

### WHAT IS CLOUD SEEDING?



- It is the **deliberate introduction into clouds of various substances that act as condensation nuclei or ice nuclei in an attempt to induce precipitation.**
- The first experiments with cloud seeding were conducted in 1946 by American chemist and meteorologist Vincent J. Schaefer, and since then seeding has been performed from aircraft, rockets, cannons, and ground generators.
- Many substances have been used, but **solid carbon dioxide (dry ice) and silver iodide** have been the **most effective.**
  - **When used in supercooled clouds** (composed of water droplets at temperatures below freezing), they **form nuclei around which the water droplets evaporate.**
  - The **resulting water vapour deposits into ice crystals, which build quickly as water droplets attach themselves.**
- **In clouds at temperatures above freezing, calcium chloride particles provide the condensation nuclei around which raindrops form.**

### BRICS GROUPING



- **BRICS is an acronym for Brazil, Russia, India, China, and South Africa, a bloc of countries that formed a partnership following the creation of an acronym 'BRIC' in 2001 by Goldman Sachs economist Jim O'Neill (but it didn't include South Africa at the time).**
- Representatives of the **BRIC countries first began meeting informally during the 2006 meeting of the United Nations General Assembly.**
- **South Africa joined in 2010, making it "BRICS".**

- The objectives of BRICS include strengthening economic, political, and social cooperation among its members, as well as increasing the influence of Global South countries in international governance.
- The group seeks to **improve the legitimacy, equity** in participation, and **efficiency of global institutions** such as the UN, IMF, World Bank, and WTO. Moreover, it aims to bolster sustainable **social and economic development** and promote **social inclusion**.
- BRICS work is based on **action plans approved during annual summits** since 2010.
- **BRICS Grouping New Members: Egypt, Ethiopia, Iran, the United Arab Emirates, and Indonesia.**
- The expanded group has a combined population of about 3.5 billion, or **45% of the world's inhabitants**.
- Combined, members' economies are worth more than \$28.5tn – about 28% of the global economy.

### New Development Bank (NDB):

- NDB is a **multilateral development bank established by BRICS** with the purpose of mobilising resources for infrastructure and sustainable development projects in emerging markets and developing countries (EMDCs).
- The Agreement was signed during the BRICS Summit held in Fortaleza in 2014, and the Bank started operations in 2015.
- **Headquarters: Shanghai, China**, with regional offices in South Africa and Brazil.
- The membership is open to members of the United Nations.
- The voting power of each member shall equal its subscribed shares in the capital.

### KEY FACTS ABOUT OPERATION SHIVA



- It was launched by the Indian Army to ensure the smooth and secure conduct of the Amarnath Yatra.

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- The Amarnath Yatra is an **annual Hindu pilgrimage** to the sacred **Amarnath Cave in Jammu & Kashmir** (elevation ~3,888 m), where a naturally formed ice Shivling – believed to symbolize Lord Shiva – emerges.
- Operation Shiva is being carried out in **close coordination with the civil administration and Central Armed Police Forces (CAPFs)**.
- This annual high-tempo operation **aims to provide robust security architecture** along both the **Northern and Southern Yatra routes**, particularly in light of the heightened threat from Pakistan-backed proxies in the aftermath of Operation Sindoor.
- Over **8,500 troops** have been deployed, supported by a wide array of technological and operational resources.
- The operation involves "a **dynamic counter-terrorism grid, prophylactic security deployment, and corridor protection measures**."
- Comprehensive assistance to civil authorities is also being provided, particularly in disaster management and emergency response.
- A **Counter-Unmanned Aerial System (C-UAS) grid** with more than 50 C-UAS and **Electronic Warfare (EW) systems to neutralise drone threats** has been set up.
- Signal companies for seamless communication, EME (Electronics and Mechanical Engineers) detachments for technical support, and Bomb Detection & Disposal Squads have been deployed.
- The Unmanned Aerial Vehicles (UAVs) are being **deployed on regular missions and live monitoring of Yatra routes and the Holy Cave**.
- **Engineer task forces** have also been deployed for bridge construction, track widening, and disaster mitigation, with more than 150 **doctors and medical personnel**, two advanced dressing stations, nine medical aid posts, a 100-bed hospital, and 26 oxygen booths supported by 2,00,000 litres of oxygen.
- By implementing **live tracking of yatra convoys between Jammu and the holy cave**, the Army is maintaining constant situational awareness through high-resolution PTZ camera and drone feeds.

