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सत्यमेव जयते



MK Yadav Sir

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INDIAN EXPRESS

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GOBARDHAN SCHEME

(Syllabus: GS Paper 3 - Infrastructure)

Govt's nod for 42 of 75 biogas plants marked for urban areas

DAMINI NATH
NEW DELHI, APRIL 7

THE BUDGET announcement of setting up 75 biomethanation plants, which convert wet waste into biogas, in cities has got underway, with the Union Housing and Urban Affairs Ministry approving plans for 42 such facilities.

In her Budget 2023-24 speech on February 1, Finance Minister Nirmala Sitharaman had announced the setting up of 500 biogas plants across the country under the Gobardhan scheme. Of these, 75 plants were to be set up in urban areas.

According to Housing and Urban Affairs Ministry officials, 42 plants with a total capacity of 6,213 tonnes per day (TPD) at a cost of Rs 1,082 crore had been approved and the remaining proposals would be cleared soon. Most of these plants were in Tamil Nadu, Gujarat, Maharashtra and Punjab, an official said.

While waste-to-energy plants, nine of which with capacity of 12,000 TPD are functional currently, use dry waste to produce power, the biomethanation plants use wet waste to produce biogas or bio-CNG, depending on the quality of the waste provided.

EXPLAINED

E. Boosting capacity

THE SCHEME'S target is to create capacity of 15,000 TPD. As of now, there are 99 biomethanation plants functioning in cities, with a total capacity of 2,288 TPD, as per sources. Of these, 18 are big plants, the largest in Indore with 550 TPD capacity.

successful, it needs uncontaminated wet waste. Biswas said the level of waste segregation still left a lot to be desired. Ministry officials said it was not known what percentage of the daily 1.5 lakh MT waste in the country gets segregated, though 88% of all MC wards practised segregation at some level or the other.

In order to give a helping hand to the 59 cities that have a population of 1 million and above, the ministry had signed a MoU with Engineers India Limited (EIL) on February 2. EIL would help the cities in developing both the waste-to-energy and bio-methanation plants.

Context: The Budget announcement of setting up 75 **biomethanation plants,** which convert wet waste into biogas, in cities has got underway, with the Union Housing and Urban Affairs Ministry approving plans for 42 such facilities.

- In her Budget 2023-24 speech,, Finance Minister had announced the setting up of 500 biogas plants across the country under the **Gobardhan scheme**. Of these, 75 plants were to be set up in urban areas.

Gobardhan scheme

- **About**: The **Galvanizing Organic Bio-Agro Resources Dhan (GOBAR-DHAN) scheme** is implemented under the Swachh Bharat Mission Gramin-Phase 2, by the Department of Drinking Water and Sanitation under the Jal Shakti ministry.
  - It was launched in **2018**.
  - The scheme aims to augment income of farmers by **converting biodegradable waste into compressed biogas (CBG).**
  - The initiative aims at attracting entrepreneurs for establishing community-based CBG plants in rural areas.
- **Benefits of the scheme:**
  - Helpful for the country as **India is home to the highest cattle population** in the world, close to 300 million in number, with a daily output of 3 million tonnes of dung.
  - Encourage farmers to consider dung and other waste not just as a waste but as a **source of income.**
  - It will be **easier to keep the village clean and sanitized**, livestock health will improve and farm yields will increase.
  - Increase **self-reliance in energy** utilized for cooking and lighting.
  - Provides **a stable fuel supply** in the market for oil companies and accessible credit in the market through government schemes and banks for entrepreneurs.
- **Unified Portal of Gobardhan:** In 2021, it has been launched to ensure **smooth implementation of Biogas schemes/initiatives** and their real time tracking.
  - **Objectives**: Ensure close coordination with various Departments/Ministries for smooth implementation of Biogas schemes/initiatives and its real time tracking.

Biomethanation

- **About**: Biomethanation is a process by which **organic material is microbiologically converted** under anaerobic conditions to biogas.
  - Biomethanation has s**trong potential for the production of energy** from organic residues and wastes. It will help to reduce the use of fossil fuels and thus reduce CO(2) emission.
- **Three main physiological groups of microorganisms are involved:**
  - Fermenting bacteria,
  - Organic acid oxidizing bacteria, and
  - Methanogenic archaea.

