

12th June, 2024**1. BRICS Expansion****GS 2 (International Relations)**

- **Why in News:** India participated in the recent **Brics Foreign Ministers' Meeting in Nizhny Novgorod, Russia**, marking the first meeting since the **expansion of Brics in 2023**. The expansion saw **Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE** joining **Brazil, Russia, India, China, and South Africa** as full-fledged members. Russia assumed the chairmanship of Brics on January 1, 2024
- **BRICS and its Expansion:**
 - **Origins and Objectives:** The term BRIC was coined in 2001, but formalized as a bloc in 2009 by **Brazil, Russia, India, and China**, later joined by **South Africa** in 2010.
 - Initially an **economic forum**, BRICS aims to create a **fairer international order and reform the multilateral system**.
 - **Expansion Dynamics:** After 13 years, BRICS expanded in 2023, admitting **Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE**.
- **Impact of Expansion:**
 - The BRICS group now comprises almost:
 - ◆ 46 per cent of the world's population (with China and India alone accounting for 86 per cent of BRICS)
 - ◆ 36 per cent of global GDP (of which China alone accounts for 65 per cent of BRICS)
 - ◆ 25 per cent of world trade, measured in terms of exports.
 - This enlargement added USD 2.6 trillion to the group's GDP, reaching USD 28.5 trillion collectively and covering **1% of global output**.
 - The expansion enhanced **BRICS' economic and geostrategic reach**, doubling its **oil production capacity** and accounting for **25% of global exports**.
 - It also strengthened control over rare earth minerals and projected significant GDP growth for new members by 2050.
- **Impact and Challenges of BRICS Expansion:**
 - **Economic Influence:** Despite BRICS' economic significance, G7 countries still dominate global GDP, accounting for 43.2%. However, forecasts suggest a shift in economic power towards BRICS, especially with the significant growth projected for new members like Egypt and Ethiopia.
 - **Geopolitical Significance:** BRICS seeks to challenge the **Western-centric global order** by establishing institutions like the New Development Bank. While it aims to reduce dependence on Western-led institutions, challenges remain in implementing a common BRICS currency and dethroning the US dollar.
 - **Challenges and Limitations:** BRICS faces challenges such as **overreliance on China's economy, limiting leverage and equality within the group**. Bilateral power dynamics between China and India pose complexities, with China's larger economy overshadowing India's influence within BRICS.
- **India's Interests in BRICS:**
 - **Policy Framework:** India's approach to BRICS reflects its policy of "**multi-alignment**", akin to its historical stance of "**non-alignment**" during the **East-West conflict**. This allows India to engage with multiple geopolitical centers rather than aligning strictly with one.
 - **Counterweight to Russia and China:** Within BRICS, India seeks to **balance the influence of dominant powers like Russia and China**. It aims to represent a **counterweight to these nations**, particularly in the context of **global South politics**, where India competes with China for influence among developing countries.
 - **Bridge Builder to the West:** India's role in BRICS also involves acting as a bridge builder to the West. As a member of the **Quadrilateral Security Dialogue (Quad)**, India collaborates closely with the **USA, Japan, and Australia** to counter China's growing influence in the Indo-Pacific region.
 - **Challenges and Considerations:**
 - ◆ **Diverging Interests:** The diverse interests within BRICS, including conflicting agendas between commodity producers and importers like India and China, pose challenges to pursuing collective interests with joint capacities.

India welcomes Egypt, Iran, UAE, Saudi Arabia and Ethiopia joining BRICSPress Trust of India
MOSCOW

India on Monday welcomed Egypt, Iran, UAE, Saudi Arabia and Ethiopia joining the BRICS as their representatives attended for the first time a key meeting of the grouping hosted by Russia.

Senior diplomat Dumnu Ravi led the Indian delegation at the BRICS Foreign Ministers' Meeting in Nizhny Novgorod, in western Russia.

"A significant meeting in the format of expanded BRICS family. India wholeheartedly welcomes the



United front: India's BRICS Sherpa Gannu Ravi, left and Foreign Ministers of member countries at the meeting in Russia, returns

new membership," the spokesperson of the Ministry of External Affairs Randhir Jaiswal said.

The meeting on Monday

joined Brazil, Russia, India, China, and South Africa as full-fledged BRICS members.

Ravi, Secretary (Economic Relations) in MEA, led the Indian delegation at the BRICS Foreign Ministers' Meeting in Nizhny Novgorod, it said.

The ministers reiterated their commitment to multilateralism and upholding the international law. They voiced their support for a comprehensive reform of the UN, including its Security Council, with a view to making it more democratic, representative, effective and efficient.

- ◆ **Conflict-Ridden Structure:** BRICS expansion further complicates the group's dynamics, intensifying **conflicts of interest among member states**. India supported the accession of new members, particularly the United Arab Emirates and Saudi Arabia, but balancing these diverse interests remains a challenge.

2. UGC Policy shift for Higher Education GS 2 (Governance)

- **Why in News:** The University Grants Commission (UGC) has made a big change in policy: **now, colleges can admit students twice a year, starting next year**. This move brings Indian universities in line with global norms, which could lead to better connections with other countries and more student exchanges. To achieve the goals of **Vision 2047**, India needs to start with strong short-term plans right away.

