



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



PATRIOTIC IAS

THE HINDU NEWSPAPER

DAILY CURRENT AFFAIRS

(18 FEBRUARY 2025)

To watch an in-depth discussion on the topic, click on the YouTube link below: <https://www.youtube.com/@PatrioticIAS>

For regular updates on UPSC and PCS preparation, join our Telegram Channel: <https://t.me/patrioticIAS>

TOPICS COVERED (GS Paper I: History, Society and Geography)

1. Places of Worship case put on hold / पूजा स्थलों के मामले पर रोक
2. After uproar over renaming of 'Shaheed Hamid Vidyalaya', U.P. officials restore school's name / 'शहीद हामिद विद्यालय' का नाम बदलने पर विवाद के बाद, यूपी अधिकारियों ने स्कूल का नाम बहाल किया
3. Constitutional morality: the origins and nuances of the concept / संवैधानिक नैतिकता: इस अवधारणा की उत्पत्ति और विविधताएँ

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur
Email Id : info@patrioticias.in
Contact Number : **9971932488**
Website : patrioticias.in



4. Researchers discover that old Egyptian remains smell 'rather nice' / शोधकर्ताओं ने खोजा कि प्राचीन मिस्री अवशेषों की गंध 'काफी अच्छी' होती है

Places of Worship case put off; Centre yet to file a response

GS Paper I: Communalism

NEW DELHI

The Supreme Court on Monday saw the Centre maintain a stoic silence by not filing a counter-affidavit putting on record its response to a challenge to the validity of the **Places of Worship Act (Special Provisions) Act, 1991**, a law that protects the identity and character of religious sites as they were on Independence Day, even as petitioners and interveners raised multifarious viewpoints and legal questions before the court.

The case has been pending for over four years. Eight orders of the court from October 2022 to December 2024, variously record the court either granting the government time to file an affidavit or the government promising the court that it was preparing a "comprehensive" one.

The case, which was due to be heard on Monday, was adjourned to the



CJI Sanjiv Khanna

week starting on April 1 by a Bench headed by Chief Justice of India Sanjiv Khanna.

During the short hearing on Monday, the court complained about the flood of petitions being filed in the case. It dismissed writ petitions in which notice has still not been issued by the court.

The court gave petitioners liberty to file applications. The Chief Justice said the court would entertain applications which raised new legal grounds.

A galaxy of lawyers such

as senior advocates Kapil Sibal, A.M. Singhvi, Dushyant Dave, P. Wilson, Raju Ramachandran, and Vikas Singh, advocates Kaleeswaram Raj, Ejaz Maqbool, and Nizam Pasha appeared for the various parties and interveners, which include minority organisations, political parties and eminent individuals. The Centre is represented by Solicitor-General Tushar Mehta and advocate Kanu Agrawal.

Mr. Raj said interventions were bound to happen in a case involving a seminal constitutional question. Mr. Singh, appearing for petitioner-advocate Ashwini Kumar Upadhyay, said the court had issued notice in the initial petitions as way back as in 2021.

"Please direct the Centre to file its counter-affidavit at least in these petitions," he submitted.

CONTINUED ON
» PAGE 10

Places of Worship case put on hold

पूजा स्थलों के मामले पर रोक

The Supreme Court on Monday saw the Centre maintain a stoic silence by not filing a counter-affidavit in response to a challenge to the validity of the **Places of Worship Act, 1991**.

सोमवार को सुप्रीम कोर्ट ने देखा कि केंद्र सरकार ने पूजा स्थलों के अधिनियम, 1991 की वैधता को चुनौती देने वाली याचिका पर जवाबी हलफनामा दाखिल नहीं किया और मौन बनाए रखा।

The law protects the identity and character of religious sites as they were on Independence Day, 1947.

यह कानून धार्मिक स्थलों की पहचान और स्वरूप को स्वतंत्रता दिवस, 1947 की स्थिति में बनाए

रखने का प्रावधान करता है।

- The case has been pending for over four years.

यह मामला पिछले चार वर्षों से लंबित है।

- Eight orders from October 2022 to December 2024 show the court granting time to the government to file a response, but the Centre has only promised a "comprehensive affidavit".



अक्टूबर 2022 से दिसंबर 2024 के बीच आए आठ आदेशों में सरकार को समय दिया गया, लेकिन सरकार ने सिर्फ "विस्तृत हलफनामा" दाखिल करने का आश्वासन दिया।

- The case was scheduled for hearing on Monday, but the court adjourned it to the week starting April 1.

यह मामला सोमवार को सुनवाई के लिए निर्धारित था, लेकिन अब 1 अप्रैल से शुरू होने वाले सप्ताह तक स्थगित कर दिया गया।

- A Bench headed by Chief Justice of India Sanjiv Khanna is hearing the case. इस मामले की सुनवाई भारत के मुख्य न्यायाधीश संजीव खन्ना की अध्यक्षता वाली पीठ कर रही है।

- The court dismissed writ petitions in which notice had not been issued yet. अदालत ने उन रिट याचिकाओं को खारिज कर दिया, जिनमें अब तक नोटिस जारी नहीं हुआ था।
- The court allowed petitioners to file applications and stated it would entertain only those raising new legal grounds.

अदालत ने याचिकाकर्ताओं को आवेदन दाखिल करने की अनुमति दी और कहा कि वह केवल नए कानूनी आधार उठाने वाली याचिकाओं को सुनेगी।

- Several senior advocates appeared in the case, including Kapil Sibal, A.M. Singhvi, Dushyant Dave, P. Wilson, Raju Ramachandran, and Vikas Singh. इस मामले में कई वरिष्ठ अधिवक्ता पेश हुए, जिनमें कपिल सिब्बल, ए.एम. सिंघवी, दुष्यंत दवे, पी. विल्सन, राजू रामचंद्रन और विकास सिंह शामिल थे।

- Other advocates included Kaleeswaram Raj, Ejaz Maqbool, and Nizam Pasha. अन्य अधिवक्ताओं में कलीस्वरम राज, एजाज़ मकबूल और निज़ाम पाशा भी शामिल थे।

- The Centre was represented by Solicitor-General Tushar Mehta and advocate Kanu Agrawal.

केंद्र सरकार की ओर से सॉलिसिटर जनरल तुषार मेहता और अधिवक्ता कानू अग्रवाल ने पैरवी की।

- Advocate Kaleeswaram Raj stated that interventions were bound to happen in such an important constitutional case.

अधिवक्ता कलीस्वरम राज ने कहा कि ऐसे महत्वपूर्ण संवैधानिक मामले में हस्तक्षेप होना स्वाभाविक है।

- Advocate Vikas Singh, representing petitioner Ashwini Kumar Upadhyay, reminded the court that notice was issued in 2021.

अधिवक्ता विकास सिंह, जो याचिकाकर्ता अश्विनी कुमार उपाध्याय का प्रतिनिधित्व कर रहे थे, ने अदालत को याद दिलाया कि 2021 में ही नोटिस जारी किया गया था।

- He requested the court to direct the Centre to file its counter-affidavit at least in these petitions.

उन्होंने अदालत से अनुरोध किया कि कम से कम इन याचिकाओं पर केंद्र को जवाबी हलफनामा दाखिल करने का निर्देश दिया जाए।



After uproar over renaming of 'Shaheed Hamid Vidyalaya', U.P. officials restore school's name

GS Paper I: History

Mayank Kumar

GHAZIPUR

Four days after a school in Uttar Pradesh's Ghazipur district, named after its pupil Abdul Hamid, the 1965 India-Pakistan war hero, was rechristened 'PM Shri Composite School', causing uproar in the area, the authorities on Monday restored the school's name.

On February 13, 'Shaheed Hamid Vidyalaya' on the front gate of the school in Dhamupur village was painted over as 'PM Shri Composite School'. Following this, Hamid's family lodged a complaint with the district administration demanding the restoration



Param Vir Chakra Abdul Hamid.
THE HINDU ARCHIVES

of the Param Vir Chakra awardee's name.

"The name got changed when the school was being whitewashed. As soon as the issue was brought to my notice, I got the name restored immediately,"

said Basic Education Officer Hemant Rao.

Ghazipur MP Afzal Ansari alleged that the BJP government in the State has been trying to remove from public memory the names of people from the area, such as Abdul Hamid and Mohammad Usman, who became national heroes.

While Abdul Hamid was posthumously awarded the Param Vir Chakra for destroying three Pakistani tanks and forcing the enemy to retreat, Brigadier Usman fought in the India-Pakistan war of 1947-48 and was awarded the Maha Vir Chakra, the second highest decoration for gallantry.

After uproar over renaming of 'Shaheed Hamid Vidyalaya', U.P. officials restore school's name

'शहीद हामिद विद्यालय' का नाम बदलने पर विवाद के बाद, यूपी अधिकारियों ने स्कूल का नाम बहाल किया

Four days after a school in Uttar Pradesh's Ghazipur district, named after Abdul Hamid, a 1965 India-Pakistan war hero, was renamed 'PM Shri Composite School',

authorities restored the school's name on Monday following an uproar.

उत्तर प्रदेश के गाज़ीपुर जिले के एक स्कूल का नाम, जो 1965 के भारत-पाकिस्तान युद्ध नायक अब्दुल हामिद के नाम पर था, चार दिन पहले 'पीएम श्री कंपोजिट स्कूल' कर दिया गया था। सोमवार को विवाद के बाद प्रशासन ने स्कूल का नाम पुनः बहाल कर दिया।

- On February 13, the name 'Shaheed Hamid Vidyalaya' on the school's front gate in Dhamupur village was painted over as 'PM Shri Composite School'.
13 फरवरी को, धामुपुर गांव में स्थित स्कूल के मुख्य द्वार पर लिखा 'शहीद हामिद विद्यालय' का नाम हटाकर 'पीएम श्री कंपोजिट स्कूल' कर दिया गया।
- Hamid's family filed a complaint with the district administration demanding the restoration of the **Param Vir Chakra** awardee's name.
हामिद के परिवार ने जिला प्रशासन में शिकायत दर्ज कराई और परम वीर चक्र विजेता के नाम को बहाल करने की मांग की।
- Basic Education Officer Hemant Rao stated that the name got changed during the school's whitewashing and was restored immediately after the issue was brought



to his notice.

बेसिक शिक्षा अधिकारी हेमंत राव ने कहा कि सफेदी के दौरान स्कूल का नाम बदल गया था और जैसे ही मामला संज्ञान में आया, तुरंत नाम बहाल कर दिया गया।

- Ghazipur MP Afzal Ansari accused the BJP government of attempting to erase the names of local heroes like Abdul Hamid and Mohammad Usman from public memory.

गाज़ीपुर सांसद अफज़ल अंसारी ने बीजेपी सरकार पर आरोप लगाया कि वह अब्दुल हामिद और मोहम्मद उस्मान जैसे स्थानीय नायकों के नामों को जनता की स्मृति से मिटाने की कोशिश कर रही है।

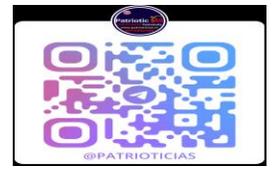
- Abdul Hamid was posthumously awarded the Param Vir Chakra for destroying three Pakistani tanks and forcing the enemy to retreat during the 1965 war.

अब्दुल हामिद को 1965 के युद्ध में तीन पाकिस्तानी टैंकों को नष्ट करने और दुश्मन को पीछे हटने पर मजबूर करने के लिए मरणोपरांत परम वीर चक्र से सम्मानित किया गया था।

- Brigadier Mohammad Usman fought in the 1947-48 India-Pakistan war and was awarded the Maha Vir Chakra, the second-highest gallantry award.

ब्रिगेडियर मोहम्मद उस्मान ने 1947-48 के भारत-पाकिस्तान युद्ध में भाग लिया था और उन्हें महावीर चक्र, जो वीरता का दूसरा सबसे बड़ा सम्मान है, से सम्मानित किया गया था।





Constitutional morality: the origins and nuances of the concept

Constitutional morality is a civic culture of respect for constitutional forms and offices, along with the vigilant application of public reason, self-restraint and critique. It requires citizens to understand that the constitution's rules are sacred

GS Paper I:
Constitutional Morality

In the recent past, our constitutional courts have embraced the polysemous concept of “constitutional morality” as a tool to interpret and as a test to adjudicate upon the constitutional validity of statutes. Today, it is seen by some as a bulwark to keep a check on the volatility that is attached to public morality, and to others, as a “dangerous weapon”. In its judgments in *Navtej Singh Johar versus Union of India* (2018) and *Joseph Shine versus UOI* (2018), the Supreme Court reinvigorated the ancient concept to frame it as an ideal of justice and a “guide (to) the law.”

As such, it is not a surprise that constitutional morality and its meaning(s) have become the cynosure of debates on some of the most pressing issues of our time – the rights of sexual minorities, women's entry into temples, the limits of free speech, and the balance between national security and civil liberties. However, amidst these swirling debates of ownership, it is worth revisiting the origins of this evocative but elusive phrase. British classist George Grote's original conceptualisation of the phrase offers a nuanced and constructive path forward for popular political engagement.

Back to the roots

For Grote, whose *A History of Greece* was

as much a reflection of the Victorian passion for –and self-identification with – ancient Greece as it was an attempt to champion Athenian democracy from the condescension of its critics such as the Scotsman John Gillies and William Mitford, the democracy at Athens was “one of the most important and prolific events in all Grecian history” and the result of a “rare and difficult sentiment which we may term a constitutional morality.” This rare and difficult sentiment was “a paramount reverence for the forms of the constitution”. This involves adherence to both the form and procedure of the constitution to resolve disputes that arise, with the actions of citizens being only subject to the rule of law, unrestrained by the “censure of those very authorities as to all their public acts.” Grote claimed that eloquently drafted rules and procedures were insufficient to ensure the longevity of a constitution. It required the instillation of “constitutional morality” – a civic culture of respect for constitutional forms and offices, along with the vigilant application of public reason, self-restraint and critique. Pertinently, it requires the creation of confidence in citizens that the constitution's rules are sacred even to those with different political views, even during heated political debates.