ECONOMIC TIMES
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SPECS

(Syllabus: GS Paper 3 - Infrastructure)

Govt Extends Sops for Chip, Electronics Gear by a Year

Subhrojit.Mallick
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New Delhi: The Ministry of Electronics & Information Technology has extended the scheme for the promotion of electronics components and semiconductor (SPECS) by a year.

Industry associations said the extension will boost local electronics manufacturing and is aimed at allowing filing of new applications that was discontinued at the end of the fiscal year on March 31, 2023. The scheme was extended via a notification on April 5.

SPECS was introduced in April 2020 to remove cost disabilities and strengthen electronics manufacturing, targeting the downstream value chain comprising electronic components, semiconductor/ display fabrication units, ATMP units, specialised sub-assemblies and capital goods for the manufacture of these components.

Under the scheme, the government offers financial incentives of 25% on capital expenditure in new units and modernisation of old units.

"The scheme has just been extended for a year ... this is an interim arrangement to allow applications which were discontinued on March 31, 2023," said Pankaj Mohindroo, chairman, India Cellular and Electronics Association.

He said deliberations were also ongoing to reframe the scheme with additional capital outlay, amendments in notified items and investment threshold limits.

SPECS, he said, had a financial outlay of Rs 3,250 crore, which has not been completely used. Finances, though, are considered blocked or used once applications are approved.

"The extension will help applicants to get their projects approved swiftly...once the complete budget is exhausted with approvals, the scheme will stop," he added.

SPECS was opened for applications in 2020 initially for three years — till March 31, 2023 — with incentives under the scheme available till fiscal 2028. With the extension, companies can apply till March 31, 2024.

In a written reply to the Lok Sabha, minister of state for electronics & IT Rajeev Chandrasekhar said the government had received 120 applications under SPECS. It has approved 34 applications with a total project cost of ₹11,187 crore, the minister said.

Mohindroo said Tata Electronics and Samsung were the biggest beneficiaries of the scheme.

Context: The Ministry of Electronics & Information Technology has extended the **scheme for the promotion of electronics components and semiconductor (SPECS)** by a year.

- The extension will **boost local electronics manufacturing** and is aimed at allowing filing of new applications that was discontinued at the end of the fiscal year on March 31, 2023.

Key points

- SPECS was **introduced in April 2020** to remove cost disabilities and strengthen electronics manufacturing, targeting the downstream value chain comprising electronic components, semiconductor/ display fabrication units, ATMP units, specialised sub-assemblies and capital goods for the manufacture of these components.
- Under the scheme, the government offers **financial incentives of 25% on capital expenditure** in new units and modernisation of old units.
- SPECS had a **financial outlay of Rs 3,250 crore,** which has not been completely used.
- Finances are considered blocked or used once applications are approved.
- SPECS was **opened for applications in 2020** initially for three years - till March 31, 2023 - with incentives under the scheme available till fiscal 2028. With the extension, companies **can apply till March 31, 2024.**
- The government had **received 120 applications** under SPECS. It has approved 34 applications with a total project cost of ₹11,187 crore.

DST

April 8

NM-ICPS
(Syllabus: GS Paper 3 - Infrastructure)

NM-ICPS Mission can accelerate technology translation and commercialization through TIHs spanning all over the country- Experts

Context: Experts deliberated on ways to strengthen the **National Mission in Interdisciplinary Cyber Physical Systems (NM-ICPS)** with the help of disruptive technologies, effective translation, and commercialization of technologies so that it can become a major driver of economic growth of the country at the National Workshop on Technology Innovation in Cyber-Physical Systems (TIPS).

National Mission in Interdisciplinary Cyber Physical Systems (NM-ICPS)

- **About**: The Union Cabinet approved the **National Mission on Interdisciplinary Cyber Physical System (NM-ICPS) in December, 2018** at a total outlay of Rs.3660 Crores for a period of five years.
- **Nodal Ministry**: It is being implemented by Department of Science & Technology under **Ministry of Science and Technology** for period of five years.
- **Objectives**: It is comprehensive mission to **address technology development,** application development, human resource development & skill enhancement, entrepreneurship and start-up development in CPS and associated technologies. The **Mission has 4 major objectives:**
  - Technology Development;
  - HRD & Skill Development;
  - Innovation, Entrepreneurship & Start-ups Ecosystem Development;
  - International Collaborations.
- **Key Achievements:** As part of the Mission implementation, **25 Technology Innovation Hubs (TIHs)** have been established in advanced technologies in reputed institutes across the country.
  - These TIHs **focus on technology development and translation**, human resource and skill development, entrepreneurship and start-ups development, and international collaborative research.
  - For effective implementation of the Mission and to carry out the mandated activities by the TIHs, a series of **workshops** are being conducted for direct interaction between the Mission Office and its Expert Committee members and the TIHs.