● **Current State of India's Higher Education System:**

- **Student Population:** India has 25% of the world's students.
- **Institution Numbers:** With over 58,000 higher education institutions, India has the world's second-largest higher education system. In 2021-22 alone, nearly 2,400 new institutions were added.
- **Enrollment:** There's been a 4.5% increase in student enrollment compared to the previous year, totaling 4.33 crores.
- **Gender Enrollment:** The Gross Enrollment Ratio (GER) for females has been higher than males since 2018-19, thanks to various government schemes empowering women. The National Education Policy (NEP) 2020 aims to raise the GER to 50% by 2035, a 40% increase from current levels.
- **Teacher Ratio:** The pupil-teacher ratio (PTR) in universities and colleges remains at 24:1.
- **National Education Policy (NEP) 2020:** The government launched NEP 2020 to address various educational challenges. However, its implementation faces hurdles due to existing complexities and institutional hesitancy.

● **Issues in Education System and Remedial Measures:**

- **Limited Funds and Redistribution:**
 - ◆ **Issue:** Lack of adequate resources like manpower, infrastructure, and funds hampers educational quality and accessibility.
 - ◆ **Remedy:** Government needs to allocate sufficient resources at both provincial and national levels to address educational needs. Redistribution of resources to ensure equitable access to education is vital.
- **Autonomy for Education Institutions:**
 - ◆ **Issue:** Excessive administrative control restricts the autonomy of educational institutions, hindering innovation and quality.
 - ◆ **Remedy:** High-performing institutions should be granted autonomy in operations, including syllabus revision and reforms. Collaboration between state and central governments is crucial for implementing measures to reduce control over top-ranked institutions.
- **Expensive Higher Education:**
 - ◆ **Issue:** Privatization and profit-driven models have led to high costs of professional and technical education, limiting accessibility.
 - ◆ **Remedy:** Government can establish entities offering education loans at lower interest rates or with longer repayment tenures. Private institutions should offer more scholarships to economically and socially weaker sections to enhance affordability.
- **Obsolete Curriculum:**
 - ◆ **Issue:** Current curriculum focuses on general education, failing to prepare students adequately for real-life challenges.
 - ◆ **Remedy:** Align curriculum with international standards, introduce multidisciplinary institutions with flexible credit systems, and allow students to choose courses freely.
- **Archaic Academic Structure:**
 - ◆ **Issue:** Assessment methods and evaluation criteria are outdated and not in line with international standards.
 - ◆ **Remedy:** Embrace continuous evaluation and formative assessment models, prioritize practical and vocational courses, and streamline education areas for better assessment.

UGC gives nod to universities to admit students twice a year, DU says good idea

ABHINAV HARRISON
NEW DELHI, JUNE 11

THE UNIVERSITY Grants Commission (UGC) has allowed higher education institutions to admit students twice a year.

While earlier regulations allowed students to be admitted only during July-August, the UGC's recent decision means that students can now be admitted in January/February and in July/August from the upcoming academic session.

The UGC decision lowers its to the institutions to decide if they want to offer admissions in both the cycles or just one, and this will depend on their infrastructure and faculty.

The UGC has said that biannual admissions are not mandatory, but the decision now provides "flexibility" to institutions that might want to "increase their student intake and offer new programmes in emerging areas".

UGC Chairman M Jagadeesh Kumar told The Indian Express, "Every university offers admissions in July/August. In addition to this, if they wish to offer programmes in January, they are welcome to."

"The situation can be unique to a particular institution; the challenges can vary from institution to institution. The UGC provides the broader regulatory framework enabling the institutions to work out the details themselves and implement it if they think they can," he said.

On whether universities may now be able to offer admissions to different sets of courses in the two admission cycles, he said, "It is a choice for them... depending on the infrastructure that is available. For a science programme, if they find that for the students admitted in the July session lab facilities are used in the daytime, they may want to use lab facilities in the evening for the session that began in January, so that there is better utilisation of resources available in universities."

The UGC first attempted this biannual admission process with open and distance learning (ODL), and online mode programmes.

On why the UGC decided to allow biannual admissions, Kumar said that during the trials in ODL and online, the UGC found that nearly half a million students who would have otherwise waited for one year to join these programmes have got the opportunity to join in January itself.

There is a possibility that even in the physical mode, students who have missed admissions for various reasons in July/August, will have the opportunity to join in January instead.

waiting for one full year. It is also a global practice. It also has the potential to increase the GER (Gross Enrollment Ratio) also," he said.

If universities now intend to begin a second session in January, they will have to get the decision approved in their academic and executive councils, and amendments will have to be made in their institutional regulations. This biannual admission system can apply to PhD, post-graduate and undergraduate programmes.

In the case of programmes to which admissions are based on entrance exams, the UGC Chairman said, "For PhD admissions, currently all universities admit in July. We are conducting UGC-NET twice a year. So, universities cannot begin to admit twice a year in PhD programmes. For postgraduate programmes, CUET-PC is not mandatory. It is only an option and many universities admit based on their own entrance exam or marks in undergraduate programmes. Now they can offer biannual admissions in masters programmes."

Similarly in undergraduate programmes, except for Central universities, CUET (UG) is not mandatory for other universities, he said.

"They use a combination of admission criteria including CUET (UG) scores, their own entrance exam, board exam marks, if any university wants to start UG programmes in a second session, they are free to do it," he said.

On whether entrance exams may now have to be held twice a year, Kumar said, "Entrance exams are now technology driven. Ideally, if they are conducted twice a year, it will be beneficial to students. One by one, we are trying to implement that. Over a period of time, I hope we will have more entrance exams conducted by the NTA twice in a year."

Delhi University Vice-Chancellor Yogesh Singh said, "It is a good idea, a very common idea in the western world where many universities are doing this. We are also very open... in PhD, we are already doing it. We are admitting students twice a year."

On whether the new admission system is likely to take place from the upcoming session onwards, he said, "No... admissions have already started, so can't do it right now."

Asked about courses for which admissions are based on entrance exams, he said, "We will have to conduct entrance exams twice a year."