It is this civic culture that Dr. Ambedkar spoke of during his famous invocation of the concept in his speech

“The Draft Constitution”, delivered on November 4, 1948. Dr. Ambedkar believed that democracy in India would have to learn the ideal of constitutional morality, as it was not a “natural sentiment” to a polity and had to be “established and diffused” so as to ensure a free and peaceable democracy.

However, Dr. Ambedkar, who had mainly invoked Grote to stress on the necessity of providing for even minor administrative details in the Constitution, knew that the birth of such constitutional morality was a rarity in history. He knew that it was “perfectly possible to pervert the Constitution, without changing its form by merely changing the form of the administration and to make it inconsistent and opposed to the spirit of the Constitution.”

For him, self-restraint was a prerequisite for preserving freedom under a properly constituted government.

Commitment with critique

This interpretation of constitutional morality emphasises on the fact that adherence to the Constitution must be non-transactional and that it cannot be based on an expectation that it would result in outcomes that reflect the value judgments or beliefs of a particular group of citizens. In other words, it demands the acceptance of a result that is vastly different from what these citizens had envisioned. The framework's genius lies

in how it navigates between competing imperatives. It demands respect for constitutional forms while enabling critique of their operation. It requires following established processes while allowing those processes to be questioned and reformed.

Most crucially, it sees the Constitution not as demanding blind devotion but as a framework for managing differences through agreed-upon procedures. This is in stark contrast to the ideal of Jürgen Habermas' constitutional patriotism, which designates political allegiance as solidarity born of the norms and values of the constitution. While the former stresses on the liberalising effect of moderate cultural nationalism, the latter often pushes forward a form of singular-identity democracy purportedly constructed on the principles espoused in the constitution.

Constitutional morality's emphasis on process is especially important given the present rhetoric. It shows how we can maintain constitutional commitment without descending into fundamentalism. It points toward a more mature constitutionalism that balances reverence and reform, stability and change. One should not forget the fact that the founding fathers also saw the promulgation of the constitution as allegiance to constitutional form.

Saai Sudharsan Sathiyamoorthy is advocate, Madras High Court.

Constitutional morality: the origins and nuances of the concept

संवैधानिक नैतिकता: इस अवधारणा की उत्पत्ति और विविधताएँ

Constitutional morality is a civic culture of respect for constitutional forms and offices, along with the vigilant application of public reason, self-restraint, and critique. It requires citizens to understand that the constitution's rules are sacred.

संवैधानिक नैतिकता संविधान के रूपों और पदों के प्रति सम्मान की नागरिक संस्कृति है, जिसमें सार्वजनिक तर्क, आत्म-संयम और आलोचना का सतर्क



अनुप्रयोग शामिल है। यह नागरिकों से अपेक्षा करता है कि वे संविधान के नियमों को पवित्र मानें।

- In recent times, **constitutional courts** have used "**constitutional morality**" as a **tool to interpret laws** and as a **test for adjudicating the constitutional validity of statutes**.

हाल के समय में, संवैधानिक न्यायालयों ने "संवैधानिक नैतिकता" को कानूनों की व्याख्या के उपकरण और संविधानिक वैधता की जांच के परीक्षण के रूप में उपयोग किया है।

- Some see it as a **bulwark against volatile public morality**, while others call it a "**dangerous weapon**."

कुछ इसे अस्थिर सार्वजनिक नैतिकता के खिलाफ एक मजबूत दीवार मानते हैं, जबकि अन्य इसे "एक खतरनाक हथियार" कहते हैं।

- The **Supreme Court** revived this concept in judgments like **Navtej Singh Johar vs. Union of India (2018)** and **Joseph Shine vs. Union of India (2018)**, framing it as an **ideal of justice and a guide to law**.

सुप्रीम कोर्ट ने इस अवधारणा को नवतेज सिंह जौहर बनाम भारत संघ (2018) और जोसेफ शाइन बनाम भारत संघ (2018) के फैसलों में पुनर्जीवित किया, और इसे न्याय का आदर्श और कानून का मार्गदर्शक बताया।

- **Constitutional morality** has become central to debates on **rights of sexual minorities, women's entry into temples, limits of free speech, and the balance between national security and civil liberties**.

संवैधानिक नैतिकता अब यौन अल्पसंख्यकों के अधिकार, महिलाओं के मंदिर में प्रवेश, अभिव्यक्ति की स्वतंत्रता की सीमाएँ, और राष्ट्रीय सुरक्षा व नागरिक स्वतंत्रता के संतुलन जैसे मुद्दों पर बहस का केंद्र बन गई है।

Back to the roots

मूल जड़ों की ओर

- **British classicist George Grote**, in his book "**A History of Greece**", described **Athenian democracy** as one of the **most important events in Grecian history**, resulting from a "**rare and difficult sentiment**" called **constitutional morality**.
ब्रिटिश क्लासिसिस्ट जॉर्ज ग्रोटे ने अपनी पुस्तक "ए हिस्ट्री ऑफ ग्रीस" में एथेंस के लोकतंत्र को यूनानी इतिहास की सबसे महत्वपूर्ण घटनाओं में से एक बताया और इसे "दुर्लभ और कठिन भावना" (संवैधानिक नैतिकता) का परिणाम कहा।
- **Constitutional morality**, according to **Grote**, meant **paramount reverence for constitutional forms**, adherence to **rules and procedures**, and resolution of disputes **only through constitutional means**.



ग्रोटे के अनुसार, संवैधानिक नैतिकता का अर्थ संवैधानिक रूपों के प्रति सर्वोच्च सम्मान, नियमों और प्रक्रियाओं का पालन, और केवल संवैधानिक तरीकों से विवादों का समाधान था।

- Grote warned that eloquently drafted rules were insufficient to sustain a constitution. A civic culture of respect for constitutional offices, public reason, self-restraint, and critique was necessary.

ग्रोटे ने चेतावनी दी कि सुंदर ढंग से लिखे गए नियम संविधान को बनाए रखने के लिए अपर्याप्त हैं। इसके लिए संवैधानिक पदों, सार्वजनिक तर्क, आत्म-संयम और आलोचना के प्रति सम्मान की नागरिक संस्कृति आवश्यक है।

- Dr. B.R. Ambedkar echoed this idea in his speech "The Draft Constitution" (November 4, 1948), emphasizing that constitutional morality was not a natural sentiment but had to be "established and diffused".
डॉ. बी.आर. अंबेडकर ने अपनी प्रसिद्ध "द ड्राफ्ट संविधान" (4 नवंबर, 1948) भाषण में इस विचार को दोहराया और कहा कि संवैधानिक नैतिकता स्वाभाविक भावना नहीं है, बल्कि इसे "स्थापित और प्रसारित" करना पड़ता है।
- Ambedkar stressed that democracy in India must learn constitutional morality to ensure a free and peaceful democracy.

अंबेडकर ने जोर दिया कि भारतीय लोकतंत्र को संवैधानिक नैतिकता सीखनी होगी, ताकि एक स्वतंत्र और शांतिपूर्ण लोकतंत्र सुनिश्चित किया जा सके।

- He warned that it was possible to pervert the Constitution without changing its form, by simply altering administrative practices in a way that goes against the spirit of the Constitution.

उन्होंने चेतावनी दी कि संविधान के रूप को बदले बिना भी इसे विकृत किया जा सकता है, बस प्रशासनिक प्रथाओं में ऐसे बदलाव करके जो संविधान की भावना के विरुद्ध हों।

- For Ambedkar, self-restraint was a prerequisite for preserving freedom under a properly constituted government.

अंबेडकर के लिए, स्वतंत्रता बनाए रखने के लिए आत्म-संयम आवश्यक था, विशेष रूप से एक सही तरीके से गठित सरकार के तहत।

Commitment with critique

आलोचना के साथ प्रतिबद्धता

- This interpretation of constitutional morality emphasizes the fact that adherence to the Constitution must be non-transactional and cannot be based on an expectation that it would result in outcomes that reflect the value judgments or beliefs of a particular group of citizens.

इस व्याख्या में संवैधानिक नैतिकता इस बात पर जोर देती है कि संविधान का पालन गैर-लेन-देनात्मक होना चाहिए और यह किसी विशेष समूह के नागरिकों के मूल्य निर्णयों या विश्वासों के अनुसार परिणाम देने की अपेक्षा पर आधारित नहीं हो सकता।



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



- It demands the acceptance of a result that is vastly different from what these citizens had envisioned.

यह इस बात की मांग करता है कि नागरिक उस परिणाम को स्वीकार करें जो उनकी कल्पना से पूरी तरह अलग हो सकता है।

- The framework's genius lies in how it navigates between competing imperatives. It demands respect for **constitutional forms** while enabling critique of their operation. इस ढांचे की विशेषता यह है कि यह **संवैधानिक रूपों** का सम्मान करने की मांग करता है, जबकि उनके संचालन की आलोचना की अनुमति भी देता है।

- It requires following **established processes** while allowing those processes to be questioned and reformed.

यह **स्थापित प्रक्रियाओं** का पालन करने की मांग करता है, जबकि उन प्रक्रियाओं पर सवाल उठाने और उन्हें सुधारने की भी अनुमति देता है।

- Most crucially, it sees the **Constitution** not as demanding **blind devotion** but as a framework for managing differences through **agreed-upon procedures**.

सबसे महत्वपूर्ण बात यह है कि यह **संविधान** को **अंधभक्ति** की मांग करने वाला नहीं, बल्कि **स्वीकृत प्रक्रियाओं** के माध्यम से मतभेदों को प्रबंधित करने का एक ढांचा मानता है।

- This is in stark contrast to the ideal of **Jürgen Habermas' constitutional patriotism**, which designates political allegiance as solidarity born of the **norms and values** of the constitution.

यह **जुर्गन हेबरमास की संवैधानिक देशभक्ति** के आदर्श से पूरी तरह भिन्न है, जो राजनीतिक निष्ठा को **संविधान के मानदंडों और मूल्यों** से उत्पन्न एकजुटता के रूप में देखता है।

- While the former stresses on the **liberalizing effect** of moderate **cultural nationalism**, the latter often pushes forward a form of **singular-identity democracy** purportedly constructed on the principles espoused in the constitution.

जबकि पहला **मध्यम सांस्कृतिक राष्ट्रवाद** के उदार प्रभाव पर जोर देता है, दूसरा अक्सर **एकल-परिचय लोकतंत्र** को आगे बढ़ाता है, जो कथित तौर पर संविधान में निहित सिद्धांतों पर आधारित होता है।

- **Constitutional morality's emphasis on process** is especially important given the present rhetoric.

वर्तमान बयानबाजी को देखते हुए **संवैधानिक नैतिकता का प्रक्रियाओं पर जोर** विशेष रूप से महत्वपूर्ण है।

- It shows how we can maintain **constitutional commitment** without descending into **fundamentalism**.

यह दिखाता है कि हम **संवैधानिक प्रतिबद्धता** को बनाए रखते हुए **कट्टरता** में कैसे न जाएं।

- It points toward a more mature **constitutionalism** that balances **reverence and reform, stability and change**.

यह एक अधिक परिपक्व **संवैधानिकता** की ओर संकेत करता है जो **श्रद्धा और सुधार, स्थिरता और परिवर्तन** के बीच संतुलन बनाता है।

- One should not forget the fact that the **founding fathers** also saw the promulgation of the **Constitution** as allegiance to **constitutional form**.

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur

Email Id : info@patrioticias.in

Contact Number : 9971932488

Website : patrioticias.in



यह नहीं भूलना चाहिए कि हमारे संविधान निर्माताओं ने भी संविधान के प्रवर्तन को संवैधानिक रूप के प्रति निष्ठा के रूप में देखा था।



Mummified bodies in the exhibition area of the Egyptian Museum in Cairo. AP

Researchers discover that old Egyptian remains smell 'rather nice'

Associated Press **GS Paper I: Ancient History**

At first whiff, it sounds repulsive: sniff the essence of an ancient corpse. But researchers who indulged their curiosity in the name of science found that well-preserved Egyptian mummies actually smell pretty good.

"In films and books, terrible things happen to those who smell mummified bodies," said Cecilia Bembibre, director of research at University College London's Institute for Sustainable Heritage. "We were surprised at the pleasantness of them."

"Woody," "spicy," and "sweet" were the leading descriptions from what sounded more like a wine-tasting than a mummy-sniffing exercise. Floral notes were also detected, which could be from pine and juniper resins used in embalming.

The study, published on February 13 in the *Journal of the American Chemical Society*, used both chemical analysis and a panel of human sniffers to evaluate odours from nine mummies as old as 5,000 years that had been either in storage or on display at the Egyptian Museum in Cairo.

The researchers wanted to systematically study the smell of mummies because it has long been a subject of fascination for the public and researchers alike, said Bembibre, one of the report's authors. Archeologists, historians, conservators, and even fiction writers have devoted pages of their work to the subject.

Scent was an important consideration

The findings of the study provide crucial data on compounds that could preserve or degrade mummified remains

in the mummification process that used oils, waxes, and balms to preserve the body and its spirit for the afterlife. The practice was largely reserved for pharaohs and nobility, and pleasant smells were associated with purity and deities, while bad odours were signs of corruption and decay.

Without sampling the mummies themselves, which would be invasive, researchers from UCL and the University of Ljubljana in Slovenia were able to measure whether aromas were coming from the archaeological item, pesticides or other products used to conserve the remains, or from deterioration due to mold, bacteria, or microorganisms.

Using technical instruments to measure and quantify air molecules emitted from sarcophagi to determine the state of preservation without touching the mummies was like the Holy Grail, Matija Strlič, a chemistry professor at the University of Ljubljana, said.

"It tells us potentially what social class a mummy was from and therefore reveals a lot of information about the mummified body that is relevant not just to conservators, but to curators and archeologists as well," he said.

