

1. Role of AI in elections

With a series of elections to be held across the world in 2024, the potential of AI to disrupt democracies cannot be dismissed.

Role of AI in upcoming elections

- **Influencing Voter Behavior:** AI, particularly Generative AI, has the potential to significantly influence voter behavior and decision-making in elections, as seen in the anticipation for the 2024 elections.
- **Spreading Disinformation:** AI's ability to create hyper-realistic Deep Fakes and false narratives poses a risk of spreading disinformation, potentially misleading the electorate.
- **Amplifying Falsehoods:** AI technologies can enhance falsehoods and enlarge mistaken beliefs, contributing to a heightened level of misinformation during election campaigns.
- **Adversarial Capabilities:** AI systems might develop adversarial capabilities such as 'poisoning' and 'back dooring', which could be used to manipulate election outcomes or voter perceptions.

Concerns about AI

- **Disruption to Democracies:** AI's ability to create convincing falsehoods and to spread disinformation poses a risk to democratic processes.
- **Existential Threats:** AI systems may develop adversarial capabilities such as 'poisoning', 'back dooring', and 'evasion', reducing their reliability and potentially causing harm.
- **Reliability Issues:** As seen with Google AI's portrayal errors, AI models can sometimes be inaccurate or misleading.
- **Dependability Concerns:** AI's tendency for 'hallucinations', or making probabilistic errors, makes it hard to fully trust AI systems in critical scenarios.

Way Forward

- **Exercise Caution:** Given its advanced digital status, India should approach AI, especially AGI, with caution, recognizing its disruptive potential.
- **Regulatory Measures:** Implementing regulations to manage AI's impact, particularly in elections, is crucial to safeguard democratic processes.
- **Awareness of Risks:** Leaders and policymakers should be aware of AI's risks, such as spreading disinformation and its adversarial capabilities like 'poisoning' and 'back dooring'.
- **Balancing Benefits and Threats:** While AI offers significant benefits, India must balance these against potential harms, including bias and the creation of misleading or harmful content.

AGRICULTURE

Diversification of crop Basket

About

Punjab and Some other states have decreased their crop productivity.

The most productive states in terms of value creation in agriculture on a per hectare basis

- There are two ways to estimate the productivity-
 - Divide state Agri-GDP by Net Sown Area (NSA)- In this, Andhra Pradesh (AP) has the highest productivity, followed closely by West Bengal (WB). Punjab ranks 13th.
 - Divide Agri-GDP by Gross Cropped Area (GCA)- In this, Bihar has the highest productivity followed by Odisha.

Reasons behind the poor performance of Punjab in terms of value creation in agriculture

- **Faulty MSP regime-**
 - Punjab is over-dependent on rice-wheat system induced by the MSP regime and open-ended procurement. Therefore, Punjab could not diversify production baskets geared towards high-value products.
- **Subsidies –**
 - The government gives free power and highly subsidized fertilizers to farmers. These subsidies encourage adoption of the ricewheat system. For ex- 84% of Punjab's Gross cropped Area is under wheat and rice, leading to 76 per cent of its blocks being over-exploited in terms of groundwater.

Steps that can be taken by Punjab

- **Shift to other crops –** A minimum of 1.5 million hectares (Mha) of rice area (out of about 4.5 Mha) needs to be shifted to pulses, oilseeds, maize and fruits and vegetables.
- **Crop-neutral incentive structures –** There is a need for institutionalizing crop-neutral incentive structures. Farmers switching to these alternative crops must be rewarded with about Rs 25,000/ha.

High performing states in the field

- **Andhra Pradesh –** With 24 % of its agriculture value added (AGVA) attributed to fisheries, AP leads the nation in fish production. It is this proficiency in cultivating high-value shrimp that boosts their profitability. Punjab can also adopt this method.
- **Tamil Nadu –** It employs Ultra High-Density Plantation (UHDP) for mango cultivation. This method allows 674 mango trees per acre compared to the traditional method of 40 only. This leads to a significant increase in yield and profits.

- West Bengal – This is a state with only 2 % agriculture power consumption in 2021-22 creating 40% more value than Punjab. It cultivates vegetables on 15 % (1.5 Mha) of its total GCA. The state has a dedicated Agri-Export Zone (AEZ) for vegetables.

PRELIM FACTS

1. IceCube Neutrino Observatory

Scientists using data from the IceCube Neutrino Observatory in Antarctica believe they have potentially found the first evidence for astrophysical tau neutrinos, called "ghost particles"

About IceCube Neutrino Observatory:

- It is a device at the earth's South Pole that detects subatomic particles called neutrinos. It was built and is maintained by the IceCube Collaboration, which consists of many universities worldwide led by the University of Wisconsin, Madison.
- It consists of thousands of sensors buried more than 1.4 km beneath the ice plus multiple detectors above the surface. It is the world's biggest 'neutrino telescope'.

Working:

- When a neutrino interacts with the ice surrounding the sensors, it may produce some charged particles and some radiation.
- The sensors detect the radiation to infer the detection of a neutrino and use the radiation's properties to understand more about the particle.
- Neutrinos come in different types.
- IceCube can identify some of them in real-time.