- **Inferior Primary Education Infrastructure:**
 - ◆ **Issue:** Inadequate infrastructure leads to high dropout rates, wasting potential human resources and causing financial strain.
 - ◆ **Remedy:** Focus on skill development and vocational education at the middle school level, preparing students for the job market. Early vocation-based courses can instill the importance of education in families and alleviate financial burdens.
- **Government Initiatives for Higher Education in India:**
 - **National Education Policy (NEP) 2020:** Launched in 2020, NEP aims to revamp the education system, focusing on holistic development, flexibility, and multidisciplinary learning.
 - **Swayam:** An online platform offering free courses from school to postgraduate level, launched to promote digital learning and increase access to quality education.
 - **SWAYAM PRABHA:** A group of 32 DTH channels transmitting high-quality educational content, aimed at reaching remote areas and disadvantaged groups.
 - **Education Quality Upgradation and Inclusion Program (EQUIP):** Aims to enhance access, inclusion, quality, excellence, and employability in higher education.
 - **Technical Education Quality Improvement Programme (TEQIP):** Aims to improve the quality of technical education through long-term projects implemented in phases.
 - **Institute of Eminence (IoE) Scheme:** Empowers higher educational institutions to become world-class teaching and research institutions.
 - **Rashtriya Uchchatar Shiksha Abhiyan (RUSA):** A Centrally Sponsored Scheme aimed at providing strategic funding to eligible state higher educational institutions.
 - **Prime Minister's Research Fellows (PMRF) Scheme:** Designed to improve research quality in higher educational institutions by attracting top talent into research.
 - **Scheme for Promotion of Academic and Research Collaboration (SPARC):** Facilitates academic and research collaborations between Indian institutions and top institutions worldwide.
 - **e-PG Pathshala:** Provides high-quality, interactive e-content across various subjects under the National Mission on Education through ICT (NME-ICT).
 - **Surveys and Rankings:**
 - ◆ National Institutional Ranking Framework (NIRF)
 - ◆ All India Survey on Higher Education (AISHE)
 - **Vocational Education:**
 - ◆ National Apprenticeship Training Scheme (NATS)
 - ◆ Scheme for Higher Education Youth in Apprenticeship and Skills (SHREYAS)

3. Donanemab, new Alzheimer's drug

GS 3 (Science and Tech)

- **Why in News:** The **US Food and Drug Administration (FDA)** has unanimously voted in favor of administering **Donanemab**, a new Alzheimer's drug.
- **What is Donanemab?**
 - Donanemab is a **monoclonal antibody**, much like its predecessor **Lecanemab**, designed to target **amyloid beta protein** plaques in the brain, a characteristic feature of Alzheimer's disease that can be observed through imaging techniques.
 - Other amyloid-fighting drugs, such as **Leqembi** and **Biogen**, were approved by the FDA last year.
 - Donanemab can significantly slow down cognitive decline in early Alzheimer's patients by 35.1% over a span of 76 weeks.
 - It is currently the **only one of its class available to Alzheimer's patients**, outside clinical trials.
- **Side Effects and Risks**
 - Studies indicate that it may result in slightly higher adverse events compared to Lecanemab.
 - Apart from infusion-related reactions, the main concern lies in amyloid-related imaging abnormalities (ARIA), including brain swelling and bleeding.
 - The study revealed that 24% of participants experienced ARIA involving brain swelling, and 19.7% had ARIA involving brain bleeds. However, it's worth noting that most of these cases were asymptomatic.

Scientists back new Alzheimer's drug: its benefits vs the risks

ANJANA DUTT
NEW DELHI, INDIA

Donanemab, a new therapy for Alzheimer's disease developed by drug maker Eisai, has received unanimous support from independent scientists advising the United States Food and Drug Administration (FDA), bringing it a step closer to clinical trials.

The potential risks of donanemab, appropriately managed as instructed in labeling, are outweighed by the demonstrated benefits on the clinical endpoints in those with AD (Alzheimer's disease), the FDA advisory committee said in a briefing document.

With its predecessors with a similar mechanism of action having been approved by the regulator, the coming of the advisory committee's March decision is a major step for many, including the company.

How do the benefits of the drug stack up against the risks?

The drug is meant only for the early stages of Alzheimer's - those who have mild cognitive impairment or mild dementia. The drug does significant slowing of cognitive decline of the disease - meaning a person on the drug can stay functional for a longer time.

Most FDA events - single or related to drug administration such as brain bleeds and seizures - were seen in the new series, and resolved or stabilized after discontinuation of therapy, according to the FDA document weighing the risks and benefits.

"The risks can be managed and the benefits are clear," said the advisory committee.

The main adverse effect is swelling or bleeding in the brain, most of which is asymptomatic. The study showed that 24% of participants given donanemab had brain swelling and 19.7% had brain bleeds. These treatment-related deaths were reported.

What is donanemab, how does it work?

Like the two other Alzheimer's drugs approved over the past three years, donanemab is a monoclonal antibody that targets deposits of amyloid beta protein in the brain, one of the defining features of Alzheimer's disease.

The phase 3 study shows that donanemab slows down cognitive decline in early Alzheimer's patients by 35.1% at 76 weeks. The result was based on a study with 1,734 patients, of whom 80% were on the drug every four weeks till the amyloid beta plaque cleared.

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Why is this breakthrough important?

In WHO's Global Action Plan, the World Health Organization of Public Health, Caregivers, and families have the department of neurology at AIIMS, Delhi said. "The world is getting older and the burden of disease such as Alzheimer's is on the rise. Most countries around the world need drugs such as this, to help slowing cognitive decline in those with early Alzheimer's."

