Economic Community of West African States

Source: IE

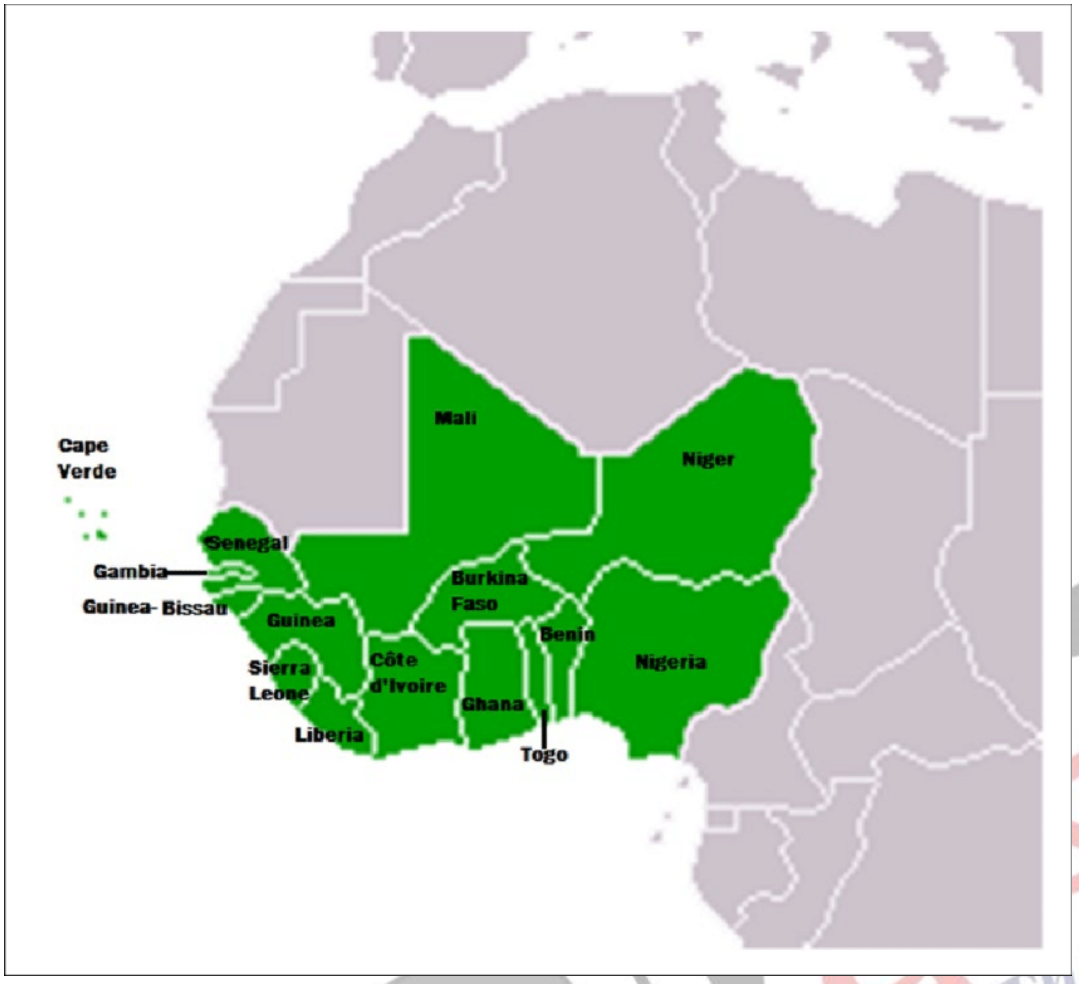
Why in News?

Recently, the **Economic Community of West African States (ECOWAS)**, has emerged at the forefront of international attention due to its active involvement in addressing the aftermath of the **coup in Niger.**

- This coup, which ousted the **democratically elected President and ushered in a military coup**, has raised alarm bells globally.

