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## Current Affairs - 15 September 2024

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### NEUROMORPHIC COMPUTING TECHNOLOGY

Scientists at the IISc, Bengaluru, are reporting a momentous breakthrough in neuromorphic, or brain-inspired, computing technology that could potentially allow India to play in the global AI race.



**Neuromorphic Computing Technology** is also known as **neuromorphic engineering**, is an approach to computing that **mimics the way the human brain works**.

- It entails designing hardware and software that simulate the neural and synaptic structures and functions of the brain to process information.

#### **How does it Work?**

- It is modeled in neuromorphic computing systems **through Spiking Neural Networks (SNNs)**.
- A Spiking Neural Network is a type of artificial neural network composed of **spiking neurons and synapses**.
- These spiking neurons store and process data similar to biological neurons, with each neuron having its own charge, delay and threshold values.
- Synapses create pathways between neurons and also have delay and weight values associated with them.

#### **Benefits**

- **Adaptability:** Neuromorphic devices are designed for real-time learning, continuously adapting to evolving stimuli in the form of inputs and parameters.
- **Parallel processing:** As SNN's asynchronous nature, individual neurons can perform different operations concurrently. So neuromorphic devices can **execute as many tasks** as there are neurons at a given time.

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### WHAT IS SIDDHA MEDICINE?



Siddha Medicine is a traditional system of healing that originated in South India and is considered to be one of India's oldest systems of medicine.

- Literary evidences of the Sangam Era state the origin of this system to **around 10,000 BC**.
- The Siddha system was **built on the work of Siddhars**, who were mostly from Tamil Nadu.
- Siddhars were spiritual masters who had the **eight special abilities called siddhis**. Some of the 18 Siddhars were **Nandi, Agasthyar, Agappai, Pumbatti, etc**.
- The Siddha medical system is thought to have been **started by Agasthyar**, who is also **known as Agasthya**.
- Siddhars in rural India have traditionally learned their craft from elders in their communities.
- The Siddha system is based on a **combination of ancient medicinal practices and spiritual disciplines**, as well as **alchemy and mysticism**.
- The Siddha medicinal system not only focuses on treating the disease, but it also takes into account the patient's behaviour, environmental aspects, age, habits, and physical condition.
- It is based on **principles of panchamahabhootam (five basic elements), 96 thathuvass (principles), mukkuttram (3 humours), and 6 arusuvai (6 tastes)**.
  - **Soil, fire, water, sky and air are the five elements that Siddha practitioners believe can be found in everything from food to the "humour" of the human body to herbal, animal, and inorganic chemical substance sulphur and mercury.**
  - These **have therapeutic potential** and can be employed in the treatment of many illnesses.



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### BIO-DECOMPOSER

**Bio-decomposer** is a **microbial liquid spray** which, when sprayed onto paddy stubble, breaks it down in a way that can be easily absorbed into the soil, whereby farmers then have no need to burn the stubble.

- It has been developed by the **Indian Agricultural Research Institute (IARI)**.
- The government has been spraying the bio-decomposer solution free of cost since 2020 over farmlands in outer Delhi.
- It has been used by the States of **Punjab, Haryana, Uttar Pradesh and NCT of Delhi**.

#### **Advantages:**

- By spraying bio-decomposer, farmers won't need to burn their paddy stubble, which will not only help in reducing pollution but also increase soil fertility.
  - Its use enriches the **soil with Organic Carbon (OC)**, nutrients and soil biological and physical properties.
  - It is an efficient and effective, cheaper, doable and practical technique to stop stubble burning. It is an eco-friendly and environmentally useful technology.
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### SARDAR SAROVAR DAM



**Sardar Sarovar Dam** is a **concrete gravity dam** built on the **Narmada River** at Kevadia in Gujarat's Narmada district.

- The dam was named after Sardar Vallabhbhai Patel.
- It is the **third highest concrete dam** (163 meters) **in India**, the first two being Bhakra (226 metres) in Himachal Pradesh and Lakhwar (192 meters) in Uttar Pradesh.
- In terms of the volume of concrete involved in gravity dams, this dam will be ranked as the second largest in the world after the Grand Coule Dam in the USA.



