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THE HINDU Page 1

UNLAWFUL ACTIVITIES (PREVENTION) ACT

(Syllabus: GS Paper 3 - Internal Security)

Five associates of key Coimbatore car blast suspect held

Wilson Thomas
COIMBATORE

The police late on Monday arrested five associates of Jameesha Mubin, 29, who was killed in an early-morning car blast in front of the Sangameswarar temple at Kottaimedu in Coimbatore on Sunday.

The police have invoked provisions of the Unlawful Activities (Prevention) Act (UAPA) against them and are investigating if Mubin and his associates had planned a larger act of sabotage and the explosives went off accidentally.

CCTV footage

Those arrested have been identified as Muhammad Thalha, 25; Muhammad Azharudheen, 23, of Ukkadam; Muhammad Riyas, 27; Firoz Ismail, 27; and Muhammad Nawaz Ismail, 27, from G.M. Nagar near Ukkadam.

They were produced before the Second Judicial Magistrate Court, Coimbatore, for remand late on Tuesday.

During investigation, the police came across a surveillance camera visual which showed Mubin and a few others taking out a heavy object wrapped in a white sack from the former's residence on H.M.P.R. Street in Kottaimedu around 11.30 p.m. on October 22. Those arrested included persons seen in the CCTV footage. The accused reportedly told the police that they were helping Mubin shift home.

According to Coimbatore City Police Commissioner V. Balakrishnan, Riyas, Firoz Ismail and Nawaz Ismail helped Mubin transport explosive materials.

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Context: The police have invoked provisions of the Unlawful Activities (Prevention) Act (UAPA) against suspect and are investigating if they had planned a larger act of sabotage and the explosives went off accidentally.

Unlawful Activities (Prevention) Act (UAPA)

- **Origin**: It was passed in 1967 and aims at **effective prevention of unlawful activities associations in India.**
- **Power to the central government**: The Act assigns absolute power to the central government, by way of which if the Centre deems an activity as unlawful then it may, by way of an Official Gazette, declare it so.
- **Key features**: Under UAPA, **both Indian and foreign nationals can be charged.**
  - Under the UAPA, the investigating agency **can file a charge sheet in maximum 180 days after the arrests** and the duration can be extended further after intimating the court.
  - It has **death penalty and life imprisonment as highest punishments**.
- **Amendment in 2004**: It **added "terrorist act" to the list of offences** to ban organisations for terrorist activities, under which 34 outfits were banned.
  - Till 2004, "unlawful" activities referred to actions related to secession and cession of territory.
- **Amendment in 2019**: The Act **empowers the Director General of National Investigation Agency (NIA) to grant approval of seizure** or attachment of property when the case is investigated by the said agency.
  - The Act empowers the **officers of the NIA, of the rank of Inspector or above,** to investigate cases of terrorism in addition to those conducted by the DSP or ACP or above rank officer in the state.
  - It also **included the provision of designating an individual as a terrorist.**

BUSINESS STANDARD

Page 1

BANKING SYSTEM LIQUIDITY

(Syllabus: GS Paper 3 - Economy)

RBI's liquidity infusion largest since April 2019 as surplus cash dries up

BHASKAR DUTTA
Mumbai, 25 October

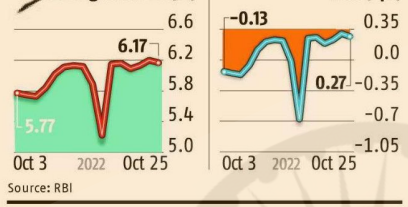
The Reserve Bank of India (RBI) on October 21 injected the largest amount of funds into the banking system in three and a half years, indicating that surplus cash with banks is drying up at an accelerated pace.

The RBI last Friday injected liquidity worth ₹72,860.70 crore — the highest since April 30, 2019. Three days later, on October 24, the central bank injected ₹62,835.70 crore, the RBI data showed. An injection of funds implies tight liquidity in the banking system, whereas if the RBI absorbs money, it implies surplus cash with banks.