Approximately 5 million people are currently living with dementia in India. Alzheimer's is one of the most common forms of dementia. This prevalence is likely to increase to 10 million by 2050.

Dr. Shrivastava, however, said that these "monoclonal" expensive drugs need to be evaluated against the benefits that they bring. "While the treatment can give a few more good years to spend, should they still have to go to the treatment? These things have to be decided," she said.

She agreed, however, that "it is a much-needed innovation and could pave the way for something better."

Why was the approval delayed?

Earlier this year, the FDA had recommended that the drug be used in a limited setting, including only patients who showed a certain level of clearing of amyloid beta plaques. This limited setting was based on the safety of the limited setting protocol.

During the review, the drug was approved in patients who showed a certain level of clearing of amyloid beta plaques. This limited setting was based on the safety of the limited setting protocol.

The second drug, lecanemab, also developed by Biogen, was given with caution to patients with cognitive decline. This decision was based on the safety of the limited setting protocol.

The additional scrutiny of the drug also came after a Biogen-sponsored conference advised the approved process for the first drug, lecanemab, developed by Biogen and American companies that had drugs and had to be "to be with lecanemab".

The conference found an unusually close collaboration with the regulator, and that approval was given even after the clinical trial was cancelled by the company after an independent report indicated that the drug was unlikely to effectively slow cognitive decline and functional impairment, and also as an expert panel's recommendation against it.

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- **Alzheimer's Disease**

- Alzheimer's disease is a progressive neurological disorder characterized by the degeneration and eventual death of brain cells. This degeneration leads to a range of symptoms, including:
- **Symptoms:**
 - ◆ Memory loss
 - ◆ Difficulty with language (speaking or writing)
 - ◆ Impaired judgment
 - ◆ Changes in mood and personality
 - ◆ Confusion regarding time or place
 - ◆ Progression and Severity
- The disease is believed to be caused by the **abnormal accumulation of proteins** in and around brain cells. Two key proteins involved in Alzheimer's pathology are:
 - ◆ **Amyloid:** Abnormal deposits of amyloid protein form plaques around brain cells.
 - ◆ **Tau:** Tangled formations of tau protein disrupt neuronal communication in the brain.
 - ◆ **Dementia in India report 2020** estimates that there are 5.3 million people over the age of 60 years living with dementia in India, with the prevalence projected to increase to 14 million by 2050.

4. CRISPR/Cas9

GS 3 (Science and Tech)

- **Why in News:** Researchers recently used CRISPR/Cas9 to alter photosynthesis for the first time.
- **About CRISPR/Cas9:**
 - CRISPR, short for **Clustered Regularly Interspaced Short Palindromic Repeats**, is a **gene-editing technology** that can be used to alter the genetic sequence of a specific gene by removing, adding, or altering sections of the DNA sequence.
 - It makes it possible to **correct errors in the genome** and turn on or off genes in cells and organisms quickly, cheaply, and with relative ease.
 - **How was it developed?**
 - ◆ Some bacteria have a similar, built-in gene editing system to the CRISPR-Cas9 system that they use to respond to invading pathogens like viruses, much like an immune system.
 - ◆ Using CRISPR, the **bacteria snip out parts of the virus DNA** and keep a bit of it behind to help them recognise and defend against the virus next time it attacks.
 - ◆ **Researchers adapted this immune defense system** to edit DNA.
 - The **CRISPR-Cas9** system consists of **two key molecules** that introduce a change (mutation) into the DNA. These are:
 - ◆ An **enzyme called Cas9**, acts as a pair of '**molecular scissors**' that can cut the two strands of DNA, at a specific location in the genome so that bits of DNA can then be added or removed.
 - ◆ **A piece of RNA called guide RNA (gRNA)**, consists of a small piece of pre-designed RNA sequence (about 20 bases long) located within a longer RNA scaffold. The scaffold part binds to DNA and the pre-designed sequence 'guides' Cas9 to the right part of the genome. This makes sure that the Cas9 enzyme cuts at the right point in the genome.
 - ◆ The guide RNA is designed to find and **bind to a specific sequence in the DNA**.
 - ◆ **Cas9 follows the guide RNA** to the same location in the DNA sequence and makes a cut across both strands of the DNA.
 - ◆ Once the DNA is cut, researchers use the cell's own DNA repair machinery to add or delete pieces of genetic material, or to **make changes to the DNA** by replacing an existing segment with a customized DNA sequence.
 - CRISPR-Cas9 has a lot of potential as a **tool for treating a range of medical conditions that have a genetic component**, including cancer, hepatitis B, or even high cholesterol.

5. Atomic Clock

GS 3 (Science and Tech)

- **Why in News:** Researchers have built a portable optical atomic clock that can be used onboard ships.
- **About Atomic Clock:**
 - An atomic clock is a device that **measures time using the vibrations of atoms**.
 - ◆ Specifically, it **uses the oscillations of the electrons in atoms** to keep time.
 - It is the **most accurate time-keeping device** available, with a margin of error of just a few billionths of a second per day.
 - Atomic clocks are far more **precise than conventional clocks** because atomic oscillations have a much higher frequency and are much more stable.
 - They are used in many applications that require very precise timing, such as **GPS systems, telecommunications networks and scientific research**.
 - **How does an atomic clock work?**
 - ◆ Atomic clocks **work by using** a type of atom called a "**cesium atom**".
 - ◆ Cesium atoms are **very stable** and have a very specific frequency at which their electrons vibrate.
 - ◆ This frequency is used as the basis for the atomic clock's timekeeping.
 - ◆ To measure time using cesium atoms, an atomic clock uses a device called a "**microwave cavity**".
 - ◆ The microwave cavity is a chamber that is filled with cesium vapor.
 - ◆ A **microwave signal** is then sent into the cavity, which causes the cesium atoms to vibrate.
 - ◆ As the cesium atoms vibrate, they **emit radiation at a very specific frequency**.
 - ◆ This frequency is then **detected by a detector**, which compares it to a standard frequency.
 - ◆ The difference between the two frequencies is used to adjust the clock's timekeeping.
 - **Types of atomic clocks:** There are two types of atomic clocks: cesium atomic clocks and hydrogen maser atomic clocks.
 - ◆ **Cesium atomic clocks** are the most common and are used to define the international standard for time, called Coordinated Universal Time (UTC).
 - ◆ **Hydrogen maser atomic clocks** are even more accurate than cesium atomic clocks and are used in scientific research.