What is the Economic Community of West African States (ECOWAS)?

- **About:**
  - The ECOWAS, also known as CEDEAO in French, is a regional **intergovernmental organization established in 1975.**
  - Created through the **Lagos Treaty**, ECOWAS aims to foster **economic integration, cooperation, and development among West African nations.**
  - The Secretariat, headquartered in **Abuja, Nigeria.**
- **Member States:**
  - ECOWAS consists of 15 member states: **Benin, Burkina Faso, Cape Verde, Cote d' Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, and Togo.**
- **Primary Goals and Objectives:**
  - Promoting **economic integration among member states.**
  - Facilitating the **free movement of people, goods, and services.**
  - Enhancing **regional cooperation** in various sectors, including industry, transport, energy, and finance.
  - Fostering a **borderless region governed by democratic principles, the rule of law, and good governance.**
  - Addressing security and political challenges through collaboration and conflict resolution.
- **Achievements and Initiatives:**
  - The establishment of a regional peacekeeping force known as **the Economic Community of West African States Monitoring Group (ECOMOG),** which played pivotal roles in resolving conflicts in **Liberia and Sierra Leone during the 1990s and early 2000s.**
  - Launching the **ECOWAS Single Currency Initiative to create a common currency**, fostering economic integration and trade.
  - Supporting efforts to combat terrorism, human trafficking, and organized crime through joint initiatives and collaboration.



UPSC Civil Services Examination, Previous Year Question:

Q. In the recent years Chad, Guinea, Mali and Sudan caught international attention for which one of the following reasons is common to all of them? (2023)

(a) Discovery of rich deposits of rare earth elements
(b) Establishment of Chinese military bases
(c) Southward expansion of Sahara Desert
(d) Successful coups

Ans: (d)

Indian Web Browser Development Challenge

For Prelims: Indian Web Browser Development Challenge, Controller of Certifying Authorities, Secure Sockets Layer, Aatmanirbhar Bharat.

For Mains: Indian Web Browser Development Challenge.

Source: PIB

Why in News?

Recently, the Ministry of Electronics & Information Technology (MeitY) has launched the **Indian Web Browser Development Challenge (IWBDC),** inviting developers to create an Indigenous Indian Web Browser for global use.

- A key requirement of this competition is that the browser ideas must trust the **Controller of Certifying Authorities (CCA)**, the Indian government's authority responsible for digital signatures, including **SSL (Secure Sockets Layer) certificates.**

What is a Web Browser?

- The web browser is an application software to **explore** www (World Wide Web)**.** It provides an **interface between the server and the client** and requests to the server for web documents and services.
- It works as a compiler to render HTML which is used to **design a webpage.**
- Whenever we search for anything on the internet, the browser loads a web page written in HTML, including text, links, images, and other items such as stylesheet and JavaScript functions.
    - **Google Chrome, Microsoft Edge, Mozilla Firefox, and Safari** are examples of web browsers.

What is the Indian Web Browser Development Challenge?

- **About:**
    - The IWBDC is an **Open Challenge Competition** that seeks to inspire and empower technology **enthusiasts, innovators, and developers from all corners** of the country to create an **indigenous web browser.**
    - **It will have its** own trust store with an inbuilt Controller of Certifying Authorities (CCA) India root certificate, cutting edge functionalities and **enhanced security & data privacy protection features.**
    - IWBDC is **spearheaded by MeitY, CCA and** C-DAC Bangalore.
    - The competition is **being organised and financed in collaboration** with the **IT Ministry'**s Research and Development division and the **National Internet Exchange of India.**
- **Objective:**
    - Proposed browser will focus on **accessibility and user friendliness,** ensuring **built-in support for individuals** with diverse abilities.
    - Moreover, the **browser envisions the ability to digitally sign documents** using a crypto token, **bolstering secure transactions and digital interactions.**
- **Significance:**
    - The challenge marks a significant **stride towards an** Aatmanirbhar Bharat, designed to strengthen India's digital sovereignty through the development of the Indian Web Browser.
    - This challenge addresses one of the critical components – Web browser – through which the **end users accessing the Internet.**

What are Secure Sockets Layer (SSL) Certificates?