The abrupt tightening of liquidity conditions is attributable to outflows on account of goods and services tax (GST) payments and higher currency in circulation during the festival season. What is significant, however, is the degree to which surplus liquidity has shrunk in just a few months.

From an average liquidity absorption of about ₹7 trillion in April, the RBI's absorption has fallen to well below ₹1 trillion in October. So far this month, the RBI mopped up excess funds from banks on 14 occasions, while infused cash in seven cases. The average absorption stands at ₹57,815 crore, while the average infusion is at ₹25,429 crore.





Source: RBI

According to analysts, the RBI's decision to refrain from offering a repo window for banks to borrow funds from points towards the central bank's tolerance of money market rates hovering around the higher end of the interest rate corridor — the RBI's marginal standing facility (MSF).

"You could say the RBI is tolerating higher money market rates but the weighted average overnight rates have not sustainably gone above the MSF rate, so that is the line in the sand. As long as the rates are hanging around or just below the MSF rate, the RBI is happy not to intervene," A Prasanna, head, fixed-income research, ICICI Securities Primary Dealership, said.

The last time the RBI offered banks a repo window was on September 21. Liquidity was briefly in a deficit of around ₹20,000 crore.

The weighted average call rate — the operating target of the RBI's monetary policy — has been above the repo rate of 5.9 per cent 10 times so far this month. On three of those occasions, the WACR was above the MSF.

While overall banking system liquidity is still at a surplus, borrowing from the RBI's marginal standing facility (MSF) window has gone up sharply in October. This means banks that are short of funds are shelling out the highest possible rate to receive funds from the RBI.

Higher money market rates have led to a sharp rise in cost of borrowing for banks and companies tapping the debt markets. Rates on commercial papers and certificates of deposits have climbed close to 70 bps over the last couple of weeks.

Turn to Page 5

Context: The Reserve Bank of India (RBI) on October 21 injected the largest amount of funds into the banking system in three and a half years, indicating that surplus cash with banks is drying up at an accelerated pace.

Banking System Liquidity

- **About:** Liquidity in the banking system refers to readily available cash that banks need to meet short-term business and financial needs.
  - **Deficit**: If the banking system is a net borrower from the RBI under the Liquidity Adjustment Facility (LAF), the banking system liquidity is said to be deficit.
  - **Surplus**: If the bank is the net lender to RBI, the system liquidity is surplus.

Liquidity Adjustment Facility (LAF)

- **About**: A tool used in monetary policy by the RBI, that allows banks to borrow money through repurchase agreements (repos) or for banks to make loans to the RBI through reverse repo agreements.
- **Functions**: Banks borrow from the RBI by pledging government securities at **a rate higher than the repo rate** under Liquidity Adjustment Facility (LAF).
  - **Repo rate** is the rate at which the RBI lends money to commercial banks against the securities in the event of any shortfall of funds.
  - **Reverse repo rate** is the rate at which the RBI borrows money from commercial banks within the country.

Marginal Standing Facility

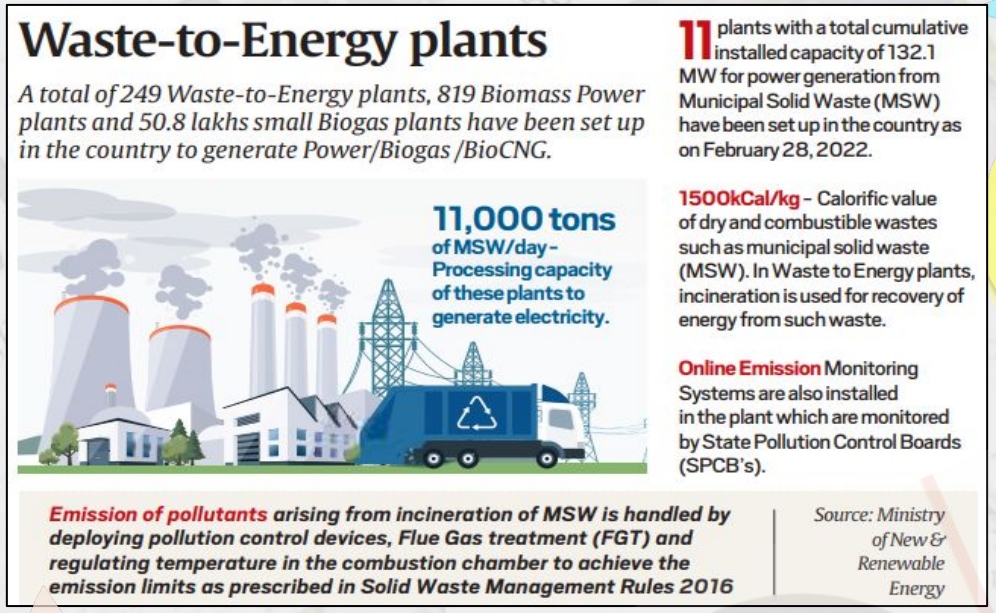
- **About**: It is a window for scheduled banks to borrow overnight from the RBI in an emergency situation when interbank liquidity dries up.
- **Functions**: It allows banks to borrow money with an interest rate above the repo rate.