### AKASH MISSILE SYSTEM



- It is a **Short Range Surface to Air Missile (SAM)** system to protect vulnerable areas and vulnerable points from air attacks.
- It was **indigenously designed and developed** by India's Defence Research and Development Organisation (DRDO) and is **produced by Hyderabad-based Bharat Dynamics Ltd. (BDL)**.
- **Features:**
  - It features a **solid-fuel, ramjet propulsion** system, capable of reaching speeds of Mach 2.5 to 3.5 (up to 4,200 km/h).
  - It has an **operational range of 4.5 to 25 km** and can **engage targets at altitudes of up to 18 km**.
  - The system uses **command guidance**, a **digital autopilot**, and includes **self-destruct mechanisms** to minimize collateral damage in case of target miss.
  - Each missile is capable of carrying a 60 kg **warhead**, which can be **conventional or nuclear**.
  - The system boasts a **kill probability of 88% with a single missile** and up to 99% when fired in a salvo of two.
  - The most important element of the Akash SAM system battery is its **high-power, multi-function Rajendra phased array radar**.
    - The 3D passive electronically scanned array Rajendra radar (PESA) can electronically scan and guide the missile towards targets. It provides information on the range, azimuth, and height of a flying target.
  - The AKASH Weapon System can **simultaneously engage Multiple Targets in Group Mode or Autonomous Mode**.
  - It has built-in Electronic Counter-Counter Measures (ECCM) features.
  - It is **fully automatic**, with a quick response time from target detection to kill.
  - The **entire weapon system** has been **configured on mobile platforms**.

### REVISITING ECO-SENSITIVE ZONE (ESZ) GUIDELINES - TOWARDS ECOLOGICAL AND SOCIO-ECONOMIC BALANCE

#### Eco-Sensitive Zones (ESZs):

- Also known as Ecologically Fragile Areas (EFAs), these are areas notified and regulated by the Union Ministry of Environment, Forest and Climate Change (MoEFCC) around Protected Areas, National Parks and Wildlife Sanctuaries.
- **The purpose of declaring ESZs:**
  - To create some kind of **shock absorbers** to the protected areas by regulating and managing the activities around such areas.
  - To act as a **transition zone** from areas of high protection to areas involving lesser protection.
- **Statutory backing:** The Environment (Protection) Act 1986 does not mention the word Eco-Sensitive Zones, however, the government of India effectively uses the act to declare ESZs.
- **Extent of ESZ:** An ESZ could extend **up to 10 km** around a protected area.

#### Need for Site-Specific ESZ Framework:

- **Blanket 10-km norm ineffective:** Uniform 10-km ESZ rule is ecologically irrational and developmentally restrictive in varied regions.
- **Examples:**
  - **Urban parks:** Sanjay Gandhi National Park (Mumbai), Asola Bhatti Sanctuary (Delhi).
  - **Hill states:** Himachal Pradesh has 65% area under forests or protection — strict ESZs may obstruct development.

#### State-wise Concerns and Inputs:

- **Himachal Pradesh:** Commercial activity regulations affect livelihoods of local people.
- **Kerala:** Fear of additional restrictions in ESZs discouraged declaration of new sanctuaries.

- **Tamil Nadu and Karnataka:** Expressed the need for more pragmatic ESZ implementation frameworks.

### Emerging Ecological Concerns:

- **Large renewable energy projects:**
  - **Concerns:** Solar/wind plants near protected areas (PAs) threaten wildlife migration routes and habitats.
  - **Recommendation:** Reclassify/promote regulated activity status even for green projects based on their scale.
- **Marine ecosystem oversight:**
  - Current land-centric ESZ norms unsuited for marine sanctuaries.
  - Call for marine-specific regulatory principles.

### DEBATE ON INEQUALITY IN INDIA

- A recent **World Bank report** has triggered debate by **claiming low and falling inequality in India**, based on consumption data.
- However, **independent studies** and expert analyses challenge this narrative, revealing **high and rising levels of income and wealth inequality**, raising concerns over data reliability, methodology, and policy implications.

### World Bank Report and Government Response:

- **Claim:**
  - Gini coefficient fell from 0.288 (2011-12) to 0.255 (2022-23), indicating one of the lowest inequality levels globally.
  - **The Gini coefficient** is a statistical measure that represents income or wealth inequality within a group or country.
  - **It ranges** from 0 to 1, with 0 indicating perfect equality (everyone has the same income/wealth) and 1 indicating perfect inequality (one person has all the income/wealth).