Cyber Physical Systems

- **About**: Cyber-Physical System (CPS) combines **digital/cyber elements with physical objects** (e.g. machines, autonomous vehicles) and data with capabilities of communication, data collection & processing, computing, decision making and action.
  - CPS is an **integrated system involving Sensors,** Communication, Actuators, Control, interconnected computing networks and data analytics.
- **Few Potential applications: Driverless cars** that communicate securely with each other on smart roads, Sensors in the home to detect changing health conditions, etc.

PIB

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SAPTHA MOKSHA PURI

(Syllabus: GS Paper 3 - Tourism Sector)

Ministry of Tourism promotes Seven Liberation destinations (Saptha Moksha Puri) of India by undertaking promotional campaigns in domestic and global markets.

Context: Ministry of Tourism, inter-alia, promotes tourist destinations of India, including the **Saptha Moksha Puri (Seven Liberation destinations),** viz., Ayodhya, Mathura, Maya (Haridwar), Kashi (Varanasi), Kanchi Avantika (Ujjain), Puri (Odisha) and Dwaravati (Dwaraka, Gujarat), in a holistic manner.

Key Points

- It undertakes **promotional campaigns in domestic and global markets** through electronic, print and digital media to promote the various tourist destinations and products of the country.
- Further promotions are also undertaken through the **official web-site** as well as through social media handles of the Ministry.
- Ministry of Tourism provides financial assistance under the **'National Mission on Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive (PRASHAD)' Scheme** with the objective of integrated development of identified pilgrimage and heritage destinations in consultation with the respective State Governments/ Union Territories (UTs).
- **Financial assistance** is also provided under the Swadesh Darshan for the development of tourism infrastructure.
- The **identification of sites i**s mainly the prerogative of the State Governments/UT Administrations.
- The projects are sanctioned **subject to availability of funds,** submission of suitable detailed project reports, adherence to Scheme guidelines, utilization of funds released earlier, etc.
- The **Swadesh Darshan Scheme** has been revamped to SD 2.0 for development of sustainable and responsible tourist destinations and Dwarka has been selected for development under SD 2.0.

Sapta Puri

- The **Sapta Puri are a group of seven Hindu tirtha,** or holy pilgrimage sites, located in India. Pilgrimage to these sites is said to bless the pilgrim with moksha (liberation from the cycle of birth and death).
- A Śloka from the **Garuda Purana** describes this seven pilgrimage centres.
- The **modern names of these seven cities** are:
  - Ayodhya
  - Mathura
  - Haridwar (Maya or Gaya)
  - Varanasi (Kashi)
  - Kanchipuram (Kanchi)
  - Ujjain (Avantika)
  - Dwarka (Dwaraka)

TIMES OF INDIA

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PMJAY

(Syllabus: GS Paper 2 - Health)

Most vulnerable availed fewer benefits of PMJAY

Rema.Nagarajan
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A detailed analysis of the Pradhan Mantri Jan Arogya Yojana (PMJAY), the government's flagship health insurance scheme, shows those most vulnerable — whether in terms of states, communities or gender — haven't been able to use it as well as the relatively better off.

For instance, though Scheduled Castes and Schedules Tribes constitute about 28% of the population, their share in private hospital admissions at the national level since the scheme's inception was just 5% and 2%, respectively. States with low poverty and disease burden, such as Kerala and Himachal Pradesh, were found to be using services under the scheme much more than poorer states with high needs such as Bihar, MP, Assam and UP.

▶More cases of CHE, P 14

MORE CLAIMS BY MEN

- **Share of SCs & STs** in private hospital admissions across the country was **only 5% and 2%**
- States like Himachal Pradesh and Kerala with **low poverty and disease burden used the scheme more** than poorer states like Bihar, UP, Assam
- No. and value of **claims were higher for men** than women
- More vulnerable groups **accessed care through public hospitals**, showed the study

Context: A detailed analysis of the **Pradhan Mantri Jan Arogya Yojana (PMJAY),** the government's flagship health insurance scheme, shows those most vulnerable - whether in terms of states, communities or gender - haven't been able to use it as well as the relatively better off.