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- It is a **part of the Narmada Valley Project**, a large hydraulic engineering project involving the construction of a **series of large irrigation and hydroelectric multi-purpose dams on the Narmada River**.
  - The river catchment area above the dam site is 88,000 sq. km. and has a spillway discharging capacity of 87,000 cubic meters a second.
  - It has the longest canal network in the world and includes the Narmada Main Canal, around 2,500 km of branch canals, 5,500 km of distributaries, and other associated channels.
    - The 458.3km long, 1,133 cumecs capacity **Narmada Main Canal in Gujarat** is the **largest irrigation-lined canal in the world**.
  - Power benefits are shared among Madhya Pradesh, Maharashtra, and Gujarat in the ratio of 57:27:16, respectively.
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### WHAT IS CENTRAL POLLUTION CONTROL BOARD (CPCB)?



The National Green Tribunal has directed the Central Pollution Control Board to file a fresh status report on the generation and treatment of electronic waste by all the states.

**Central Pollution Control Board (CPCB)** is a **statutory body** constituted in September, 1974, under the **Water (Prevention and Control of Pollution) Act, 1974**.

- Further, CPCB was entrusted with the powers and functions under the **Air (Prevention and Control of Pollution) Act, 1981**.
- It serves as a field formation and also provides technical services to the **Ministry of Environment, Forest and Climate Change** of the provisions of the **Environment (Protection) Act, 1986**.
- Principal Functions of the CPCB, as spelt out in the **Water (Prevention and Control of Pollution) Act, 1974**, and the **Air (Prevention and Control of Pollution) Act, 1981**:

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- to promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution.
- to improve the quality of air and to prevent, control, or abate air pollution in the country
- It advises the **Central Government** on matters related to **control and abatement of air and water pollution.**
- **Standard development activities of CPCB:**
  - CPCB takes up the development/revision of **Environmental Standards**, the upgradation of Comprehensive Industrial Document (COINDS) and guidelines for environmental management in various industrial sectors.
  - In consultation with the state government concerned, CPCB laid down the standard for **stream or well or quality of air** and also prepared manuals, codes, and guidance relating to the treatment and disposal of sewage and trade effluents, as well as for stacks gas cleaning devices, stacks and ducts.

### CPCB develops Standards for:

- **National ambient air quality**
  - **Water Quality Criteria from different sources**
  - **Standards for Emission or Discharge of Environmental Pollutants** from various Industries (Issued under Environment Protection Rules, 1986)
  - Standards for Treatment and Disposal of Bio-Medical Waste by Incineration
  - Emission standard, Noise limits for Diesel Engines
  - Emission and Noise Limit of LPG and CNG Generator Sets
  - CPCB also formulates the **Minimal National Standards (MINAS)** specific for various categories of industries with regards to their **effluent discharge (water pollutants), emissions (air pollutants), noise levels, and solid waste.**
    - These standards are required to be adopted by State Governments as minimal standards.
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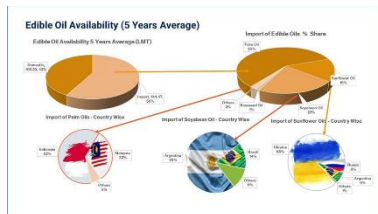


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### EDIBLE OIL SCENARIO IN INDIA

- What are edible oils?
  - Edible oils are mainly vegetable oils that are subjected to several refining processes (such as neutralisation, bleaching and de-odorisation) to remove undesirable constituents.
  - Regarding consumption as a food product, vegetable oils are considered the healthier alternative as they contain more unsaturated fatty acids than animal fats.
- Overall scenario of edible oil availability in India:

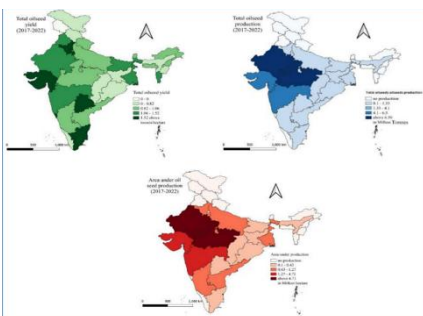


October).