- **About:**
    - An SSL certificate is a **digital certificate that authenticates a website's identity** and enables an encrypted connection.
    - It is a security protocol that creates an **encrypted link** between a **web server and a web browser.**
        - Companies and organizations need to add SSL certificates to their websites to

secure online transactions and keep customer information private and secure.

- **Role of Root certifying Authorities in Trust:**
  - While India has a legally valid root certifying authority called the **Root Certifying Authority of India**, established in 2000 under the CCA, the certificates issued by it are **not widely recognized by popular web browsers.**
    - The CCA has established the **RCAI under section 18(b) of the IT Act** to digitally sign the public keys of CAs in the country.
    - The RCAI is operated as per the **standards laid down under the Act.**
  - This reliance on foreign authorities has raised concerns over **digital security and foreign exchange outflow.**
- **Issues with Indian SSL System:**
  - India lacks a root certifying authority that is trusted by **major browsers like Google Chrome**, Mozilla Firefox, and Microsoft Edge.
    - This has led to Indian government and private websites **obtaining SSL certificates from foreign certifying authorities.**
  - A notable incident involving the **National Informatics Centre (NIC)**, a CCA-approved organization responsible for hosting and maintaining various Union and State Government websites, underscored **trust issues in Indian certifying authorities.**
    - In 2014, browsers and operating systems stopped trusting India's CCA after the NIC was linked to issuing fraudulent certificates.
  - While NIC's authorization for SSL certificate issuance was revoked, the **trust in Indian certifying authorities remained compromised.**

UPSC Civil Services Examination Previous Year's Question (PYQs)

Prelims:

Q. Consider the following statements: (2019)

A digital signature is

1. an electronic record that identifies the certifying authority issuing it
2. used to serve as a proof of identity of an individual to access information or server on Internet 3. an electronic method of signing an electronic document and ensuring that the original content is unchanged

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

Ans: (c)

- Digital signature is not a record, and the identification of certifying authority is ascertained from the digital certificate, not digital signature. Hence, statement 1 is not correct.
- A digital signature is used to authenticate the identity of the sender of a message or the signer of a document, and not to serve as a proof of users' authenticity to access a website or information on the Internet. Hence, statement 2 is not correct.
- A digital signature is an electronic form of a signature that allows the recipient to trust the fact that a known sender sent the message and it was not altered in transit. Hence, statement 3 is correct. Therefore, option (c) is the correct answer.

Mains:

Q: Discuss different types of cyber crimes and measures required to be taken to fight the menace. **(2020)**

Q: Discuss the advantages and security implications of cloud hosting of servers vis-a-vis in house machine based hosting for government businesses. **(2015)**

Q: What is a digital signature? What does its authentication mean? Give various salient built-in features of a digital signature. **(2013)**

Nurturing India's Cotton Sector

For Prelims: National Food Security Mission (NFSM), Minimum Support Price, Kasturi Cotton India, Cott-Ally Mobile App

For Mains: Issues with the Cotton Sector, Growth & Development

Source: PIB

Why in News?

Recently, the Union Minister of State for the Ministry of Textiles highlighted the significant strides taken to **empower** cotton **farmers and promote the** cotton sector.

What are the Indian Government Initiatives Related to the Development of the Cotton Sector?