6. IISc develop method to cleanse groundwater contamination

GS 3 (Science and Tech)

- **Why in News:** In a breakthrough effort to tackle the pressing issue of arsenic contamination in groundwater, researchers at the **Indian Institute of Science (IISc)** have devised a pioneering three-step process. This method not only effectively removes heavy metal pollutants like arsenic but also ensures their safe disposal, preventing them from re-entering the environment.
- **Key-highlights**
 - Scientists have developed a patent-pending technique aimed at addressing the critical aspect of **sustainable waste management in water purification**.
 - The three-step method effectively eliminates heavy metal contaminants like arsenic from groundwater, ensuring the production of safe drinking water.
 - The innovative process not only **eliminates arsenic** efficiently but also ensures environmentally friendly disposal of the removed pollutants.
 - **The Problem: Arsenic and fluoride contamination** in groundwater is a significant concern across India, with numerous districts exceeding permissible limits set by regulatory bodies like the **Bureau of Indian Standards and the World Health Organization**.
 - ◆ These contaminants pose severe health risks to both humans and animals.
 - ◆ Traditional methods of water purification often neglect the crucial step of disposing of removed contaminants safely, leading to potential recontamination.

IISc develops method to remove heavy metal contaminants from groundwater

The Hindu Bureau
BENGALURU

Indian Institute of Science (IISc) researchers have developed a novel remediation process for removing heavy metal contaminants such as arsenic from groundwater.

According to IISc, the three-step method, which is patent-pending, also ensures that the removed heavy metals are disposed of in an environment-friendly and sustainable manner, instead of sending untreated heavy metal-rich sludge to landfills from where they can potentially re-enter groundwater.

"In every technology that exists, you can take



Polluting groundwater: Heavy metal contaminants can significantly affect human and animal health. IAS/PTO/2020

out arsenic and provide clean water. However, after you remove the arsenic, you must do something about it so that it doesn't re-enter the environment, and that aspect is not given due consideration in the existing methods. Our pro-

cess was designed to solve this problem," said Vignesh Roy, assistant professor at the Centre for Sustainable Technologies, whose lab has developed the method.

IISc said that according to reports, 83 districts in 21

States in India have arsenic levels above 0.01 mg per litre while 223 districts in 23 States have fluoride levels above 1.5 mg per litre, which are beyond the permissible limits set by the Bureau of Indian Standards (BIS) and the World Health Organisation.

These contaminants can significantly affect human and animal health, necessitating their efficient removal and safe disposal.

The researchers have been working with the IN-REM Foundation and Earthwatch, both NGOs, to deploy and test these systems in rural areas such as Bhagalpur in Bihar and Chickballapur in Karnataka.

● Factors contributing to contamination:

- **Naturally Occurring Contaminants:** Fluoride, arsenic, nitrate, iron, and heavy metals naturally exist in certain geological formations, affecting water quality.
- **Industrial Activities:** Untreated or poorly treated industrial effluents discharged into water bodies contaminate surface and groundwater sources.
- **Agricultural Activities:** Excessive use of pesticides, fertilizers, and agrochemicals in agriculture leads to water contamination over time.
- **Sanitation Practices:** Inadequate sanitation facilities and open defecation, especially in rural areas, contribute to water source contamination.
- **Geogenic Processes:** Geogenic processes, such as those causing uranium contamination, can occur naturally, exacerbated by groundwater overexploitation.
- **Improper Waste Disposal:** Improper disposal of biowaste contaminates groundwater and surface water, increasing the risk of waterborne diseases.

● Impact of Groundwater Contamination

- **Public Health Risks:** Consumption of contaminated groundwater can lead to various health issues, including gastrointestinal disorders, neurological problems, skeletal deformities, and even cancer.
- **Common Contaminants and Health Impacts:**
 - ◆ **Arsenic:** Chronic exposure can lead to black foot disease and poses significant health risks.
 - ◆ **Fluoride:** High fluoride intake causes neuromuscular disorders, dental deformities, and skeletal fluorosis.
 - ◆ **Nitrates:** Excessive nitrate levels in water can result in methemoglobinemia and blue baby syndrome.
 - ◆ **Uranium:** Elevated uranium levels in drinking water can cause kidney toxicity.
 - ◆ **Radon:** Presence of radioactive radon in groundwater poses risks of lung cancer.
- **Economic Burden:** Treating water-related illnesses imposes significant healthcare costs on individuals and communities. Productivity losses due to sickness also impact economic development.
- **Environmental Degradation:** Contaminated groundwater affects ecosystems, harming aquatic life and disrupting biodiversity. It can also degrade soil quality and impair agricultural productivity.
- **Social Inequities:** Communities reliant on contaminated groundwater often face socio-economic challenges, including limited access to safe drinking water, reduced educational opportunities, and compromised livelihoods.
- **Long-Term Consequences:** Groundwater contamination can persist for decades or even centuries, posing ongoing risks to human health and the environment. Remediation efforts may require substantial time, resources, and technological interventions.