Barbara Huber, a postdoctoral researcher at the Max Planck Institute of Geoanthropology in Germany who was not involved in the study, said the findings provide crucial data on compounds that could preserve or degrade mummified remains.

Huber authored a study two years ago that analysed residue from a jar that had contained mummified organs of a noblewoman to identify embalming ingredients, their origins, and what they revealed about trade routes. She then worked with a perfumer to create an interpretation of the embalming scent, known as "Scent of Eternity," for an exhibition at the Moesgaard Museum in Denmark.



Researchers discover that old Egyptian remains smell 'rather nice'

शोधकर्ताओं ने खोजा कि प्राचीन मिस्री अवशेषों की गंध 'काफी अच्छी' होती है

At first whiff, it sounds repulsive: sniff the essence of an ancient corpse.

पहली ही गंध में, यह घृणित लग सकता है: एक प्राचीन शव की सुगंध को सूंघना।

- But researchers who indulged their curiosity in the name of **science** found that well-preserved **Egyptian mummies** actually smell **pretty good**.
लेकिन जो शोधकर्ताओं ने विज्ञान के नाम पर अपनी जिज्ञासा को पूरा किया, उन्होंने पाया कि अच्छी तरह संरक्षित मिस्री ममी वास्तव में अच्छी सुगंध देती हैं।
- "In **films and books**, terrible things happen to those who smell **mummified bodies**," said **Cecilia Bembibre**, director of research at **University College London's Institute for Sustainable Heritage**.
फिल्मों और किताबों में, जो लोग ममीकृत शरीर को सूंघते हैं, उनके साथ भयानक घटनाएँ होती हैं," कहा सेसिलिया बेम्बिब्रे ने, जो यूनिवर्सिटी कॉलेज लंदन के इंस्टीट्यूट फॉर सस्टेनेबल हेरिटेज में शोध निदेशक हैं।
- "We were **surprised** at the **pleasantness** of them."
"हमें उनकी सुगंधितता देखकर आश्चर्य हुआ।"
- "**Woody**," "**spicy**," and "**sweet**" were the leading descriptions from what sounded more like a **wine-tasting** than a **mummy-sniffing** exercise.
"लकड़ी जैसी," "मसालेदार," और "मीठी" गंध को प्रमुख रूप से वर्णित किया गया, जिससे यह ममी-सूंघने से ज्यादा वाइन-टेस्टिंग जैसी प्रक्रिया लगी।
- **Floral notes** were also detected, which could be from **pine and juniper resins** used in **embalming**.
फूलों जैसी गंध भी पाई गई, जो संभवतः पाइन और जुनिपर रेजिन से आई होगी, जिनका उपयोग संरक्षण (एम्बामिंग) में किया जाता था।

Study and Findings

अध्ययन और निष्कर्ष

- The study, published on **February 13** in the **Journal of the American Chemical Society**, used both **chemical analysis** and a panel of **human sniffers** to evaluate **odours** from **nine mummies** as old as **5,000 years**.



यह अध्ययन 13 फरवरी को जर्नल ऑफ द अमेरिकन केमिकल सोसाइटी में प्रकाशित हुआ, जिसमें रासायनिक विश्लेषण और मानव सूंघने वालों के पैनल का उपयोग कर 9 ममी, जो 5,000 साल पुरानी थीं, की गंध का मूल्यांकन किया गया।

- These mummies had been either in **storage** or on **display** at the **Egyptian Museum in Cairo**.

ये ममियां या तो संग्रह में रखी गई थीं या काहिरा के मिस्री संग्रहालय में प्रदर्शित थीं।

- Researchers wanted to systematically study the **smell of mummies**, as it has long been a **subject of fascination** for both the **public and researchers**.

शोधकर्ताओं ने ममियों की गंध का व्यवस्थित रूप से अध्ययन करना चाहा, क्योंकि यह लंबे समय से जनता और शोधकर्ताओं दोनों के लिए आकर्षण का विषय रहा है।

- **Scent** was an important consideration in the **mummification process**, which used **oils, waxes, and balms** to preserve the **body and spirit** for the **afterlife**.

सुगंध को ममीकरण प्रक्रिया में महत्वपूर्ण माना जाता था, जिसमें तेल, मोम, और बाम का उपयोग कर शरीर और आत्मा को परलोक के लिए संरक्षित किया जाता था।

- The practice was largely **reserved for pharaohs and nobility**, as **pleasant smells** were associated with **purity and deities**, while **bad odours** indicated **corruption and decay**.

यह प्रथा मुख्य रूप से फिरौन और कुलीन वर्ग के लिए आरक्षित थी, क्योंकि सुगंधित गंध को पवित्रता और देवताओं से जोड़ा जाता था, जबकि दुर्गंध को भ्रष्टाचार और सड़न का प्रतीक माना जाता था।

Scientific Approach and Analysis

वैज्ञानिक दृष्टिकोण और विश्लेषण

- Without **sampling the mummies** directly, researchers from **UCL** and the **University of Ljubljana in Slovenia** were able to measure whether aromas came from the **archaeological item, pesticides, conservation products**, or from **deterioration due to mold, bacteria, or microorganisms**.

ममियों से सीधे नमूना लिए बिना, यूसीएल और स्लोवेनिया की यूनिवर्सिटी ऑफ लुब्लियाना के शोधकर्ता यह मापने में सक्षम थे कि गंध पुरातात्विक वस्तु, कीटनाशक, संरक्षण उत्पादों से आ रही थी या फिर फफूंद, बैक्टीरिया या सूक्ष्मजीवों के कारण खराबी से उत्पन्न हो रही थी।

- Using **technical instruments** to measure and quantify **air molecules emitted from sarcophagi**, researchers determined the state of **preservation without touching the mummies**.

तकनीकी उपकरणों का उपयोग कर सार्कोफेगी (पत्थर के ताबूतों) से निकलने वाले वायु अणुओं का विश्लेषण कर, शोधकर्ताओं ने बिना ममियों को छुए उनकी संरक्षण की स्थिति का पता लगाया।

- **Matija Strlič**, a **chemistry professor** at the **University of Ljubljana**, called this process **the Holy Grail**, as it revealed important details about **social class and preservation**.



मैटिजा स्ट्रलिक, जो यूनिवर्सिटी ऑफ लुब्लियाना में रसायनशास्त्र के प्रोफेसर हैं, ने इस प्रक्रिया को "पवित्र ग्रेल" कहा, क्योंकि इससे सामाजिक वर्ग और संरक्षण से जुड़ी महत्वपूर्ण जानकारियाँ मिलीं।

- "It tells us potentially what **social class** a mummy was from, providing information useful for **conservators, curators, and archaeologists**," he said.

"यह हमें यह बताने में सक्षम बनाता है कि कोई ममी किस सामाजिक वर्ग की थी, जो संरक्षकों, क्यूरेटर्स और पुरातत्वविदों के लिए उपयोगी जानकारी है।"

Expert Opinions and Applications

विशेषज्ञों की राय और अनुप्रयोग

- **Barbara Huber**, a postdoctoral researcher at the **Max Planck Institute of Geoanthropology in Germany**, who was not involved in the study, stated that the findings provide **crucial data on compounds that could preserve or degrade mummified remains**.
बारबरा ह्यूबर, जो मैक्स प्लैंक इंस्टीट्यूट ऑफ जियोएंथ्रोपोलॉजी, जर्मनी में पोस्टडॉक्टरल शोधकर्ता हैं और अध्ययन में शामिल नहीं थीं, ने कहा कि यह निष्कर्ष ऐसे यौगिकों पर महत्वपूर्ण डेटा प्रदान करते हैं जो ममीकृत अवशेषों को संरक्षित या नष्ट कर सकते हैं।
- **Huber's** previous research analyzed **residue from a jar containing mummified organs** to identify **embalming ingredients, their origins, and trade routes**.
ह्यूबर के पिछले शोध में ममीकृत अंगों वाले जार के अवशेषों का विश्लेषण किया गया था, जिससे संरक्षण सामग्री, उनके स्रोत, और व्यापार मार्गों की पहचान हुई।
- She later collaborated with a **perfumer** to recreate the embalming scent, named "**Scent of Eternity**," for an exhibition at the **Moesgaard Museum in Denmark**.
बाद में, उन्होंने एक सुगंध विशेषज्ञ के साथ मिलकर "सेंट ऑफ एटर्निटी" नामक संरक्षण सुगंध को पुनः निर्मित किया, जिसे डेनमार्क के मोसगार्ड संग्रहालय में प्रदर्शित किया गया।

(GS Paper II: Polity, Governance, and International Relations)

1. **Gyanesh Kumar named CEC after panel meeting / पैनल बैठक के बाद ज्ञानेश कुमार बने मुख्य चुनाव आयुक्त**
2. **Razing of mosque: SC asks why U.P. authorities shouldn't be booked for court contempt / मस्जिद गिराने का मामला: सुप्रीम कोर्ट ने पूछा कि उत्तर प्रदेश प्रशासन पर अवमानना का मामला क्यों न चले**



3. Georgia and the resurrection of the colour revolutions /
जॉर्जिया और रंग क्रांतियों का पुनरुत्थान
4. India-Bangladesh ties should not be regime-specific /
भारत-बांग्लादेश संबंध किसी विशेष शासन तक सीमित नहीं होने चाहिए
5. Ensure Hasina stops incendiary remarks' / 'हसीना को
भड़काऊ बयान देने से रोकने की गारंटी दें'
6. Prime Minister receives Emir of Qatar at airport /
प्रधानमंत्री ने कतर के अमीर का हवाई अड्डे पर स्वागत किया
7. 'Now or never' for pandemic accord, says WHO chief /
महामारी समझौते के लिए 'अभी नहीं तो कभी नहीं', डब्ल्यूएचओ प्रमुख

Gyanesh Kumar named CEC after panel meeting

Haryana Chief Secretary Vivek Joshi appointed Election Commissioner; Congress had sought adjournment of meet of PM-led panel as top court is set to hear challenge to new law tomorrow

GS Paper II: Elections

Sreeparna Chakrabarty
NEW DELHI

Election Commissioner Gyanesh Kumar has been appointed Chief Election Commissioner after a meeting of a three-member committee headed by Prime Minister Narendra Modi in New Delhi on Monday. He will assume office on Wednesday, when the Supreme Court will hear the challenge to a new law under which the selection has been made.

The Law Ministry notified the appointment late on Monday. Haryana Chief Secretary Vivek Joshi has been appointed an Election Commissioner.

Mr. Kumar's appointment came even as the Congress asked the government to "adjourn" the



New role: Gyanesh Kumar will assume office as CEC on Wednesday. He was made Election Commissioner on March 14, 2024. FILE PHOTO

meeting of the panel till Wednesday as the case is before the court.

Mr. Gyanesh Kumar, a 1988-batch former Indian Administrative Service officer belonging to the Kerala cadre, retired as Union Cooperation Secretary on

January 31, 2024. On March 14, 2024, he was appointed Election Commissioner.

While the Prime Minister heads the selection panel, Home Minister Amit Shah and Leader of the Opposition in the Lok Sabha

Rahul Gandhi are its members.

Congress sources said Mr. Gandhi left the meeting at the Prime Minister's official residence, after submitting his objections in writing. He was not present when the names were discussed.

'Partisan mechanism'

At a press conference after the meeting, the Congress said the new law under which the committee had been constituted created a "partisan" and "non-neutral" mechanism for the selection of Election Commissioners. The party asked the government to seek an early hearing and early disposal of the application in the court.

CONTINUED ON
» PAGE 10

Gyanesh Kumar named CEC after panel meeting

पैनल बैठक के बाद ज्ञानेश कुमार बने मुख्य चुनाव आयुक्त

Election Commissioner Gyanesh Kumar has been appointed as the Chief Election Commissioner (CEC) after a meeting of a three-member committee headed by Prime Minister Narendra Modi in New Delhi on Monday.



सोमवार को नई दिल्ली में प्रधानमंत्री नरेंद्र मोदी की अध्यक्षता वाली तीन सदस्यीय समिति की बैठक के बाद चुनाव आयुक्त ज्ञानेश कुमार को मुख्य चुनाव आयुक्त (CEC) नियुक्त किया गया।

- He will assume office on Wednesday, when the Supreme Court will hear a challenge to the new law under which the selection was made.
वह बुधवार को पदभार ग्रहण करेंगे, उसी दिन सुप्रीम कोर्ट उस नए कानून पर सुनवाई करेगा जिसके तहत यह चयन किया गया है।
- The Law Ministry notified the appointment late on Monday.
सोमवार देर रात कानून मंत्रालय ने इस नियुक्ति की अधिसूचना जारी की।
- Haryana Chief Secretary Vivek Joshi has been appointed as an Election Commissioner.
हरियाणा के मुख्य सचिव विवेक जोशी को चुनाव आयुक्त नियुक्त किया गया है।
- Congress asked the government to adjourn the panel meeting till Wednesday as the case is before the court.
कांग्रेस ने सरकार से अनुरोध किया कि वह बुधवार तक पैनल की बैठक को स्थगित करे, क्योंकि यह मामला अदालत में लंबित है।
- Gyanesh Kumar, a 1988-batch IAS officer from the Kerala cadre, retired as Union Cooperation Secretary on January 31, 2024.
ज्ञानेश कुमार, जो केरल कैडर के 1988 बैच के IAS अधिकारी हैं, 31 जनवरी 2024 को केंद्रीय सहकारिता सचिव के रूप में सेवानिवृत्त हुए।
- On March 14, 2024, he was appointed as Election Commissioner.
14 मार्च 2024 को उन्हें चुनाव आयुक्त नियुक्त किया गया।
- The selection panel was headed by Prime Minister Narendra Modi, with Home Minister Amit Shah and Leader of the Opposition Rahul Gandhi as members.
प्रधानमंत्री नरेंद्र मोदी की अध्यक्षता में बनी चयन समिति में गृह मंत्री अमित शाह और विपक्ष के नेता राहुल गांधी सदस्य थे।
- Congress sources stated that Rahul Gandhi left the meeting after submitting his objections in writing.
कांग्रेस सूत्रों ने बताया कि राहुल गांधी ने अपनी आपत्तियां लिखित में देने के बाद बैठक छोड़ दी।
- He was not present when the names were discussed.
जब नामों पर चर्चा हुई, तो वह बैठक में मौजूद नहीं थे।
- 'Partisan mechanism': At a press conference, the Congress said the new law created a "partisan" and "non-neutral" selection mechanism for Election Commissioners.
'पक्षपातपूर्ण तंत्र': कांग्रेस ने प्रेस कॉन्फ्रेंस में कहा कि नए कानून ने चुनाव आयुक्तों की नियुक्ति के लिए "पक्षपातपूर्ण" और "गैर-निष्पक्ष" तंत्र तैयार किया।
- The party demanded an early hearing and disposal of the case in court.
कांग्रेस ने अदालत में इस मामले की शीघ्र सुनवाई और निपटारे की मांग की।



Razing of mosque: SC asks why U.P. authorities shouldn't be booked for court contempt

GS Paper II: Contempt of Court

Press Trust of India
NEW DELHI

The Supreme Court on Monday directed Uttar Pradesh authorities to respond as to why contempt proceedings should not be initiated against them for razing a portion of a mosque at Kushinagar in alleged disobedience of the apex court's direction.

