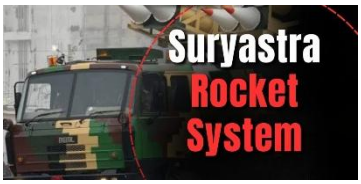
SURYASTRA ROCKET SYSTEM



India recently achieved a major milestone in indigenous defence technology after private defence firm Nibe Limited successfully tested the long-range Suryastra rocket system at Chandipur (Odisha).

- It is **India's first indigenous universal multi-calibre rocket launcher system.** It is developed by **Pune-based NIBE Limited** in **collaboration with Israel's Elbit Systems.**
- It is designed to deliver precision strikes against enemy positions, command centres, radar installations and logistics hubs deep inside hostile territory.
- **Features**:
  - It is an advanced **long-range rocket launcher system.**
  - It is **mounted** on a **highly mobile 6x6 Tatra truck.**
  - **Multi-target Capability**: It is designed to **engage multiple targets simultaneously** at varying ranges.
  - **Precision:** It achieves a high degree of accuracy with a circular error probable (CEP) of less than five metres during trials.
  - Instead of being limited to a single type of ammunition, it **uses interchangeable modular pods** that can **fire a variety of munitions.**
  - The system can **also launch SkyStriker loitering munitions—often referred to as suicide drones, capable of traveling up to** 100 kilometres .
  - **Technology used:** The system is based on **Elbit Systems' PULS (Precise & Universal Launching System) launcher technology.**
  - It is equipped with a modern fire control system that integrates GPS, inertial navigation, and digital ballistic computation.
  - Its **semi-automated reload and shoot-and-scoot capabilities** reduce exposure to counter-battery fire.

NATIONAL CENTRE FOR SUSTAINABLE COASTAL MANAGEMENT (NCSCM)

- It was **established** by the **Ministry of Environment, Forest, and Climate Change (MoEF&CC)** in **2011** as an **autonomous institution** to support the **protection, conservation, rehabilitation,** management and **policy advice of the coast.**
- **Headquarters: Chennai**, Tamil Nadu
- **Aims and Objectives:**
  - Strive for being a **world-class knowledge institution related to coastal zones,** environment, resources, and processes.
  - To promote integrated and **sustainable management of the coastal and marine areas in India** for the benefit and well-being of the traditional coastal and island communities.
  - **Advise the Union and State Governments** and other associated **stakeholder(s)** on policy and scientific matters related to **Integrated Coastal Zone Management (ICZM).**
- It undertakes **studies and research** in the area of Coastal Zone Management including coastal resources and environment.

The **Six Research Divisions** of the NCSCM are:

- **Geospatial Sciences, Remote Sensing** and Geographic Information Systems (**GIS**),
- Integrated **Social Sciences & Economics,**
- **Coastal environmental impact assessment,**
- Conservation of Coastal & Marine Resources,
- Knowledge, Governance and Policy,
- Futuristic Research and **Integrated Island Management Unit.**

RUPA TARAKASI

- It is one of the **most exquisite silver crafts.**
- This centuries-old, sophisticated craft is practiced in the **silver city of Cuttack, Odisha.**
- In Odia, "**tara" means wire and "kasi**" means to weave or design.
- **Origin:** While the exact origin of the filigree art in Cuttack is not clear, it is known to **have existed as far back as the 12th century.**
- **Patronage:** The art form received **considerable patronage under the Mughals.**
- Over the years, as Cuttack transitioned through the hands of different rulers, the silver filigree took on a new form with each.
- **Process:**
    - As part of Rupa tarakasi, silver bricks are **transformed into thin fine wires or foils** and used to create jewellery, artefacts or showpieces.
    - While different grades of silver are used in the main metal alloy, the craftsmen also use other metals like copper, zinc, cadmium, and tin.
- The artists involved with this filigree work are called **"Rupa Banias" or "Roupyakaras"** (in Odia).
- This craftsmanship extends to creating various items, including **jewellery** worn by Odissi dancers, decorative artifacts, accessories, and religious and cultural pieces.
- The famed handicraft work received a **geographical indication (**GI) tag in **2024.**

WHAT IS THE AGRICOLA MEDAL?

