Topics - MINDS MAPS included (Daily current affairs )-- 23rd October 2024

- Tenkana
- Cobenfy
- Galaxy Cluster Abell 3381
- Brown Dwarfs:
- UN Peacekeeping & UNSC REFORM
- Supreme Court Ruling on Section 6A of the Citizenship Act
- Google and Nuclear Energy:
- ETF (exchange-traded fund) & Extended Trade Facility
- Mains







Target Mains -2025/26 -

Q What challenge energy deficit will bring in digital infrastructure development ? ". Examine

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BY SAURABH PANDEY SIR

# FOR UPSC 2025/26

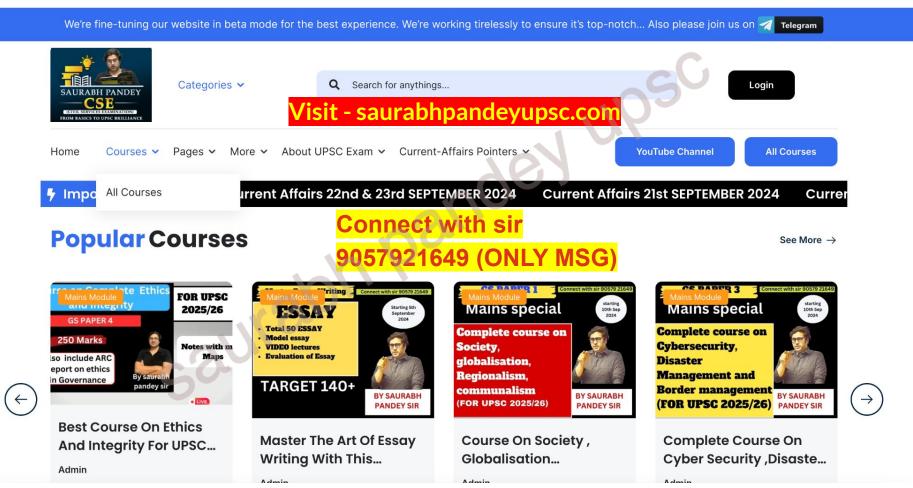
# **NEW BATCH**

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#### D) Ladhak

or ottaraminaria

Q2. Consider the following statements in context of the Gold Production. (The Hindu)

1) Gold is a precious metal with the atomic number 69 and the Latin name 'aurum', symbolized as Au on the periodic table 2) Around 10% of gold produced globally is utilized in various industries due to its desirable properties, including being corrosion-resistant and a good conductor of electricity 3) While South Africa is the largest producer of gold, China holds the second position. 4) Each Nobel Prize awarded from is a featured medal made of electrum, an alloy of gold and silver, plated

with 24-carat gold.

**Q3.** This is a wildlife sanctuary situated on the northern boundary of Madhya Pradesh and the adjoining Rajasthan state in India. It was notified in 1974. The Chambal River passes through the sanctuary dividing it into two parts. It is in the Khathiar-Gir dry deciduous forests ecoregion. Which of the following Wildlife Protected Area is described above. (DTE) A) Kuno National Park B) Gandhi Sagar Wildlife Sanctuary. C) Sailana Wildlife Sanctuary D) Madhav National Park

#### EXAMINATION)

**Q4. Consider the following statements. (DTE)** Statement I: Inclusive institutions were often introduced in countries that were poor when they were

# Three scientists discover new genus of jumping spiders *'Tenkana'* in South India



#### The Hindu Bureau CHENNAI

A team of arachnologists has discovered a new genus of jumping spiders, *'Tenkana'*, found across southern India, encompassing two previously known species. It also introduced a new species, *Tenkana jayamangali*, from Karnataka.

The name Tenkana comes from the Kannada word for south, reflecting that all the known species are from southern India and northern Sri Lanka. This new group belongs to the *Plexippina* subtribe of jumping spiders and is different from related groups such as *Hyllus* and *Telamonia*. The research team in-



The newly identified *Tenkana jayamangali* has been named after the Jayamangali river in Karnataka. SPECIAL ARRANGEMENT

cluded scientists from various institutions in India and Canada, and their findings were published in the journal *Zookeys*. They used both genetic studies and physical examinations to support their work.

Unlike related species that live in forests, Tenka-

na spiders prefer drier areas and ground habitats. They have been found in Tamil Nadu, Puducherry, Karnataka, Telangana and Andhra Pradesh.

Kiran Marathe and Wayne Maddison from the University of British Columbia, Canada, and John Caleb T.D. from Saveetha Institute in Chennai established this new genus. The genetic analysis was done with Krushnamegh Kunte from the National Centre for Biological Sciences in Bengaluru.

Two species that were previously in *Colopsus* – *Tenkana manu* (found in south India and Sri Lanka) and *Tenkana arkavathi* (from Karnataka) – have now been moved to the new genus. Interestingly, the former was named after a retired professor, Dr. Manu Thomas, in 2014.

The team also described *Tenkana jayamangali* for the first time, named after the Jayamangali river in Karnataka, where it was first seen.

## Topic → Tenkana<sup>-</sup>

A new genus of jumping spiders, named 'Tenkana', has been discovered in southern India, including two previously known species.

The new species, Tenkana jayamangali, was introduced from Karnataka and is named after the Jayamangali river.

The name 'Tenkana' is derived from the Kannada word for south, indicating the geographical origin of the species.

The research was conducted by a team of scientists from India and Canada, utilizing genetic studies and physical examinations, and published in the journal Zookeys.







Unlike related species that inhabit forests, Tenkana spiders prefer drier\_ areas and ground habitats, found in states like Tamil Nadu, Karnataka, and Andhra Pradesh.

Two species previously classified under Colopsus, Tenkana manu and Tenkana arkavathi, have been reclassified into the new genus.

The research team included notable scientists such as Kiran Marathe, Wayne Maddison, and John Caleb T.D., with genetic analysis conducted by Krushnamegh Kunte.

Summary: A new genus of jumping spiders, Tenkana, has been identified in southern India, including a new species, Tenkana jayamangali, with findings published in Zookeys.



## FDA approval for Cobenfy casts light on schizophrenia's wickedness

Cobenfy is the first antipsychotic drug to treat schizophrenia by targeting cholinergic receptors instead of dopamine receptors. Cobenfy is a combination of xanomeline and trospium chloride that has a novel mechanism of action that steers clear of older drugs' side effects, too. It has side effects of its own, though

#### Alok Kulkarni

Trigger warning: suicide n September 26, the U.S. Food and Drug Administration (FDA) approved a drug called Cobenfy to treat schizophrenia. Cobenfy is a combination of xanomeline and trospium chloride that has a novel mechanism of action that steers clear of older drugs' side effects, too. It has side effects of its own, of course

Schizophrenia is one of the most serious of all psychiatric disorders. It has life-changing consequences, including social isolation, stigma, and diminished prospects of finding a partner. Persons with schizophrenia have a life expectancy lower by 13-15 years, with contributions from weight gain, poor dietary habits, smoking, and comorbid substance use. Five percent of people with schizophrenia die by suicide.

Schizophrenia affects one in a hundred people in their lifetime. Newer evidence has challenged the idea that it is equally prevalent in both sexes, finding it is slightly more common in men. It typically develops during late adolescence and early adulthood. In men, it peaks in the early 20s; new cases among women are also seen in the mid- to late 40s.

Appreciating Cobenfy's novelty and the difference it can make requires awareness of the various effects of schizophrenia, its diagnosis, and scientists' understanding of what causes it.

#### Clinical symptoms of schizophrenia

Most people who develop schizophrenia display prodromal symptoms. They last for a little under 12 months on average and may include unexplainable feelings of inner change, the development of novel spiritual and philosophical interests, anger, irritability, anxiety, depression, and social withdrawal.

The clinical phenotype of schizophrenia falls into three categories: reality distortion, disorganisation, and negative symptoms. The so-called positive symptoms are characterised by delusions, hallucinations, and a pattern of speech that is difficult to follow: the technical name for this is formal thought disorder.

The Swiss psychiatrist Paul E. Bleuler used the "four As" to characterise schizophrenia in 1911: affect, associations, ambivalence, and autism. Contemporary descriptions are richer and more sensitive to differences in symptoms. They include negative symptoms like reduction in the quantity of words spoken, reduced goal-directed activities, apathy or lack of motivation, anergia, reduced experience of pleasure, and reduced expression of emotions.



A picture of a human brain as revealed in an MRI, ALAIN JOCARD/AFP

Disorganisation symptoms include formal thought disorder (also considered a positive symptom), disorganised behaviour, and inappropriate affect. Another intriguing symptom that has today become more uncommon, especially in the economically developed world, is catatonia: characterised by a host of abnormal motor behaviours occurring alongside stupor or excitement. It is no longer considered characteristic of schizophrenia, as it is seen in other psychiatric disorders as well.