- For instance, though **Scheduled Castes and Scheduled Tribes** constitute about 28% of the population, their share in private hospital admissions at the national level since the scheme's inception was just 5% and 2%, respectively.
- States with **low poverty and disease burden**, such as Kerala and Himachal Pradesh, were found to be using services under the scheme much more than poorer states with high needs such as Bihar, MP, Assam and UP.

Pradhan Mantri Jan Arogya Yojana (PMJAY)

- **About**: The scheme was **launched in September 2018** and recommended by the **National Health Policy 2017**, to achieve the vision of **Universal Health Coverage (UHC).**
  - It is a **Centrally Sponsored Scheme** having a central sector component under Ayushman Bharat Mission
  - PM-JAY was earlier known as the **National Health Protection Scheme (NHPS)** before being rechristened.
  - It subsumed the then-existing **Rashtriya Swasthya Bima Yojana (RSBY)** which had been launched in 2008.
- **Key Features:** It is the world's **largest health insurance/ assurance scheme** fully financed by the government and the cost of implementation is shared between the Central and State Governments.
  - It provides **a cover of Rs. 5 lakhs per family per year for secondary and tertiary care** hospitalization across public and private empanelled hospitals in India.
  - It **covers up to 3 days of pre-hospitalization** and 15 days of post-hospitalization expenses such as diagnostics and medicines.
  - There is **no restriction** on the family size, age or gender.
    - The RSBY had a **family cap of five members.**
  - All pre-existing conditions are **covered from day one.**
- **Eligibility** The households included are based on the deprivation and occupational criteria of **Socio-Economic Caste Census 2011 (SECC 2011)** for rural and urban areas respectively.
  - The coverage mentioned under **PM-JAY,** therefore, also includes families that were covered in RSBY but are not present in the SECC 2011 database.

THE HINDU

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SUPPORT FOR POOR PRISONERS

(Syllabus: GS Paper 2 - Social Justice)

MHA to provide financial assistance to prison inmates

The Hindu Bureau
NEW DELHI

The scheme involves monetary aid to poor inmates who cannot afford the penalty or the bail amount

The Ministry of Home Affairs (MHA) said on Friday that it would provide States with financial support to help underprivileged prisoners who are unable to get bail or secure release from prisons due to financial hardship.

In line with one of the announcements of the Union Budget, 'Support for Poor Prisoners', the scheme envisages "financial support to poor persons who are in prisons and unable to afford the penalty or the bail amount".

The MHA said the scheme will enable underprivileged prisoners, majority of whom belong to socially disadvantaged or marginalised groups with lower education and income levels, to get out of prison.

"To further strengthen the process, technology-driven solutions will be put in place to ensure that benefits reach the poor prisoners; reinforcing the e-prisons platform; strengthening of District Legal Services Authority and sensitisation and capacity building of stakeholders to ensure that quality legal aid is made available to needy poor prisoners, etc.," the Ministry said.

It said that prisons are an important part of the criminal justice system, and play a significant role in upholding the rule of law.

According to the Prisons Statistics of India Report, 2021, over 5.54 lakh people were lodged in prison and the total capacity of the jails in India was about 4.25 lakh, an occupancy rate of 130%.

Context: The Ministry of Home Affairs (MHA) said that it would provide States with **financial support to help underprivileged prisoners** who are unable to get bail or secure release from prisons due to financial hardship.

- In line with one of the announcements of the Union Budget, **'Support for Poor Prisoners',** the scheme envisages "financial support to poor persons who are in prisons and unable to afford the penalty or the bail amount".

Key Points

- To ensure that the benefits of the Budget are extended across all intended sections of the society, one of the priorities of the Budget, namely the Guiding **'Saptarishis'** is Reaching the Last Mile.
  - Under this, one of the announcements is **'Support for Poor Prisoners'.**
  - It envisages provision of required **financial support to poor persons** who are in prisons and unable to afford the penalty or the bail amount.
  - This will enable poor prisoners, majority of whom belong to socially disadvantaged or marginalized groups with lower education and income level, to get out of prison.
- To further strengthen the process, **technology-driven solutions** will be put in place to ensure that benefits reach the poor prisoners; reinforcing the E-prisons platform; strengthening of District Legal Services Authority and sensitisation and capacity building of stakeholders to ensure that quality legal aid is made available to needy poor prisoners, etc.
- The Ministry of Home Affairs has been taking various steps to **address the issue of undertrials in prisons from time to time.**
  - These include **insertion of Section 436A in the Code of Criminal Procedure (CrPC),** insertion of a new chapter XXIA 'Plea Bargaining' in the CrPC etc. Free legal aid is being provided to poor prisoners through Legal Services Authority at various level.