- **Cotton Development Programme Under** National Food Security Mission (NFSM):
  - Implemented by the **Department of Agriculture & Farmers Welfare** in 15 major cotton-growing states: **Assam, Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Telangana, Tamil Nadu, Tripura, Uttar Pradesh & West Bengal** from 2014-15.
  - Aims to enhance **cotton production and productivity in major cotton-growing states.**
  - Includes demonstrations, trials, distribution of plant protection chemicals, and training.
- **MSP Formula for Cotton:**
  - Introduced a formula of 1.5 times the cost of production (A2+FL) for Minimum Support Price (MSP) **calculation.**
  - Ensures economic interest of cotton farmers and availability of cotton to the textile industry.
  - Increases **MSP rates to support farmers' income.**
  - For cotton season 2022-23, **MSP of Fair Average Quality (FAQ) grade cotton had increased by about 6%** which has further been **increased by 9% to 10% for ensuing cotton season 2023-24.**
- **Cotton Corporation of India (CCI):**
  - Appointed as a Central Nodal agency for **MSP operations when Fair Average Quality grade seed cotton (kapas)** fall below the MSP rates.
  - Safeguards farmers from distress sales.
- **Branding and Traceability:**
  - Launched **Kasturi Cotton** to promote Indian cotton with a brand name.
  - Aims to ensure **quality, traceability, and branding of Indian cotton.**
- **Large-Scale Demonstrations Project:**
  - Sanctioned by the Ministry of Agriculture & Farmers Welfare under NFSM.

    - Focuses on best practices to enhance cotton productivity.
    - Focus on innovative technologies, such as **High Density Planting System (HDPS) and the value chain approach.**
    - Sanctioning of a project titled **"Targeting technologies to agro-ecological zones-large scale demonstrations of best practices to enhance cotton productivity."**
- **Textile Advisory Group (TAG):**
    - Constituted by the Ministry of Textiles to **facilitate coordination among stakeholders in the cotton value chain.**
    - Addresses issues related to **productivity, prices, branding, and more.**
- **Cott-Ally Mobile App:**
    - Developed to provide farmers with knowledge through a user-friendly interface.
    - **Key Features:**
        - MSP Rate Awareness.
        - Nearest Procurement Centers.
        - Payment Tracking.
        - Best Farm Practices.
- **Committee on Cotton Promotion and Consumption (COCPC):**
    - Ensures availability of cotton to the textile industry.
    - Monitors cotton scenario and advises the government on production and consumption matters.

What are the Key Facts about Cotton?

- Kharif Crop which requires 6 to 8 months to mature.
- Drought–resistant crop ideal for arid climates.
- **Occupies 2.1% of the world's arable land,** meets 27% of the world's textiles needs.
- **Temperature:** Between 21-30°C.
- **Rainfall:** Around 50-100cm.
- **Soil Type:** Well-drained black cotton soil (Regur Soil) (E.g. Soil of Deccan Plateau)
- **Products:** fibre, oil and animal feed.
- **Top Cotton Producing Countries:** India > China > USA
- **Top Cotton Producing States in India:** Gujarat > Maharashtra > Telangana > Rajasthan >Andhra Pradesh
- **Four Cultivated Species of Cotton:** *Gossypium arboreum, G.herbaceum, G.hirsutum and G.barbadense.*
    - *Gossypium arboreum* and *G.herbaceum* are known as old-world cotton or Asiatic cotton.
    - *G.hirsutum* is also known as American cotton or upland cotton and G.barbadense as Egyptian cotton. These are both new world cotton species.
- **Hybrid Cotton:** Cotton made by crossing two parent strains that have different genetic characters. Hybrids are often spontaneously and randomly created in nature when open-pollinated plants naturally cross-pollinate with other related varieties.
- **Bt Cotton:** It is a genetically modified pest-resistant variety of cotton.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q1. The black cotton soil of India has been formed due to the weathering of

(a) brown forest soil
(b) fissure volcanic rock
(c) granite and schist
(d) shale and limestone

Ans: (b)

Expl:

- Black soil, also known as regur soil or black cotton soil, is ideal for growing cotton. The climatic conditions along with the parent rock material are the important factors for the formation of black soil. Black soil is typical of the Deccan trap (Basalt) region spread over northwest Deccan plateau and is made up of lava flows (fissure volcanic rock).
- The Deccan Plateau includes parts of Maharashtra, Madhya Pradesh, Gujarat, Andhra Pradesh and some parts of Tamil Nadu. Black soil also covers upper reaches of the Godavari and the Krishna, and the north Maharashtra, Madhya Pradesh, Gujarat, Andhra Pradesh and some parts of Tamil Nadu.
- Chemically, the black soils are rich in lime, iron, magnesia and alumina. They also contain potash. But they lack phosphorus, nitrogen and organic matter. The colour of the soil ranges from deep black to grey.
- Therefore, option (b) is the correct answer.

Q2. A state in India has the following characteristics: (2011)

1. Its northern part is arid and semi-arid.
2. Its central part produces cotton.
3. Cultivation of cash crops is predominant over food crops.

Which one of the following states has all of the above characteristics?

(a) Andhra Pradesh
(b) Gujarat
(c) Karnataka
(d) Tamil Nadu

Ans: (b)

- Gujarat has varying topographic features, though a major part of the State is dominated by parched and dry region. Out of 8 agro-climatic zones, five are arid to semi-arid in nature, while remaining three are dry sub-humid in nature.
- Deep black to medium black soils dominate the soil types in the State. The average rainfall in the State varies widely from 25 to 150 cm across various zones.
- More than 50% of the total available land is being used for agriculture. The main food crops are bajra, jowar, rice and wheat.
- Major commercial crops or cash crops of the State are groundnut, tobacco and cotton, linseed, sugarcane, etc. Other important cash crops are isabgul (Psyllium husk), cumin, mangoes and bananas.
- The State has notable achievement in production and productivity scenario in cotton, castor and groundnut. Cotton is an important crop of the State which covers 27.97 lakh ha.
- Therefore, option (b) is the correct answer.

Small Modular Reactors for Decarbonization

For Prelims: Low-Carbon Electricity Resources, Decarbonization, International Energy Agency (IEA), Rare Earth Elements, International Atomic Energy Agency (IAEA), Atomic Energy Act, 1962.

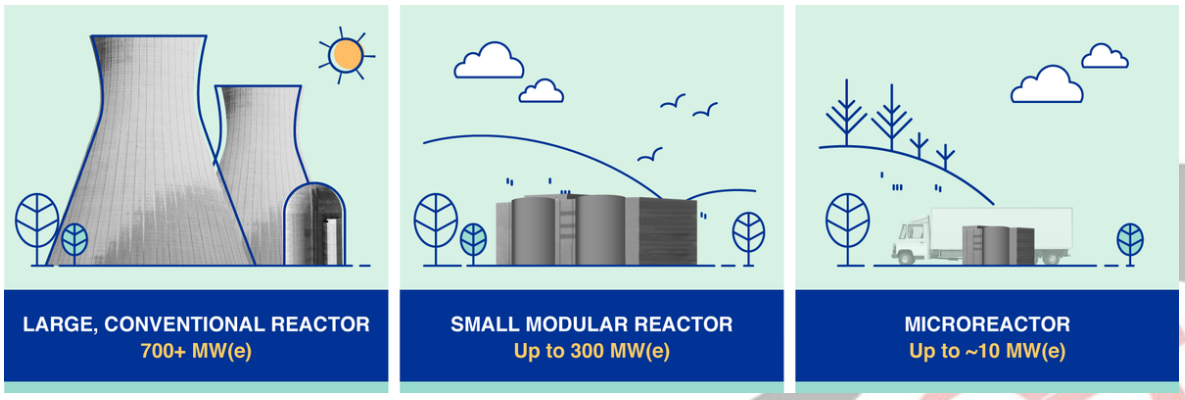
For Mains: Small Modular Reactors for Decarbonization.

Source: TH

Why in News?