The German psychiatrist Kurt Schneider had described "first rank" symptoms previously considered to be pathognomonic of schizophrenia. These included auditory hallucinations referring to the patient in the third person. subjective changes in the ownership of thinking, and the experience that one's actions, bodily sensations, or emotions are controlled by external forces. Cognitive impairment is ubiquitous in schizophrenia. Patients have shown impaired performance on various cognitive tests that measure judgement, attention, memory, and general intellectual functions.

#### What causes schizophrenia?

Schizophrenia is a multifactorial disorder. Viewing it through the lens of a single construct is futile. The role of genetics in the pathophysiology of schizophrenia cannot be

Most people who develop schizophrenia display prodromal symptoms, which last for a little under 12 months and include feelings of inner change, the development of spiritual and philosophical interests, anger, depression, and withdrawal

overemphasised. Genetic variants associated with risk play a direct role in the brain by changing gene expression that disrupt brain development and function

A genome-wide association study in 2014 identified 108 genetic loci associated with schizophrenia. (Reminder: correlation does not imply causation.) Disorders like Huntington's disease, cystic fibrosis, hemochromatosis, and sickle cell anaemia are caused by mutations in a single gene. Unlike them, schizophrenia is polygenic, meaning it is the result of hundreds and possibly thousands of genes of small effect sizes. Rare genetic variants of moderate to large effect sizes have also been identified.

According to neurodevelopmental theory, the causes include events in early life, at birth, or even in utero. Prenatal and perinatal complications represent the most common environmental risk factor for schizophrenia. The genetic risk for schizophrenia interacts with early life

complications and increases the risk probability up to fivefold when there are early-life complications.

The discovery of genes that confer risk and the neurodevelopmental origins of schizophrenia have expanded our understanding of disease pathophysiology.

#### Xanomeline and trospium

Dopamine and glutamate, two neurotransmitters, have been implicated in the genesis of schizophrenia. But studies investigating the neurochemical origins of the disorder have thrown up conflicting results.

Amphetamine abuse stimulates lopamine release and produces a clinical syndrome resembling schizophrenia. Antipsychotics act by blocking brain dopamine receptors. These two premises gave rise to the dopamine hypothesis. The initial version of the dopamine hypothesis now stands discredited in light of new evidence. Multiple studies have demonstrated people with established schizophrenia have an increased dopamine synthesis capacity, and so far only one replication effort has failed to reproduce their findings. Cobenfy, the new drug that has just received the FDA's approval, "is the first

antipsychotic drug approved to treat schizophrenia that targets cholinergic receptors as opposed to dopamine receptors, which has long been the standard of care," the FDA said in a statement

According to a review of xanomeline and trospium chloride published in 2022, the early development of xanomeline as a drug candidate to treat Alzheimer's disease and schizophrenia was stopped due to the compound's adverse effects. It gained favour again after researchers considered using it with trospium. Xanomeline is an agonist of muscarinic receptors (i.e., of the parasympathetic nervous system) and "might lead to improvement in all symptom types of schizophrenia," while "trospium is expected to reduce the adverse effects of xanomeline" given "its role as an antimuscarinic agent."

The FDA said Cobenfy's most common side-effects include nausea, indigestion, hypertension, tachycardia, and dizziness, The drug belongs to Bristol Myers Squibb, which has priced it at \$1,850 a month. (Assistance for overcoming suicidal thoughts is available via Tele-MANAS 14416.

Sneha's suicide prevention helpline 044-24640050, and Speak2Us mental health helpline 9375493754.)

(Alok Kulkarni is a senior interventional neuropsychiatrist at the Manas Institute of Mental Health and Neurosciences at Hubli in Karnataka.alokvkulkarni@gmail.com)



Schizophrenia has life-changing consequences. Persons with schizophrenia have a life expectancy lower by 13-15 years because of weight gain, poor diet, smoking, and comorbid substance use. Five percent die by suicide

Schizophrenia falls into three categories: reality distortion, disorganisation, and negative symptoms. The positive symptoms are characterised by delusions, hallucinations, and a pattern of speech that is difficult to follow

Genetic variants play a key role in schizophrenia by changing gene expression that disrupts brain function. This, combined with prenatal and perinatal complications, increases risk fivefold





The FDA approved a new drug called Cobenfy on September 26 to treat schizophrenia.

Cobenfy is a combination of xanomeline and trospium chloride, featuring a novel mechanism of action that avoids the side effects of older drugs.

Schizophrenia significantly impacts life expectancy, reducing it by 13-15 years due to factors like weight gain, poor diet, smoking, and substance use.

Approximately 1 in 100 people will experience schizophrenia in their lifetime, with a slightly higher prevalence in men.



Me disorder typically manifests in late adolescence and early adulthood, peaking in the early 20s for men and mid- to late 40s for women.



Five percent of individuals with schizophrenia die by suicide, highlighting the severe consequences of the disorder.

Understanding Cobenfy's potential benefits requires knowledge of schizophrenia's effects, diagnosis, and underlying causes.

Summary: The FDA has approved Cobenfy, a new drug for schizophrenia, which offers a novel treatment approach while addressing the serious impacts of the disorder

#### **BIG SHOT**



SAURABH PANDEY

This image shows an area of a mosaic released by the Euclid space telescope on October 15. This patch of the southern sky shows stars in the Milky Way, and many galaxies beyond. Red stars are colder, and white/blue stars are hotter. On the right of the image, galaxy cluster Abell 3381 is visible as a string of galaxies. EUCLID CONSORTIUM, ESA, NASA

## Overview

Abell 3381: A galaxy cluster with red and blue stars Characteristics:

- \* Red Stars: Colder temperatures
- White/Blue Stars: Hotter temperatures
- Visibility: Cluster observed as a string of galaxies

## Key Points:

Structure: The arrangement and types of stars Importance: Understanding cosmic evolution and star formation





#### **QUESTION CORNER**

## Brown dwarfs: wannabe stars





Q.What is a brown dwarf? A: In 1995, astronomers confirmed the discovery for the first time of

a brown dwarf, a body too small to be a star and too big to be a planet. They could be considered wannabe stars that, during their formative stages did not reach the mass necessary to ignite nuclear fusion at their core like a star. But they are more massive than the biggest planets.

"They are formally defined as objects that can burn a heavy form of hydrogen, called deuterium, but not the most common basic form of hydrogen," said Sam Whitebook, a graduate student in Caltech's division of physics, mathematics, and astronomy. Recently, researchers took a closer look at the first brown dwarf discovered and found that it's actually two brown dwarfs orbiting astonishingly close to each other while also circling a small star. The research papers were published in the Astrophysical Journal Letters.

These two brown dwarfs are gravitationally locked to each other in what is called a binary



An artist's concept of a brown dwarf. NASA/JPL-CALTECH

system, an arrangement commonly observed among stars but quite rare among brown dwarfs. So the brown dwarf that three decades ago was named Gliese 229B is now recognised as Gliese 229Ba, with a mass 38 times greater than Jupiter, and Gliese 229Bb, with a mass 34 times greater than Jupiter.

They are located 19 light-years from our solar system, rather close in cosmic terms, in the constellation Lepus. - Reuters

For feedback and suggestions for 'Science', please write to science@thehindu.co.in with the subject 'Daily page'





## **Topic** $\rightarrow$ **Brown Dwarfs: Cosmic Discoveries** Overview of Brown Dwarfs

Definition of Brown Dwarfs: Celestial bodies that are too small to be stars and too large to be planets, often called "wannabe stars."

Nuclear Fusion: Unable to ignite nuclear fusion like stars but capable of burning deuterium, a heavy form of hydrogen.

Discovery Confirmation: The first brown dwarf was confirmed by astronomers in 1995.



#### **Recent Discoveries**



Recent Findings: The first discovered brown dwarf, Gliese 229B, is now known to be a binary system of two brown dwarfs.

Mass Comparison: Gliese 229Ba has a mass 38 times that of Jupiter, while

Gliese 229Bb has a mass 34 times that of Jupiter.

- Location: These brown dwarfs are situated 19 light-years away in the constellation Lepus.
- Publication: The findings were published in the Astrophysical Journal Letters.

#### Summary

Brown dwarfs are sub-stellar objects capable of burning deuterium. The first confirmed discovery in 1995, Gliese 229B, is now recognized as a binary system located 19 light-years away.