A Bench of Justices B.R. Gavai and Augustine George Masih also directed that until further orders, there shall be no demolition of the structure in question.

The Bench passed the order while hearing a contempt plea against the authorities concerned in Kushinagar for their alleged wilful disobedience and failure to comply with the top court's November



Apex court by its Nov. 13, 2024 order has barred demolition without prior notice. FILE PHOTO

13 last year directions.

In its November 13, 2024 verdict, the top court laid down pan-India guidelines and barred demolition of properties without a prior show cause notice and 15 days' time to the aggrieved party to respond.

The fresh petition, filed through advocate Abdul Qadir Abbasi, said the authorities had demolished the outer and front

area of the Madni mosque in Kushinagar on February 9.

Senior advocate Huzefa Ahmadi, appearing for the petitioners, said the structure in question was constructed on a private land owned by the petitioners.

He said the construction was with due sanction of municipal authorities according to a sanction order of 1999.

Mr. Ahmadi argued that the demolition was carried out in "egregious contempt" of the directions issued by the apex court in its November last year judgement.

"Issue notice as to why proceedings for contempt should not be initiated against the respondents," the Bench said and posted the matter for hearing after two weeks.

Razing of mosque: SC asks why U.P. authorities shouldn't be booked for court contempt

मस्जिद गिराने का मामला: सुप्रीम कोर्ट ने पूछा कि उत्तर प्रदेश प्रशासन पर अवमानना का मामला क्यों न चले

The Supreme Court on Monday directed Uttar Pradesh authorities to respond as to why contempt proceedings should not be initiated against them for razing a portion of a mosque at Kushinagar, allegedly in disobedience of the apex

court's direction.

सुप्रीम कोर्ट ने सोमवार को उत्तर प्रदेश प्रशासन को यह बताने का निर्देश दिया कि कुशीनगर में एक मस्जिद के एक हिस्से को गिराने के लिए उन पर अवमानना की कार्यवाही क्यों न शुरू की जाए, क्योंकि यह सर्वोच्च न्यायालय के निर्देशों की अवहेलना थी।

- A Bench of Justices B.R. Gavai and Augustine George Masih also directed that until further orders, there shall be no demolition of the structure in question. न्यायमूर्ति बी.आर. गवई और ऑगस्टिन जॉर्ज मसीह की पीठ ने यह भी निर्देश दिया कि अगले आदेश तक इस ढांचे का कोई और विध्वंस नहीं किया जाएगा।



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



Hearing the Contempt Plea

अवमानना याचिका पर सुनवाई

- The Bench passed the order while hearing a **contempt plea** against the authorities concerned in **Kushinagar** for their **wilful disobedience** and failure to comply with the **top court's November 13, 2024 directions**.
पीठ ने यह आदेश कुशीनगर के प्रशासन के खिलाफ दायर अवमानना याचिका की सुनवाई के दौरान दिया, जिसमें आरोप लगाया गया कि उन्होंने जानबूझकर सर्वोच्च न्यायालय के 13 नवंबर 2024 के निर्देशों की अवहेलना की।
- In its **November 13, 2024 verdict**, the **Supreme Court** laid down **pan-India guidelines** and barred the **demolition of properties** without a **prior show cause notice** and **15 days' time** for the aggrieved party to respond.
अपने 13 नवंबर 2024 के फैसले में, सुप्रीम कोर्ट ने संपत्ति ध्वस्त करने पर देशव्यापी दिशानिर्देश लागू किए और बिना पूर्व कारण बताओ नोटिस और प्रभावित पक्ष को 15 दिन का समय दिए बिना किसी भी संपत्ति को गिराने पर रोक लगा दी।

Details of the Demolition

विध्वंस का विवरण

- The **fresh petition**, filed through advocate **Abdul Qadir Abbasi**, said the authorities had **demolished the outer and front area** of the **Madni mosque** in **Kushinagar** on **February 9**.
नवीनतम याचिका, जो अधिवक्ता अब्दुल कादिर अब्बासी के माध्यम से दायर की गई थी, में कहा गया कि प्रशासन ने 9 फरवरी को कुशीनगर की मदनी मस्जिद के बाहरी और अग्र भाग को गिरा दिया।
- **Senior advocate Huzefa Ahmadi**, appearing for the petitioners, said the **structure in question** was **constructed on private land** owned by the petitioners.
वरिष्ठ अधिवक्ता हुज़ैफा अहमदी, जो याचिकाकर्ताओं की ओर से पेश हुए, ने कहा कि विवादित ढांचा याचिकाकर्ताओं की निजी भूमि पर बनाया गया था।
- He said the **construction** was done with **due sanction** of the municipal authorities according to a **sanction order of 1999**.
उन्होंने कहा कि निर्माण 1999 के स्वीकृति आदेश के अनुसार नगरपालिका प्रशासन की मंजूरी से किया गया था।

Court's Response

न्यायालय की प्रतिक्रिया

- Mr. Ahmadi argued that the **demolition** was carried out in **"egregious contempt"** of the **Supreme Court's November 2024 judgment**.

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur
Email Id : info@patrioticias.in
Contact Number : 9971932488
Website : patrioticias.in



श्री अहमदी ने तर्क दिया कि विध्वंस सुप्रीम कोर्ट के नवंबर 2024 के फैसले की "गंभीर अवमानना" में किया गया था।

- "Issue notice as to why proceedings for contempt should not be initiated against the respondents," the Bench said and posted the matter for hearing after two weeks.

"उत्तरदाताओं के खिलाफ अवमानना कार्यवाही क्यों न शुरू की जाए, इस पर नोटिस जारी करें," पीठ ने कहा और मामले की अगली सुनवाई दो सप्ताह बाद निर्धारित कर दी।

Georgia and the resurrection of the colour revolutions

GS Paper II: Cold War
GS Paper III

With the dawn of the 21st century, post-Soviet States experienced a wave of uprisings known as the "colour revolutions". The movements were associated with specific colours and were largely peaceful protests to replace pro-Moscow governments with a pro-West government in the name of democratic reforms. Though they were non-violent, peaceful and democratic, the Russian elites often perceived them to be western-backed strategies in order to weaken Moscow's sphere of influence.

The most notable examples include Georgia's Rose Revolution (2003), Ukraine's Orange Revolution (2004), and Kyrgyzstan's Tulip Revolution (2005). These protests, on the face of it, appeared peaceful and democratic. Still, these movements received active help from western governments and organisations such as the National Endowment for Democracy (NED), formed during the Cold War to support and promote American social and political values.

The Russian view

British strategist B.H. Liddell Hart's concept of fighting "on the other side of the hill" aptly describes such an approach which prioritised destabilisation and political subversion over confrontation. Russia viewed such movements as threats to its influence in neighbouring States and as a model that could inspire similar challenges within its borders. This perspective extended beyond former Soviet space, with Russia and other powers, including China, seeing these revolutions as a blueprint for low-cost, high-impact interventions in regions such as West Asia, Africa, Central Asia and South Asia.

The fate of these 'colour revolutions' was not up to the expectations for which they were brought about – that is, transforming these States, most of them with primordial loyalties, into a corruption-free western ally. Very soon the changes that resulted failed to ameliorate the situation on the ground. One set of corrupt people was replaced by another set of corrupt people owing their allegiance and political ideas



Amitabh Singh

teaches at the School of International Studies, Jawaharlal Nehru University, New Delhi



Vivek Pandey

is a PhD candidate at the School of International Studies, Jawaharlal Nehru University, New Delhi

Whether soft power strategies such as promoting democracy through the colour revolutions are still effective is the question

to the West. The people gradually became frustrated and public disillusionment over unfulfilled expectations also arose. The long-term failures of these patterns of transitions have highlighted the limits of these externally-driven democratic experiments.

The Rose Revolution 2.0

Georgia's Rose Revolution is a pivotal example of this phenomenon. This movement replaced the then President Eduard Shevardnadze with a pro-West President, Mikheil Saakashvili. Initially celebrated as a victory for democratic values, it became increasingly evident that the 'revolution's' success was facilitated by western backing, and the movement was given financial and logistical support by patrons in the West, especially the United States. Soon after the election, the Saakashvili regime became synonymous with corruption, authoritarianism and undemocratic practices, further maligning the movement's character.

Two decades later, a similar scenario is unfolding in Georgia. Recent parliamentary and presidential elections have reignited passions, with the ruling Georgian Dream party securing a decisive and clear victory. One of the outcomes of these elections was the change of guard in the presidential office. The Georgian Dream Party candidate, Mikheil Kavelashvili, a former footballer, was elected President.

The former President, Salome Zourabichvili, who had initially refused to vacate the office and the presidential palace in favour of the incumbent President, agreed to leave, calling herself the 'only legitimate President'. She also alleged that the parliamentary and presidential elections were marred by electoral malpractices and corruption, and hence 'illegitimate'. Ms. Zourabichvili was empathetic towards the protests against the 'illegitimate' elections and joined in the street protests.

The ruling party alleged that these protests were organised at the behest of the West through non-governmental organisations funded by them – proving their contention about external

interferences in Georgia's internal matters. This is not without precedent. The post-Soviet space has long been a battleground for competing geopolitical agendas, with western-backed 'movements' challenging Moscow-aligned regimes.

There is a relative downgrade in the position that Russia held prior to its war with Ukraine, at least in the short term. Russia is more focused on its ties with the 'Near Abroad', but this narrative often underestimates Russia's enduring resilience as a significant power in the post-Soviet space.

Protests in Georgia have also coincided with a period of heightened global anxiety over the role that the U.S. might play, with Donald Trump now the American President. Internal challenges have limited Washington's capacity to engage decisively in Georgia. As a result, the effectiveness of soft power strategies such as promoting democracy through colour revolutions, is waning.

The importance of Georgia

Georgia's strategic positioning, at the crossroads of Europe and Asia, makes it a focal point for major power struggles. Its geography and historical vulnerabilities have left it susceptible to external influences, positioning it as a pawn in broader geopolitical contests. Georgian politics illustrates the challenges of balancing domestic governance with external pressures in an increasingly complex world. As the U.S. grapples with its diminishing global influence and Russia continues to assert its role as a regional power, Georgia is deftly managing its relationships with both East and West.

The broader implications of this struggle extend beyond Georgia, shaping the political trajectories of other post-Soviet States that are caught in the crossfire of competing geopolitical agendas. Whether the colour revolution model remains a viable tool for political change or fades into history as a relic of early 21st-century geopolitics will depend on the evolving dynamics of international relations, testing the resilience of States navigating these turbulent times.

Georgia and the resurrection of the colour revolutions

जॉर्जिया और रंग क्रांतियों का पुनरुत्थान



With the dawn of the 21st century, post-Soviet States experienced a wave of uprisings known as the “colour revolutions”.