- It is the **highest honour** conferred by the **Food and Agriculture Organization (FAO)** of the United Nations.
- It is **awarded to distinguished individuals** who have

played an exceptional role in advancing efforts toward **global food security, improved nutrition** and **agricultural development.**

- It is considered one of the highest honours granted by the Organization in recognition of outstanding leadership and tangible contributions in these fields.

Key Facts about Food and Agriculture Organization (FAO):

- It is a **specialized agency** of the **United Nations (UN)** that **leads international efforts to defeat hunger.**
- It is the **oldest permanent specialized agency of the UN.** FAO was **founded** on October 16, **1945,** when its constitution was signed in Canada's Quebec City by 34 countries.
- **Headquarters: Rome,**
- **Mandate**: To **improve nutrition, increase agricultural productivity, raise the standard of living** in rural populations, and contribute to global economic growth.
- FAO's goal is to **achieve food and security for all** and make sure that **people have regular access to enough high-quality food** and lead active, healthy lives.
- **Functions**:
    - The FAO **coordinates** the **efforts of governments and technical agencies** in programs for **developing agriculture, forestry, fisheries,** and **land** and water resources.
    - It is **both a forum** for negotiating agreements between developing and developed countries and a **source of technical knowledge** and information to aid development.
- The FAO also **collaborated with the United Nations to establish the World Food Programme (WFP)** to distribute surplus food to those in need.
- **Members**: It currently has **195 members – 194 countries and the European Union**. (**India** is a **founding member** of FAO).
- **Funding**: FAO receives its funding from its **member countries.**
- **World Food Day** is observed annually on **October 16** to commemorate the **founding of FAO in 1945.**

ASIAN PRODUCTIVITY ORGANIZATION

- It is an **intergovernmental organization** which was established in 1961.
- The APO is committed to enhancing **productivity for sustainable socioeconomic development** through mutual cooperation and knowledge sharing.
- APO membership is open to countries in Asia and the Pacific that are members of the **United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP).**
- **Members:** It comprises **21 member economies** from the **Asia-Pacific region.**
    - Bangladesh, Cambodia, Republic of China, Fiji, Hong Kong, **India, Indonesia**, Islamic Republic of Iran, Japan, Republic of Korea, Lao PDR, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Türkiye, and Vietnam.
- India is a **founding member of APO.**
- These countries/economies support each other in their productivity drives in a spirit of mutual cooperation and coordinate with the APO through the designated **national productivity organizations (NPOs).**
    - **National Productivity Council** (NPC) under the Ministry of Commerce and Industry, is the **designated NPO for India.**
- **Headquarters:** Tokyo, Japan
- **Organisational Structure:**
    - APO is composed of the **governing body,** the NPOs, and the secretariat, which is headed by a secretary-general.
    - The **Governing Body** is the APO's **highest decision-making authority** and **meets annually** to set the organisation's strategic direction, approve major proposals, and review Secretariat performance.

HOW STATES ARE TACKLING PEAK SUMMER POWER DEMAND

India's summer electricity demand has surged earlier than expected, with peak power demand reaching a record 256.1 GW on April 25, followed by even higher peaks on May 19 and 20.

Nearly **one-third** of this peak demand was met through **renewable energy sources**, helping the national grid remain stable during daylight hours.

However, during non-solar hours, when renewable generation declined, the grid faced a 2% power deficit (4,243 MW), highlighting the growing challenge of meeting rising evening and night-time electricity demand.

Understanding Peak Power Demand

- Peak demand refers to the highest level of electricity consumption on a power grid during a specific period, usually measured over a 15-minute interval.
- Although it represents a single point in time, peak demand generally occurs during a 2–4 hour period of unusually high electricity use.
- **Why Peak Demand Matters?**
    - The power grid must be able to instantly meet peak electricity demand, even if it lasts only for a short duration.
    - This means the entire electricity infrastructure—generation, transmission, and distribution systems—must be designed with peak demand in mind.
    - Managing peak demand is difficult because:
        - Building enough infrastructure to meet the highest demand at all times can be: **Expensive; Inefficient**. Much of the capacity would remain **under-utilised** during normal or off-peak hours.
        - If adequate capacity is unavailable during peak periods, it can lead to: Load shedding; Power shortages.
    - Thus, balancing reliability and economic efficiency remains a key challenge for the power sector.

