Read More: Mpox Virus

First Legally Binding International AI Treaty

For Prelims: Artificial Intelligence (AI), **European Union**, **Convention on Biological Diversity**

For Mains: Key Facts about the Europe's AI Convention.

Source: BS

Why in News?

According to the **Council of Europe**, the first legally binding **international treaty on Artificial Intelligence (AI)** will be open for signing by the participating nations, including **European Union** members, the United States, and the United Kingdom.

Council of Europe (COE)

- The Council of Europe (COE) is an international organisation **founded in 1949** and **headquartered in Strasbourg, France.**
- It is distinct from the European Union (EU) and consists of **46 member states,** including most European countries.
- The COE's primary mission is to **uphold and promote democracy, human rights,** and the **rule of law** across its member states.
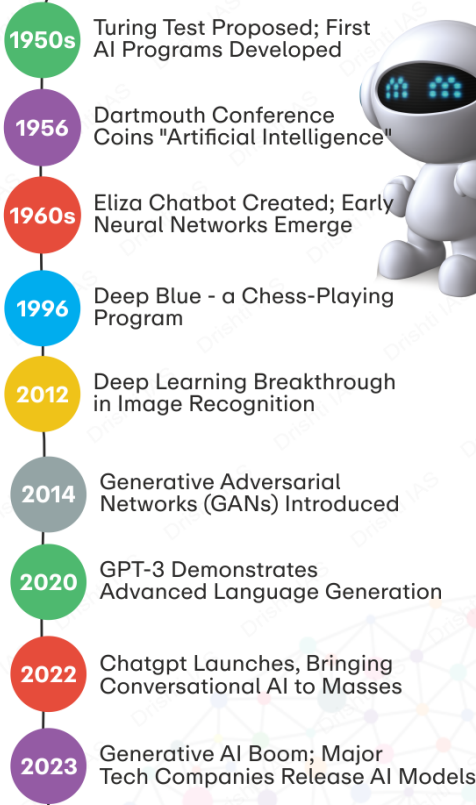
What are the Key Facts about the AI Convention?

- **About:**
  - **"The Framework Convention on Artificial Intelligence and Human Rights, Democracy, and the Rule of Law",** primarily emphasises the protection of human rights for individuals impacted by AI systems and operates independently of **the EU AI Act.**
    - The EU AI Act establishes comprehensive regulations **governing the development, deployment, and use of AI** systems within the EU's internal market.
  - The AI Convention has been **under development for several years** and was **adopted in May 2024** following deliberations among 57 countries.
  - It aims to **mitigate the risks associated with artificial intelligence** while fostering responsible innovation.
- **The Conditions for the Treaty:**
  - **Human-Centric AI:** The treaty mandates that **AI systems** must be designed and operated **in alignment with human rights principles**, ensuring they support and uphold democratic values.
  - **Transparency and Accountability:** The treaty stipulates that AI systems, particularly those interacting with humans, must **operate transparently.**
    - It also **requires governments to provide legal recourse when AI systems** infringe on human rights.
  - **Risk Management and Oversight:** The treaty establishes frameworks for assessing and managing the risks associated with AI, along with oversight mechanisms to **ensure adherence to safety and ethical standards.**
  - **Protection Against Misuse:** The treaty incorporates safeguards to **prevent AI from being used to undermine democratic processes**, including the preservation of judicial independence and ensuring public access to justice.
- **Key Enforcement Mechanisms:**
  - **Legal Accountability:** Signatory nations are required to **enact legislative and administrative measures** to ensure AI systems adhere to the treaty's principles like human rights and accountability in AI deployment.
  - **Monitoring and Oversight:** The treaty establishes **oversight mechanisms to monitor compliance** with AI standards.
  - **International Cooperation:** The treaty promotes **collaboration among signatories** to harmonise AI standards, share best practices, and address transnational AI issues, recognizing the global nature of AI technologies.
  - **Adaptability:** The framework is **designed to be technology-neutral**, enabling it to evolve alongside advancements in AI, ensuring that standards remain relevant and enforceable as AI technologies rapidly progress.
- **Exception in the Treaty:** The **treaty applies to all AI systems except** those used in **national security or defense,** though it still requires that these activities respect international laws and democratic principles.