- India contributes about 5-6% of the world oilseeds production, accounting for the estimated production of 41.35 million tons (MT) of nine cultivated oilseeds during the year 2022-23 (November-October).
- Export of oil meals, oilseeds and minor oils was about 3.46 MT in the financial year 2022-23 valued at Rs 14,609 crores.

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### Report on 'Pathways and Strategies for Accelerating Growth in Edible Oils Towards Atmanirbharta':



- About the report: It was released by the NITI Aayog to comprehensively explore the current state of the country's edible oil sector and its future potential.

- Highlights of the report:

- The report highlights that over the past decades, per capita consumption of edible oil in the country has seen a dramatic rise, reaching 19.7 kg/year.

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- This surge in demand has significantly **outpaced domestic production**, leading to a **heavy reliance on imports** to meet both domestic and industrial needs.
  - In 2022-23, **India imported 16.5 MT** of edible oils, with domestic production fulfilling only 40-45% of the country's requirements.
  - This situation presents a **substantial challenge** to the country's goal of achieving **self-sufficiency** in edible oils.
  - **Roadmap to address existing challenges:**
    - The report focuses on bridging the demand-supply gap and developing new approaches to attain self-sufficiency.
    - Under a Business-As-Usual (BAU) scenario, the **national supply** of edible oil is projected to increase to **16 MT by 2030 and 26.7 MT by 2047**.
  - **Strategic interventions to achieve self-sufficiency in this sector:**
    - **Crop retention and diversification.**
    - **Horizontal expansion:** This strategy seeks to bring more land under cultivation for specific oilseeds.
    - **Vertical expansion:** It focuses on enhancing the yield of existing oilseed cultivation. This can be achieved through improved farming practices, better-quality seeds, and advanced production technologies.
    - Developing a **dynamic trade policy** for balanced growth.
    - Broadening the scope of the **National Mission on Edible Oils**, etc.
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### ISSUES FACED BY EPFO PENSIONERS

- EPF Pension which is technically known as Employees' Pension Scheme (EPS), is a **social security scheme** provided by the Employees' Provident Fund Organisation (EPFO).
- The scheme was first launched in **1995**.
- The scheme **makes provisions for employees working in the organized sector for a pension after their retirement at the age of 58 years**.

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- **EPS (Amendment) Scheme, 2014:**

- Through the EPS Amendment which became effective from 1 September 2014, the conditions of membership of the EPS Scheme underwent a change.
- Through the amendment, the **EPS scheme was now applicable to such employees who on or after 16 November 1995 became a member of the EPF Scheme and whose monthly salary on the date of joining was less than or equal to ₹15,000.**
- In the original scheme, introduced in 1995, this salary limit was **₹6,500.**
- Further, the employees were required to contribute at the rate of 1.16% of the salary exceeding ₹15,000 as an additional contribution to the contributions payable by them under the EPF Scheme.
- The **maximum pensionable salary was set at ₹15,000 per month.**

### Background:

- EPFO pensioners have been facing various challenges. This is despite the Union Labour Ministry's recent approval for the **Centralised Pension Payment System (CPPS)**, expected to be implemented by January 2025.