LIVE MINT

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CSR SPENDING

(Syllabus: GS Paper 2 - Social Justice)

Pandemic spurs Indian firms to boost CSR spending, compliance

Gireesh Chandra Prasad
gireesh.p@livemint.com
NEW DELHI

The number of companies defaulting on their corporate social responsibility (CSR) spending commitments plummeted in FY21, even as an increasing number of companies went beyond their legal obligations to contribute to their communities, corporate affairs ministry data showed.

The encouraging trend of companies complying with their CSR obligations and many going beyond comes after legislative changes kicked in on 22 January 2021. The changes in the legal framework, a carrot-and-stick approach, introduced penalties for companies and their officers that fail to meet their CSR obligations, as well as offered flexibility for businesses that choose to exceed spending the mandated 2% of net profits on CSR activities.



Data showed that the number of firms meeting the 2% profit spending rule doubled MINT

Data showed that the number of companies meeting the 2% net profit spending requirement for CSR almost doubled to 1,477 in FY21 from the FY19 level. Meanwhile, the number of profit-making companies that were required to spend but did not spend anything dropped to 3,202 in FY21 from 10,425 in the previous year. The number of companies that spent less than the mandated amount also declined to 3,525 in FY21 from 4,760 in the previous year. But those spending more than the required amount rose sharply to 9,792 in FY21 from 6,964 in the year before.

Experts offered several reasons for the improvement in companies spending on charity. According to Noorul Hassan, a partner at Lakshmikumaran and Sridharan Attorneys, in 2021, the pandemic year, corporations came forward to meet the exigencies that arose from the health crisis and spent on healthcare activities in addition to contributing to the Prime Minister's Citizen Assistance and Relief in Emergency Situations (PMCARES) Fund. "Also, the statutory provisions regarding CSR was changed in 2021, including allowing business to spend extra for which credit could be

TURN TO PAGE 13

Context: The number of companies defaulting on their **corporate social responsibility (CSR) spending** commitments plummeted in FY21, even as an increasing number of companies went beyond their legal obligations to contribute to their communities, corporate affairs ministry data showed.

- Data showed that the number of companies meeting the **2% net profit spending requirement for CSR** almost doubled to 1,477 in FY21 from the FY19 level.
- Meanwhile, the number of **profit-making companies** that were required to spend but did not spend anything dropped to 3,202 in FY21 from 10,425 in the previous year.

Corporate social responsibility (CSR) spending

- **About**: The Corporate Social Responsibility concept in India is governed by **Section 135 and Schedule VII of the Companies Act, 2013** and Companies (CSR Policy) Rules, 2014.
  - As per the **Companies (Amendment) Act, 2019,**CSR is applicable to companies before completion of 3 financial years.
  - Companies are required to spend, in every financial year, **at least 2% of their average net profits** generated during the 3 immediately preceding financial years.
  - For companies that have not completed 3 financial years, average net profits generated in the preceding financial years shall be factored in.
  - The CSR activities in India **should not be undertaken in the normal course of business** and must be with respect to any of the 17 activities of CSR mentioned in Schedule VII of the act.
- **Criteria**: The Companies Act has made it **mandatory** for certain corporations to undertake CSR activities. The Act requires companies with:
  - (a) a net worth of INR 5 billion (500 crore) or more or;
  - (b) An annual turnover of INR 10 billion (1000 crore) or more or;
  - (c) Net profit of INR 50 million (5 crore) or more, to spend 2% of their average net profits of 3 years on CSR.
    - Prior to that, the **CSR clause was voluntary for companies,** though it was mandatory to disclose their CSR spending to shareholders.
- **CSR Committee:** Every company to which CSR criteria are applicable shall constitute a **Corporate Social Responsibility Committee.**
  - The CSR Committee should **consist of 3 or more directors,** with at least 1 independent director.
  - The activities to be undertaken under CSR are prescribed by the Government in **Schedule VII of the Companies Act.**

