DAILY CURRENT AFFAIRS 22-02-2024

GS-1

1. **International Mother Language Day**

GS-2

2. **Milan-24**

GS-3

3. **Foreign Direct Investment (FDI) in Space sector**
4. **Fair and Remunerative Price of sugarcane**
5. **Neuralink Brain chip**

International Mother Language Day

Syllabus: GS-1: Art, Culture and Language.

Context:

- *Recently, people across all over the world celebrated International Mother Language Day.*

About International Mother Language Day:

- *International Mother Language Day occurs annually on February 21st.*
- *Its purpose is to raise* **awareness about linguistic and cultural diversity** *and promote multilingualism.*
- *UNESCO announced it on November 17, 1999, and the United Nations General Assembly formally recognized it through resolution 56/262 in 2002.*
- *It's part of a broader effort to preserve and protect all languages worldwide, established by the UN General Assembly in resolution 61/266 on May 16, 2007, which also designated 2008 as the International Year of Languages.*
- *The initiative to celebrate International Mother Language Day* **originated from Bangladesh.**
- *In Bangladesh,* **February 21st commemorates the struggle** *for recognition of the Bengali language in 1952 when Bengalis in the then-Pakistani province of East Bengal (now Bangladesh) fought for linguistic rights.*
- *It is also observed by Bengalis in Indian states like* **West Bengal, Assam, Jharkhand**, *Tripura, and the union territory of* **Andaman and Nicobar Islands.**

Milan-24

Syllabus: GS-2: International Relations – multilateral defence exercises.

Context:

- *Indian Navy is* **offering submarine rescue capabilities** *to friendly nations during the* **Milan-24 naval exercise in Visakhapatnam**.

More about news:

- *The* **Deep Submergence Rescue Vehicle** *(DSRV) was showcased to delegates from 50 countries during the exercise.*
- **Submarine rescue operations** *are conducted when a submarine is missing or sunk, and the DSRV can locate and rescue trapped personnel or provide emergency supplies.*
- **India acquired two advanced DSRVs in 2018 and 2019**, *making it one of the 12 countries possessing this technology.*
- *The Navy is also awaiting the* **induction of two diving support vessels** *(DSVs) for submarine rescue operations, being built domestically.*
- *Several nations have expressed interest in utilizing India's submarine rescue capability, with agreements already in place with Singapore and expected with South Africa.*
- *The* **DSRV system can operate globally during distress situations**, *demonstrated by its assistance in the search for the Indonesian submarine KRI Nanggala in 2021.*
- *It can locate* **submarines up to 1,000 meters deep** *using advanced sonar technology.*
- **Live undersea matings and personnel transfers** *between submarines and DSRVs have been successfully conducted.*
- *The* **indigenously-built DSVs will not only support** *submarine rescue but also carry out patrolling, search and rescue, and helicopter operations at sea.*
- **The Milan-24 exercise in Visakhapatnam** *includes both a Harbour Phase and a Sea Phase, involving international maritime seminars, exhibitions, and joint maritime activities with friendly foreign navies.*

About MILAN:

- *The* **12th edition of MILAN** *is underway at Visakhapatnam under the Eastern Naval Command's auspices.*
- *Indian Navy's flagship event.*
- **Biennial multilateral naval exercise** *initiated by the Indian Navy in 1995.*
- *Theme:* **'Camaraderie, Cohesion, Collaboration'.**
- *Conducted in two phases:* **Harbour Phase and Sea Phase.**
- *Indian Navy showcased its Deep Submergence Rescue Vehicle (DSRV) to delegates from 50 countries.*
- *The DSRV's capabilities include locating disabled submarines, rescuing trapped personnel, and providing emergency supplies.*

Significance of Exercise:

- **Maritime Cooperation:** *MILAN showcases India's commitment to promoting maritime cooperation and security in the Indian Ocean region.*
- **Defence Diplomacy:** *Indian Navy extends its submarine rescue capabilities to friendly nations, enhancing India's defence diplomacy efforts.*
- **In Sync with Look East Policy:** *Aligned with India's Look East Policy, 'Act East Policy', and Security And Growth for All in the Region (SAGAR) initiative.*