21वीं सदी की शुरुआत में, सोवियत संघ के बाद के राज्यों ने "रंग क्रांतियों" के रूप में जानी जाने वाली विरोध लहरों का अनुभव किया।

- The movements were associated with **specific colours** and were largely **peaceful protests** to replace **pro-Moscow governments** with a **pro-West government** in the name of **democratic reforms**.
ये आंदोलन विशेष रंगों से जुड़े थे और मुख्य रूप से शांतिपूर्ण विरोध थे, जिनका उद्देश्य प्रो-मॉस्को सरकारों को प्रो-पश्चिम सरकारों से बदलना था, जो लोकतांत्रिक सुधारों के नाम पर किए गए।
- Though they were **non-violent, peaceful, and democratic**, the **Russian elites** often perceived them to be **Western-backed strategies** to weaken **Moscow's sphere of influence**.
हालांकि ये अहिंसक, शांतिपूर्ण और लोकतांत्रिक थे, लेकिन रूसी अभिजात्य वर्ग ने इन्हें अक्सर पश्चिमी-समर्थित रणनीतियाँ माना, जिनका उद्देश्य मॉस्को के प्रभाव क्षेत्र को कमजोर करना था।

Major Colour Revolutions

मुख्य रंग क्रांतियाँ

- The most notable examples include:
सबसे प्रमुख उदाहरण इस प्रकार हैं:
 - **Georgia's Rose Revolution (2003)**
जॉर्जिया की रोज क्रांति (2003)
 - **Ukraine's Orange Revolution (2004)**
यूक्रेन की ऑरेंज क्रांति (2004)
 - **Kyrgyzstan's Tulip Revolution (2005)**
किर्गिस्तान की ट्यूलिप क्रांति (2005)
- These protests, on the surface, appeared **peaceful and democratic**, but they received **active help** from **Western governments and organisations** such as the **National Endowment for Democracy (NED)**.
ये विरोध प्रदर्शन बाहरी रूप से शांतिपूर्ण और लोकतांत्रिक लगे, लेकिन इन्हें पश्चिमी सरकारों और संगठनों जैसे कि नेशनल एंडोमेंट फॉर डेमोक्रेसी (NED) से सक्रिय सहायता मिली।
- **NED** was formed during the **Cold War** to **support and promote American social and political values**.
NED की स्थापना शीत युद्ध के दौरान अमेरिकी सामाजिक और राजनीतिक मूल्यों को समर्थन और बढ़ावा देने के लिए की गई थी।

The Russian View



रूस का दृष्टिकोण

- **British strategist B.H. Liddell Hart's** concept of **fighting "on the other side of the hill"** aptly describes such an approach, which prioritised **destabilisation and political subversion over direct confrontation**.
ब्रिटिश रणनीतिकार बी.एच. लिडेल हार्ट की अवधारणा "दूसरी ओर से लड़ने" को इस दृष्टिकोण का सही वर्णन माना जाता है, जिसमें सीधे टकराव की बजाय अस्थिरता और राजनीतिक तोड़फोड़ को प्राथमिकता दी गई।
- **Russia viewed these movements** as threats to its influence in neighbouring States and as a **model that could inspire similar challenges within its borders**.
रूस ने इन आंदोलनों को अपने पड़ोसी राज्यों में प्रभाव के लिए खतरा और अपने देश के भीतर इसी तरह की चुनौतियों को प्रेरित करने वाले मॉडल के रूप में देखा।
- This perspective extended beyond the **former Soviet space**, with **Russia and other powers**, including **China**, seeing these revolutions as **blueprints for low-cost, high-impact interventions in West Asia, Africa, Central Asia, and South Asia**.
यह दृष्टिकोण पूर्व सोवियत क्षेत्र से परे फैला, जहां रूस और अन्य शक्तियाँ, जिनमें चीन भी शामिल है, इन क्रांतियों को पश्चिम एशिया, अफ्रीका, मध्य एशिया और दक्षिण एशिया में कम लागत, उच्च प्रभाव वाले हस्तक्षेप के खाके के रूप में देखते हैं।

Long-Term Failures of Colour Revolutions

रंग क्रांतियों की दीर्घकालिक विफलताएँ

- The fate of these "colour revolutions" did not meet the expectations of **transforming these states into corruption-free Western allies**.
इन "रंग क्रांतियों" का भविष्य उन उम्मीदों पर खरा नहीं उतरा, जिनके तहत इन राज्यों को भ्रष्टाचार मुक्त पश्चिमी सहयोगी में बदला जाना था।
- Soon, the **changes failed to improve conditions** on the ground, and **one set of corrupt leaders** was simply replaced by another set with **allegiances to the West**.
जल्दी ही, ये परिवर्तन जमीनी स्तर पर सुधार लाने में विफल रहे, और एक भ्रष्ट नेतृत्व को हटाकर बस पश्चिम समर्थक दूसरा भ्रष्ट नेतृत्व स्थापित कर दिया गया।
- **Public disillusionment over unfulfilled expectations** grew as people became frustrated with the new leadership.
अपूर्ण आशाओं के कारण जनता में असंतोष बढ़ने लगा, और लोग नए नेतृत्व से निराश हो गए।
- The **long-term failures** of these externally-driven **democratic experiments** have **highlighted their limitations**.
इन बाहरी रूप से संचालित लोकतांत्रिक प्रयोगों की दीर्घकालिक विफलताओं ने उनकी सीमाओं को उजागर कर दिया।

The Rose Revolution 2.0



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



रोज क्रांति 2.0

- **Georgia's Rose Revolution** is a pivotal example of this phenomenon.
जॉर्जिया की रोज क्रांति इस घटनाक्रम का एक महत्वपूर्ण उदाहरण है।
- This movement replaced the then President **Eduard Shevardnadze** with a **pro-West President, Mikheil Saakashvili**.
इस आंदोलन ने तत्कालीन राष्ट्रपति एडुआर्ड शेवर्नदज़े को हटाकर प्रो-पश्चिम राष्ट्रपति, मिखाइल साकाशविली को सत्ता में लाया।
- Initially celebrated as a victory for **democratic values**, it became increasingly evident that the **revolution's success was facilitated by Western backing**.
इसे शुरू में लोकतांत्रिक मूल्यों की जीत के रूप में मनाया गया, लेकिन जल्द ही यह स्पष्ट हो गया कि इस क्रांति की सफलता पश्चिमी समर्थन से संभव हुई।
- The movement was given **financial and logistical support by patrons in the West, especially the United States**.
इस आंदोलन को पश्चिमी समर्थकों, विशेष रूप से अमेरिका द्वारा वित्तीय और तार्किक सहायता प्रदान की गई।
- Soon after the election, the **Saakashvili regime** became synonymous with **corruption, authoritarianism, and undemocratic practices**.
चुनाव के तुरंत बाद, साकाशविली शासन भ्रष्टाचार, तानाशाही और अलोकतांत्रिक प्रथाओं का प्रतीक बन गया।
- This further **maligned the movement's character**.
इससे आंदोलन की छवि और खराब हो गई।

A Similar Scenario in Georgia Two Decades Later

दो दशक बाद जॉर्जिया में समान स्थिति

- A similar scenario is unfolding in **Georgia after two decades**.
दो दशक बाद, जॉर्जिया में समान स्थिति देखी जा रही है।
- **Recent parliamentary and presidential elections** have reignited passions, with the ruling **Georgian Dream party securing a decisive and clear victory**.
हाल ही में हुए संसदीय और राष्ट्रपति चुनावों ने फिर से जोश बढ़ा दिया है, जहां सत्तारूढ़ जॉर्जियन ड्रीम पार्टी ने निर्णायक और स्पष्ट जीत हासिल की।
- One of the outcomes of these elections was the **change of guard in the presidential office**.
इन चुनावों के एक परिणामस्वरूप राष्ट्रपति पद में बदलाव हुआ।
- The **Georgian Dream Party candidate, Mikheil Kavelashvili, a former footballer**, was elected President.
जॉर्जियन ड्रीम पार्टी के उम्मीदवार, मिखाइल कावेलेशविली, जो एक पूर्व फुटबॉलर हैं, राष्ट्रपति चुने गए।



Controversy Over Presidential Transition

राष्ट्रपति परिवर्तन पर विवाद

- The former President, **Salome Zourabichvili**, initially refused to vacate office and the presidential palace.
पूर्व राष्ट्रपति, सालोमे जौराबिचविली ने पहले कार्यालय और राष्ट्रपति महल खाली करने से इनकार कर दिया।
- She called herself the "**only legitimate President**".
उन्होंने खुद को "एकमात्र वैध राष्ट्रपति" बताया।
- She alleged that the **parliamentary and presidential elections** were **marred by electoral malpractices and corruption**, and hence were "**illegitimate**".
उन्होंने आरोप लगाया कि संसदीय और राष्ट्रपति चुनावों में धांधली और भ्रष्टाचार हुआ, जिससे वे "अवैध" हो गए।
- **Ms. Zourabichvili** supported and even **joined the street protests** against the "illegitimate" elections.
सुश्री जौराबिचविली ने इन "अवैध" चुनावों के खिलाफ हो रहे सड़क प्रदर्शनों का समर्थन किया और उनमें शामिल भी हुईं।

Western Influence and Russian Allegations

पश्चिमी प्रभाव और रूसी आरोप

- The ruling party alleged that these protests were **organised at the behest of the West** through **non-governmental organisations (NGOs)** funded by them.
सत्तारूढ़ पार्टी ने आरोप लगाया कि ये प्रदर्शन पश्चिमी देशों के निर्देश पर आयोजित किए गए और उनके द्वारा वित्तपोषित गैर-सरकारी संगठनों (NGOs) ने इसमें भूमिका निभाई।
- This proved their **contention about external interferences** in **Georgia's internal matters**.
इससे उनके इस दावे को बल मिला कि जॉर्जिया के आंतरिक मामलों में बाहरी हस्तक्षेप हो रहा है।
- This is not without precedent, as the **post-Soviet space** has long been a **battleground for competing geopolitical agendas**.
यह पहली बार नहीं है, क्योंकि सोवियत संघ के बाद का क्षेत्र लंबे समय से विभिन्न भू-राजनीतिक एजेंडों का युद्धक्षेत्र रहा है।
- **Western-backed movements** have historically challenged **Moscow-aligned regimes**.
पश्चिम समर्थित आंदोलनों ने ऐतिहासिक रूप से मॉस्को समर्थित सरकारों को चुनौती दी है।

Russia's Position and Global Factors

रूस की स्थिति और वैश्विक कारक



- Russia's position has relatively declined since its war with Ukraine, at least in the short term.
यूक्रेन के साथ युद्ध के बाद रूस की स्थिति तुलनात्मक रूप से कमजोर हुई है, कम से कम अल्पकालिक रूप से।
- However, Russia remains resilient as a significant power in the post-Soviet space. फिर भी, रूस सोवियत संघ के बाद के क्षेत्र में एक महत्वपूर्ण शक्ति बना हुआ है।
- Protests in Georgia have coincided with a period of global anxiety over the role of the U.S., especially with Donald Trump now the American President.
जॉर्जिया में प्रदर्शन ऐसे समय में हुए हैं जब अमेरिका की भूमिका को लेकर वैश्विक चिंता बढ़ी है, खासकर डोनाल्ड ट्रंप के अमेरिकी राष्ट्रपति बनने के बाद।
- Internal challenges have limited Washington's capacity to engage decisively in Georgia.
आंतरिक चुनौतियों ने वाशिंगटन की क्षमता को सीमित कर दिया है कि वह जॉर्जिया में निर्णायक रूप से हस्तक्षेप कर सके।
- As a result, the effectiveness of soft power strategies, such as promoting democracy through colour revolutions, is waning.
परिणामस्वरूप, सॉफ्ट पावर रणनीतियों, जैसे कि रंग क्रांतियों के माध्यम से लोकतंत्र को बढ़ावा देना, की प्रभावशीलता घट रही है।

The Importance of Georgia

जॉर्जिया का महत्व

- Georgia's strategic positioning, at the crossroads of Europe and Asia, makes it a focal point for major power struggles.
यूरोप और एशिया के संगम पर स्थित जॉर्जिया की रणनीतिक स्थिति, इसे महाशक्तियों के संघर्ष का केंद्र बनाती है।
- Its geography and historical vulnerabilities have left it susceptible to external influences.
इसकी भौगोलिक स्थिति और ऐतिहासिक कमजोरियाँ, इसे बाहरी प्रभावों के प्रति संवेदनशील बनाती हैं।
- This has positioned Georgia as a pawn in broader geopolitical contests.
इससे जॉर्जिया को बड़े भू-राजनीतिक संघर्षों में एक मोहरे के रूप में स्थापित कर दिया गया है।
- Georgian politics illustrates the challenges of balancing domestic governance with external pressures in an increasingly complex world.
जॉर्जियाई राजनीति यह दर्शाती है कि बढ़ती जटिलताओं वाले विश्व में घरेलू शासन को बाहरी दबावों के साथ संतुलित करना कितना चुनौतीपूर्ण है।
- As the U.S. grapples with diminishing global influence, and Russia asserts its role as a regional power, Georgia is deftly managing its relationships with both East and West.



जब अमेरिका अपनी घटती वैश्विक प्रभावशीलता से जूझ रहा है, और रूस क्षेत्रीय शक्ति के रूप में अपनी भूमिका मजबूत कर रहा है, तब जॉर्जिया पूर्व और पश्चिम दोनों के साथ अपने संबंधों को कुशलता से प्रबंधित कर रहा है।

- The broader implications of this struggle extend beyond Georgia, shaping the political trajectories of other post-Soviet states.

इस संघर्ष के व्यापक प्रभाव जॉर्जिया से आगे तक जाते हैं, और अन्य सोवियत संघ के बाद के राज्यों की राजनीतिक दिशा को आकार दे रहे हैं।

'Ensure Hasina stops incendiary remarks'

GS Paper II: BIMSTEC

Suhasini Haidar

MUSCAT

India-Bangladesh ties were "very tense" when the interim government came to power in August 2024, but have improved since, particularly on normalising trade, Bangladesh's Foreign Affairs Adviser Touhid Hossain said on Monday. He said a meeting between Prime Minister Narendra Modi and Bangladesh Chief Adviser Muhammad Yunus, likely at the BIMSTEC Business Summit in April, would be a "good thing".

Speaking to *The Hindu*, Mr. Hossain defended the Yunus government against concerns of attacks against minorities, citing a new UN



Touhid Hossain

report that cleared it of any involvement.

He said the Yunus government did not support the ransacking of the home of Bangladesh founder Sheikh Mujibur Rahman, but called upon India to ensure that Sheikh Hasina did not make "incendiary" statements.

INTERVIEW ON

» PAGE 11

- He said a meeting between Prime Minister Narendra Modi and Bangladesh Chief Adviser Muhammad Yunus, likely at the BIMSTEC Business Summit in April, would be a "good thing".

'Ensure Hasina stops incendiary remarks'

'हसीना को भड़काऊ बयान देने से रोकने की गारंटी दें'

India-Bangladesh ties were "very tense" when the interim government came to power in August 2024, but have improved since, particularly on normalising trade, said Bangladesh's Foreign Affairs Adviser Touhid Hossain on Monday.

भारत-बांग्लादेश संबंध अगस्त 2024 में अंतरिम सरकार के सत्ता में आने पर "बहुत तनावपूर्ण" थे, लेकिन इसके बाद से सुधर गए हैं, विशेष रूप से व्यापार सामान्यीकरण के मामले में, यह बात बांग्लादेश के विदेश मामलों के सलाहकार तौहीद हुसैन ने सोमवार को कही।



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



उन्होंने कहा कि प्रधानमंत्री नरेंद्र मोदी और बांग्लादेश के मुख्य सलाहकार मुहम्मद यूनस के बीच अप्रैल में BIMSTEC बिजनेस समिट में संभावित बैठक एक "अच्छी बात" होगी।

Defending the Yunus Government

यूनस सरकार का बचाव

- Speaking to **The Hindu**, Mr. Hossain defended the **Yunus government** against concerns of **attacks against minorities**, citing a **new UN report** that cleared it of any **involvement**.