The rise in coal consumption despite increased solar and wind power underlines the need for Low-Carbon Electricity Resources such as **Small Modular Reactors (SMRs)** to ensure Deep **Decarbonization.**

- Conventional **NPPs (Nuclear Power Plants)** have generally suffered from **time and cost overruns.** As an alternative, several countries are developing (SMRs) – nuclear reactors with a maximum capacity of **300 MW – to complement conventional NPPs.**

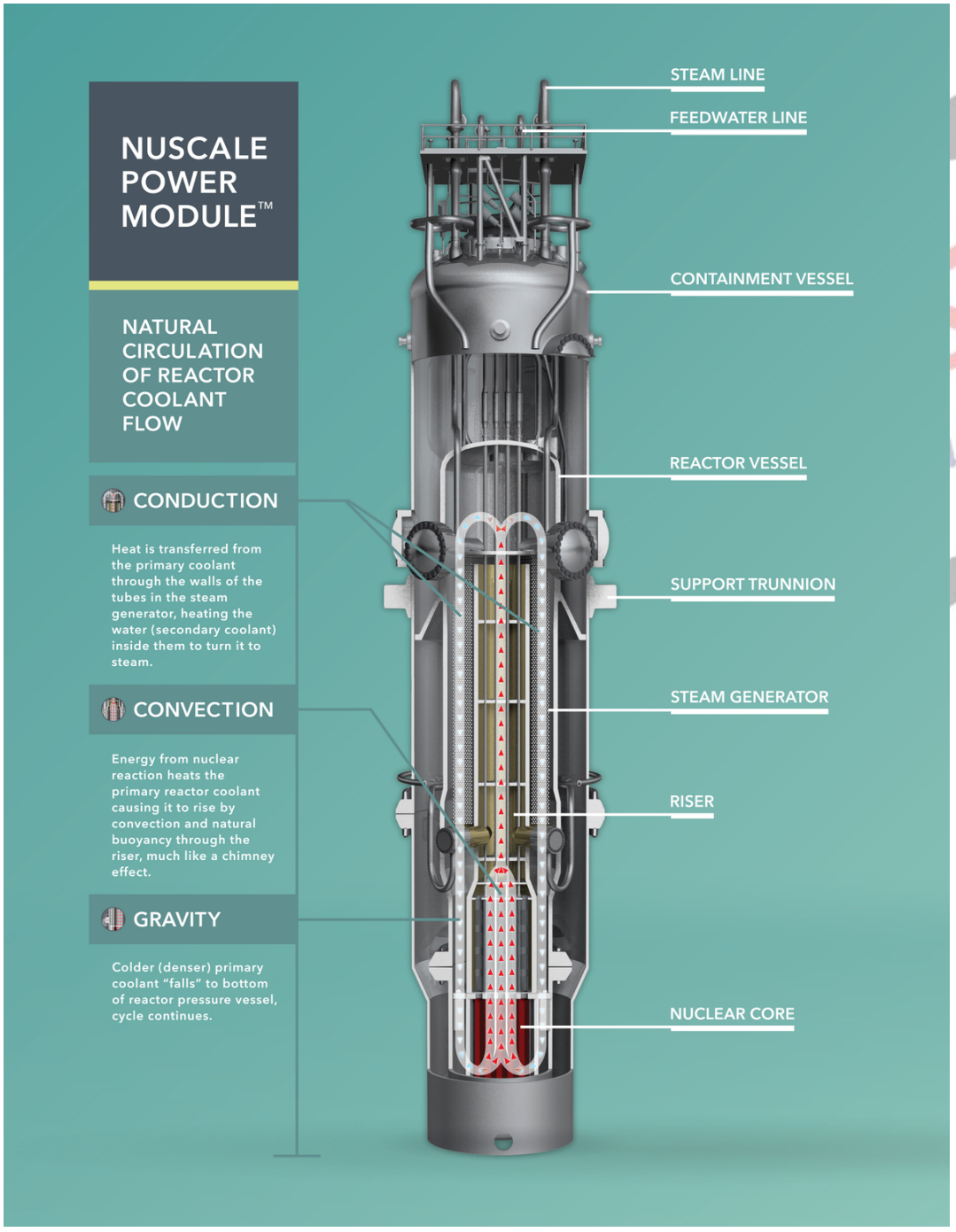


What is Decarbonization?