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GAJ UTSAV-2023

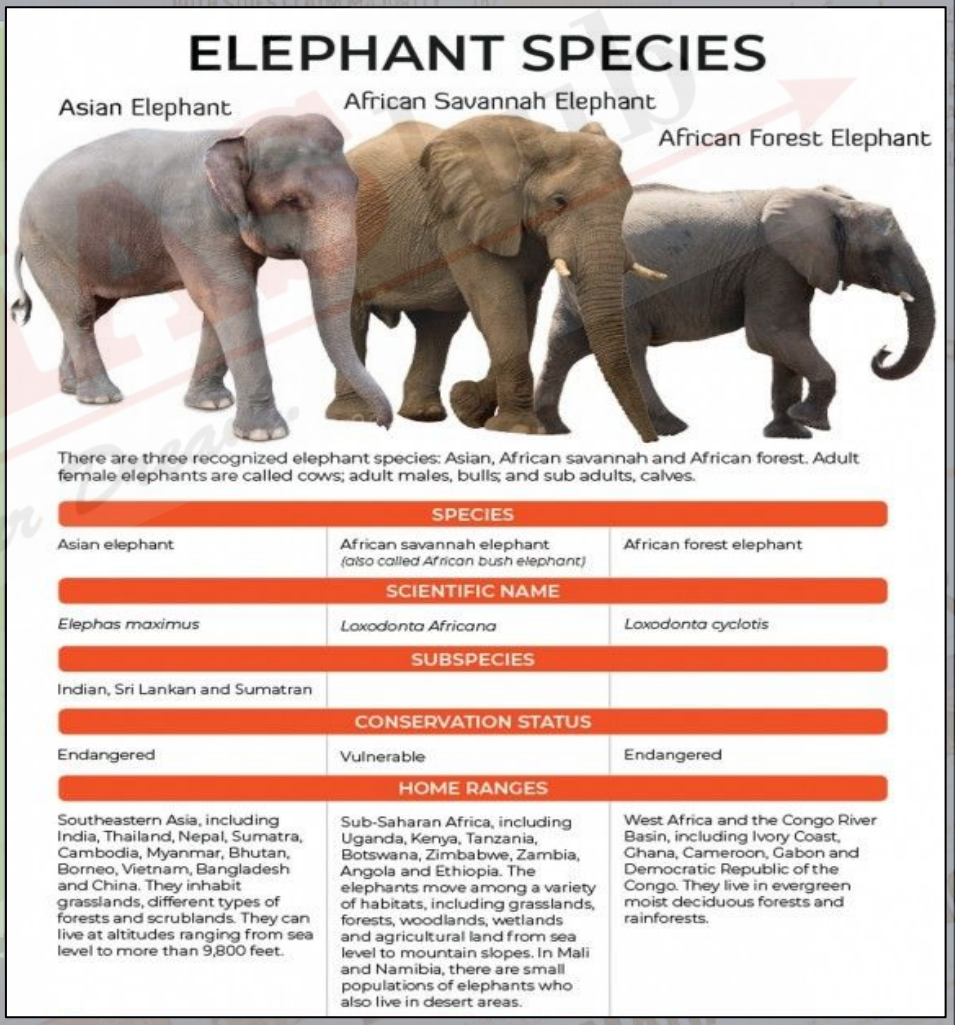
(Syllabus: GS Paper 3 -Env & Eco)

PRESIDENT OF INDIA INAUGURATES GAJ UTSAV-2023

Context: The President of India inaugurated the **Gaj Utsav-2023** at the **Kaziranga National Park.**

Gaj Utsav-2023

- **About**: The Indian Government celebrated the 30th anniversary of **Project Elephant with the Gaj Utsav 2023.**
  - This two-day event aims to promote elephant conservation, protect their habitat and corridors, and prevent **human-elephant conflicts.**
- **Inauguration and Venue**: The Gaj Utsav 2023 is inaugurated by President on April 9 at Kaziranga National Park in Assam.
  - This event is significant as **Kaziranga is a UNESCO World Heritage site** and home to the highest density of tigers in the world.
- **Project Elephant:** Project Elephant is a **centrally-sponsored scheme** launched in 1991-92 to protect elephants and their habitats in India.
  - With an estimated population of 30,000-40,000 elephants, India accounts for more than 60 per cent of the global wild elephant population.
  - Elephants are considered a **national heritage animal** protected under **Schedule I of the Wild Life Protection Act, 1972.**



BUSINESS STANDARD

Page 1

LIGHT COMBAT AIRCRAFT TEJAS

(Syllabus: GS Paper 3 - Sci & Tech)

HAL launches third assembly line of Tejas jets

AJAI SHUKLA
New Delhi, 7 April

Defence Secretary Giridhar Aramane on Friday inaugurated a third production line for the Tejas light combat aircraft (LCA) in Bengaluru.