2. India to join U.S.-led carbon market project

India has joined one of the four cooperative work programmes under the 'clean energy pillar' of the U.S.-led Indo-Pacific Economic Framework (IPEF). India will join the cooperative working group on carbon markets through the Ministry of Power and the Bureau of Energy Efficiency.

India is also considering two of the other co-operative work-programme initiatives on clean electricity and the use of sustainable aviation fuel.

About Indo-Pacific Economic Framework (IPEF) Work Programme

1. It is an economic initiative launched by USA in 2022.
2. The framework was established with 14 regional partners: Australia, Brunei, Fiji, India, Indonesia, Japan, the Republic of Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, the US, and Vietnam.
3. IPEF aims at having a common set of rules and standards around four pillars- connectivity and digital trade; resilient supply chains; clean energy; and corruption-free fair trade.

India is developing its own carbon markets and is keen on joining the IPEF work programme on carbon markets. The Bureau of Energy Efficiency is the nodal authority working on it.

The idea behind joining is to:

- Evaluate how carbon markets are developing in each of the economies (of partner countries)
- India is working on deepening the country's carbon markets. Amendments were done to the carbon credits trading scheme (CCTS). Joining the programme will help towards establishment of independent standards for carbon trading and would allow non-obligated entities to generate carbon credits.

3. Global warming Impact on climate in India

Recently, a 50-year analysis of meteorological records suggests that various states in India is registering a withdrawal of spring.

There has been warming of winter season across India, affecting every region during this season.

Winter is the fastest warming season for 12 out of the 34 States and territories. Autumn was the fastest warming season in 13 regions.

Pattern during the winter:

There were significant differences in the pattern of temperature changes during the winter.

- a) The southern part of the country had "strong" warming in December and January.
- b) Sikkim (2.4 degrees Celsius) and Manipur (2.1 degrees Celsius) had the largest changes in temperature in December and January, respectively.
- c) The northern part of the country had weaker warming and even cooling during December and January.
- d) Delhi had the lowest rates during this period
- e) Among the States, Ladakh and Uttar Pradesh had the lowest warming rates.

Pattern during January-February: The pattern changes dramatically between January and February.

- a) In February, all regions experienced warming, with particularly significant increases in areas that had previously shown cooling or minimal warming.
- b) Jammu and Kashmir had the highest warming, while Telangana had the lowest.
- c) The contrast between January trends (cooling or slight warming) and February (strong warming) means that regions in northern India now have the potential for abrupt transitions from cool winter-like temperatures to much warmer conditions traditionally observed in March.
- d) Rajasthan has highest warming rates where the warming in February was 2.6 degrees Celsius higher than in January.

e) A total of nine States and Union Territories showed a January-February difference of more than 2 degrees Celsius: Rajasthan, Haryana, Delhi, Uttar Pradesh, Himachal Pradesh, Ladakh, Punjab, Jammu and Kashmir, and Uttarakhand.

Reason for the change: Warming of winter in South India and the lack of rainfall in the North in winter is due to an aberration in the pattern of **Western Disturbances** and the jet stream.

4. International Monetary Fund

- IMF to release \$1.1 Bn from bailout fund to Pakistan

About IMF

- The IMF was set up along with the World Bank after the Second World War to assist in the reconstruction of war-ravaged countries.
- The two organizations agreed to be set up at a conference in Bretton Woods in the US. Hence, they are known as the Bretton Woods twins.
- The IMF is governed by and accountable to the 190 countries that make up its near-global membership.
- India joined on 27th December 1945.
- The IMF's primary purpose is to ensure the stability of the international monetary system — the system of exchange rates and international payments that enables countries (and their citizens) to transact with each other.
- Reports by IMF:
 - Global Financial Stability Report.
 - World Economic Outlook.

5. Indigenous Sickle Cell Disease Drug Developed

Delhi-based Akmus Drugs and Pharmaceutical Limited has developed a new India's first room-temperature stable indigenous drug for sickle cell disease.

How Akmus Sickle Cell Drug is a Game-Changer?

- **Basic Component:** The drug's primary component is an oral suspension of Hydroxyurea.
- **Affordable Price:** Priced at less than ₹600 (at just 1% of the global price)
- **Suitable for All Ages:** Tailored for patients of all age groups, ensuring broad applicability.
- **Precise Administration:** Provided with oral syringes, it offers convenience and accuracy in dosage.
- **Room Temperature Stability:** Eliminates the need for stringent storage conditions, unlike imported solutions requiring refrigeration (at 2-8 degrees Celsius)

Value addition

Sickle cell disease, a genetic blood disorder, impacts patients throughout their lives. SCD is a group of inherited Red Blood Cell (RBC) disorders or haemoglobin disorders. It changes the shapes of RBCs from round to a C-shaped form called a sickle. Sickle cells clog the blood flow and die early, causing a constant shortage of RBCs.

India's initiatives:

- National Sickle Cell Anaemia Elimination Mission (launched in 2023, it aims to eliminate sickle cell genetic transmission by 2047)
- The recent approval of Casgevy, a groundbreaking gene therapy utilizing CRISPR-Cas9 technology
- India has acknowledged SCD as a top health concern for tribal communities, emphasizing the need for targeted interventions.