7. India's Looming Financial Crisis

GS 3 (Economy)

- **Why in News:** The rapid credit growth in India has raised concerns about a potential financial crisis. The situation is exacerbated by an unregulated financial sector, unsustainable household debt, and a dangerous narrative of economic prosperity fueled by credit expansion.

● A Lofty and Dangerous Narrative:

- **Unhinged Hype:** India is experiencing a credit boom driven by policymakers promoting the narrative of financial innovation and inclusion through digital infrastructure. This hype has led to a poorly regulated financial sector and increased consumer debt.
- **Applauding Credit Surge:** Both international and domestic analysts have praised India's financial sector growth, citing robust bank lending and low non-performing assets. For instance, the IMF and NCAER highlighted a 20% increase in bank lending in recent reviews.
- **Debt-Fueled Prosperity:** The surge in lending, particularly for personal loans, masks deeper issues such as job deficits and human capital deficiencies. When lending slows, the financial sector's apparent health is at risk, potentially leading to an economic crunch.

● Household Debt and Economic Risks:

India's looming financial crisis

Arun Jaitley says the credit boom is a sign of economic growth, but it is also a sign of a potential financial crisis. He says that the rapid credit growth in India has raised concerns about a potential financial crisis. The situation is exacerbated by an unregulated financial sector, unsustainable household debt, and a dangerous narrative of economic prosperity fueled by credit expansion.

A lofty and dangerous narrative India is in the midst of a credit boom, driven by policymakers winking to an unhinged hype about the country's performance and prospects. This time is different, they think. India's digital infrastructure is the catalyst for financial innovation and inclusion, promising growth and equity. Inside this hype narrative has been a poorly regulated financial sector and consumer living beyond their means to generate a lending surge. Both international and domestic analysts are applauding this surge. In December 2023, the Board of Directors of the International Monetary Fund (IMF) praised the performance of the Indian financial sector, citing robust growth in bank lending and low levels of non-performing assets. Similarly, the March 2024 review of National Council of Applied Economic Research (NCAER) reported a 20% increase in bank lending over the previous year, interpreting the particularly large increase as "personal credit lending in the industry may be regarded as signalling bright prospects."

This credit boom is not just a sign of economic growth, but it is also a sign of a potential financial crisis. The rapid credit growth in India has raised concerns about a potential financial crisis. The situation is exacerbated by an unregulated financial sector, unsustainable household debt, and a dangerous narrative of economic prosperity fueled by credit expansion.

Debt-fueled prosperity The surge in lending, particularly for personal loans, masks deeper issues such as job deficits and human capital deficiencies. When lending slows, the financial sector's apparent health is at risk, potentially leading to an economic crunch.

Household debt and economic risks The rapid credit growth in India has raised concerns about a potential financial crisis. The situation is exacerbated by an unregulated financial sector, unsustainable household debt, and a dangerous narrative of economic prosperity fueled by credit expansion.

- **Household Debt Boom:** The expansion of household lending, growing at 25-30% annually, is considered a "bad" boom. It drives up domestic prices without enhancing productive capacity, making the economy less competitive.
- **Unsecured Loans:** A significant portion of household loans, about a quarter, is unsecured, with credit card debt being a major component. The number of credit cards in India rose from 20 million in 2011 to nearly 100 million in 2024, often extended to low-creditworthy individuals.
- **Debt-Service Burden:** Despite household debt being 40% of GDP, the debt-service-to-income ratio is 12%, one of the highest globally. This situation mirrors the pre-crisis conditions in the US and Spain before the 2008 financial crisis.
- **Challenges of Regulation and Preventive Measures:**
 - **Chaotic Financial Services Industry:** The financial sector in India is characterized by a large number of providers, including banks, NBFCs, and fintech companies, many with dubious practices. The pressure to generate profits has led to increased lending to households rather than productive sectors.
 - **Scams and Misuse:** Since economic liberalization in 1991, financial scams have proliferated. Post-COVID-19, fintechs and NBFCs have targeted households with high-interest loans, leading to a cycle of debt and addiction to credit.
 - **Preventive Measures:** To avert the crisis, the financial services industry needs to be downsized to align with productive borrowing needs. Policy changes should include weakening the rupee to boost exports and mitigate the downturn.

8. Nominate sufficient number of IPS officers for deputation

GS 2 (Governance)

- **Why in news:**
 - The Union Ministry of Home Affairs (MHA) has sent a letter to 24 States, stating that not enough Indian Police Service (IPS) officers have been nominated by the State governments for central deputation. This has caused many vacancies in the Central Armed Police Forces (CAPFs).
 - The letter was sent to all States, except Himachal Pradesh, Nagaland, Tripura, Sikkim, and the eight Union Territories.
- **Shortage of IPS officers**
 - In 2009, there were over 1,600 vacancies against a sanctioned strength of over 4,000 IPS officers.
 - ◆ Since then, government has increased the size of IPS batches
 - ◆ As on January 1, 2020, there were 908 vacancies against a sanctioned strength of 4,982.
 - The situation has arisen due to the government's decision to reduce the size of new IPS batches as part of its cost-cutting measures.
 - ◆ From 80-90 new officers, the IPS batches were cut to 35-40 officers.
 - ◆ On the other hand, an average of about 85 IPS officers retire every year.
 - As on June 3, 2024, there were 129 vacancies at Superintendent of Police (SP) level, 81 vacancies for Deputy Inspector General (DIG), and 25 vacancies at the Inspector General (IG) level.
- **Deputation of All India Service (AIS) Officers**
 - **Existing rule**
 - ◆ The process of Central deputation is guided by the **rule 6 (deputation of cadre officers) of the Indian Administrative Service (Cadre) Rules 1954.**
 - ◆ Normally, the Centre asks every year for an "offer list" of officers of the All-India Services willing to go on central deputation.
 - Once the Centre gets the list, it selects officers from that list.
 - ◆ Officers can go for Central deputation only after getting a no-objection clearance from the State government.
 - ◆ States have to depute the All-India Services (AIS) officers, to the Central government offices and at any point, it cannot be more than 40% of the total cadre strength.