Foreign Direct Investment (FDI) in Space sector

Syllabus: GS-3; Space Sector- Investment

Context

- *Satellite-related activities under the space sector can get Foreign Direct Investment between 49-100 per cent as the Union Cabinet approved an amendment in FDI policy for the space sector.*

Presently

- *Now, satellite manufacturing & operation, satellite data products and ground segment & user segment can get FDI up* **to 74 per cent under the automatic route**, *beyond which government route will be applicable. Sub-sector comprising launch Vehicles and associated systems or sub-systems, the Creation of Spaceports for launching and receiving Spacecraft can get FDI through automatic routes up to 49 per cent.*

Significance

- *The FDI policy reform will enhance* **Ease of Doing Business** *in the country, leading to greater FDI inflows and thereby contributing to the* **growth of investment, income and employment**
- *This increased private sector participation would help to generate employment, enable* **modern technology absorption** *and make the* **sector self-reliant.**
- *It is expected to integrate Indian companies into* **global value chains.**
- *With this, companies will be able to set up their manufacturing facilities within the country duly encouraging* **'Make In India (MII) 'and 'Atmanirbhar Bharat'** *initiatives of the Government.*

Know more

What Is a Foreign Direct Investment (FDI)?

- *Foreign direct investments (FDIs) are substantial,* **lasting investments made by a company or government into a foreign concern.**
- *FDI investors typically take controlling positions in domestic firms or joint ventures and are actively involved in their management.*
- *The investment may involve acquiring a source of materials, expanding a company's footprint, or developing a multinational presence.*

Benefits of Foreign Direct Investment

- *Market diversification*
- *Tax incentives*
- *Lower labor costs*
- *Preferential tariffs*
- *Subsidies*

The following are some of the benefits for the host country:

- *Economic stimulation*
- *Development of human capital*
- *Increase in employment*
- *Access to management expertise, skills, and technology*
- *For businesses, most of these benefits are based on cost-cutting and lowering risk. For host countries, the benefits are mainly economic.*

Disadvantages of Foreign Direct Investment

- *Displacement of local businesses*
- *Profit repatriation*

Fair and Remunerative Price of sugarcane

Syllabus: GS-3: Indian Economy - Agriculture Price Policy.

Context:

- *The* **Cabinet Committee on Economic Affairs** *approved ₹340/quintal as the Fair and Remunerative Price (FRP) of sugarcane for the sugar season 2024-25.*

More details about Cabinet Committee on Economic Affairs:

- *This is an* **8% increase from the FRP of sugarcane** *for the current season 2023-24.*
- *The new FRP will be* **effective from October 1, 2024.**
- *Union* **Information and Broadcasting Minister** *highlighted the government's focus on farmers' issues and stated that sugarcane farmers in India receive the highest price for their produce compared to other countries.*
- *The increased FRP aims to ensure the* **prosperity of sugarcane farmers.**
- *The decision is* **expected to benefit five crore sugarcane farmers** *and others involved in the sugar sector.*
- **The FRP is set at ₹315.10/quintal** *for sugarcane with a recovery rate of 9.5%.*
- *Additional price adjustments will be made based on recovery rates.*

About FRP:

- *FRP stands for* **Fair and Remunerative Price.**
- **FRP is the price set by the government***, which mills must legally pay to farmers for the cane they procure.*
- *Mills can choose to pay the FRP to farmers in installments* **by entering into agreements with them.**
- *Late payments can result in an* **interest penalty of up to 15% per annum***, and unpaid FRP can be recovered by attaching the mills' properties through revenue recovery, as authorized by the sugar commissioner.*
- *The payment of FRP nationwide is regulated by the* **Sugarcane Control Order of 1966, issued under the Essential Commodities Act (ECA) of 1955***, which mandates payment within 14 days of cane delivery.*
- *The FRP is determined based on* **recommendations from the Commission for Agricultural Costs and Prices (CACP)** *and* **announced by the Cabinet Committee on Economic Affairs (CCEA).**
- *CACP operates as an advisory body under the* **Ministry of Agriculture and Farmers Welfare***; its recommendations are not binding on the government.*
- *The CCEA, chaired by the* **Prime Minister of India***, is* **responsible for approving the FRP.**
- *The FRP framework is established* **on the basis of the Rangarajan Committee report** *aimed at restructuring the sugarcane industry.*
- *FRP is determined* **based on the recovery of sugar** *from the cane.*
- **For the sugar season of 2021-22,** *the FRP has been set at Rs 2,900/tonne with a base recovery of 10%.*
- *Sugar recovery is calculated* **as the ratio of sugar produced to cane crushed***, expressed as a percentage.*