Hindustan Aeronautics (HAL) currently operates two LCA assembly lines in Bengaluru, which allow it to churn out 16 Tejas fighters per year. "The new line will enable the company to enhance Tejas Mark 1 A production capacity from 16 to 24 aircraft per year," said C B Ananthakrishnan, HAL's chairman and managing director.

With the Indian Air Force (IAF) having placed orders on HAL for 40 Tejas Mark 1 and 83 Tejas Mark 1A fighters, it is essential to build these quickly so that the Tejas assembly lines are free for making six squadrons of Tejas Mark 2 aircraft.Senior HAL and Aeronautical Development Agency officials agree that the Tejas Mark 2 is unlikely to enter production until 2027-28.

GOING STRONGER

- New production line will help HAL churn out 24 aircraft a year
- IAF places orders for 40 Tejas Mark 1 and 83 Tejas Mark 1A fighters
- Tejas Mark 2 unlikely to enter production until 2027–28
- HAL wants IAF's order of 83 Tejas Mark IA to keep the current production lines occupied till 2028
- 100th Sukhoi–30MKI fighter that underwent repair handed over to IAF

Developing the Tejas Mark 2 will involve replacing the Tejas Mark 1A's current General Electric F-404 engine with the more powerful GE F-414 and upgrading avionics and weaponry. Prototype development is expected to take till 2025 and another two-to-three years would go in flight-testing the Tejas Mark 2 and preparing production drawings.

HAL wants the IAF's order of 83 Tejas Mark I-A to keep the current production lines occupied till 2028. The Mark 1A would be faster and more agile than the current Mark I. Developing it would involve shaving off 800 kg of weight from the current fighter, especially from systems like the landing gear, which are currently "over-engineered", or built heavy, for safety. HAL also proposes to remove 300 kg of dead weight distributed across the Mark I to balance the fighter evenly.

Context: Defence Secretary inaugurated a third production line for the **Tejas light combat aircraft (LCA)** in Bengaluru.

- **Hindustan Aeronautics (HAL)** currently operates two LCA assembly lines in Bengaluru, which allow it to churn out 16 Tejas fighters per year.
- The new line will enable the company to enhance **Tejas Mark 1 A** production capacity from 16 to 24 aircraft per year.
- With the **Indian Air Force (IAF)** having placed orders on HAL for 40 Tejas Mark 1 and 83 Tejas Mark 1A fighters, it is essential to build these quickly so that the Tejas assembly lines are free for making six squadrons of Tejas Mark 2 aircraft.

Light Combat Aircraft Tejas

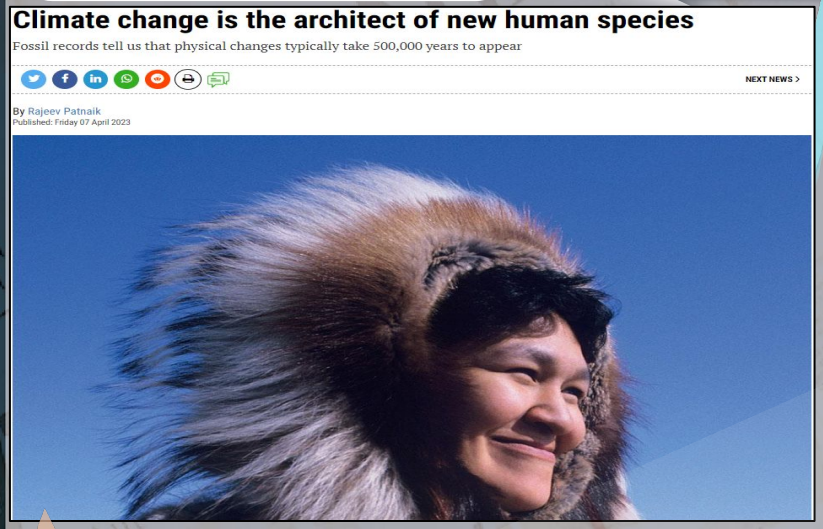
- **About**: It is an **indigenous supersonic aircraft** used by the Indian military.
  - The idea behind the LCA programme was to expand and **develop India's indigenous aerospace capabilities.**
  - Since the 1970s, the **MiG 21** planes were the mainstay of the Indian Air Force. The primary goal of the LCA programme was to replace the ageing MiGs.
  - The secondary goal was the **advancement of indigenous domestic aviation capabilities.**
- **Origin**: The Light Combat Aircraft (LCA) programme was started by the Government of India in 1984 when they established the **Aeronautical Development Agency (ADA)** to manage the LCA programme.
  - It replaced the ageing **Mig 21 fighter planes.**
  - It was in 2003 that the **Light Combat Aircraft programme** was named 'Tejas' (meaning radiance in Sanskrit) by the then **PM Atal Bihari Vajpayee.**
- **Designed and developed by**: HAL (Hindustan Aeronautics Limited).
  - It is the **second supersonic fighter jet** that was developed by HAL (the first one being HAL HF-24 Marut).
  - HAL plans to deliver 123 Tejas aircraft to the Indian Air Force by 2024-25.
- **Key Features**: LCA Tejas is a **single-engine** multirole light combat aircraft.
  - It is the **lightest and smallest** multi-role supersonic fighter aircraft in its class.
  - It is designed to carry a range of **air-to-air, air-to-surface**, precision-guided, and standoff weaponry.
  - Tejas has a single-engine, compound **Delta wing, and has a tailless design.**