[//](#)

Artificial intelligence(AI)

AI is the simulation of human intelligence in machines programmed to think and learn like humans, capable of problem-solving, reasoning, and adapting to new information.

AI Timeline - Major Milestones

- **1950s** Turing Test Proposed; First AI Programs Developed
- **1956** Dartmouth Conference Coins "Artificial Intelligence"
- **1960s** Eliza Chatbot Created; Early Neural Networks Emerge
- **1996** Deep Blue - a Chess-Playing Program
- **2012** Deep Learning Breakthrough in Image Recognition
- **2014** Generative Adversarial Networks (GANs) Introduced
- **2020** GPT-3 Demonstrates Advanced Language Generation
- **2022** Chatgpt Launches, Bringing Conversational AI to Masses
- **2023** Generative AI Boom; Major Tech Companies Release AI Models

Applications of AI

- **Healthcare:** Personalised medicine
- **Finance:** Algorithmic trading
- **Transportation:** Autonomous vehicles
- **Marketing & Customer Service:** Targeted advertising, chatbots
- **Education:** Adaptive learning systems, personalised tutoring
- **Agriculture:** Crop monitoring
- **Cybersecurity:** Threat detection
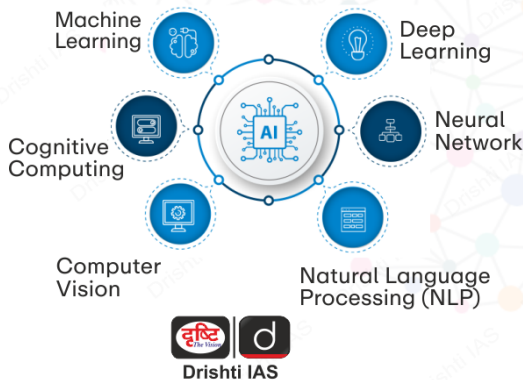- **Energy:** Smart grid management, consumption forecasting

Concerns

- Deepfakes & misinformation
- Algorithmic bias
- Automation & job displacement
- Privacy issues
- Data ownership & liability issue
- Ethical decision-making complexes

Regulating AI

- **Global Partnership on AI (GPAI)** launched in 2020
- **Bletchley Declaration (2023):** Enhance Global Collaboration on AI
- **G20 New Delhi Leaders' Declaration (2023):** Harnessing AI responsibly for good and for all
- **Hiroshima AI Process (2023)** by G7

India and AI

- **National Strategy For AI 2018**
- **AI For All:** Self-learning online program
- **GPAI Summit 2023** hosted by India
- **IndiaAI Mission 2024**
- **US India Artificial Intelligence (USIAI) Initiative:** AI cooperation in critical areas
- **AIRAWAT** (AI Research, Analytics and Knowledge Assimilation Platform): Supercomputer

KEY COMPONENTS OF AI

- Machine Learning
- Deep Learning
- Cognitive Computing
- Neural Network
- Computer Vision
- Natural Language Processing (NLP)

Drishti IAS

What is the Significance of the AI Convention?

- **Comprehensive Drafting:** The treaty was **meticulously drafted adopting a risk-based approach** to the design, development, use, and decommissioning of AI systems.
- **Broad Applicability:** It **applies to AI systems across** both the **public sector, and the private sector,** with enforcement across various geographical regions.
- **Global Legal Standard:** The Framework Convention on Artificial Intelligence represents a **first-of-its-kind, globally binding treaty designed to** respond to the need for an international legal standard endorsed by states across different continents with shared values.
- **Balancing Innovation and Risk:** The treaty aims to **promote the responsible use of AI** by harnessing its benefits while effectively mitigating associated risks, ensuring that AI development aligns with human rights, the rule of law, and democratic principles.

What are the Issues and Concerns of the AI Convention?