#### The world needs blue helmets who act as blue helmets

hou shalt not be a victim, thou shalt not be a perpetrator, but, 667 above all, thou shalt not be a bystander." In suggesting this, Yehuda Bauer, Holocaust historian, rested his case wherein the 'bystander' was brought centre-stage and held accountable alongside the perpetrator for crimes against humanity. The 'bystander' implies the collective conscience of the world which must work as the weapon of the powerless. So, while the United Nations through Chapter VI of its Charter is committed to the peaceful settlement of disputes, Chapter VII of the same Charter prescribes the use of armed force with the authorisation of the Security Council in cases of aggression and breaches of peace threatening international security. Chapter VII further exhorts member-states to make available such military or police forces as may be required to establish peace. In fact Chapter VIII goes further and prescribes robust 'regional arrangement' in enforcing peace upon authorisation by the Security Council.

#### Hits and misses

Thus, one would be led to an erroneous belief that the UN has everything in place – in its strongly worded Charter and over 1,00,000 peacekeepers on the ground – to eliminate wars and exploitation from the world. UN political diplomacy and peace operations have established peace in many theatres in seven decades of peacekeeping such as in Cambodia, Mozambique, Sierra Leone, Angola, Timor Leste, Liberia and Kosovo, to name a few notably successful UN engagements.

Yer, there have been glaring instances, such as in Rwanda (1994) and Bosnia (1995) where the UN was accused of being a bystander, unwilling or unable to protect non-combatants and vulnerable sections, especially women and children. That in subsequent missions, notably Sierra Leone (UNSMIL), Timor Leste (UNMIT), Darfur (UNAMID), South Sudan ((UNMISS) and the Democratic Republic of Congo (MONUSCO), the UN brought the protection of civilians centrestage, thus restoring substantially, if not wholly, its commitment to its core values, is a tribute to its willingness to use institutional memory in improving peacekeeping to give primacy to protection of civilians.

Today the world is again on the brink of a much bigger war in Europe and West Asia precisely because, over the last three years, the UN has frittered away the dividends of its



#### Hermanprit Singh

a retired Indian Police Service officer with experience in United Nations peace operations as Acting Police Commissioner and Principal Officer in Timor Leste and in the Office of Operations at the UN headquarters

By being

reduced to

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peacekeeping'

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Nations is

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serious conflicts

'enforceable peacekeeping' between 2006 and 2020. It has been reduced to a 'Bystander' status again in the ongoing conflict in West Asia and the war in Ukraine.

Since the Russian invasion of Ukraine and the Hamas-led massacre of non-combatants in Israel, followed by an even larger offensive of Israel on hapless civilians in Gaza, the UN response in both theatres has failed to call out the perpetrator in no uncertain terms and take decisive action in protecting civilian lives. This has happened despite it having a 1,00,000-strong UN military and police forces at its disposal, as battle ready infantry battalions and as 'standing capacity" at its logistics hub in Brindisi, Italy, that could have been deployed in robust numbers to contain a further loss of life and destruction of cities. There is little point in having such strong forces and yet be a bystander as both conflicts have widened, with the world continuing to witness unprecedented destruction. Even though 1,00,000 UN uniformed forces are deployed in many missions in Africa and elsewhere, it would have done no grave damage to the current missions were over half of them re-deployed in Ukraine, Gaza and West Bank, right between the warring forces, just as they continue to be in Cyprus between the Turks and Greeks or were deployed in Timor Leste, between Indonesian forces and the Timor Leste freedom fighters, the FRETLIN.

A lost chance to act with decision

Extraordinary situations demand extraordinary interventions. The fact that contributing member-countries have committed these forces to not just maintain but also to enforce peace implies their consent to protect civilians regardless of the 'theatre'. Otherwise, these well-armed and well provisioned troops are just biding their time till their rotation and pocketing the green bucks as a tribute. Blue helmets must act as blue helmets, impartially and decisively, as in Kosovo (UNMIK 1999-2008) and Timor Leste (UNTAET, UNMIT 1999-2008), with legitimacy to use reasonable force. It needed just over 6,000 UN uniformed personnel (typically, two infantry brigades) in Kosovo and 3,000 UN police personnel (including the lightly-armed formed police units) and an infantry brigade from Australia, under operational command of UN Mission (UNMIT) in Timor Leste to restore peace and bring back the rule of law and an elected government.

A deployment of similar numbers in a

similar-sized geographical area of Israel-Gaza-West Bank would have contained the colossal loss of lives that has followed and is making this theatre a killing field with mounting civilian casualties.

#### There is a need for UNSC reform

This also brings us to the subject of much-needed reform in the functioning of the Security Council. The veto power of the P5, the Permanent Security Council members, instead of being a rock of stability for the UN peace operations to stand on, has more often than not acted as a mill-stone around their neck. The world has repeatedly witnessed the negative power of veto precisely at a time when 'enforcing peace' has become an urgent necessity in the face of threats to civilian lives. Nearly a million Tutsi civilians were killed in the now infamous Rwanda genocide of 1994-95 even as the French continued to support the Rwandan Army, the main perpetrators of the genocide, and UN Assistance Mission in Rwanda (UNAMIR) was a bystander.

The case for reform of the Security Council to obviate such genocides in future by swift deployment and having a decisive role for the blue helmets rests on a two-pronged approach. The first is for the expansion of Permanent membership of the Security Council to include India (by virtue of it being the most vibrant voice of the global South) and South Africa (for long overdue representation from Africa). The second is to bell the veto cat.

In an expanded Council of P7, rather than each member having veto power, contentious issues such as the use of force in West Asia to stop an expansionist Israel or in Ukraine to thwart the expansionist designs of Russia – which in the current scenario will be vetoed by the U.S. and Russia, respectively – should have a division of votes of a P7 to decide on UN intervention. Once such a division of votes is in favour of peace operations to thwart hostilities, the deployment of UN standing troops or shifting troops between 'missions' should be enabled under Chapters VII and VIII of the UN Charter, with full executive powers to the UN military and police commanders on the ground.

Ultimately, if the UN cannot stand on its own feet and enforce peace despite having standing uniformed forces of the size of a sovereign nation, , then UN-led peace operations must close and the plush halls of the UN be used only for exalted deliberations by another international non-governmental organisation or a think-tank.



## $\textbf{Topic} \rightarrow \textbf{UN} \ \textbf{Peacekeeping: Successes and Challenges} \textbf{\_}$

#### Overview

The UN Charter is robust, with over 100,000 peacekeepers, yet struggles persist in eradicating wars and exploitation worldwide.

- Successful missions have been conducted in Cambodia, Mozambique, and
- Kosovo over the past seventy years.

So The UN has faced criticism for inaction during crises, notably in Rwanda (1994) and Bosnia (1995), where it failed to protect vulnerable populations.

Recent missions emphasize civilian protection, showcasing the UN's dedication to

its core values and institutional memory.



The UN is perceived as a bystander in ongoing conflicts in Ukraine and West Asia,

- to take decisive action despite its military resources.
- The effectiveness of UN peacekeeping has diminished since 2020, leading to increased violence and destruction in conflict zones.
- Lacking urgency and clarity in addressing the perpetrators.

#### **Challenges and Criticisms**

Inaction in Crises: Notable failures in Rwanda and Bosnia highlight the UN's struggle to protect vulnerable populations.

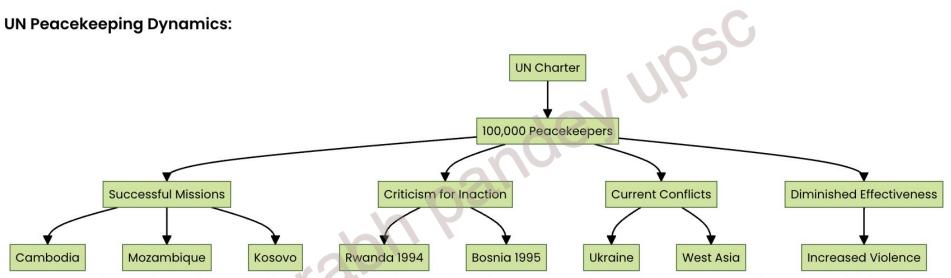
Current Perception: Seen as a bystander in Ukraine and West Asia, the UN's military resources are underutilized.

Diminished Effectiveness: Since 2020, the impact of peacekeeping has waned, resulting in more violence.

#### **Recent Focus**

Civilian Protection: Recent missions prioritize safeguarding civilians, reflecting a commitment to core values.





**Summary:** The UN has a history of both successful peacekeeping and significant failures, currently facing criticism for its inaction in ongoing conflicts despite having substantial military resources.