INDIAN EXPRESS

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WASTE-TO-ENERGY

(Syllabus: GS Paper 3 - Infrastructure)



- **Anaerobic digestion**: Anaerobic digestion is the process by which organic matter such as animal or food waste is broken down to produce biogas and biofertilizer which happens **in the absence of oxygen.**
- **Landfill gas (LFG) recovery**: It is the process by which methane gas is collected from solid waste deposited in a landfill.
- **Torrefaction**: The torrefaction technology involves heating straw, grass, sawmill residue, and wood biomass to 250 degrees Celsius – 350 degrees Celsius.
- **Polycrack technology:** It is the world's first patented heterogeneous catalytic process that converts multiple feedstocks into hydrocarbon liquid fuels, gas, carbon, and water.

Context: Union Minister for Power and New and Renewable Energy (MNRE) informed that a total of 249 Waste-to-Energy plants, 819 Biomass Power plants, and 50.8 lakhs small biogas plants have been set up in the country to generate power/ Biogas/ BioCNG.

Waste-to-Energy

- **About:** Waste-to-energy or energy-from-waste is the process of generating energy in the form of electricity and/or heat from the primary treatment of non-recyclable waste or the processing of non-recyclable waste into a fuel source.
- **India's first:** The Timarpur Okhla Municipal Solid Waste Management plant, a private-public partnership project of the Jindal ITF Ecoplis and Municipal Corporation of Delhi (MCD) is India's first waste-to-energy plant.
- **Different types of waste-to-energy systems or technologies:**
  - **Mass-burn system:** Unprocessed Municipal Solid Waste is burned in a large incinerator with a boiler and a generator for producing electricity.
  - **Modular Systems:** Modular Systems burn unprocessed, mixed solid waste. They differ from mass-burn facilities in that they are much smaller and are portable.
  - **Refuse Derived Fuel Systems:** Refuse derived fuel systems use mechanical methods to shred incoming solid waste, separate non-combustible materials, and produce a combustible mixture that is suitable as a fuel in a dedicated furnace or as a supplemental fuel in a conventional boiler system.
  - **Gasification**: It is a process that converts any material containing carbon - such as coal, petroleum, or biomass - into synthesis gas (syngas) composed of hydrogen and carbon monoxide.
  - **Pyrolysis**: Pyrolysis is defined as a process of temperature decomposition of organic material in the absence of oxygen.
  - **Incineration:** Incineration is a thermal-decomposition process where the components present in the waste stream are ionized into harmless elements at a higher temperature in the presence of oxygen.

LIVEMINT

Page 1

PRODUCTION-LINKED INCENTIVE (PLI) SCHEME

(Syllabus: GS Paper 3 - Economy)

Govt plans PLI scheme for power transmission sector

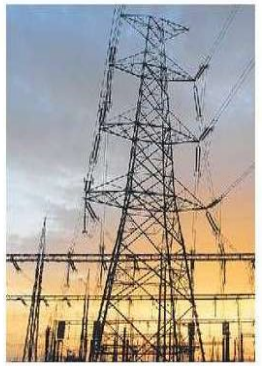
Utpal Bhaskar
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NEW DELHI

The Union government is looking to introduce a production-linked incentive (PLI) scheme for power transmission and distribution equipment, two officials aware of the plans said, as part of India's push for greater self-reliance in strategic sectors.