द हिंदू से बात करते हुए, श्री हुसैन ने यूनस सरकार का अल्पसंख्यकों पर हमलों को लेकर उठे सवाल से बचाव किया और एक नई संयुक्त राष्ट्र (UN) रिपोर्ट का हवाला दिया, जिसने इसे किसी भी संलिप्तता से मुक्त कर दिया।

- He said the **Yunus government** did not support the **ransacking of the home of Bangladesh founder Sheikh Mujibur Rahman**. उन्होंने कहा कि यूनस सरकार ने बांग्लादेश के संस्थापक शेख मुजीबुर रहमान के घर में तोड़फोड़ का समर्थन नहीं किया।
- However, he **called upon India** to ensure that **Sheikh Hasina** did not make **"incendiary" statements**.

'India-Bangladesh ties should not be regime-specific'

Bangladesh Foreign Affairs Adviser says India should place restrictions on former Prime Minister Sheikh Hasina to stop her from making public statements that may destabilise situation in his country: Hindus and other minorities are equal citizens and the government is doing its job of protecting them, he adds; interim government may hold talks with Adani group on power projects, he says

GS Paper II:
India-Bangladesh

INTERVIEW

Touhid Hossain

Suhasini Haidar
MUSCAT

India-Bangladesh ties should not be "regime-specific", Bangladesh Foreign Affairs Adviser Touhid Hossain said on Monday. After holding talks with External Affairs Minister S. Jaishankar at the eighth Indian Ocean Conference here, he said Prime Minister Narendra Modi and Bangladesh Chief Adviser Muhammad Yunus might finally meet on the sidelines of the BIMSTEC Business Summit in April in Thailand. Excerpts:

Tell us about your meeting with Mr. Jaishankar amid tensions in India-Bangladesh ties.

To be frank, ties were very tense [when the interim government took over].

Compared to six months ago, definitely, we can interact with each other much better now.

One of the concerns India has repeatedly made public is over the violence against minorities, particularly the Hindu community in Bangladesh. Do you think that your government has been able to control this? And does India agree?

The Hindus or other minority communities that live in Bangladesh are exactly equal citizens with the Muslim or the majority community. They are equal citizens with equal rights and equal rights to protection. And it is the Bangladesh government's job, which it is doing, to protect them, like protecting any other citizen of the country. Unfortunately, just after 5th of August [in 2024, when Sheikh Hasina resigned], there has been an almost unexplainable frenzy in the Indian media

about this issue, mostly based on falsehood. I would invite you to go through the findings in the UN report, which has been published two days ago and says that [the interim government was not involved in the violence].

On the subject of former PM Sheikh Hasina, what exactly are you hoping India will do?

There are cases against [Ms. Hasina], and we have asked for India to send [Ms. Hasina] back to us to face trial. As long as the Indian government doesn't do that, we would expect they can at least put some restrictions on her so that she does not make incendiary and false statements which instigate reactions among the people because the issues are still very, very raw.

For 15 years, she was in power, and people feel very, very strongly angry about her actions.

So they would like to see that she does not try to



REUTERS

destabilise the situation inside Bangladesh.

Even so, how do you justify that a mob was allowed to ransack Sheikh Mujibur Rahman's house, allegedly over Ms. Hasina's speech?

A mob may do something but that does not have government support.

Your government has thus far sent only a note *verbale*, a diplomatic note asking for Ms. Hasina's return. Will there be a formal extradition request?

compel them to do it [in a hurry]. And we are also aware that she might also have recourse to the Indian judicial system. It might take time but what we want is that she does not make incendiary statements while she is in India.

On the Adani Power agreement, recent reports suggest the Bangladesh government is negotiating for a restoration of power supply from the group. Could you confirm that the Bangladesh government intends to continue with the agreement with the Adani Group for power supply?

We have to go by the agreement but if we feel that it has not been done properly, we can always mutually agree to look at it again. And in my opinion, we will look at it with the Adani Group and try to make it more rational. I am not a technician, technical person, so I cannot go into ex-

Well, the process is already on because the cases are now in court. We cannot

act details but then there has been comparison with other deals, and it was seen that the power tariffs have been unusually high.

You have met our External Affairs Minister twice now but Prime Minister Modi and Chief Adviser Professor Yunus have not yet met. Do you expect a meet between them at the BIMSTEC Summit in April?

So far, the two leaders have not been at any venue on the same day, so there was no opportunity for them to meet. But I personally believe that there is willingness from both sides to meet and discuss things freely and frankly. That helps. In our culture in the region, when the 'top bosses' sit together, they can resolve an issue just in one word, rather than leaving it to people like us to negotiate for years. I think a meeting between the two would be a good thing to happen in that sense...and

is likely if they both attend the BIMSTEC Summit.

As a veteran of foreign policy, and the India-Bangladesh relationship, particularly the good ties between them since 2009, do you think India and Bangladesh can return to that state in the relationship?

Well, why only look at the past 15 years? Even during the BNP's time (1996-2001), the trade within the two countries increased exponentially. I don't think the relationship has to be regime-specific. So I think whichever government, whichever party, is in power in our two capitals, that should not affect our relations, because elections are based on mutual interests and mutual respect. And I believe that both our sides realise what is in their interest, and we can have very good relations with India. (For full interview, visit newsthlive.com/Touhidint)

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur
Email Id : info@patrioticias.in
Contact Number : 9971932488
Website : patrioticias.in



हालांकि, उन्होंने भारत से अनुरोध किया कि वह यह सुनिश्चित करे कि शेख हसीना "भड़काऊ" बयान न दें।

India-Bangladesh ties should not be regime-specific

भारत-बांग्लादेश संबंध किसी विशेष शासन तक सीमित नहीं होने चाहिए

Bangladesh Foreign Affairs Adviser Touhid Hossain said that India-Bangladesh ties should not be regime-specific.

बांग्लादेश के विदेश मामलों के सलाहकार तौहीद हुसैन ने कहा कि भारत-बांग्लादेश संबंध किसी विशेष शासन तक सीमित नहीं होने चाहिए।

- After talks with External Affairs Minister S. Jaishankar at the eighth Indian Ocean Conference, he mentioned that Prime Minister Narendra Modi and Bangladesh Chief Adviser Muhammad Yunus might meet at the BIMSTEC Business Summit in April in Thailand.

विदेश मंत्री एस. जयशंकर के साथ आठवें भारतीय महासागर सम्मेलन में वार्ता के बाद उन्होंने कहा कि प्रधानमंत्री नरेंद्र मोदी और बांग्लादेश के मुख्य सलाहकार मुहम्मद यूनुस अप्रैल में थाईलैंड में बिम्सटेक बिजनेस समिट में मिल सकते हैं।

Meeting with Mr. Jaishankar amid tensions in India-Bangladesh ties

भारत-बांग्लादेश संबंधों में तनाव के बीच श्री जयशंकर से मुलाकात

- Ties were very tense when the interim government took over, but compared to six months ago, interactions have improved.

जब अस्थायी सरकार ने कार्यभार संभाला तो संबंध बहुत तनावपूर्ण थे, लेकिन छह महीने पहले की तुलना में अब बातचीत में सुधार हुआ है।

Violence against minorities in Bangladesh

बांग्लादेश में अल्पसंख्यकों के खिलाफ हिंसा

- Hindus and other minority communities in Bangladesh are equal citizens with equal rights and protection, just like the majority community.
बांग्लादेश में हिंदू और अन्य अल्पसंख्यक समुदाय समान नागरिक हैं, और उन्हें बहुसंख्यक समुदाय के समान अधिकार और सुरक्षा प्राप्त है।
- The Bangladesh government is fulfilling its duty of protecting minorities, like any other citizen.



बांग्लादेश सरकार अल्पसंख्यकों की सुरक्षा की अपनी जिम्मेदारी निभा रही है, जैसे कि वह किसी अन्य नागरिक की करती है।

- After August 5, 2024, a frenzy in the Indian media based on falsehoods was observed.

5 अगस्त 2024 के बाद, भारतीय मीडिया में इस मुद्दे पर गलत सूचनाओं के आधार पर सनसनी फैलाई गई।

- A UN report published two days ago confirms that the interim government was not involved in the violence.

दो दिन पहले प्रकाशित संयुक्त राष्ट्र की एक रिपोर्ट पुष्टि करती है कि अस्थायी सरकार इस हिंसा में शामिल नहीं थी।

On the subject of former PM Sheikh Hasina

पूर्व प्रधानमंत्री शेख हसीना के विषय में

- There are cases against Sheikh Hasina, and Bangladesh has asked India to send her back for trial.
शेख हसीना के खिलाफ मामले दर्ज हैं, और बांग्लादेश ने भारत से उन्हें वापस भेजने का अनुरोध किया है ताकि वे मुकदमे का सामना कर सकें।
- Until India does so, restrictions should be placed on her so that she does not make statements that instigate people.
जब तक भारत ऐसा नहीं करता, उन पर कुछ प्रतिबंध लगाए जाने चाहिए ताकि वे लोगों को भड़काने वाले बयान न दें।
- For 15 years, she was in power, and now people feel very strongly against her actions.
15 वर्षों तक वे सत्ता में रहीं, और अब लोग उनके कार्यों के प्रति बहुत गुस्से में हैं।

Ransacking of Sheikh Mujibur Rahman's house

शेख मुजीबुर रहमान के घर पर हमले का मामला

- The mob attack on Sheikh Mujibur Rahman's house was not government-supported.
शेख मुजीबुर रहमान के घर पर भीड़ द्वारा किया गया हमला सरकार समर्थित नहीं था।

Extradition request for Sheikh Hasina

शेख हसीना के प्रत्यर्पण का अनुरोध

- Bangladesh has only sent a diplomatic note (note verbale) to India, requesting Hasina's return.



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



बांग्लादेश ने केवल एक कूटनीतिक नोट (नोट वर्बाले) भारत को भेजा है, जिसमें हसीना को वापस भेजने का अनुरोध किया गया है।

- There is an **extradition treaty** between India and Bangladesh, and Bangladesh has handed over many accused to India before.

भारत और बांग्लादेश के बीच प्रत्यर्पण संधि है, और बांग्लादेश पहले भी कई अभियुक्तों को भारत को सौंप चुका है।

- Bangladesh expects India to return Hasina under this treaty so that she can face trial.

बांग्लादेश को उम्मीद है कि भारत इस संधि के तहत हसीना को वापस भेजेगा ताकि वे मुकदमे का सामना कर सकें।

Extradition Treaty Process

प्रत्यर्पण संधि प्रक्रिया

- For the **extradition treaty**, Bangladesh would have to go through the **trial process** and obtain **sufficient warrants** for the **MLAT (Mutual Legal Assistance)**.
 - प्रत्यर्पण संधि के लिए, बांग्लादेश को न्यायिक प्रक्रिया से गुजरना होगा और पर्याप्त वारंट प्राप्त करने होंगे एमएलएटी (परस्पर कानूनी सहायता) के लिए।
- The process is **already ongoing**, as the cases are now in **court**.
 - यह प्रक्रिया पहले से जारी है, क्योंकि मामले अब न्यायालय में हैं।
- Bangladesh **cannot compel** India to speed up the process.
 - बांग्लादेश भारत को मजबूर नहीं कर सकता कि वह इस प्रक्रिया को तेज करे।
- Bangladesh is also aware that **Sheikh Hasina** might have **recourse to the Indian judicial system**.
 - बांग्लादेश को यह भी पता है कि शेख हसीना के पास भारतीय न्यायिक प्रणाली का सहारा लेने का विकल्प हो सकता है।
- The primary concern is that **Sheikh Hasina** does not make **incendiary statements** while in **India**.
 - मुख्य चिंता यह है कि शेख हसीना भारत में रहते हुए भड़काऊ बयान न दें।

Adani Power Agreement

अडानी पावर समझौता

- Recent reports suggest that Bangladesh is **negotiating** for the **restoration of power supply** from the **Adani Group**.
 - हालिया रिपोर्टों के अनुसार, बांग्लादेश अडानी समूह से बिजली आपूर्ति बहाल करने के लिए बातचीत कर रहा है।
- Bangladesh intends to **continue** with the agreement but may **renegotiate** certain aspects.