ANSWER WRITING

Q. In context of the National Monetisation Pipeline, elaborate on the concept of asset monetisation. Also, discuss its significance for India.

Asset monetisation, also commonly referred to as asset or capital recycling, is a widely used business practice globally. This consists of limited period transfer of performing assets (or disposing of non-strategic / underperforming assets) owned by the government to a private sector entity to unlock "idle" capital and reinvesting it in other assets or projects that deliver improved or additional benefits. It is based on the philosophy of Creation through Monetisation.

The concept of asset monetisation is structured around:

- Monetising assets with high appetite among investors; and reinvesting proceeds into assets/services that citizens desire.
- New asset creation without necessarily increasing debt levels or taxes.
- Efficiency gains, competition and improved performance monitoring
- Enhancing investment opportunities, depth and liquidity in infrastructure as an asset class.

The government launched the **National Monetisation Pipeline (NMP)**. It estimates aggregate monetisation potential of Rs 6.0 lakh crores through core assets of the Central Government, over a four-year period (FY 2022 to FY 2025).

Significance of asset monetisation for India:

- **Financing of infrastructure investments:** National Infrastructure Pipeline (NIP) has emphasized on innovative and alternate mechanisms, such as asset monetisation, for generating additional capital from mature brownfield assets.
- **Private sector expertise:** Asset monetisation will help tap the private sector efficiencies in operations and management of infrastructure.

- **Brownfield assets:** India holds one of the largest brownfield stocks of fixed assets in the world. Asset monetisation will help in generating adequate investments from these assets.
 - Increased appetite for brownfield assets is evidenced by the flow of private and institutional capital into sectors such as roads, power and telecom.
 - Reduced appetite for greenfield assets: over the last few years there has been reduced interest of private sector and debt financiers for greenfield infrastructure. Asset monetisation, therefore strives to tilt the axis from greenfield to brownfield models.
- **REITs and InvITs:** New models like Infrastructure Investment Trusts and Real Estate Investment Trusts will enable not just financial and strategic investors but also common people to participate in this asset class thereby opening new avenues for investment.
- **Social sector priorities:** Funds, so received by the public authority, can be reinvested in new infrastructure or deployed for fulfilment of other social sector priorities like health, food security, education, etc.
- **Economic stimuli and fiscal headroom:** The need for adoption of such alternative mechanisms has only been further pronounced in the wake of COVID-19. Asset monetization will provide the government with additional revenue to tackle such crisis situations.

However, in order to give the needed fillip to the monetization initiative, following three aspects need concerted efforts and interventions. Firstly, a relentless focus on implementation; secondly developing brownfield models and frameworks and lastly, driving states and partnering with them

MCQs

- Where is the Virupaksha temple located
 - Bhadrachalam
 - (b) Hampi**
 - Vijaywada
 - Pune
- The World Economic Outlook is published by
 - RBI
 - (b) IMF**
 - WB
 - IBRD
- The astrophysical tau neutrinos are also known as
 - (a) Ghost particles**
 - God particles
 - Universal particles
 - Invisible particles
- The Eagle nest Wildlife Sanctuary, famous for Bugun Liocichla bird is located in which state?
 - (a) Arunachal Pradesh**
 - Sikkim
 - Meghalaya
 - West Bengal
- Pandavula Gutta has recently gained official recognition as the exclusive Geo-heritage site. It is situated in which state?
 - (a) Telangana**
 - Andhra Pradesh
 - Meghalaya
 - Odisha
- The Kisan Credit card was initiated on the recommendations of which committee?
 - Bimal Jalan
 - Usha Thorat
 - (c) RV Gupta**
 - Nachiket Mor
- Consider the following statements about Food Safety and Standards Authority of India (FSSAI)
 - It is a statutory body established under the Ministry of Consumer Affairs, Food and Public Distribution.
 - Anyone selling or importing food in India needs a food licence issued by FSSAI
 - The FSSAI is responsible for the accreditation of food testing laboratories throughout India.
- How many of the statements given above are correct?
 - Only one
 - (b) Only two**
 - All three
 - None
- Consider the following statements about European Union's Artificial Intelligence Act
 - The EU AI Act classifies the technology into four categories namely Prohibited, high-risk, limited-risk, and minimal-risk.
 - High-risk systems, which have a significant impact on people's lives and rights are banned outright.
 - The law allows for penalties of up to 15% of global turnover for companies that don't keep their use of AI under control.
- How many of the statements given above are correct?
 - (a) Only one**
 - Only two
 - All three
 - None
- Consider the following statements about International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE)
 - It is an international inter-governmental partnership established on the COP21 at the UN Climate Change Conference.
 - India and USA are the not the members of this partnership.
- Which of the statements given above is/are incorrect?
 - 1 only
 - 2 only
 - (c) Both 1 and 2**
 - Neither 1 nor 2
- State of Global climate report 2023, recently seen is published by?
 - (a) World Meteorological Organisation**
 - Climate Action Network
 - United Nations Environment Programme
 - Intergovernmental Panel on Climate Change