This comes against the backdrop of India trying to curb the use of Chinese power equipment, given the cyberattacks on its grid, including from Red Echo, a Chinese state-sponsored group.

While these attempts were thwarted, if successful, such attempts may lead to blackouts, impacting services such as water supply, telecom infrastructure, hospitals, airports and metro rail networks.

The government has already enforced prior permission requirements for imports from countries with which it has a



India's power grid is under constant attack, with at least 30 events reported daily.

conflict.

"The PLI scheme for power transmission and distribution equipment is in the works," one of the two officials cited above said, requesting anonymity.

India has rolled out PLI schemes for 14 sectors with a total outlay of ₹2 trillion. This includes a ₹24,000 crore PLI scheme allocation for the local manufacture of solar photovoltaic modules.

Given the growing electricity requirements of the Indian economy, the transmission and distribution equipment also need to keep pace with the generation side. According to the Central Electricity Authority, by 2030, the country's power requirement will be 817 gigawatts (GW). This will result in new orders, with India's current inter-regional transmission capacity of 112GW set to grow and an additional ₹8 trillion investment requirement in the transmission sector till 2031-32. Also, a ₹3.03 trillion reforms-based result-linked power distribution sector scheme applicable till 2025-26 is being implemented.

Queries emailed to the spokespersons for the ministries of power, and commerce and industry on Thursday remained unanswered till press time.

The Union budget earlier this year announced a scheme

TURN TO PAGE 6

Context: The Union government is looking to introduce a production-linked incentive (PLI) scheme for power transmission and distribution equipment as part of India's push for greater self-reliance in strategic sectors.

Production-linked incentive (PLI) scheme

- **About**: The PLI scheme was conceived to scale up domestic manufacturing capability, accompanied by higher import substitution and employment generation.
- **Allocation in Budget**: The government has set aside Rs 1.97 lakh crore under the PLI schemes for various sectors and an additional allocation of Rs 19,500 crore was made towards PLI for solar PV modules in Budget 2022-23.
- **Launch**: Launched in March 2020, the scheme initially targeted three industries:
  - Mobile and allied Component Manufacturing
  - Electrical Component Manufacturing and
  - Medical Devices
- **Incentives Under the Scheme: calculated on the basis of incremental sales**, range from as low as 1% for the electronics and technology products to as high as 20% for the manufacturing of critical key starting drugs and certain drug intermediaries.
  - In some sectors such as advanced chemistry cell batteries, textile products and the drone industry, **the incentive to be given will be calculated on the basis of sales, performance and local value addition done over the period of five years.**
- **Sectors for the which PLI Scheme has been Announced:** So far, the government has announced PLI schemes for **14 sectors** including automobile and auto components, electronics and IT hardware, telecom, pharmaceuticals, solar modules, metals and mining, textiles and apparel, white goods, drones, and advanced chemistry cell batteries.

COMPTROLLER AND AUDITOR GENERAL OF INDIA (CAG)

(Syllabus: GS Paper 2 - Polity & Governance)



Context: The Centre has sought a special audit of direct-to-home (DTH) TV service providers on the long-running dispute over licence fees..

Duties of CAG

- His duty is to **uphold the Constitution of India and laws of Parliament** in the field of financial administration.
- He **audits the accounts related to all expenditure from the Consolidated Fund of India**, Consolidated Fund of each state and UT having a legislative assembly.
- He **audits all expenditure from the Contingency Fund of India and the Public Account of India** as well as the Contingency Fund and Public Account of each state.
- He **audits all trading, manufacturing, profit and loss accounts, balance sheets and other subsidiary accounts** kept by any department of the Central Government and the state governments.
- He **audits the receipts and expenditure of all bodies and authorities substantially financed** from the Central or State revenues; government companies; other corporations and bodies, when so required by related laws.
- He **ascertains and certifies** the net proceeds of any tax or duty and his certificate is final on the matter.