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur
Email Id : info@patrioticias.in
Contact Number : 9971932488
Website : patrioticias.in



- बांग्लादेश इस समझौते को जारी रखना चाहता है, लेकिन कुछ पहलुओं पर फिर से बातचीत कर सकता है।
- There have been **comparisons** with other deals, and it was observed that **power tariffs** were **unusually high**.
 - अन्य समझौतों की तुलना की गई है, और यह देखा गया कि बिजली दरें असामान्य रूप से अधिक थीं।

Possible Meeting at BIMSTEC Summit

बिम्सटेक शिखर सम्मेलन में संभावित बैठक

- Prime Minister **Narendra Modi** and Bangladesh **Chief Adviser Professor Yunus** have not met yet.
 - प्रधानमंत्री नरेंद्र मोदी और बांग्लादेश के मुख्य सलाहकार प्रोफेसर यूनुस अभी तक नहीं मिले हैं।
- They have not been at the **same venue** on the **same day**, so no opportunity for a meeting arose.
 - वे अब तक किसी भी स्थान पर एक ही दिन मौजूद नहीं थे, इसलिए बैठक का अवसर नहीं मिला।
- There is **willingness** from both sides to meet and **discuss things freely and frankly**.
 - दोनों पक्षों में बैठक की इच्छा है और वे मुक्त रूप से चर्चा करना चाहते हैं।
- In **South Asian culture**, top leaders can **resolve issues quickly**, rather than letting officials negotiate for **years**.
 - दक्षिण एशियाई संस्कृति में, शीर्ष नेता समस्याओं को जल्दी सुलझा सकते हैं, बजाय इसके कि अधिकारी वर्षों तक बातचीत करें।
- If both leaders attend the **BIMSTEC Summit**, a meeting is **likely**.
 - यदि दोनों नेता बिम्सटेक शिखर सम्मेलन में भाग लेते हैं, तो बैठक संभावित है।

India-Bangladesh Relations

भारत-बांग्लादेश संबंध

- The **relationship** between India and Bangladesh should not be **regime-specific**.
 - भारत और बांग्लादेश के संबंध किसी विशेष सरकार पर निर्भर नहीं होने चाहिए।
- Even during **BNP's rule (1996-2001)**, trade between the two countries **increased exponentially**.
 - यहां तक कि बीएनपी के शासन (1996-2001) के दौरान भी, दोनों देशों के बीच व्यापार बहुत तेजी से बढ़ा।
- Governments change, but relations should be based on **mutual interests and respect**.
 - सरकारें बदलती हैं, लेकिन संबंध आपसी हितों और सम्मान पर आधारित होने चाहिए।



GS Paper II: India-West Asia

Prime Minister receives Emir of Qatar at airport

Extending a rare gesture of hospitality, Prime Minister Narendra Modi on Monday went to the airport to receive the Emir of Qatar, Sheikh Tamim Bin Hamad Al-Thani, who arrived here on a two-day visit to India. The Emir is scheduled to meet President Droupadi Murmu and hold talks with Mr. Modi on Tuesday. His visit comes at the invitation of the Prime Minister. This will be the second state visit of the Emir of Qatar to India. He last visited India in 2015, the Ministry of External Affairs had earlier said. The ties between the two countries, including in the areas of trade, investment, energy and culture have continued to strengthen in the recent years. PTI

Prime Minister receives Emir of Qatar at airport

प्रधानमंत्री ने कतर के अमीर का हवाई अड्डे पर स्वागत किया

Extending a rare gesture of hospitality, Prime Minister Narendra Modi on Monday went to the airport to receive the Emir of Qatar, Sheikh Tamim Bin Hamad Al-Thani, who arrived on a two-day visit to India.

प्रधानमंत्री नरेंद्र मोदी ने सोमवार को एक असाधारण आतिथ्य सत्कार दिखाते हुए कतर के अमीर शेख तमीम

बिन हमद अल-थानी का हवाई अड्डे पर स्वागत किया। वह दो दिवसीय भारत यात्रा पर आए हैं।

- The Emir is scheduled to meet President Droupadi Murmu and hold talks with Mr. Modi on Tuesday.
अमीर का कार्यक्रम राष्ट्रपति द्रौपदी मुर्मू से मिलने और मंगलवार को प्रधानमंत्री मोदी के साथ वार्ता करने का है।
- His visit comes at the invitation of the Prime Minister.
उनकी यह यात्रा प्रधानमंत्री के निमंत्रण पर हो रही है।
- This will be the second state visit of the Emir of Qatar to India.
यह कतर के अमीर की भारत की दूसरी राजकीय यात्रा होगी।
- He last visited India in 2015, the Ministry of External Affairs had earlier said.
उन्होंने 2015 में भारत की अंतिम यात्रा की थी, यह जानकारी विदेश मंत्रालय ने पहले दी थी।
- The ties between the two countries, including in the areas of trade, investment, energy, and culture, have continued to strengthen in recent years.
दोनों देशों के बीच व्यापार, निवेश, ऊर्जा और संस्कृति सहित विभिन्न क्षेत्रों में संबंध पिछले कुछ वर्षों में लगातार मजबूत हुए हैं।



'Now or never' for pandemic accord, says WHO chief

GS Paper II

Agence France-Presse
GENEVA

The head of the World Health Organization insisted on Monday it was "now or never" to strike a landmark global accord on tackling future pandemics, despite the United States withdrawing from negotiations.

WHO Director-General Tedros Adhanom Ghebreyesus said no country could protect itself from the next pandemic on its own – three days after U.S. President Donald Trump's administration formally told the United Nations health agency it would play no further part in the pandemic agreement talks.

Now or never' for pandemic accord, says WHO chief

महामारी समझौते के लिए 'अभी नहीं तो कभी नहीं',
डब्ल्यूएचओ प्रमुख

The head of the World Health Organization (WHO) insisted on Monday that it was "now or never" to strike a landmark global accord on tackling future pandemics, despite the United States withdrawing from negotiations.

विश्व स्वास्थ्य संगठन (WHO) के प्रमुख ने सोमवार को जोर देकर कहा कि भविष्य की महामारियों से निपटने के लिए एक ऐतिहासिक वैश्विक समझौते पर हस्ताक्षर करने का समय 'अभी नहीं तो कभी नहीं' है, भले ही संयुक्त राज्य अमेरिका ने वार्ता से हटने का निर्णय लिया हो।

- WHO Director-General Tedros Adhanom Ghebreyesus stated that no country could protect itself from the next pandemic on its own. WHO के महानिदेशक टेड्रोस अधानोम गेब्रेयसस ने कहा कि कोई भी देश अगली महामारी से अकेले अपनी सुरक्षा नहीं कर सकता।
- This statement came three days after U.S. President Donald Trump's administration formally notified the United Nations health agency that it would no longer participate in the pandemic agreement talks. यह बयान तीन दिन बाद आया जब अमेरिकी राष्ट्रपति डोनाल्ड ट्रंप प्रशासन ने आधिकारिक रूप से संयुक्त राष्ट्र स्वास्थ्य एजेंसी को सूचित किया कि वह महामारी समझौता वार्ता में अब भाग नहीं लेगा।

(GS Paper III: Economy, S&T, Environment, DM, IS)

1. Centre likely to raise deposit insurance limit from ₹5 lakh / केंद्र ₹5 लाख की जमा बीमा सीमा बढ़ाने की संभावना



2. **Lighten the pollution burden of thermal power States /**
थर्मल पावर वाले राज्यों के प्रदूषण भार को कम करें
3. **DDoS Attack Cripples Kaveri 2.0 DDoS / हमला कावेरी 2.0**
को ठप करता है
4. **What is the Aravali safari park project? / अरावली सफारी**
पार्क परियोजना क्या है?
5. **High Levels of Microbes Found in River Water at**
Kumbh, Says CPCB Report / कुंभ में नदी के पानी में उच्च
स्तर के माइक्रोब पाए गए, CPCB रिपोर्ट
6. **FM downplays FII outflows, says investors booking**
profits / वित्त मंत्री ने एफआईआई के निवेश को कमतर बताया,
कहा निवेशक मुनाफा कमा रहे हैं
7. **Experts intrigued by inclusion of electoral bonds in new**
I-T Bill / नए आयकर विधेयक में चुनावी बांड को शामिल किए
जाने से विशेषज्ञ चिंतित
8. **'AI can impact critical thinking at work' / 'AI कार्यस्थल पर**
आलोचनात्मक सोच को प्रभावित कर सकता है'
9. **China's EAST reactor keeps the fire of magnetic fusion**
burning / चीन का ईस्ट रिएक्टर चुंबकीय संलयन की ऊर्जा को
जलाए रखता है



Centre likely to raise deposit insurance limit from ₹5 lakh

GS Paper III: Insurance

Ashokamithran T.

MUMBAI

The Finance Ministry is considering raising the current limit of ₹5 lakh for deposit insurance, M. Nagaraju, Secretary to the Department of Financial Services, said at a post-Budget press briefing here on Monday.

"That [increasing deposit insurance] is under active consideration. As and when the government approves, we will notify it," he said. Finance Minister Nirmala Sitharaman, along with Secretaries of various departments, was present at the briefing.

The official's statement comes days after the Reserve Bank of India placed



M. Nagaraju

curbs on the Mumbai-based New India Cooperative Bank for lack of liquidity. The bank's General Manager and Head of Accounts, Hitesh Mehta, was later found to have embezzled ₹122 crore over a year and was remanded in police custody for five days on February 16.

Money deposited by

bank customers is insured under the Deposit Insurance and Credit Guarantee Corporation Act, 1961 by the Deposit Insurance and Credit Guarantee Corporation under the Finance Ministry.

When a bank fails and the RBI steps in to stop withdrawals, the corporation acts as a guard to secure the money of depositors. The corporation has been in existence since January 1968. The deposit insurance limit was increased to ₹5 lakh in 2020 from ₹1 lakh fixed in 1993, following the failure of the Punjab and Maharashtra Cooperative Bank.

CONTINUED ON
» PAGE 10

Centre likely to raise deposit insurance limit from ₹5 lakh

केंद्र ₹5 लाख की जमा बीमा सीमा बढ़ाने की संभावना

The Finance Ministry is considering raising the current limit of ₹5 lakh for deposit insurance, said M. Nagaraju, Secretary to the Department of Financial Services, at a post-Budget press briefing on Monday.

वित्त मंत्रालय वर्तमान में ₹5 लाख की जमा बीमा सीमा बढ़ाने पर विचार कर रहा है, यह बात वित्तीय सेवा विभाग के

सचिव एम. नागराजु ने सोमवार को बजट के बाद की प्रेस ब्रीफिंग में कही।

- "That [increasing deposit insurance] is under active consideration. As and when the government approves, we will notify it," he said.

"यह [जमा बीमा बढ़ाना] सक्रिय विचाराधीन है। जैसे ही सरकार इसे मंजूरी देगी, हम इसकी अधिसूचना जारी करेंगे," उन्होंने कहा।

- Finance Minister Nirmala Sitharaman, along with Secretaries of various departments, was present at the briefing.

वित्त मंत्री निर्मला सीतारमण विभिन्न विभागों के सचिवों के साथ इस ब्रीफिंग में मौजूद थीं।

- The official's statement comes days after the Reserve Bank of India (RBI) placed curbs on the Mumbai-based New India Cooperative Bank due to lack of liquidity.

यह बयान भारतीय रिज़र्व बैंक (RBI) द्वारा मुंबई स्थित न्यू इंडिया को-ऑपरेटिव बैंक पर तरलता की कमी के कारण प्रतिबंध लगाने के कुछ दिन बाद आया है।

- The bank's General Manager and Head of Accounts, Hitesh Mehta, was later found to have embezzled ₹122 crore over a year and was remanded in police custody for five days on February 16.

बैंक के महाप्रबंधक और लेखा प्रमुख, हितेश मेहता, पर ₹122 करोड़ का गबन करने का आरोप लगा और उन्हें 16 फरवरी को पांच दिनों की पुलिस हिरासत में भेज दिया गया।

- Money deposited by bank customers is insured under the Deposit Insurance and Credit Guarantee Corporation Act, 1961, by the Deposit Insurance and Credit



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



Guarantee Corporation (DICGC) under the Finance Ministry.

बैंक ग्राहकों की जमा राशि को 1961 के डिपॉजिट इश्योरेंस एंड क्रेडिट गारंटी कॉरपोरेशन एक्ट के तहत वित्त मंत्रालय के अधीन डिपॉजिट इश्योरेंस एंड क्रेडिट गारंटी कॉरपोरेशन (DICGC) द्वारा बीमित किया जाता है।

- When a bank fails and the RBI steps in to stop withdrawals, the corporation acts as a guard to secure the money of depositors.
जब कोई बैंक विफल हो जाता है और RBI निकासी रोकने के लिए कदम उठाता है, तो यह निगम जमाकर्ताओं के धन को सुरक्षित करने के लिए रक्षक के रूप में कार्य करता है।
- The corporation has been in existence since January 1968.
यह निगम जनवरी 1968 से अस्तित्व में है।
- The deposit insurance limit was increased to ₹5 lakh in 2020 from ₹1 lakh fixed in 1993, following the failure of the Punjab and Maharashtra Cooperative Bank.
जमा बीमा सीमा को 2020 में ₹5 लाख तक बढ़ाया गया था, जो कि 1993 में तय ₹1 लाख से अधिक थी, यह निर्णय पंजाब और महाराष्ट्र को-ऑपरेटिव बैंक की विफलता के बाद लिया गया था।



Lighten the pollution burden of thermal power States

**GS Paper III:
Environment**

In its first updated Nationally Determined Contribution under the Paris Agreement to United Nations Framework Convention on Climate Change (UNFCCC) in August 2022, India has committed to first, adopting a climate-friendly and cleaner path to economic development; second, reducing the emissions intensity of its GDP by 45% by 2030 from the 2005 level, and third, achieving about 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030 along with other six commitments. Currently, thermal power has the dominant share in India's electricity basket. Under the new regime, thermal power will also have a 50% share.

An agent of emissions

Thermal power production results in a huge amount of carbon emission. The power producing States bear the burden of all this pollution to provide electricity to the consuming States. So, who should pay for the pollution burdens of thermal power plants? This article looks at thermal power production under the central sector and recommended compensation mechanisms for thermal power producing States.

India has a total installed capacity of 4,56,757 MW in which the central sector has 22.9% share, the State sector has 23.7% and the private sector, a 53.4% share. Out of the total electricity generation capacity from thermal power plants (2,37,268.91 MW), private sector power plants have a capacity of 85,899.095 MW (36.20%), the State sector has 75,991.905 MW (32.03%), and the central sector has the capacity of 75377.91 MW (31.77%). Central sector power plants which are located in several States, have 31.77% of the total electricity generation capacity. NITI Aayog data show that India accounts for 20,794.36 kg of carbon emission from electricity generation.

According to the Ministry of Coal, Government of India (April 1, 2023), the total reserves of coal in India are 378.21 billion tonnes, of which Odisha alone accounts for 94.52 billion tonnes. Around 59.12% of the total energy supply in India is from coal. In India, around 73.08% (1,80,427.19 million units) and 1.48% (23,885.04 million units) of electricity are generated from coal, oil and natural gas, respectively, in 2022-23. Thus, the thermal power sector remains a major contributor to carbon emissions in India.