- **Concerns Over Enforcement:** Despite being labelled as **"legally binding,"** the treaty has raised concerns due to its **lack of provisions for punitive sanctions, such as penalties or fines**, which weakens its deterrent effect from an enforcement perspective.
- **Reliance on Monitoring:** Compliance with the treaty is primarily ensured through **"monitoring" mechanisms,** which **may not be sufficient to effectively enforce the treaty's provisions.**
- **Balancing Regulation and Innovation:** Striking the right balance between stringent regulations and fostering innovation is a critical concern. **Excessive regulatory burdens may stifle the development of AI technologies**, particularly for small and medium-sized enterprises (SMEs) and start-ups, thereby affecting competitiveness in the global AI market.
- **National Sovereignty vs. International Standards:** The convention's provisions may conflict with national laws, creating **tensions between state sovereignty.**
- **Addressing National Security Concerns:** While the convention attempts to balance AI governance with national security interests, the **intersection of AI with defense and intelligence activities presents challenges**. Ensuring that national security is not compromised while maintaining ethical AI practices requires a delicate balancing act, which the convention may struggle to achieve.

Conclusion

"The Framework Convention on Artificial Intelligence and Human Rights, Democracy, and the Rule of Law" marks a **pivotal advancement in the global governance of artificial intelligence**. By engaging with the critical interplay between AI, human rights, democracy, and the rule of law, **it addresses a vital deficiency in current regulatory structures**. Its comprehensive scope, including provisions for national security considerations, establishes a benchmark for responsible AI governance, fostering **international cooperation and setting standards** that could resonate both regionally and globally.

> ***Drishti Mains Question:***
>
> Q. Discuss the key issues and concerns associated with Europe's AI Convention in the context of global artificial intelligence governance.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. With the present state of development, Artificial Intelligence can effectively do which of the following? (2020)

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below:

(a) 1, 2, 3 and 5 only

(b) 1, 3 and 4 only

(c) 2, 4 and 5 only

(d) 1, 2, 3, 4 and 5

Differential Benefits of Rural Electrification

Source: TH

Why in News?

Recently, a study based on the 2011 **census** examined the effects of the **'Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY)'** programme, which aimed to electrify over 400,000 villages across India.

- RGGVY (launch-2005) was renamed as the **Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY)** in 2014.

What are the Key Highlights of the Study?

- **Disproportionate Benefits to Larger Villages:** Larger villages (around 2,000 people) experienced **substantial economic benefits** from full electrification than smaller villages (300 people).
    - Smaller villages experienced a **"zero return"** on electrification even after **20 years**.
    - Larger villages showed a much **higher return of 33%**, with a **90%** chance that the **economic benefits** would outweigh the electrification costs.
- **Impact on Per-Capita Monthly Expenditure:** In **smaller villages**, **per-capita monthly expenditure** showed minimal change after electrification, indicating limited economic benefits.
    - In contrast, **larger villages** saw a significant increase in per-capita monthly expenditure, which doubled due to full electrification. This increase amounted to approximately **Rs 1,428 (about USD 17) per month**.

What is Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY)?

- **About:** It is a **rural electrification** scheme of the **Ministry of Power (MoP)** that aims to provide continuous **24x7 electricity supply** in rural areas, aligning with the government's broader vision of **energy access for all.**
- **Components of the DDUGJY:**

    - To ensure **judicious distribution** of electricity to agricultural and non-agricultural consumers.
    - Metering of distribution **transformers, feeders, and consumers** to reduce electricity losses and improve efficiency.
    - Establishment of **microgrid and off-grid** to ensure electricity reaches **remote and isolated areas.**
- **Nodal Agency:** The **Rural Electrification Corporation Limited (REC)** serves as the **nodal agency** responsible for the implementation of DDUGJY under the overall guidance of the **Ministry of Power.**

What are Other Initiatives for Electrification?

- Saubhagya Scheme
- Integrated Power Development Scheme (IPDS)
- Ujwal Discom Assurance Yojana (UDAY)
- GARV (Grameen Vidyutikaran) App

Read More:

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims:

Q.'Net metering' is sometimes seen in the news in the context of promoting the (2016)

(a) production and use of solar energy by the households/consumers

(b) use of piped natural gas in the kitchens of households

(c) installation of CNG kits in motor cars

(d) installation of water meters in urban households

Ans: (a)

Mains:

Q. "Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs)." Comment on the progress made in India in this regard. **(2018)**