How States Manage Power Demand?

- States manage electricity demand through contractual supply and power exchange purchases.
- The primary mechanism is long-term Power Purchase Agreements (PPAs) signed by State distribution companies (DISCOMs) with power generators, ensuring a stable electricity supply over several years.
- When contractual supply falls short due to sudden spikes in demand, power plant outages, or transmission failures, DISCOMs turn to the second mechanism—**purchasing electricity from power exchanges**.
- These short-term market purchases help address real-time supply-demand mismatches.
    - Currently, about 10–15% of electricity in India is traded through power exchanges.
- **Demand-Side Management During Peak Hours**
    - Some states are using more advanced tools. Delhi, for example, has increasingly adopted **time-of-day tariffs**, where electricity prices vary according to the time of use, encouraging consumers to shift usage away from peak periods.
    - The use of smart meters is also helping flatten evening demand peaks, particularly those caused by heavy cooling loads during summer.

The Way Forward

- To manage rising peak demand efficiently, states need:
    - Energy storage systems such as Battery Energy Storage Systems (BESS) and Pumped Hydro Storage (PHS)
    - Smarter transmission and distribution networks
    - Energy efficiency measures
    - Demand-side tools like time-of-day tariffs and agricultural load scheduling
- India's power challenge is shifting from merely generating more electricity to managing supply efficiently across time and regions, requiring major investments in storage and grid flexibility.

PREPARING INDIA FOR A CREDIBLE DIGITAL CENSUS

- The **2027 Census** is one of the most important administrative exercises in India because it will influence **political representation**, welfare schemes, and future governance.
- The upcoming Census is unique due to two major developments: the inclusion of **caste enumeration** for the first time since Independence and the use of **digital enumeration** through smartphones and self-enumeration systems.
- While these measures may improve efficiency and data collection, they also raise concerns regarding accuracy, technology, confidentiality, and public trust.

Inclusion of Caste Enumeration

- The inclusion of caste-related questions is a major development because caste remains a sensitive social and political issue in India.
- Enumerators must clearly understand the concepts, definitions, and instructions before conducting the survey.

Digital Enumeration and Technological Challenges

- **Lack of Technical Skills**
    - A major concern is that many enumerators may not be adequately trained to use digital devices.
    - Uneven technological skills among enumerators could affect the quality of data collection.
- **Concerns Regarding Confidentiality**
    - There are also risks related to **data confidentiality** and accountability.
    - If data collected on paper is later transferred to electronic systems, mistakes and misuse may occur.

Problems in Self-Enumeration

- **Complexity of Census Questions**
    - Definitions related to **disability**, work status, occupation, and industry often require lengthy explanations.

- **Respondent Fatigue**
  - Another issue is respondent fatigue. Since information must be provided for every member of the household, long and complicated questionnaires may discourage careful responses.
  - Some respondents may intentionally provide incorrect answers to avoid follow-up questions. Simplified language and better question design are therefore necessary.

Measures to Improve Accuracy

- Several measures can improve the quality and reliability of the Census:
  - Extensive **field testing** of questionnaires
  - Better training for enumerators
  - Simplified and clearly worded questions
  - Strong verification systems for digital data entry
  - Safeguards to maintain confidentiality
  - Questions designed to reduce omissions of household members
  - Monitoring mechanisms to prevent fraudulent enumeration

Conclusion

- The **2027 Census** combines technological innovation with complex social and political challenges.
- The inclusion of caste data and the use of digital systems can improve the **scope and efficiency of data collection,** but they also create risks related to accuracy, privacy, and representation.
- The success of the Census will depend on proper training, simplified questionnaires, reliable digital systems, and strict safeguards against omissions and manipulation.
- An **accurate and credible** Census is essential for ensuring fair representation, effective policymaking, and democratic accountability in India.