- **About:**
  - Decarbonization refers to the process of reducing the **Carbon Dioxide (CO_2) Emissions** produced by human activities, particularly those related to the burning of fossil fuels such as Coal**, Oil, and Natural gas.**
- **Need:**
  - The global pursuit of decarbonization aligns with the **UN Sustainable Development Goal 7**, which emphasizes **affordable and sustainable energy access.**
    - However, the world's heavy reliance on fossil fuels, **constituting 82% of energy supply**, necessitates the urgent decarbonization of the power sector.
  - The rise in coal consumption in Europe despite increased solar and **Wind Power** underlines the need for reliable low-carbon electricity resources to ensure deep decarbonization, grid stability, and energy security.
- **Challenges of Decarbonization:**
  - **Clean Energy Transition Challenges:** The shift from **coal to clean energy is a complex challenge** globally. Several nations concur that relying solely on solar and wind energy would not suffice **reliable and affordable energy** access for all.
    - In decarbonized power systems dominated by renewables, introducing at least one **stable power source enhances grid reliability and reduces expenses,** contributing to a balanced energy mix.
  - **Critical Minerals Demand and Complexities:** The **International Energy Agency (IEA)** predicts a potential 3.5x surge in demand for **critical minerals like lithium, nickel, cobalt**, and **Rare Earth Elements** by 2030, essential for clean energy technologies.
    - However, this demand **escalation raises multiple global issues**, including the large capital investments to develop new mines and processing facilities.
  - **Challenges in the Mineral Supply Chain:** Rapid development in countries like **China, Indonesia, Africa, and South America**, coupled with concentration of mineral extraction and processing capacities, presents **environmental, social, geopolitical,** and supply risks.
    - Addressing these challenges becomes critical for sustainable clean energy advancement.

What are Small Modular Reactors (SRMs)?

- **About:**
  - SMRs are **advanced nuclear reactors** that have a power capacity of up to **300 MW(e) per unit**, which is about one-third of the generating capacity of traditional **nuclear power reactors.**
  - SMRs, which can produce a large amount of low-carbon electricity, are,
    - **Small:** Physically a fraction of the size of a conventional nuclear power reactor.
    - **Modular**: Making it possible for systems and components to be factory-assembled and transported as a unit to a location for installation.
    - **Reactors:** Harnessing nuclear fission to generate heat to produce energy.
  - Their designs incorporate **enhanced safety features,** reducing the risk of uncontrolled radioactive material release.
    - SMRs are designed to operate for **40-60 years with capacity factors exceeding 90%.**



- **Advantages:**
  - **Reliable Low-carbon Electricity Source:**

        - As the demand for electricity is projected to surge by **80-150% by 2050,** SMRs could provide a **reliable 24/7 low-carbon electricity** source that complements intermittent renewables.
        - This is crucial for achieving **grid reliability and reducing costs in decarbonized** electricity systems.
    - **Minimized Land Acquisition Challenges:**
        - SMRs generate less spent nuclear fuel and can be safely operated in existing brownfield sites, minimizing land acquisition challenges.
        - SMRs are also simpler to design and manufacture, with potential for cost reduction through serial manufacturing.
    - **Alternatives to Critical Minerals:**
        - The transition to clean energy requires **Critical Minerals for technologies like lithium-ion batteries,** leading to concerns about geopolitical risks and environmental impacts.
        - SMRs offer an alternative, as they require **low-enriched uranium**, which is more widely distributed than critical minerals.
    - **Integration with India's Energy Strategy:**
        - For India, which aims to achieve net-zero emissions by 2070, SMRs can play a pivotal role. As coal-based thermal power plants and variable renewable energy sources **contribute significantly to the energy mix,** SMRs can enhance energy security and grid stability.
            - India's **Central Electricity Authority** envisions SMRs as a crucial element in meeting electricity demands, while private sector investments, including public-private partnerships, are vital for expansion.