Urgent Reforms in UN Peacekeeping and Security Council\_ Extraordinary Interventions Needed



Obcisive Actions: Extraordinary situations require decisive actions from peacekeeping forces to protect civilians effectively.

#### **Historical Precedents**

Successful Missions: Peacekeeping missions in Kosovo and Timor Leste involved significant troop deployments that restored peace and governance.

#### Potential for Loss of Life

Mitigation of Casualties: A similar deployment in the Israel-Gaza-West Bank region could have mitigated severe civilian casualties.



Solution Veto Power Issues: The veto power of the P5 members in the UN Security Council often hinders timely peace enforcement, as seen during the Rwandan genocide.

#### **Proposed Security Council Changes**

Expansion and Reform: Calls for expanding permanent membership to include India and South Africa, and reforming veto powers for more effective decision-making.

#### **Voting System for Interventions**

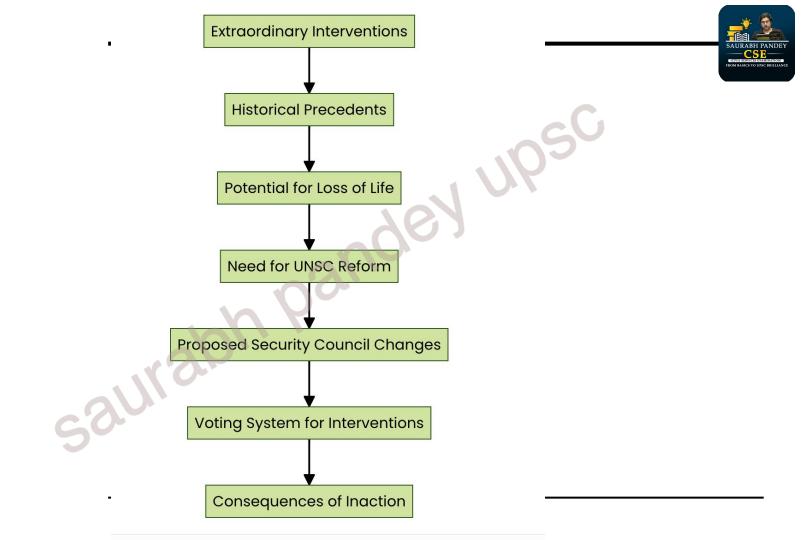
P7 Voting System: A proposed P7 voting system would allow for UN interventions without the current veto deadlock, enabling quicker responses to conflicts.

#### **Consequences of Inaction**

S Reconsidering UN's Role: If the UN cannot effectively enforce peace, there are calls to reconsider its role and possibly transition to a different organizational structure.

Summary: The text advocates for urgent reforms in UN peacekeeping and the Security Council to enable decisive action in conflict zones, preventing civilian casualties and improving global governance.





#### **On Section 6A of the Citizenship Act**

What does the contentious provision state? What does the Assam Accord signed in 1985 stipulate? Why are there different cut-off dates for citizenship in Assam? What are the court's findings? What are the potential implications?

#### EXPLAINER

#### Aaratrika Bhaumik

The story so far: n a landmark ruling, a Constitution Bench of the Supreme Court on October 18 upheld the constitutional validity of Section 6A of the Citizenship Act, 1955 (1955 Act) which laid out an exclusive regime for migrants in Assam from erstwhile Fast Pakistan (present Bangladesh) to obtain Indian citizenship as long as they entered India before March 25, 1971. The decision was rendered by a 4:1 majority. Justice Surya Kant authored the lead majority opinion on behalf of himself, CJI D.Y. Chandrachud, Justices M. M. Sundresh, and Manoi Misra, while Justice Pardiwala delivered the lone dissenting opinion.

#### What does Section 6A stipulate?

Section 6A originates from the "Assam Accord", a political settlement signed on August 15, 1985, between the Raijy Gandhi-led Congress government and Assam's student groups, following a six-year-long agitation against the influx of undocumented migrants from Bangladesh into Assam. It established a framework for granting or denving Indian citizenship to migrants in Assam based on a cut-off date - March 25, 1971. The date marked the onset of the genocide in East Pakistan. leading to the Bangladesh Liberation War and the eventual creation of Bangladesh. The conflict drove millions of Bengalis to flee East Pakistan and seek refuge in Assam, which shares a 263-km border with Bangladesh. Accordingly, all those who entered the State after March 25, 1971, would be treated as foreigners and deported in accordance with law. The provision also conferred Indian citizenship upon migrants of "Indian origin" who entered Assam before January 1, 1966, and had been "ordinarily resident" in the State since then. Meanwhile, those who arrived between January 1, 1966, and March 24, 1971, were granted the full rights of Indian citizens, except for voting rights, which were withheld for a decade

#### Why was it challenged?

The petitioners, including the NGO Assam Public Works and the Assam Sanmilita Mahasangha, contended that setting a different cut-off date for citizenship in Assam is discriminatory and violates the right to equality enshrined in Article 14 of the Constitution. Concerns were also raised about the provision's inconsistency with Articles 6 and 7, which regulate titizenship pertaining to Partition-era igration for the rest of the country. Article 6 grants citizenship to individuals who migrated to India from Pakistan before July 19, 1948, provided they have resided in the country since then. Meanwhile, Article 7 denies citizenship to those who moved to Pakistan after March 1, 1947, while allowing it for those who returned to India under a permit for resettlement or permanent return. They also claimed the provision resulted in a "perceptible change in the demographic pattern of the State, thereby violating the cultural and linguistic rights of the "indigenous" population of Assam, as guaranteed under Article 29. This, they argued, constituted both "external aggression" and "internal disturbance" under Article 355 of the Constitution, thereby imposing

an obligation upon the Union government What did the majority rule? Both Justices Kant an

to protect the State.

THE GIST

upheld the differentiated treatment of "conserve" the culture of a specific group. Assam under Section 6A, citing the

region's unique historical and political considerations. They reasoned that the provision does not violate the equality clause under Article 14, as it represents Parliament's careful balancing act between its humanitarian approach toward Bangladeshi immigrants and the significant strain their mass exodus has imposed on Assam's economic and cultural resources.

The majority also opined that Section 6A is not inconsistent with the citizenship provisions in Articles 6 and 7 of the Constitution. The Chief Justice pointed out that while these Articles establish a cut-off date for conferring citizenship at the commencement of the Constitution-January 26, 1950 - Section 6A specifically addresses individuals not covered by these two provisions. Justice Kant concurred, asserting that Section 6A aligns with the constitutional philosophy of Articles 6 and 7, as it is rooted in the "same underlying policy of granting

citizenship to the people of Indian origin migrating from Pakistan due to political disturbances in a foreign territory". Both judges also concluded that Article II of the Constitution grants Parliament substantial flexibility in formulating laws related to citizenship, including the authority to establish conditions for granting citizenship that may differ from those outlined in Articles 6 and 7.

Adopting a multicultural and pluralistic interpretation of Article 29, the judges further observed that Section 6A does not violate the cultural rights of the

"indigenous" Assamese people. They reasoned that while the Article aims to Section 6A does not allow for self-declaration or voluntary identification as a foreigner thereby leaving the detection process entirely reliant on state intervention. He concluded that this marked a clear departure from the scheme of the Citizenship Act and Articles 6 and 7 of the Constitution, which allow citizenship to be acquired through registration.

"The manner in which the provision is worded, counter-serves the very purpose of its enactment, which is the speedy and effective identification of foreigners of the 1966-71 stream, their deletion from the electoral rolls, registration with the registering authority and conferring o regular citizenship", the dissent noted.

#### What are the potential ramifications?

The March 25, 1971, cut-off date endorsed by the majority serves as the foundation for the contentious National Register of could undermine the constitutional status Citizens which was prepared in 2019 following the top court's directives. Although the register is yet to be implemented, it has identified 19 lakh residents (5.77% of Assam's population) as potential non-citizens. Moreover, the ruling bolsters the long-standing demand of Assamese organisations to repeal the controversial Citizenship Amendment justifiable at the time of its enactment, its Act, 2019 (CAA), which sets December 31. 2014, as the cut-off date for granting citizenship to non-Muslim migrants who illegally entered India from Bangladesh. also noted that the lack of a sunset clause Afghanistan, and Pakistan, Critics argue that by prescribing a different timeline, the CAA creates a loophole that exempts exacerbates demographic imbalances in Bengali Hindus who migrated to Assam from Bangladesh after 1971 from the application of Section 6A

Section 6A originates from the "Assam Accord", a political settlement signed on August 15, 1985, between the Raily Gandhi-led Congress government and Assam's student groups, following a six-year-long agitation against the influx of undocumenter migrants from Bangladesh into Assam. It established a ramework for granting or denving Indian citizenship to migrants in Assam based on a cut-off date - March 25, 1971.