Comptroller and Auditor General of India (CAG)

- **Constitutional Body**: The **Constitution of India (Article 148) provides for an independent office** of the Comptroller and Auditor General of India (CAG).
- **Appointment**: The CAG is **appointed by the President of India** by a warrant under his hand and seal.
  - He is **not eligible for further office,** either under the Government of India or of any state, after he ceases to hold his office.
- **Term of office**: The CAG holds office for a **period of six years or up to the age of 65 years**, whichever is earlier.
  - He **can resign any time from his office by addressing the resignation letter to the president.**
- **Removal**: He can be **removed by the president on the basis of a resolution passed** to that effect by both the Houses of Parliament with special majority, either on the **ground of proved misbehaviour or incapacity.**
  - He can be removed by the president on same grounds and in the same manner as a judge of the Supreme Court.
- **Salary and allowances**: The administrative expenses of the office of the CAG, including all salaries, allowances and pensions of persons serving in that office are charged upon the Consolidated Fund of India and are **not subject to the vote of Parliament**.
  - His salary is equal to that of a judge of the Supreme Court.
- **Audit reports**: He **submits 3 audit reports to the President:** audit report on appropriation accounts, audit report on finance accounts and audit report on public undertakings.
  - He **submits his audit reports relating to the accounts of the Centre and State to the President and Governor**,who shall, in turn, place them before both the houses of Parliament and the state legislature respectively.
  - **No minister can represent the CAG in Parliament (both Houses)** and no minister can be called upon to take any responsibility for any actions done by him.

TIMES OF INDIA

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NATIONAL COMMISSION FOR SCHEDULED TRIBES

(Syllabus: GS Paper 2 - Social Justice)

Conservation rules violative of Forest Rights Act: ST panel

Will Worsen Situation For Traditional Forest Dwellers, It Says

Subodh.Ghildiyal
@timesgroup.com

Getty Images/iStockphoto



The National Commission for Scheduled Tribes has asked the government to put the Forest Conservation Rules 2022 on hold

New Delhi: The National Commission for Scheduled Tribes has said that statutory forest rights of traditional forest dwellers were being ignored despite the best of rules, and the Forest Conservation Rules 2022 will only worsen the situation.

In declaring the FC Rules 2022 as anti-tribal and violative of the Forest Rights Act (FRA), the top tribal panel painted a grim scenario of the processes to recognise and vest the forest rights as laid down in the FRA. It cited evidence to conclude that "even the August 2009 circular and the 2014 and 2017 FC Rules were being observed only in breach".

The 2014/17 FC Rules were in tune with the FRA and pro-forest dwellers, and have been superseded by 2022 FC Rules. The key difference is that in the old rules, "consent" of rights holders gram sabhas was required before sending a project for diversion of forest land for "stage 1 clearance", while the FC 2022 give a primacy to "clearance" of project over the "consent clause".

In a landmark opinion, as reported by **TOI**, the NCST has asked the government to put the FC Rules 2022 on hold.

In the letter sent by NCST chairman Harsh Chouhan to environment and forest minister Bhupender Yadav, the panel has cited study reports to underline the slow processes and weak adherence to the FRA.

"Approx 25,000-30,000 hectares of forests are currently being diverted per year, while the STs and Other Traditional Forest Dwellers continue to face forest rights violations and displacement due to these," the letter noted.

Citing a study done by Centre for Environment and Development, the panel said that out of 128 applications for forest diversion for mining, 74 were given "stage 2" approval while 46 were given "stage 1" clearance, while only five were rejected. It noted that none of the rejections were because of FRA non-compliance or adverse comments by gram sabhas. In a basket of 14 cases, post-2014, records showed that Collectors' certification that the FRA process as complete, "was given in violation of ground realities", with a go by to the Community Forest Rights process.