Nominate sufficient number of IPS officers for deputation, says Centre

Vijaita Singh
NEW DELHI

The Union Home Ministry has shot off a letter to 24 States that sufficient number of Indian Police Service (IPS) officers have not been nominated by the State governments for Central deputation, leading to many vacant posts in the Central Armed Police Forces (CAPFs).

The letter was sent to all States, except Himachal Pradesh, Nagaland, Tripura, Sikkim, and the eight Union Territories.

"It is to reiterate that your State/Cadre has not sent/recommended sufficient nominations of IPS officers for deputation for filling up the vacancies at different levels especially from Superintendent of Police to Inspector General in Central Police Organisations (CPOs) and CAPFs. Accordingly, requesting you to forward sufficient nominations of IPS officers especially at the level of SP to IG at the earliest to enable this Ministry to fill up the vacant posts earmarked for IPS officers at Centre," the letter on June 7 stated.

As on June 3, there were 129 vacant post of Superintendent of Police (SP), 81 of Deputy Inspector General (DIG), and 25 of Inspector General (IG) level, respectively.

The communication follows the letter of December 14, 2023 sent to all States to nominate an adequate number of IPS officers for Central deputation.

The 2023 letter by Additional Secretary R.K. Singh stated that 40% of senior duty posts in each cadre were earmarked as Central Deputation Reserve (CDR) posts. "The CDR of each IPS cadre determines the extent to which the number of officers could be sent on deputation to the Government of India. However, it has been the experience that the offer lists of some States do not contain sufficient number of officers so that posts reserved for IPS officers in CAPFs, CPOs are manned by them," the letter said.

The Ministry routinely asks the States to send IPS officers on Central deputation. In February 2022, it amended the IPS tenure policy, doing away with the mandatory requirement of empanelment of IPS officers at the Deputy Inspector-General (DIG) level. It said that "officers with minimum 14 years of experience will be eligible for appointment at the level of DIG by Centre".

- **Deputation of IPS officers**
 - ◆ Officers are assessed if they are suitable for central deputation by the **Central Police Establishment Board (CPEB)** headed by the Union Home Secretary.
 - ◆ The names of officers up to the Inspector General of Police level are then sent to the Appointments Committee of the Cabinet (ACC), headed by the Prime Minister, for approval.
- **Amendment to the IPS tenure policy in February 2022**
 - ◆ IPS officers are recruited by the Union Public Service Commission (UPSC) on behalf of the Centre, and their services are placed under various State cadres.
 - ◆ In February 2022, the MHA amended the IPS tenure policy, doing away with the **mandatory requirement of empanelment** of IPS officers at the Deputy Inspector General (DIG) level by CPEB.
 - ◆ It said that officers with minimum 14-years of experience will be eligible for appointment at the level of DIG by the Centre.
- **Proposed Changes**
 - **January 2022 Proposal**
 - ◆ In January 2022, Centre proposed to amend the Rule 6 of the Indian Administrative Service (Cadre) Rules 1954.
 - ◆ Under the proposed amendment, the Central Government will acquire for itself overriding powers to transfer IAS and IPS officers through Central deputation.
 - ◆ Under the proposed amendment the officer shall stand relieved from cadre from the date as may be specified by the Central government if:
 - the State government delays posting a State cadre officer to the Centre and
 - does not give effect to the Central government's decision within the specified time.
 - ◆ Also, the Centre will decide the actual number of officers to be deputed to the Central government in consultation with the State.
 - States should make eligible the names of such officers.
 - ◆ In case of any disagreement between the Centre and the State, the matter shall be decided by the Central government.
 - The State shall give effect to the decision of the Centre.
 - **April 2022 proposal**
 - ◆ In April 2022, MHA sent a proposal to the Prime Minister's Office (PMO) to address the shortage of officers at the SP and DIG levels at the Centre.
 - ◆ As per this proposal, an Indian Police Service (IPS) officer will have to come on Central deputation at the Superintendent of Police (SP) or Deputy Inspector General (DIG) level.
 - ◆ Otherwise, **he/she may be barred from Central posting for the rest of his/ her career.**
 - **Rationale behind April 2022 proposal**
 - ◆ The existing rules state that if an IPS officer does not spend three years on Central deputation till the Inspector General (IG) level, he/she will not be empanelled for central deputation.
 - ◆ Due to the existing rules, **most IPS officers come on central deputation only at the IG level**, leading to severe shortage at the SP and DIG levels.
 - ◆ There are over 50 per cent vacancies at both these levels in the different Central Armed Police Forces and Central Police Organisations.
 - ◆ Hence, this proposal is seen as an attempt to address the shortage of officers at the SP and DIG levels at the Centre.