In a sharply reasoned dissent Justice Pardiwala declared Section 6A unconstitutional effective only from the date of the judgment.



Final word: Members of the All Assam Students' Union light lamps to celebrate the verdict on Section 6A of the Citizenship Act, in Guwahati, on October 18. PTI it does not preclude the coexistence of other cultures. In fact, Justice Kant highlighted that such grievances may stem from the failure of authorities to implement the other leg of Section 6A

of States

the region

specifically, the deportation of individuals who migrated to Assam after the cut-off date. He accordingly urged the Chief Justice to constitute a Bench to monitor the identification. detection and deportation of illegal immigrants in the State in a time-bound manner. Both the judges also noted that "external aggression" referred to military actions and did not cover within its ambit humanitarian migration driven by economic or other distress. Accordingly, they found no breach of the Union's duty under Article 355. The Chief Justice further cautioned that allowing the Union to exercise such "emergency powers" would be detrimental to federalism and

Why did Justice Pardiwala dissent?

unconstitutional, effective only from the

failure to curb illegal migration in Assam

constitutional principles over time. He

date of the judgment. He reasoned that

while the provision may have been

had rendered it inconsistent with

on the application of Section 6A

incentivises illegal immigration and

The judge further highlighted that

In a sharply reasoned dissent, Justice

Pardiwala declared Section 6A

# Topic →Supreme Court Ruling on Section 6A of the Citizenship Act

## **Overview of the Ruling**

Supreme Court Decision: On October 18, the Supreme Court upheld the constitutional validity of Section 6A of the Citizenship Act, 1955, with a 4:1 majority.
Section 6A Details: This section provides a framework for migrants from erstwhile East Pakistan (now Bangladesh) to obtain Indian citizenship if they entered India before March 25, 1971.

#### **Historical Context**

Significance of March 25, 1971: This date marks the beginning of the Bangladesh Liberation War, leading to a significant migration to Assam.
Assam Accord: Section 6A is based on the Assam Accord, signed on August 15, 1985, addressing concerns of Assam's student groups about undocumented migrants.

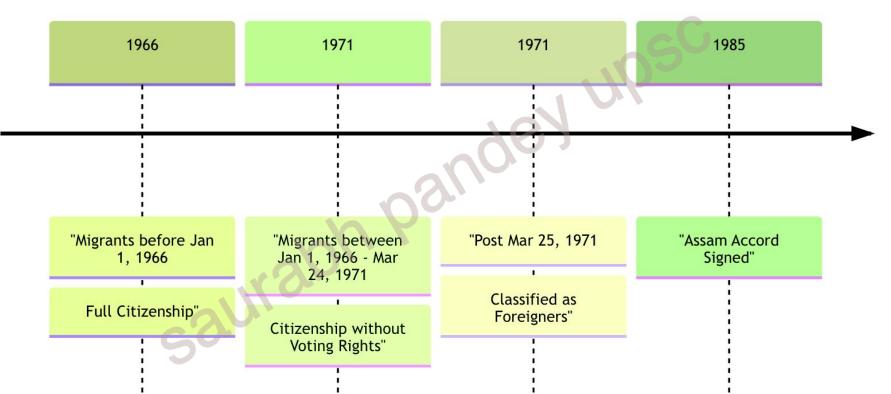
**Citizenship and Migration** 

Post-Cut-off Migrants: Those entering Assam after March 25, 1971, are classified as foreigners and are subject to deportation.

Criteria for Citizenship: Migrants of Indian origin who entered Assam before January 1, 1966, and have been residents since are granted Indian citizenship.

Voting Rights: Migrants arriving between January 1, 1966, and March 24, 1971, receive full citizenship rights except for voting, which is withheld for ten years.

## **Timeline of Migration and Citizenship**



## Assam's Unique Treatment Under Section 6A\_

## **Key Points of the Ruling**



Majority Ruling: Justices Kant and Chandrachud emphasized the distinctive historical and political context of Assam, justifying its differentiated treatment under Section 6A.

Equality Clause: The provision was found to be in harmony with Article 14, balancing humanitarian concerns for Bangladeshi immigrants against the resource limitations of Assam.

m Constitutional Consistency: Section 6A aligns with the citizenship provisions in Articles 6 and 7, addressing individuals not covered by these articles.



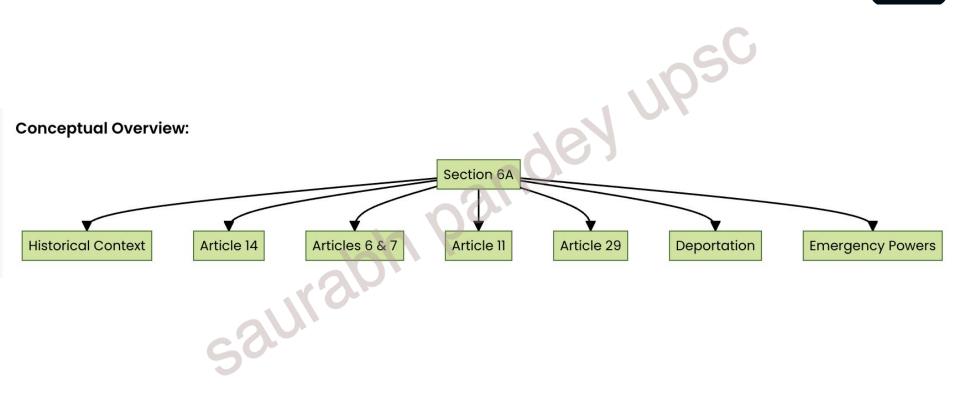
Parliamentary Flexibility: Article 11 empowers Parliament to enact citizenship laws with conditions that may differ from those in Articles 6 and 7.
Cultural Rights: Article 29 was interpreted to support the coexistence of cultures, affirming that Section 6A does not infringe upon the cultural rights of indigenous Assamese people.

Deportation Urgency: Justice Kant called for a monitoring Bench to ensure the timely deportation of illegal immigrants after the cut-off date.

Emergency Powers: The ruling clarified that "external aggression" does not encompass humanitarian migration, warning against the misuse of emergency powers that could undermine federalism.

Summary: The ruling upheld Assam's unique treatment under Section 6A, balancing humanitarian needs with local resource concerns, while affirming constitutional consistency and cultural rights.









## Why are Big Tech companies such as Google scouting for nuclear power?

signed three new agreements to support

construction of SMRs. In Washington, it

partnered with Energy Northwest. It is

further making an investment in SMR

Virginia. "We also previously signed an

facility next to the Talen Energy's nuclear

carbon-free energy, and helps preserve

this existing reactor," Amazon said in a

a commercial microreactor in Idaho and

could affect this, reported CNBC. Mr.

OpenAl CEO Sam Altman backed the

agreement to co-locate a data centre

facility in Pennsylvania, which will

nuclear energy projects, such as the

Training AI models, ensuring that they remain always online and maintaining growing data centres are energy-hungry tasks. Google has held that nuclear energy is clean, available round-the-clock, and carbon-free. However, is green energy 'truly' clean?

#### Sahana Venugopal

giant in faster deployment cycles. The story so far: Which companies are partnering n October 14, Google announced the "first corporate with nuclear reactor makers? On September 20, Microsoft and agreement" to buy nuclear Constellation signed a 20-year powe energy from multiple Small Modular Reactors (SMR). These SMRs will nurchase agreement intended to launch the Crane Clean Energy Center (CCEC) be developed by Kairos Power. The initial phase of the work will bring up the first nd restart the Three Mile Island Unit 1 The deal should add around 835 MW of SMR by 2030, and subsequent carbon-free energy to the grid, according deployments will continue through 2035. to Constellation's statement. "This Per Google, this deal will provide 500 MW of carbon-free power to the U.S. agreement is a major milestone in Microsoft's efforts to help decarbonise the electricity grid. They said this agreement will help in the development of AI grid in support of our commitment to become carbon negative " said Bobby technologies to power scientific advances. Hollis, Microsoft's VP of Energy, at the time. Amazon also announced that it

#### Why nuclear energy?

Training AI models, ensuring that they remain always online, and maintaining growing data centres are energy-hungry tasks. In a 2024 Environmental Report, Google admitted that its total global greenhouse gas emissions rose by 13% in partnering with Dominion Energy in 2023 year-over-year, pointing to the "challenge of reducing emissions while compute intensity increases and we grow our technical infrastructure investment to support this AI transition." Google has held that nuclear energy is clean, directly power our data centres with available round-the-clock (unlike solar energy), and carbon-free. In that vein, the blog post search giant sees the next generation nuclear reactors as a way to power global data centres and its offices with the help of clean energy. Smaller sizes and modular designs further help the tech

Is nuclear energy truly clean? This is still a matter of debate. The main takeaway is that nuclear energy has a serious reputation problem, due to public memory of past accidents and crises that For example, Ukraine's Chernobyl explosion (1986) and Japan's Fukushima accident (2011) resulted in extensive environmental destruction that lasted for years, even as the impact on human health is still being researched. While Chernobyl is a case study on multiple human errors and a communication breakdown, Fukushima demonstrates how natural disasters beyond human control - such as a tsunami - can lead to devastating nuclear accidents. Separately, in the U.S., the Three Mile Island accident of 1979 in Unit 2 of the reactors and fuel developer X-energy, and facility's nuclear generating station involved the combination of a malfunctioning valve and human error, resulting in the core overheating and releasing radioactive gases. While not considered overly dangerous to the surrounding population, it is regarded as one of the worst industrial nuclear accidents in U.S. history. Microsoft's deal with Constellation aims to start Unit 1 again; Unit 2 was decommissioned after nuclear startup Oklo, which aims to build the accident. Many environmental groups are have it operational in 2027, though delays actively protesting nuclear energy and the

way it is being presented as "clean".