"The current changes (FC Rules 2022) will further increase such violations," Chouhan wrote to Union minister Yadav.

The letter further lamented that after 16 years of enactment, less than 10% of the total potential of the FRA have been completed, of which less than 3% constitutes Community Forest Resource Rights.

"The requirement of consent and recognition of rights prior to stage 1 clearance in 2014/17 Rules at least provided a legal space for ensuring completion of the processes for recognition and vesting of rights under the FRA in areas where forests are being diverted," the letter noted.

Context: The National Commission for Scheduled Tribes has said that statutory forest rights of traditional forest dwellers were being ignored despite the best of rules, and the Forest Conservation Rules 2022 will only worsen the situation.

National Commission for Scheduled Tribes

- **Constitutional body**: NCST was set up with effect from 19th February, 2004 by amending Article 338 and by inserting a new article 338A in the Constitution through the 89th Constitution Amendment Act, 2003.
- **Composition**: It consists of a **Chairperson** who has been given the rank of Union Cabinet Minister, the **Vice Chairperson** who has the rank of a Minister of State and **3 other Members** who have the rank of a Secretary to the Government of India.
    - **At least one member should be a woman.**
- **Term of office**: The Chairperson, the Vice-Chairperson and the other Members hold office for a **term of 3 years.**
    - The members are **not eligible for appointment for more than two terms.**
- **Duties and Functions**: Article 338A gives powers to the NCST **to oversee the implementation of various safeguards** provided to STs under the Constitution or under any other law for time being in force or under any other order to the Government and to evaluate the working of such safeguards.

PIB

Oct 26

KYC NORMS

(Syllabus: GS Paper 3 - Economy)

25.25 crore e-KYC transactions carried out using Aadhaar in September; over 175 crore authentications done during the month

Over 21 crore AEPS transactions carried out during the month

Context: In September alone, 25.25 crore e-KYC transactions were executed via Aadhaar, almost 7.7% jump in such transactions when compared with August.

Know your customer (KYC)

- **About**: a bank regulation that **financial institutions and other regulated companies must perform to identify their clients and ascertain relevant information** pertinent to doing financial business with them.
- **Objectives**: Reserve Bank of India (RBI) **adopted the KYC process to avoid financial fraud**, such as identity theft, money laundering and illegal transactions.
- **Legal backing**: Reserve Bank of India has **issued guidelines to banks under the Banking Regulation Act, 1949** and Prevention of Money-Laundering Rules, 2005.
  - Any contravention thereof or non-compliance shall attract penalties under Banking Regulation Act.
- **Two components**: Identity and Address.
  - While identity remains the same, the address may change and hence the banks are required to periodically update their records.
- **Norms**:
  - **Only one documentary proof required**: Customers need to submit only one documentary proof of address - either current or permanent - while opening a bank account or while undergoing periodic updation.
    - In case the address mentioned as per 'proof of address' undergoes a change, fresh proof of address may be submitted to the branch within 6 months.
  - **No separate proof for current address required**: Customers have to furnish only one address proof (current or permanent) for opening a bank account.
  - **For Small account**: A small account can be opened by self-attesting a photograph and giving thumb impression on the application in the presence of a bank employee.
  - **For Minors**: If minor is less than 10 years of age, **ID proof of the person who will operate the account to be submitted.**
- **Documents**: Any one document towards proof of identity and proof of address (either permanent or current).
  - Passport
  - Voter's Identity Card
  - Driving Licence
  - Aadhaar Letter/Card
  - NREGA Card
  - PAN Card

PIB

Oct 26

TARGET OLYMPIC PODIUM SCHEME (TOPS)

(Syllabus: GS Paper 1 - Sports & Awards)

TOPS athletes Bindyarani, Harshada, Soumya, Akanksha to feature in Phase 2 of Khelo India National Ranking Women's Weightlifting tournament

Context: Commonwealth Games 2022 silver medalists, all the mentioned athletes are a part of the Target Olympic Podium Scheme (TOPS), are some of the weightlifters set to compete in Phase 2 of the Khelo India Women's Weightlifting League National Ranking Youth, Junior & Senior Tournament, scheduled to start October 27 in Ghaziabad, Noida and end on November 2.