- **A higher recovery rate corresponds to a higher FRP** *and increased sugar production.*

Factors considered for announcing FRP:

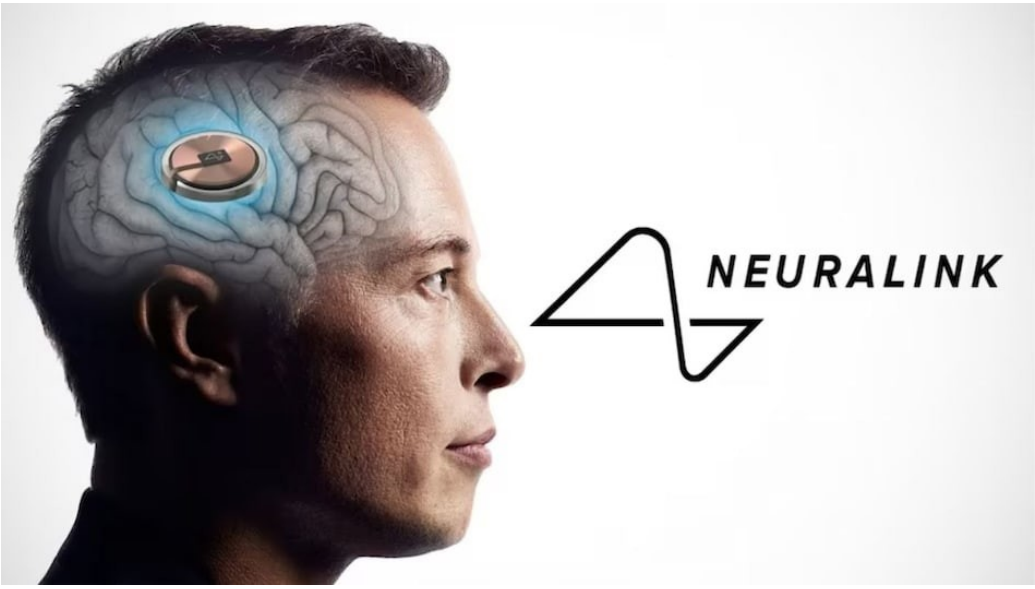
- *Cost of production of sugarcane*
- *Return to the growers from alternative crops and the general trend of prices of agricultural commodities*
- *Availability of sugar to consumers at a fair price*
- *Price at which sugar produced from sugarcane is sold by sugar producers*
- *Recovery of sugar from sugarcane*
- *Realization made from the sale of by-products such as molasses, bagasse, and press mud, or their imputed value*
- *Reasonable margins for sugarcane growers, accounting for risks and profits*

Neuralink Brain chip

Syllabus: GS-3: Science and Technology – medical devices.

Context:

- *Neuralink, the company through which entrepreneur Elon Musk hopes to revolutionize brain–computer interfaces (BCIs), has implanted a 'brain-reading' device into a person for the first time.*



What is the Brain-Computer Interface?

- *A* **Brain-Computer Interface** *(BCI) is a technology facilitating* **direct communication between the brain and external devices,** *such as computers or prosthetics, without relying on conventional neuromuscular pathways like nerves and muscles.*
- *BCIs commonly* **incorporate sensors to detect brain activity**, *subsequently translating it into commands or actions.*
- *This allows individuals to control devices or engage with the external world using their thoughts.*

Potential Applications of Brain-Computer Interface:

Medical Treatments:

- **Neurological Disorders:** *Facilitating the monitoring and treatment of conditions like epilepsy, Parkinson's disease, and neurodegenerative disorders through direct brain interfacing.*
- **Stroke Rehabilitation:** *Supporting motor function recovery and aiding rehabilitation post-stroke.*