9. Sri Lanka's Malaiyaha Tamils

GS 2 (International Relations)

- **Why in News:** In a recent development, an international tribunal composed of former judges from the region expressed shock at the harsh realities faced by **Malaiyaha Tamil community**, Sri Lanka's tea and rubber plantation workers.
- **Who are Malaiyaha Tamil community?**
 - The community originally brought from India to work in Sri Lanka's plantation sector over 200 years ago.
 - The Malaiyaha Tamils live in upcountry Sri Lanka.
 - The community is a distinct ethnic group, constituting the fourth largest population on the island nation — following the Sinhalese, the 'Sri Lankan' Tamils, and the Muslim community.
 - They're one of the poorest communities in the country — underpaid and overworked.

- **Economic Contribution:** Despite their significant contribution to Sri Lanka's tea industry, with tea exports fetching approximately \$1.3 billion annually, these workers receive meagre wages that barely meet their basic needs.
- **Discrimination faced by the Malaiyaha Tamil community**
 - **Ethnic discrimination:** They continue to face discrimination based on their ethnic origin.
 - **No land rights:** The community continues to be denied land rights, further exacerbating their socio-economic marginalization and perpetuating cycles of poverty.
 - **Labour Exploitation:** The workers, primarily women, are subjected to exploitative working conditions, including low wages tied to demanding daily targets of tea leaf plucking, regardless of weather conditions or safety concerns.
 - **Living Conditions:** These workers endure inhumane and degrading living conditions in colonial-era line room accommodations, where multiple individuals often share cramped spaces with poor sanitation facilities.
- There is urgent need for comprehensive measures to address the systemic discrimination and socio-economic injustices faced by the Malaiyaha Tamil community. This includes ensuring fair wages, improving living conditions, protecting land rights, and addressing exploitative labour practices across industries.

'Horried' by the plight of plantation workers in Sri Lanka, says tribunal

Meera Srinivasan
COLUMBO

An international tribunal of former judges from the region said it was "horried by the stark realities" of the lives of Sri Lanka's tea and rubber plantation workers, after hearing testimonies from workers and trade unions.

Hailing from the island nation's Malaiyaha Tamil community, tens of thousands of workers are engaged in tea and rubber production. They earn vital foreign exchange for the country that is struggling to rebuild its economy after the dramatic meltdown of 2022. Last year, Sri Lanka's revenue from tea exports totalled \$1.3 billion, while rubber-based exports fetched \$500 million, according to the Export Development Board.

However, the workers who toil in the country's plantations continue to work and live in abysmal conditions. "It has shocked the conscience of the Tribunal that such practices could continue unabated in the modern civilised world," members said in their findings, echoing concerns that trade unions, local activists, and UN experts have flagged in the past.

India's presence
Organised by Ceylon Workers' Union, a trade union based in the island's central Kandy district, the Tribunal heard eleven workers employed in tea and rubber plantations across central and southern Sri Lanka, as well as three trade union representatives last week.

Tuesday before the tribunal - with Justice A.P. Shah from India, Justice P.K. Patan Kumar Ojha from Nepal and Justice M. Ramesh Thakur from Sri Lanka as its members - the workers, mostly women, shared the multiple challenges they encounter at work, such as the demanding targets tied to their daily wage and the absence of sanitation facilities. Leech bites and wasp attacks are common, while medical care remains out of reach, more so amid soaring living costs following the country's crisis.

In his remarks at the conclusion of the hearing, Justice Shah noted: "They live practically a sub-human life, and certainly do not have a life of dignity".

On May 1, 2024, President Rani Wickremesinghe announced an increase in the daily wage of plantation workers from LKR 1,000 to LKR 1,200 (roughly \$460).

Plantation companies vehemently opposed the move and petitioned Sri Lanka's Court of Appeal, seeking an order invalidating the gesture on the wage hike. But the

court refused to stay the gazette notification. A recent study led by University of Peradeniya Economist Prof. S. Vipulanadan estimated that the total monthly household expenditure for a tea estate worker's family of five, as of April 2024, would be LKR 86,897.71 (roughly \$23,900) for "a decent life in the context of the cost of living and inflation effect as of September 2022". That would mean a worker must earn at least LKR 2,324.04 (around \$630.70) a day.

Recommendations
The Tribunal recommended that all measures be taken by stakeholders in chiding the State "to execute in letter and spirit, without delay, the minimum wage of its L700 fixed by the government".

Further, it urged the Sri Lankan government to prohibit "all unfair practices adopted by the plantation companies", such as reducing days of work, arbitrarily increasing daily targets and mismanaging labour to deprive workers of their right to receive the minimum, statutorily fixed wage.



Better lives: Plantation workers of Sri Lanka have for long demanded fair wages, better working and living conditions, etc.

MCQ Current Affairs
12th June, 2024

1. Crete Island, recently seen in the news. is the largest island of which of the following countries?

- a) Australia
- b) Indonesia
- c) Russia
- d) Greece

2. Consider the following statements regarding Atomic Clock:

A. It is a device that measures time using the vibrations of atoms.
B. It is the most accurate time-keeping device available and used in many applications that require very precise timing.
Which of the statements given above is/are correct?

- a) A only
- b) B only
- c) A and B
- d) Neither of two

3. Which organism's natural defense mechanism inspired the development of CRISPR/Cas9 gene-editing technology?

- a) Viruses
- b) Fungi
- c) Bacteria
- d) Plants

4. "Starship" is a spacecraft designed to be fully reusable for missions to various destinations in space, is built by:

- a) Blue Origin
- b) SpaceX
- c) Boeing
- d) NASA

5. World Migration Report and Migration Health Annual Report are published by:

- a) United Nations Development Programme (UNDP)
- b) International Labour Organization (ILO)
- c) World Health Organization (WHO)
- d) International Organization of Migration (IOM)

Answers Current Affairs
12th June, 2024

1. d
2. c
3. c
4. b
5. d