Target Olympic Podium Scheme (TOPS)

- **About**: Target Olympic Podium (TOP) Scheme was **formulated in 2014 under overall ambit of National Sports Development Fund (NSDF)** with the aim to identify, groom and prepare potential medal prospects for the Olympic and Paralympic Games.
  - It was **particularly launched for India's Olympic medal dream**, at the 2016 (Rio) and 2020 (Tokyo) Olympics.
- **Nodal Ministry**: Ministry of Youth Affairs and Sports (MYAS)
- **Monthly stipend:** It includes foreign training, international competition, equipment, and coaching camp besides a monthly stipend of Rs. 50,000/- for each athlete.
- **High priority category**: It has been **created to put focus on those sports disciplines played in the Olympics** in which India has won medals in the last conducted Asian Games as well as Commonwealth Games or in which India has a good chance of winning medals.
- **Mission Olympic Cell**: The Mission Olympic Cell (MOC) is a dedicated body created **to assist the athletes** who are **selected under the TOP Scheme.**
  - **Chairman**: The MOC is under the Chairmanship of the **Director-General, Sports Authority of India (DG, SAI).**
  - **Objective**: The idea of the MOC is to debate, discuss and decide the processes and methods so that the athlete receives the best assistance.
  - **Function**: The MOC focuses on the selection, exclusion, and retention of athletes, coaches, training institutes that can receive TOPS assistance.
- **National Sports Development Fund (NSDF):** It was established in November, 1998 under Charitable Endowments Act, 1890 with the **aim of promotion of sports and games in the country.**

SANSAD TV Oct 26

AIR POLLUTION
(Syllabus: GS Paper 3 - Env & Eco)



- **National Air Quality Index (AQI):** It focuses on health effects one might experience within a few hours or days after breathing polluted air.
- **National Ambient Air Quality Standards**: They are the standards for ambient air quality with reference to various identified pollutants notified by the Central Pollution Control Board under the Air (Prevention and Control of Pollution) Act, 1981.
- **Breathe**: It is a 15 point action plan to fight air pollution by NITI Aayog.
- **Pradhan Mantri Ujjwala Yojana (PMUY)**: It aims at providing clean-cooking fuel to the poor households and bringing in qualitative charges in the living standards.

Context: As per the data released by the World Air Quality Index, **eight Indian cities recorded the worst air quality in Asia**, while just one city - Rajamahendravaram in Andhra Pradesh - managed to feature in the list of top 10 cities with the best air quality.

Key Points

- **Other cities**: Apart from Indian cities, China's Xiaoshishang Port in Luzhou (AQI 262) is also in the list of stations with worst air quality.
- **World Air Quality Index:** The World Air Quality Index, started in 2007, is **a project to promote air pollution awareness** for citizens and help them with unified and world-wide air quality information.
    - IQAir, a Swiss group that measures air quality levels based on the concentration of Particulate Matter (PM) 2.5.

Air Pollution

- **About**: Air pollution is defined as the introduction of pollutants, organic molecules, or other unsafe materials into Earth's atmosphere.
- **Types of Air Pollutants**
    - **Primary Pollutants**: The pollutants that directly cause air pollution are known as primary pollutants.
    - **Secondary Pollutants**: The pollutants formed by the intermingling and reaction of primary pollutants are known as secondary pollutants.
- **6 major air pollutants**: Particulate matter, Ground-level ozone, carbon monoxide, Sulfur oxides, Nitrogen oxides and Lead.

Indian Initiatives to Control Air Pollution

- **The Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas**: It coordinates efforts of state governments to curb air pollution, and will lay down the parameters of air quality for the region.
- **Bharat Stage (BS) VI norms**: These are emission control standards put in place by the government to keep a check on air pollution.
- **Dashboard for Monitoring Air Quality**: It is a National Air Quality Monitoring Programme (NAMP) based dashboard, built on data from the Central Pollution Control Board's National Ambient Air Quality Monitoring (NAAQM) Network which was started in 1984-85 and covers 344 cities/towns in 29 states and 6 UTs.
- **National Clean Air Programme**: Launched in 2019, it is a comprehensive pan-India air pollution abatement scheme for 102 cities.