Altman also invested in the nuclear fusion company Helion in 2021. 'Friends of the Earth.' an international network of organisations, said on its website in 2018, "Since it was first commercialised, nuclear power has proven to be one of the dirtiest, most dangerous and most expensive sources of energy. Nuclear reactors have a long history of accidents, leaks, extended outages and skyrocketing costs." The earthquake-prone areas. and can function in areas unable to on nuclear energy?

rganisation also pointed out the dangers of nuclear infrastructure being built over But there is hope in SMRs as they have potentially lower building and operationa costs. A U.S. Department of Energy report noted that SMRs have compact designs withstand larger or older nuclear powe plants that require huge volumes of water What is the U.S. government's stance Apart from seeing nuclear power as one

source of clean energy, the U.S. Department of Energy's Office of Nuclear Energy highlighted the importance of re-establishing the U.S. as a nuclear leader, to stay ahead of China and Russia Dr. Rita Baranwal, Assistant Secretary for Nuclear Energy, noted, "As the use of nuclear energy continues to expand internationally, it is crucial that the United States reasserts itself as a leader in this incredible technology. Existing U.S. nuclear plants prevent almost 500 millior metric tons of carbon dioxide emission each year - the equivalent of taking 100 million cars off the roads."

## \_Topic $\rightarrow$ Google and Nuclear Energy: A Strategic Move\_



#### Corporate Agreement 🌍

Announcement: On October 14, Google revealed its inaugural corporate agreement to acquire nuclear energy from multiple Small Modular Reactors (SMRs) developed by Kairos Power.

## Energy Capacity 🗲

Objective: The agreement aims to deliver 500 MW of carbon-free power to the U.S. electricity grid.

#### Timeline 🚞

Operational Date: The first SMR is anticipated to be operational by 2030, with additional deployments planned through 2035.

## Al Development 🤖



Support for AI: Google believes this nuclear energy deal will bolster the development of AI technologies and scientific progress.

## Emissions Challenge 📈

Environmental Report: In its 2024 Environmental Report, Google noted a 13% increase in global greenhouse gas emissions in 2023, underscoring the challenge of reducing emissions amid rising energy demands.

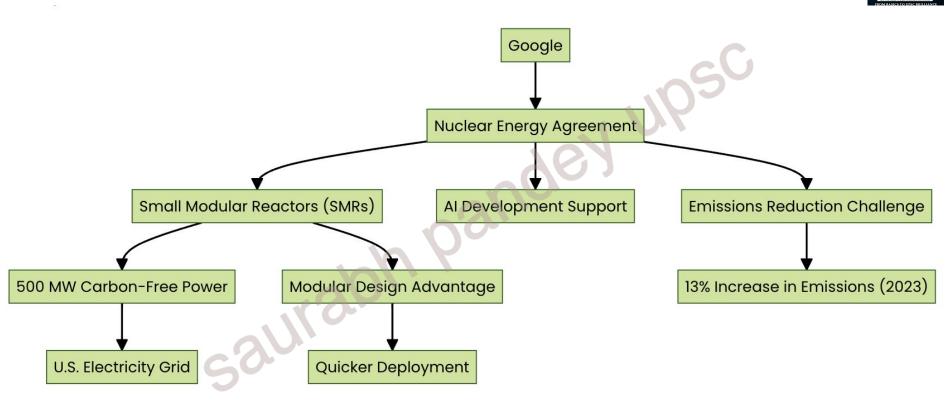
#### Nuclear Energy Benefits 🔋

Advocacy: Google promotes nuclear energy as a clean, reliable, and carbon-free power source, crucial for powering data centers and offices.

#### Modular Design Advantage 🏗

Deployment: The smaller sizes and modular designs of SMRs facilitate quicker\_\_\_\_\_ deployment cycles, aligning with Google's infrastructure needs.





## Nuclear Energy: Challenges and Opportunities\_

## Nuclear Energy's Reputation

Historical Accidents: Nuclear energy has a tarnished reputation due to past accidents that have left a lasting impact on public perception.

## Chernobyl and Fukushima

Environmental Damage: The Chernobyl (1986) and Fukushima (2011) disasters caused severe environmental harm and ongoing health concerns.

### Three Mile Island Incident

Major Accident: The 1979 incident in the U.S. was marked by human error and equipment failure, leading to core overheating and radioactive gas release.



Criticism: Groups like 'Friends of the Earth' criticize nuclear energy for its perceived dangers and high costs, citing a history of accidents.

#### Concerns Over Location

Safety Issues: Building nuclear infrastructure in earthquake-prone areas raises significant safety concerns.

#### Promise of SMRs

Potential Solution: Small Modular Reactors (SMRs) offer lower costs and are suitable for locations unable to support larger plants.

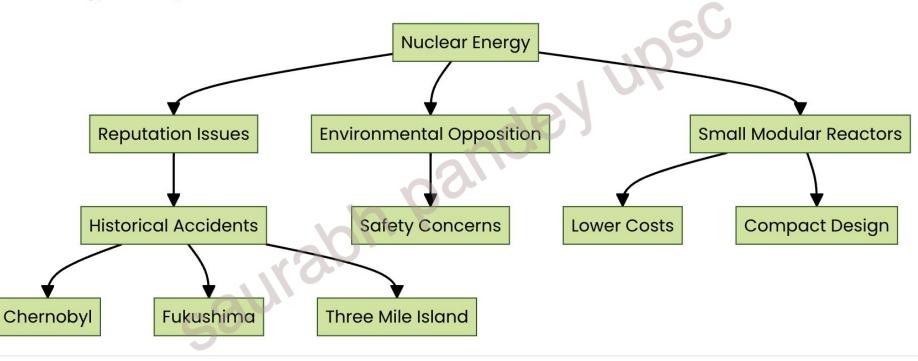
#### **Department of Energy Insights**

Compact Design: A report highlights SMRs' compact design, making them viable for areas with limited water resources.





Nuclear Energy Landscape:





## Investors flee thematic ETFs as stock benchmarks soar

#### Reuters

Investors are leaving exchange-traded funds tied to specific themes, such as artificial intelligence and video gaming, as they flock to funds linked to broad stock-market benchmarks that are hitting record highs. The run for the exits, however, may slow if the broader market stumbles.

While flows in equity ETFs overall continue to climb, thematic ETFs, which invest in companies tied to everything from solar energy to robotics and millennial consumers, are on pace for their third-consecutive year of net outflows, according to financial data and analysis company Morningstar.

The category, which has

total assets of \$108 billion, has lost \$5.8 billion in investor capital this year, greater outflows than the \$4.8 billion for all of 2023, according to Morningstar. "It's winter for thematic

ETFs right now," said Taylor Krystkowiak, investment strategist at Themes ETFs, an asset-management firm focused on this category. Returns from broad market indexes are setting a higher bar for thematic funds this year. The S&P 500, the benchmark for the U.S. stock market, has climbed over 22% this year, propelled by gains from influential stocks in-

cluding Nvidia and Meta. The five-largest ETFs tracking the S&P 500 and the Nasdaq 100 have seen inflows of \$170 billion this

vear. The SPDR S&P 500



High bar: Returns from broad market indexes are setting a higher bar for thematic funds this year. AP

ETF Trust on Thursday became the first ETF to reach \$600 billion in assets.