Assistive Technology:

- *Providing assistance to individuals with paralysis or motor impairments, enabling control over devices like prosthetics, wheelchairs, or robotic limbs via thought commands.*
- *Restoring communication abilities for individuals with conditions such as locked-in syndrome, where voluntary muscle control is limited to eye movements.*

Mental Health Monitoring:

- *Offering real-time data for monitoring and managing mental health conditions such as depression or anxiety.*

Virtual and Augmented Reality Interaction:

- *Enhancing experiences in virtual and augmented reality environments by allowing users to interact using their thoughts.*

Ethical Considerations Related to Brain-Computer Interface (BCI):

Privacy Concerns:

- *BCIs have the potential to decode thoughts and emotions, raising concerns about cognitive privacy.*
- *Unauthorized access to this information could lead to risks such as identity theft or other malicious uses due to hacking or unauthorized data access.*

Neurosecurity:

- *There's a risk of BCIs being manipulated for unauthorized control or manipulation of an individual's thoughts or actions.*

Equity and Accessibility:

- *Critics argue that BCIs may worsen existing social inequalities if only specific socioeconomic groups can afford the technology due to its high cost, leading to a potential "cognitive divide."*

Medical and Therapeutic Applications:

- *Distinguishing between therapeutic uses of BCIs and threats to normal cognitive function can be subjective, raising questions about appropriate boundaries and regulations.*

FDA Concerns over Clinical Human Trials of Neuralink:

- **Neuralink obtained FDA approval** *for its inaugural human clinical trial in May 2023; however, the FDA articulated several concerns necessitating resolution before human trials could proceed:*

Safe Surgery:

- *Utilization of a precision robot called Implant/r1 for the surgical implantation of the* **Neuralink BCI.**
- *It is imperative for this robot to execute the implantation and removal of the Neuralink BCI with reliability and safety, without causing damage to surrounding brain tissue.*

Harmful Side Effects:

- *The implanted Neuralink BCI must* **not inadvertently impact other brain functions.**
- *It should avoid causing adverse side effects such as* **seizures, headaches, mood alterations, or cognitive impairment.**

Safe Power Supply:

- *Mitigating the risk of overheating lithium-ion batteries, which could pose significant hazards to BCI users.*

Wire Migration:

- *The Neuralink Link comprises a disk-shaped chip with ultra-thin wire electrodes connecting to neurons in the brain.*
- *There exists a potential risk of wire migration over time due to natural movement, inflammation, or the formation of scar tissue.*

Implant Removal:

- *Ensuring the safety and addressing the challenges associated with the removal of implants post-implantation.*

Data Privacy and Security:

- *Implementing robust safeguards to protect collected data against hacking, manipulation, or any form of misuse.*

Way Forward:

Towards Neuroethics and Neuroprivacy:

- *Establish ethical frameworks to delineate therapeutic and assistive applications of BCI, addressing privacy, security, and consent concerns.*

Transparency and Informed Consent:

- *Promote transparent communication regarding the capabilities, limitations, and risks of BCIs to ensure users make informed decisions.*

Equitable Access:

- *Implement initiatives to narrow the digital and cognitive gaps, ensuring BCIs are accessible to individuals from various backgrounds, particularly those with physical and mental disabilities.*

Education and Awareness:

- *Provide comprehensive education and training for researchers, healthcare practitioners, and the public to uphold ethical standards in BCI development and implementation.*

Class III Medical Device

- *The Food and Drug Administration (FDA) categorizes medical devices into different classifications, each indicating the level of regulatory control necessary to ensure their safety and effectiveness. These classifications are Class I, Class II, and Class III.*
- *Class I devices are subject to general controls.*
- *Class II devices are subject to general controls and additional special controls.*
- *Class III devices are subject to general controls and require premarket approval.*
- *Class III devices pose the highest level of risk, such as pacemakers and breast implants. These devices typically either sustain or support life, are intended for implantation, or present a potential unreasonable risk of illness or injury.*
- *For Class III devices, manufacturers must submit a premarket approval application (PMA) to the FDA to demonstrate the safety and effectiveness of the device before it can be marketed and sold.*