DTE

APRIL 8

HUMAN EVOLUTION

(Syllabus: GS Paper 1 - Geography)



Climate change is the architect of new human species

Fossil records tell us that physical changes typically take 500,000 years to appear

NEXT NEWS >

By Rajeev Patnaik
Published: Friday 07 April 2023

Context: Six million years ago, **human ancestors** separated from a branch comprising of chimpanzees and gorillas. This new branch became known as hominin, which includes humans and the extinct humans and our immediate ancestors that could walk upright.

- This change corresponded to **climatic changes.**

Stages in Human Evolution

- **Dryopithecus**: These are deemed to be the ancestors of both man and apes. They lived in **China, Africa, Europe and India.** The genus **Dryopithecus** refers to the oak wood apes.
  - When Dryopithecus was alive, the **tropical lowlands** which it inhabited were densely forested, so the members could have predominantly been herbivores.
- **Ramapithecus**: Their first remains were discovered from the **Shivalik range in Punjab** and later in Africa and Saudi Arabia. They lived in open grasslands. Two pieces of evidence confirm their Hominid status:
  - Thickened tooth enamel, robust jaws and shorter canines.
  - Usage of hands for food and defence and extrapolations of upright posture.
- **Australopithecus**: The fossil of this genus was **first discovered in 1924 in South Africa.** They lived on the ground, used stones as weapons and walked erect. They were 4 feet tall and weighed 60-80 pounds.
- **Homo Erectus**: The first fossil of Homo Erectus was **found in Java in 1891**. These were named as Pithecanthropus Erectus. These were considered as the missing link between the man and apes.
  - Another discovery made in China was the **Peking man**. This specimen had large cranial capacities and is believed to have lived in communities.
  - Homo erectus used tools comprising quartz. Tools made of bones and wood were also discovered. There is evidence of collective huntings. There is also evidence of the use of fire. The **Homo Erectus** is believed to dwell in caves.
- **Homo Sapiens Neanderthalensis**: The **Homo Erectus evolved into Homo Sapiens**. During evolution, two subspecies of Homo Sapiens were identified- Homo sapien Neanderthal and Homo sapie**ns sapiens.**
  - **The** cranial capacity of Neanderthal grew from 1200 to 1600 cc. Some small hand axes had also been discovered. This species of hominids could hunt big names such as mammoths.
- **Homo Sapiens Sapiens**: The remains of Homo Sapiens were first discovered in Europe and were named **Cro-Magnon.**
  - In these, the jaws are quite reduced, the modern man's chin appeared, and the skull was rounded. Their **cranial capacity was about 1350 cc**. They gathered food through hunting. Art first appeared during this time.
- **Homo luzonensis:** In 2019, Scientists have identified a new human ancestor species previously unknown. It has been named as **Homo luzonensis.**
  - Homo luzonensis is **classified as a separate species** on the basis of 13 bones and teeth from two adults and one child found in a cave on the island of Luzon in the Philippines.
  - It is **not a direct ancestor of modern day humans,** but rather a distant ancient relative.

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