DTE

Oct 26

SPACE DEBRIS

(Syllabus: GS Paper 3 - Sci & Tech)



SCIENCE & TECHNOLOGY

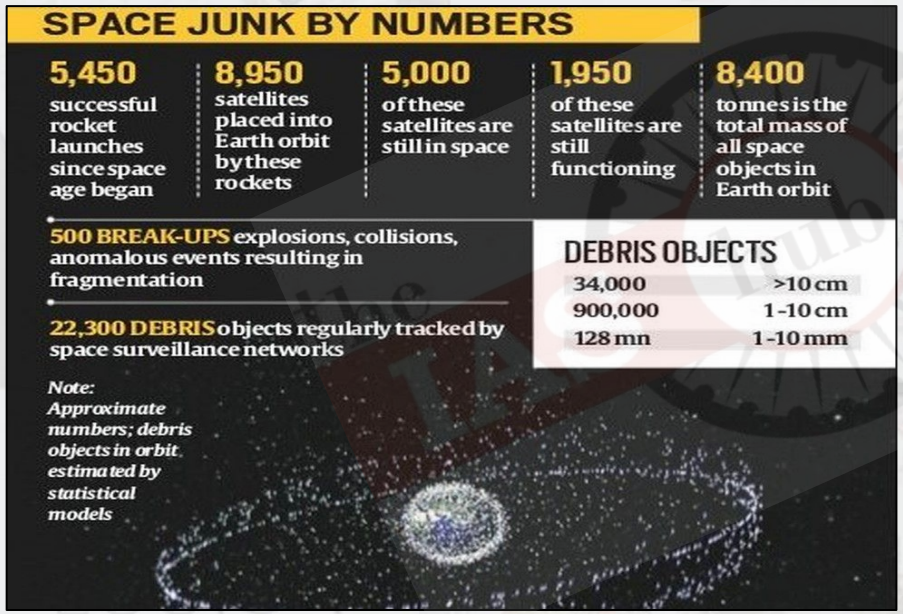
Climate effect in space: Expect more satellite collisions

There were 5,000 active and defunct satellites in low Earth orbit as on March 2021

NEXT NEWS >

By Arya Rohini

Published: Wednesday 19 October 2022



Context: Increasing carbon dioxide levels in the Earth's atmosphere will result in a long-term decline in air density at high altitudes which may **extend the lifetime of space debris and intensify the likelihood of satellites running into space debris**.

Space Debris

- **About**: Space junk or debris **consist of spent rocket stages, dead satellites, fragments of space objects and debris** resulting from Anti-satellite (ASAT) System (ASAT).
- **Threats**: Hurtling at **an average speed of 27,000 kph in Low Earth Orbit (LEO)**, these objects pose a very real threat as collisions involving even centimetre-sized fragments can be lethal to satellites.
- **Kessler Syndrome (named after National Aeronautics and Space Administration (NASA) scientist Donald Kessler in 1978):** It says if there is too much space junk in orbit, it could result in a chain reaction where more and more objects will collide and create new space junk in the process, to the point where Earth's orbit becomes unusable – **a Domino Effect**.
- **Initiatives taken:**
  - **Global Initiative**: **Clearspace-1 (European Space Agency)**, which is scheduled to launch in 2025, will be the first space mission to eliminate debris from orbit.
  - **India's Initiatives:** '**Project Network for Space Objects Tracking and Analysis (NETRA)**' is an early warning system in space to detect debris and other hazards to Indian satellites.
    - Once operational, it will give India its own capability in Space Situational Awareness (SSA) like the other space powers.
    - ISRO's efforts towards space situational awareness (SSA) is coordinated by the SSA Control Centre in Bengaluru and managed by the Directorate of Space Situational Awareness and Management at the ISRO headquarters.

THANK YOU!

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