- **Higher Gini coefficients signify greater inequality.**
- **Government's take:** The findings were presented as evidence of successful economic policies and inclusive growth.
- **Counterview:** Critics argue this does not reflect income or wealth inequality, but only consumption inequality, which is inherently less unequal.

### Understanding Consumption Inequality:

- **Definition:** Inequality in spending patterns, not in income or wealth distribution.
- **Reasons it understates true inequality:**
  - Poor households consume most of their income; wealthier households save more.
  - Consumption does not increase at the same rate as income.
- **Data source issues:** Based on Household Consumption Expenditure Surveys (HCES) 2011-12 and 2022-23, which -
  - May miss high-end consumption.
  - Are methodologically inconsistent, making comparisons unreliable.
  - Even the official release cautions against drawing such direct comparisons.

### Limitations of Gini Coefficient:

- **Aggregate measure:** Doesn't show distributional details like top 1% share.
- **Fails to capture:**
  - Extreme inequality at the top.
  - Inter-generational wealth accumulation.
  - Social impacts of high inequality (e.g., reduced social mobility, political capture).

### The Paradox of Falling Consumption Inequality:

- **Explained:** Rising incomes lead the poor to consume more, while the rich divert extra income to savings and investments, lowering consumption inequality.
- **Key insight:** Consumption inequality can fall even when income and wealth inequality rise, which is the case in India.
- **Warning sign:** High inequality can undermine future growth, social cohesion, and policy legitimacy.

### Conclusion:

- While the World Bank's consumption-based inequality data may appear promising, it masks the underlying income and wealth disparities that are increasingly defining India's economic structure.
- For policymakers, **understanding the real picture of inequality is essential for formulating inclusive, equitable, and sustainable growth strategies.**

### SOFTWARE TECHNOLOGY PARKS OF INDIA (STPI)



- STPI was established in 1991 as an **autonomous society** under the **Ministry of Electronics and Information Technology (MeitY)**.
- STPI strives to **promote software exports** from the country and has been **implementing the Software Technology Park (STP) scheme and Electronics Hardware Technology Park (EHTP) scheme** for the promotion of the IT/ITES industry.
- STPI helps in **facilitating software development**, export, and compliance with regulatory requirements, including customs and foreign exchange rules.
- Further, STPI is **nurturing pan India start-up ecosystem** through its initiatives like **Centres of Entrepreneurship (CoEs) & Next Generation Incubation Scheme (NGIS)**.
- **STPI Services:**
  - **Infrastructure Support:** Provides plug-and-play office space with IT infrastructure for software exporters.
  - **Customs Clearances:** Facilitates duty-free imports of capital goods, consumables, and other goods necessary for software export.
  - **Statutory Compliance:** Ensures compliance with export regulations and assists companies in meeting their export obligations.
  - **Consultation and Guidance:** Offers advice and support on matters related to exports, tax exemptions, and regulatory issues.

### INTERNATIONAL FINANCIAL SERVICES CENTRES AUTHORITY (IFSCA)



- It is a **statutory authority** established under the **International Financial Services Centres Authority Act, 2019 (IFSCA Act)**.
- The IFSCA is a **unified authority** for the **development and regulation of financial products, financial services, and financial institutions in the International Financial Services Centre (IFSC) in India**.
- The IFSCA aims to develop a strong global connection and focus on the needs of the Indian economy as well as to serve as an international financial platform for the entire region.
- **Prior to the establishment of IFSCA**, the domestic financial regulators, namely, **RBI, SEBI, Pension Fund Regulatory and Development Authority (PFRDA), and Insurance Regulatory and Development Authority (IRDAI)**, regulated the business in IFSC.
- It is **headquartered at GIFT City, Gandhinagar, in Gujarat**.
- At present, the **GIFT IFSC is the maiden IFSC in India**.
- **Members of the IFSCA:**
  - It consists of **nine members, appointed by the central government**.
  - They will include the chairperson of the authority, a **member each from the RBI, SEBI, IRDAI, and PFRDA**.
  - **Two members from the Ministry of Finance**.
  - In addition, two other members will be appointed on the recommendation of a Selection Committee.
  - **Term:** All members of the IFSC Authority will have a term of **three years, subject to reappointment**.