"It's not that people don't like the idea of themes any longer, but a bull market dominated by a handful of megacaps makes it hard for any theme to stand out," said Aniket Ullal, ETF analyst at CFRA. Part of the chalinvestion

lenge, said Bryan Armour, ETF analyst at Morningstar, is the nature of thematic investing itself.

Investors often mistime investing in themes, ac-

cording to a Morningstar study that found investors in thematic ETFs missed out on two-thirds of their returns in a five-year period.

#### Hard task

"You have to pick the right theme, then be sure that the fund has picked the stocks that will benefit most from that theme, and then be right about the timing of when you buy the fund," Mr. Armour said. "Getting that trifecta right is tough."

Even some AI-themed ETFs with outsized exposure to market-darling Nvidia have struggled to retain assets. The Global X Robotics & Artificial Intelligence ETF has seen net outflows of \$89 million in the last 12 months. according to the firm. Despite the fund having nearly 13% of its portfolio in the AI chipmaker–almost double the S&P 500 weighting–it has performed only in line with the index, with both up about 39% in the past year.

"We still have longerterm conviction in themes," said Arelis Agosto, head of thematics at Global X, which has seen outflows in 19 of its 31 thematic funds over the last 12 months.

Cathie Wood's ARK Innovation ETF has seen \$2.6 billion in outflows in 2024, the most among thematic ETFs, according to Morningstar. The fund is down more than 9% this year. The fact that thematic funds tend to levy higher fees can diminish their appeal to investors. Thematic ETFs' fees average 0.62% of money invested while the average ETF fee is 0.49%. The number of thematic launches dropped to 13 this year from 39 in 2023, while closures of thematic funds in 2024 have already topped 2023's total, with 36 compared to 32, according to Morningstar.

Themes ETFs is bucking that trend, having launched 18 products since December, including a Transatlantic Defense ETF, which invests in defense companies based in NATO member states, and a European Luxury ETF.

"I think that when S&P 500 megacaps stop delivering the way they do today, the focus will shift back to thematic ETFs," Mr. Krystkowiak said.



## **Topic** $\rightarrow$ **ETF** ( exchange-traded fund)

- An exchange-traded fund is an investment vehicle that pools a group of securities into a fund. It can be traded like an individual stock on an exchange.
- ETFs can even be designed to track specific investment strategies.
- Various types of ETFs are available to investors for income generation, speculation, and price increases, and to hedge or partly offset risk in an investor's <u>portfolio</u>.
- An ETF must be registered with the Securities and Exchange Commission



#### **Overview of Extended Trade Facility (ETF)**

Definition: A mechanism allowing trading beyond regular hours.

Purpose: Enhances market accessibility and liquidity. Types:

Pre-market trading After-hours trading





Trading Hours:

Regular hours (e.g., 9:30 AM - 4:00 PM EST) Extended hours (e.g., 4:00 PM - 8:00 PM EST)

Market Participants:

Retail investors Institutional investors

## **Benefits of ETF**

Increased Flexibility: Trade at convenience outside regular hours. Market Reaction: Respond to news and events impacting prices. Extended Access: More opportunities for profit.





#### Adversity as advantage



FROM BASICS TO UPSC BRILLI

A boy puts up a net to catch fish in the floodwaters covering a road outside his home in Odobere on Tuesday. Floods along the Senegal river have affected more than 55,000 people after heavy rain in the Senegal River Basin, leaving many villages underwater. AFP

# **Topic** $\rightarrow$ **Senegal River**

#### **Overview of Senegal River**

Location: West Africa, flowing through Senegal and Mauritania Length: Approximately 1,086 km Significance: Vital for agriculture, transportation, and local ecosystems Importance of River

Geography

Flows into the Atlantic Ocean 🌊

Surrounding regions: wetlands, savannahs, and forests

Economy

Agriculture: irrigation for crops like rice and millet Fishing: local communities rely on it for food and income Trade: river transport for goods and resources