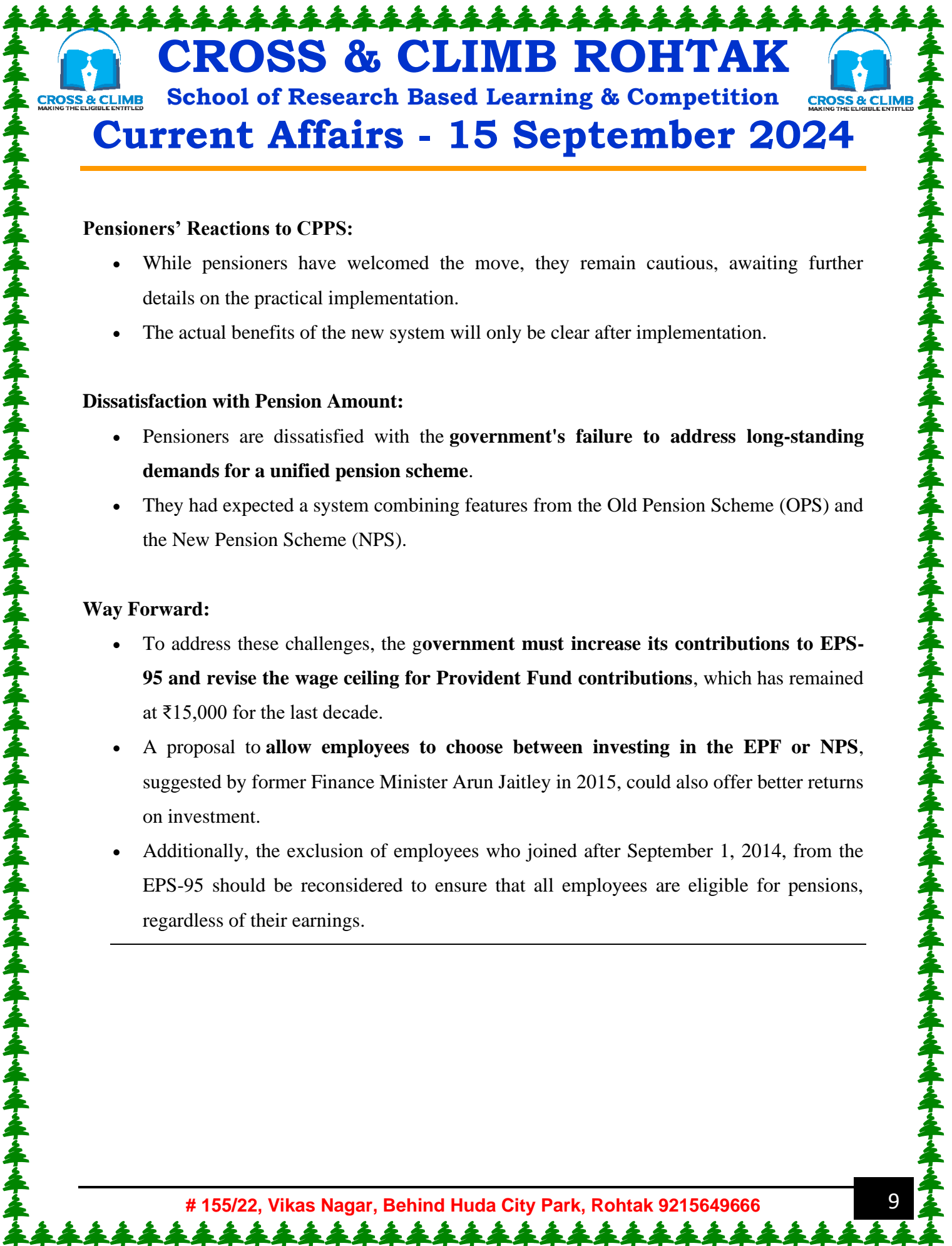
### Current Pension Payment System:

- Currently, EPFO pensioners are required to transfer their Pension Payment Orders (PPO) when they relocate, leading to delays in pension disbursement.
- The pension can only be drawn through a limited number of empaneled banks in specific regions. This process has been inconvenient for many pensioners.

### Introduction of Centralised Pension Payment System (CPPS):

- The CPPS aims to simplify the pension process by **allowing pensioners to receive their pensions through any bank, in any branch, across the country starting from January 2025.**





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### Pensioners' Reactions to CPPS:

- While pensioners have welcomed the move, they remain cautious, awaiting further details on the practical implementation.
- The actual benefits of the new system will only be clear after implementation.

### Dissatisfaction with Pension Amount:

- Pensioners are dissatisfied with the **government's failure to address long-standing demands for a unified pension scheme.**
- They had expected a system combining features from the Old Pension Scheme (OPS) and the New Pension Scheme (NPS).

### Way Forward:

- To address these challenges, the **government must increase its contributions to EPS-95 and revise the wage ceiling for Provident Fund contributions**, which has remained at ₹15,000 for the last decade.
  - A proposal to **allow employees to choose between investing in the EPF or NPS**, suggested by former Finance Minister Arun Jaitley in 2015, could also offer better returns on investment.
  - Additionally, the exclusion of employees who joined after September 1, 2014, from the EPS-95 should be reconsidered to ensure that all employees are eligible for pensions, regardless of their earnings.
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