How can Low-Carbon Electricity Resources be Promoted for Decarbonization?

- An efficient regulatory regime comparable to that in the civil aviation sector – which has more stringent safety requirements – is important if **SMRs are to play a meaningful role in decarbonising** the power sector.
- This can be achieved if all countries that accept nuclear energy **direct their respective regulators to cooperate amongst themselves** and with the **International Atomic Energy Agency (IAEA)** to harmonize their regulatory requirements and expedite statutory approvals for SMRs based on standard, universal designs.
- To facilitate SMR deployment, India needs to amend the **Atomic Energy Act, 1962** to allow private sector involvement.
- While maintaining government control over nuclear fuel and waste, an independent regulatory board should oversee the entire nuclear power cycle.
- The **India-US '123 agreement' provides opportunities** for India to reprocess spent fuel from SMRs under IAEA safeguards, contributing to resource sustainability.
    - It also permits India to set up a facility to reprocess spent fuel from SMRs under safeguards of the IAEA.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. The function of heavy water in a nuclear reactor is to (2011)

(a) Slow down the speed of neutrons
(b) Increase the speed of neutrons
(c) Cool down the reactor
(d) Stop the nuclear reaction

Ans: (a)

Mains

Q. With growing energy needs should India keep on expanding its nuclear energy programme? Discuss the facts and fears associated with nuclear energy. **(2018)**

World Tribal Day 2023

WORLD TRIBAL DAY 2023

"International Day of World's Indigenous People"

- **About:** Celebrated annually on 9th August since 1994, declared by the UN
- **Theme 2023:** "Indigenous Youth as Agents of Change for Self-determination."

Tribal Population in India

India has the 2nd largest tribal population in the world after Africa

- **Major Tribes: Bhils (largest),** Gonds, Munda, Santhals, Toto, Warli, **Andamanese (smallest)**
- **Famous Dances:** Santhali (Santhal), Dhimsa (Porja), Bhagoriya (Bhils), Elelakkaradi (Irular)
- **Constitutional Provisions:**
  - **5th Schedule:** Tribes' Advisory Council in States having Scheduled areas
  - **6th Schedule:** Administration of tribal areas (Assam, Meghalaya, Tripura and Mizoram)

ARTICLES	PROVISION FOR TRIBALS
Article 342 (1)	President's power to specify tribes as ST
Article 15(4)	Special provisions for OBCs (including STs)
Article 29	Protection of the Interests of Minorities (including STs)
Article 330	Reservation for STs in the Lok Sabha
Article 332	Reservation for STs in State Legislature
Article 243	Reservation in Panchayats
Article 275	Allocation of special funds for states for the welfare of STs with a better administration

- **Related Initiatives:**
  - PM PVTG Mission **(Budget 2023-24)**
  - Anamaya – Tribal Health Collaborative **(2021)**
  - 1000 Springs Initiative **(2020)**
  - Pradhan Mantri Van Dhan Yojana **(2018)**
  - Pradhan Mantri Adi Adarsh Gram Yojna (PMAAGY) **(2009-10)**
  - Eklavya Model Residential Schools **(1997-98)**
  - TRIFED **(1987)**

- **Related Committees:**
  - Kaka Kalelkar Commission, 1953 **(First Backward Classes Commission)**
  - Elwin Committee, 1959
  - U.N. Dhebar Commission, 1961
  - The Lokur Committee, 1965
  - The Shilu Ao Committee, 1966
  - The Bhuria Committee, 1991 **(Recommended PESA Act, 1996)**
  - Xaxa Committee, 2013

Drishti IAS