Environmental Concerns



Pollution: from agriculture and urban run-off 🚫

Flooding: seasonal floods impact local communities 🥋

Conservation: initiatives to protect biodiversity and ecosystems \*\*\*

**Cultural Importance** 

Home to various ethnic groups with rich traditions 🎉

Festivals and events related to the river and its resources  $\mathcal{W}$ 

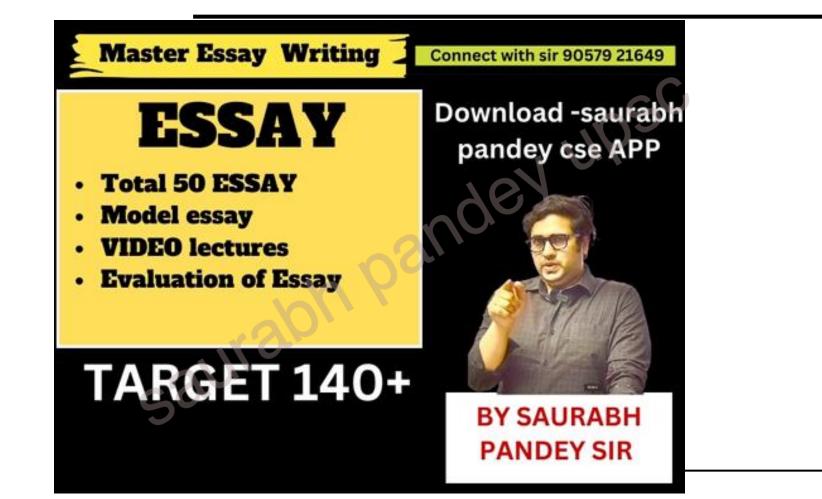
Tourism

River cruises: exploring the natural beauty

Wildlife watching: diverse fauna along the riverbanks 🦚

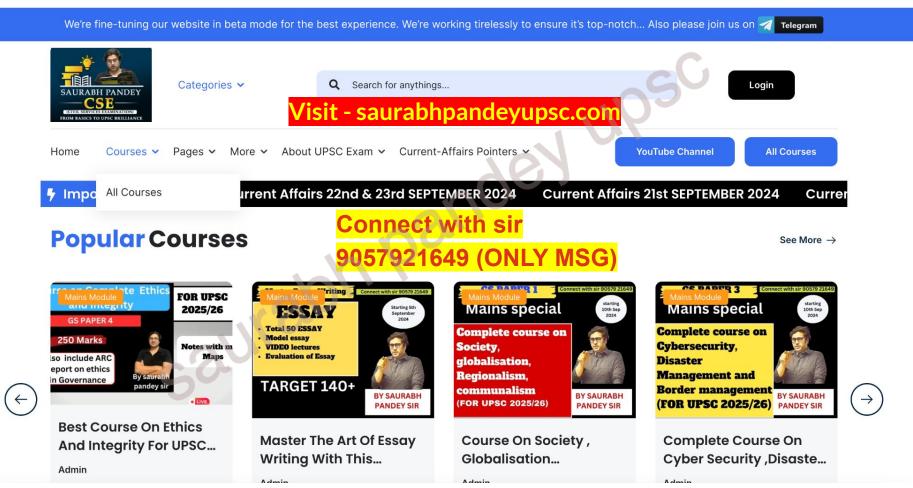








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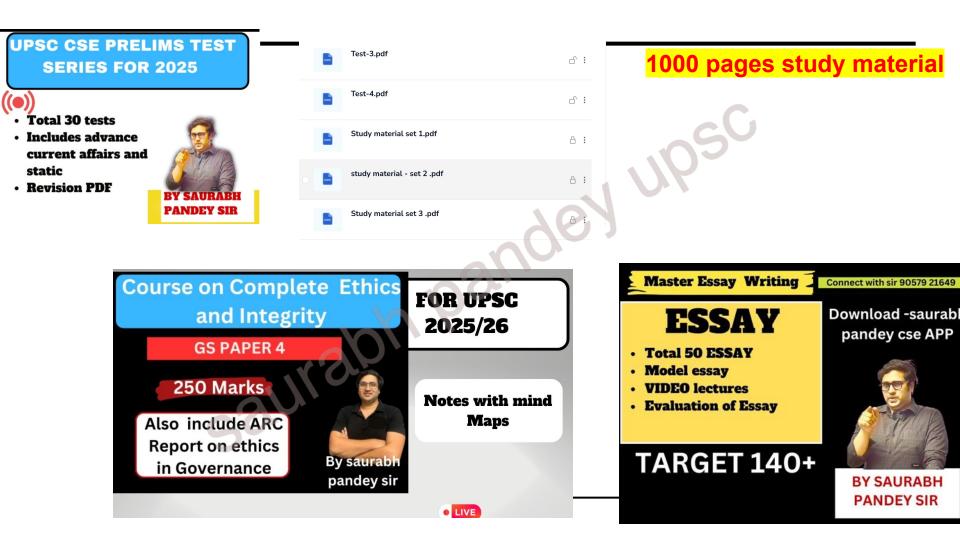
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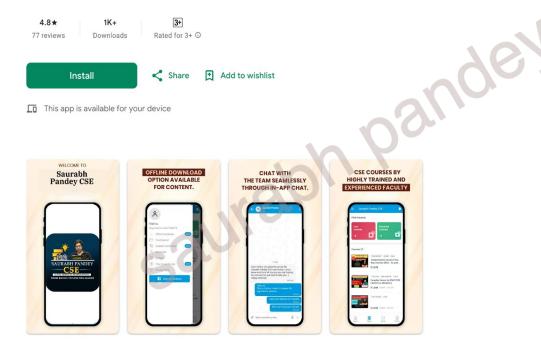
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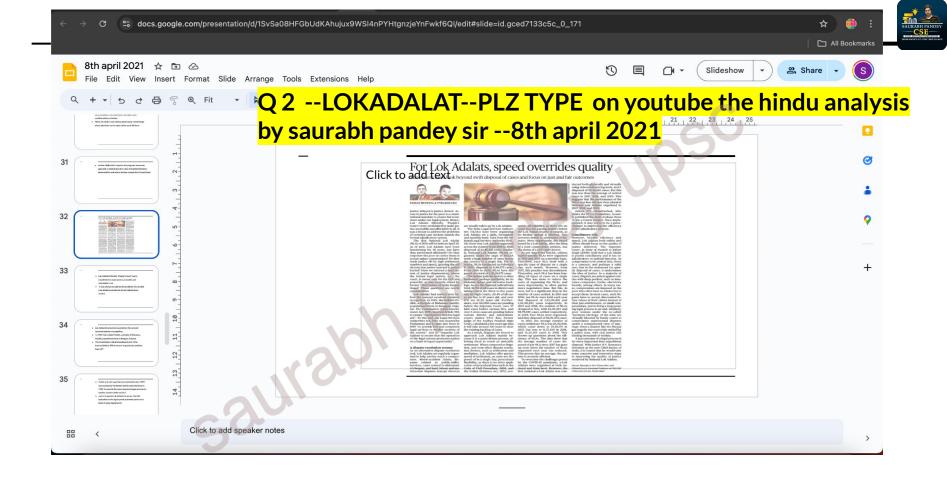
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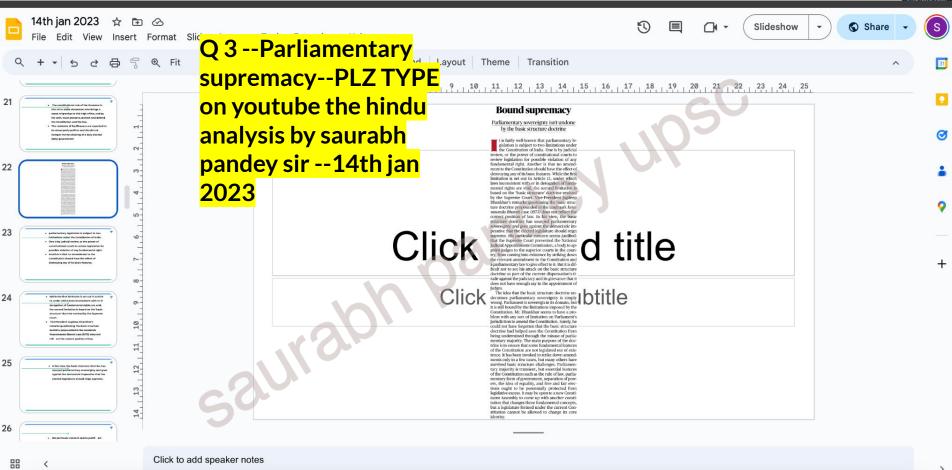
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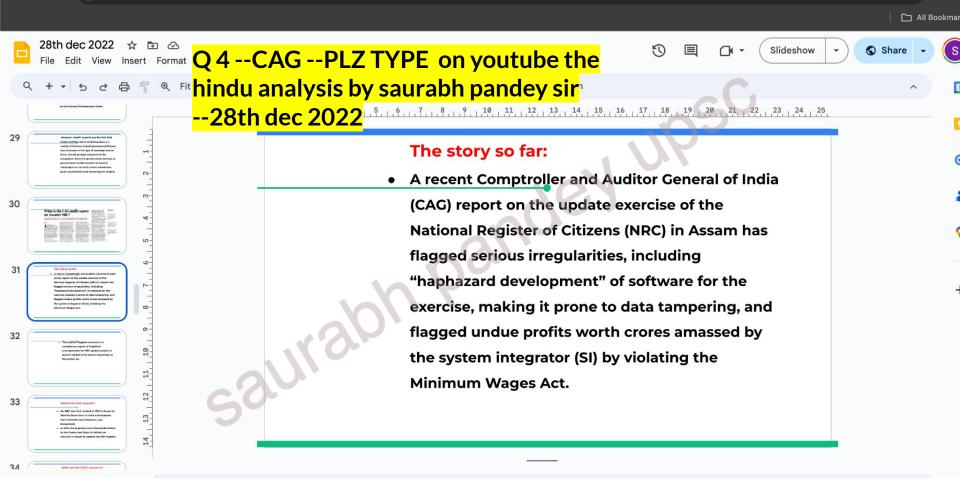






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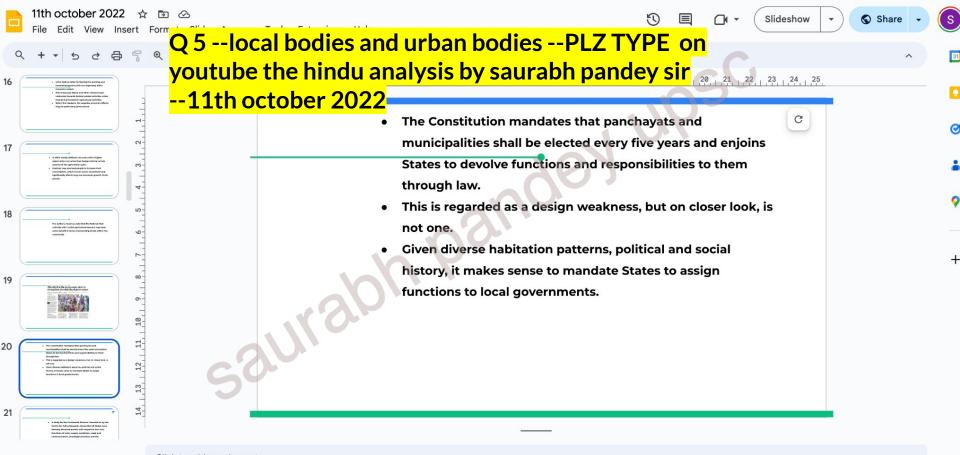




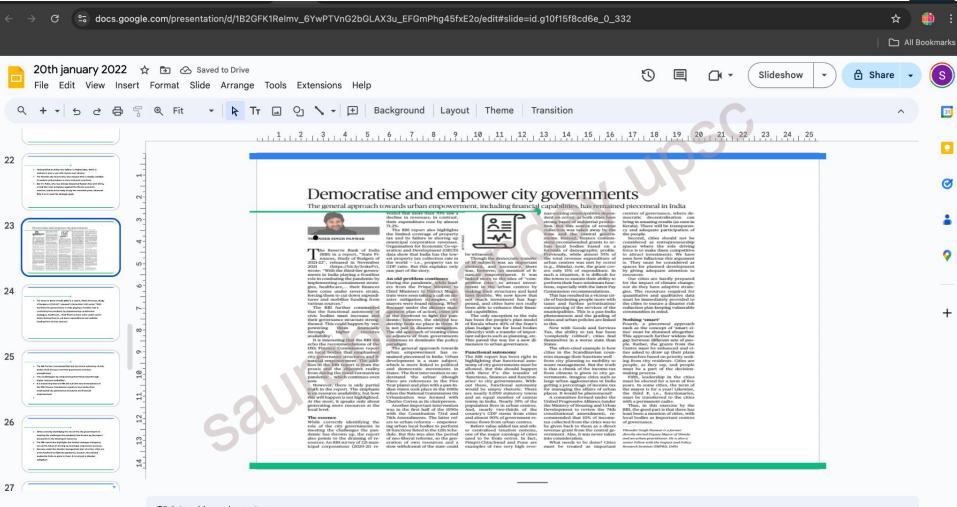
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Q What challenge energy deficit will bring in digital infrastructure development ? ". Examine

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