According to the Central Electricity Authority (CEA), Maharashtra had the highest non-renewable electricity generation capacity (31,510.08 MegaWatt or MW), followed by Uttar Pradesh (26,729.374 MW) and Gujarat (26,073.41 MW) in 2022-23. Rajasthan had the highest renewable electricity generation capacity in India at 22,398.05 MW of installation capacity. Despite



Amarendra Das

is an Associate Professor at the Department of Science and Technology Centre for Policy Research on Energy Transition, National Institute of Science Education and Research (NISER) Bhubaneswar, an autonomous institution under the Department of Atomic Energy, Government of India



Naneshwar Jagat

is a PhD scholar at the School of Humanities and Social Sciences, National Institute of Science Education and Research (NISER) Bhubaneswar

Thermal power producing States need to be well compensated for bearing the burden of pollution while supplying electricity to power consuming States

having the highest electricity generation capacity, some States consume more than their generation.

Thermal electricity generation by the National Thermal Power Corporation (NTPC) also shows that the States producing the maximum electricity do not consume most of it – Uttar Pradesh, Odisha, and Chhattisgarh only consume 40%, 38.43%, and 29.92%, respectively, of the electricity produced by NTPC in their respective State. Gujarat is the biggest consumer of NTPC produced electricity (4,612 MW) despite the State's meagre generation of 17.7 MW by the NTPC. Gujarat and Maharashtra purchase electricity from different States from what is produced by the central sector and in other sectors.

Thermal electricity-producing States bear a disproportionate pollution burden when compared to the consuming State. Data from the CEA show that Tripura has the highest (96.96%) share of thermal power in the total electricity generation capacity, followed by Bihar (95.57%), Chhattisgarh (94.35%), Jharkhand (92.69%), Delhi (87.96%), West Bengal (87.72%), and Uttar Pradesh (81.84%). Not all the electricity generated in the State is being utilised inside the State. Bihar sold 16,529.62 MW of electricity in 2022-23.

NITI Aayog data show that Chhattisgarh is the highest net seller of electricity among all Indian States with 535.29 MW in 2022-23, followed by Madhya Pradesh (379.19 MW), Himachal Pradesh (153.43 MW), Rajasthan (135.14 MW), Odisha (95.40 MW) and Meghalaya (55.22 MW). These are the States where the central sector produces more thermal electricity and sells to others. Gujarat is the highest importer of electricity (528.17 MW), followed by Haryana (212.63 MW), Maharashtra (187.50 MW), Delhi (162.97 MW), Punjab (160.82 MW), and Tamil Nadu (128.37 MW) in the year 2022-23.

No compensation

India's electricity and environmental regulatory structures do not compensate States that generate electricity from central sector thermal power plants. Therefore, net exporting States of central sector power producers bear the burden of all pollution, and net importing States enjoy clean electricity. Central sector thermal power is mainly produced in coal-rich States such as Jharkhand, Chhattisgarh, and Odisha. Even though coal-rich States produce the maximum thermal electricity, per capita electricity consumption remains substantially lower than other economically better-off States. Thus the coal-rich States face a new form of resource curse.

Under the Corporate Social Responsibility (CSR) scheme, although thermal

power-producing companies spend a small amount of funds to develop the periphery, this is far from compensating for environmental damage. The National Clean Energy and Environment Fund was created to promote renewable energy, and to assist States with cleaner technology.

Electricity is a Concurrent subject (Entry 38 of List III of the Seventh Schedule of the Constitution), which allows both the central and State governments to legislate on electricity matters. States are constitutionally permitted to levy taxes on electricity consumption and sale, but not on its generation. Similarly, the central government does not impose any specific tax on electricity production.

In October 2023, the Ministry of Power issued a directive that prohibits State governments from levying additional taxes or duties on electricity generation, clarifying the constitutional boundaries. As a commodity, electricity is exempt from Goods and Services Tax (GST). Services related to electricity transmission or distribution by utilities are also GST-exempt. Therefore, the consuming States receive the electricity duty levied on electricity sales. The electricity-producing States do not get any tax revenue but only the burden of pollution.

A formulation to pursue

Electricity produced and consumed within the State internalises all the benefits and costs. However, when the electricity is produced in one State and consumed in another, it creates a pure negative externality for the producing State. In such a situation, the States producing thermal power under the central sector should be compensated for all the electricity consumed by other States.

This can be done in two ways. States where central sector power plants are located can tax thermal power generation. Otherwise, the Union government can collect and transfer the generation tax to the producing State. The other mechanism would be a compensation mechanism through the Finance Commission of India. The last three Finance Commissions have recommended a formula to transfer funds to States under environmental and climate change concerns. This has been done through grants and horizontal devolution criteria. The Sixteenth Finance Commission should seriously consider India's international climate commitments and develop a fiscal road map to achieve those goals. Whatever the mechanism, thermal power-producing States under the central sector should be compensated adequately for carrying the burden of other States' electricity consumption.

Lighten the pollution burden of thermal power States

थर्मल पावर वाले राज्यों के प्रदूषण भार को कम करें

In its first updated Nationally Determined Contribution under the Paris Agreement to United Nations Framework Convention on Climate Change (UNFCCC) in August 2022, India has committed to:

भारत ने अगस्त 2022 में संयुक्त राष्ट्र जलवायु परिवर्तन रूपरेखा सम्मेलन



(UNFCCC) के तहत पेरिस समझौते में अपनी पहली अद्यतन राष्ट्रीय स्तर पर निर्धारित योगदान (NDC) में प्रतिबद्धता जताई:

- Adopting a **climate-friendly and cleaner path** to economic development.
जलवायु-अनुकूल और स्वच्छ मार्ग को आर्थिक विकास के लिए अपनाना।
- Reducing the **emissions intensity of GDP by 45% by 2030** from the **2005 level**.
2005 के स्तर से 2030 तक GDP की उत्सर्जन तीव्रता को 45% तक कम करना।
- Achieving **50% cumulative electric power installed capacity** from **non-fossil fuel-based energy resources** by 2030.
2030 तक गैर-जीवाश्म ईंधन आधारित ऊर्जा संसाधनों से 50% संचयी विद्युत उत्पादन क्षमता प्राप्त करना।
- Currently, **thermal power** has the **dominant share** in India's **electricity basket**. Under the new regime, **thermal power will also have a 50% share**.
वर्तमान में, थर्मल पावर का भारत की बिजली उत्पादन प्रणाली में प्रधान हिस्सा है। नए नियम के तहत, थर्मल पावर का भी 50% हिस्सा होगा।

An agent of emissions

उत्सर्जन का स्रोत

- **Thermal power production** results in **huge carbon emissions**. The **power-producing States** bear the burden of this pollution to provide **electricity to consuming States**.
थर्मल पावर उत्पादन से विशाल कार्बन उत्सर्जन होता है। बिजली उत्पादन करने वाले राज्य इस प्रदूषण का भार उठाते हैं ताकि खपत करने वाले राज्यों को बिजली मिल सके।
- **Who should pay for the pollution burdens of thermal power plants?** This article examines **thermal power production under the central sector** and **recommended compensation mechanisms** for thermal power-producing States.
थर्मल पावर प्लांट्स के प्रदूषण भार की भरपाई कौन करेगा? यह लेख केंद्रीय क्षेत्र के तहत थर्मल पावर उत्पादन और थर्मल पावर उत्पादन करने वाले राज्यों के लिए सिफारिश किए गए मुआवजा तंत्र की जांच करता है।
- **India's total installed capacity** is **4,56,757 MW**, with:
भारत की कुल स्थापित क्षमता 4,56,757 मेगावाट (MW) है, जिसमें:
 - **22.9% share in the central sector**
केंद्रीय क्षेत्र में 22.9% हिस्सेदारी
 - **23.7% share in the State sector**
राज्य क्षेत्र में 23.7% हिस्सेदारी
 - **53.4% share in the private sector**
निजी क्षेत्र में 53.4% हिस्सेदारी



- Out of the total electricity generation capacity from thermal power plants (2,37,268.91 MW):
थर्मल पावर प्लांट्स की कुल उत्पादन क्षमता (2,37,268.91 मेगावाट) में से:
 - Private sector power plants have a capacity of 85,899.095 MW (36.20%)
निजी क्षेत्र के पावर प्लांट्स की क्षमता 85,899.095 मेगावाट (36.20%)
 - State sector has 75,991.905 MW (32.03%)
राज्य क्षेत्र की क्षमता 75,991.905 मेगावाट (32.03%)
 - Central sector has 75,377.91 MW (31.77%)
केंद्रीय क्षेत्र की क्षमता 75,377.91 मेगावाट (31.77%)
- NITI Aayog data show that India accounts for 20,794.36 kg of carbon emissions from electricity generation.
नीति आयोग के आंकड़ों के अनुसार, भारत में बिजली उत्पादन से 20,794.36 किलोग्राम कार्बन उत्सर्जन होता है।
- According to the Ministry of Coal (April 1, 2023), the total coal reserves in India are 378.21 billion tonnes, out of which Odisha alone accounts for 94.52 billion tonnes.
कोयला मंत्रालय (1 अप्रैल 2023) के अनुसार, भारत में कुल कोयला भंडार 378.21 अरब टन है, जिसमें से ओडिशा में अकेले 94.52 अरब टन है।
- 59.12% of the total energy supply in India is from coal.
भारत में कुल ऊर्जा आपूर्ति का 59.12% कोयले से आता है।
- In 2022-23, around:
वर्ष 2022-23 में:
 - 73.08% (11,80,427.19 million units) of electricity was generated from coal.
73.08% (11,80,427.19 मिलियन यूनिट) बिजली कोयले से उत्पन्न हुई।
 - 1.48% (23,885.04 million units) from oil and natural gas.
1.48% (23,885.04 मिलियन यूनिट) बिजली तेल और प्राकृतिक गैस से उत्पन्न हुई।
- The thermal power sector remains a major contributor to carbon emissions in India.
थर्मल पावर क्षेत्र भारत में कार्बन उत्सर्जन का प्रमुख स्रोत बना हुआ है।
- According to the Central Electricity Authority (CEA), in 2022-23:
केंद्रीय विद्युत प्राधिकरण (CEA) के अनुसार, 2022-23 में:
 - Maharashtra had the highest non-renewable electricity generation capacity (31,510.08 MW).
महाराष्ट्र की गैर-नवीकरणीय बिजली उत्पादन क्षमता सबसे अधिक (31,510.08 मेगावाट) थी।
 - Followed by Uttar Pradesh (26,729.374 MW) and Gujarat (26,073.41 MW).
इसके बाद उत्तर प्रदेश (26,729.374 मेगावाट) और गुजरात (26,073.41 मेगावाट) थे।
 - Rajasthan had the highest renewable electricity generation capacity (22,398.05 MW).



राजस्थान की नवीकरणीय बिजली उत्पादन क्षमता सबसे अधिक (22,398.05 मेगावाट) थी।

- Despite having high electricity generation capacity, some States consume more than their generation.

उच्च बिजली उत्पादन क्षमता होने के बावजूद, कुछ राज्य अपनी उत्पादन से अधिक बिजली खपत करते हैं।

- Thermal electricity generation by NTPC shows that:

NTPC द्वारा थर्मल बिजली उत्पादन के आंकड़ों से पता चलता है कि:

- Uttar Pradesh consumes only 40% of the electricity produced in its State.

उत्तर प्रदेश केवल 40% बिजली की खपत करता है जो उसके राज्य में उत्पादित होती है।

- Odisha consumes 38.43%, and Chhattisgarh consumes 29.92% of their NTPC-produced electricity.

ओडिशा 38.43% और छत्तीसगढ़ 29.92% बिजली की खपत करता है जो NTPC द्वारा उनके राज्य में उत्पन्न होती है।

- Gujarat is the biggest consumer of NTPC electricity (4,612 MW) despite producing only 17.7 MW.

गुजरात NTPC द्वारा उत्पादित बिजली का सबसे बड़ा उपभोक्ता (4,612 मेगावाट) है, जबकि इसका उत्पादन केवल 17.7 मेगावाट है।

- Gujarat and Maharashtra purchase electricity from other States in both the central and private sectors.

गुजरात और महाराष्ट्र केंद्रीय और निजी दोनों क्षेत्रों से अन्य राज्यों से बिजली खरीदते हैं।

Thermal electricity-producing States bear a disproportionate pollution burden

थर्मल बिजली उत्पादन करने वाले राज्यों पर अनुपातहीन प्रदूषण भार पड़ता है

- Thermal electricity-producing States bear a disproportionate pollution burden compared to consuming States.

थर्मल बिजली उत्पादन करने वाले राज्यों पर उपभोक्ता राज्यों की तुलना में अधिक प्रदूषण भार पड़ता है।

- Data from the CEA show that Tripura has the highest (96.96%) share of thermal power in total electricity generation capacity, followed by Bihar (95.57%), Chhattisgarh (94.35%), Jharkhand (92.69%), Delhi (87.96%), West Bengal (87.72%), and Uttar Pradesh (81.84%).

CEA के आंकड़ों के अनुसार, त्रिपुरा की कुल बिजली उत्पादन क्षमता में थर्मल पावर की हिस्सेदारी सबसे अधिक (96.96%) है, इसके बाद बिहार (95.57%), छत्तीसगढ़ (94.35%), झारखंड (92.69%), दिल्ली (87.96%), पश्चिम बंगाल (87.72%) और उत्तर प्रदेश (81.84%) का स्थान है।

- Not all the electricity generated in these States is being utilized within the State. Bihar sold 16,529.62 MW of electricity in 2022-23.



इन राज्यों में उत्पन्न होने वाली पूरी बिजली राज्य के भीतर उपयोग नहीं की जाती। बिहार ने 2022-23 में 16,529.62 मेगावाट बिजली बेची।

- NITI Aayog data show that Chhattisgarh is the highest net seller of electricity (535.29 MW) in 2022-23, followed by Madhya Pradesh (379.19 MW), Himachal Pradesh (153.43 MW), Rajasthan (135.14 MW), Odisha (95.40 MW), and Meghalaya (55.22 MW).

नीति आयोग के आंकड़ों के अनुसार, छत्तीसगढ़ 2022-23 में सबसे अधिक शुद्ध बिजली विक्रेता (535.29 मेगावाट) रहा, इसके बाद मध्य प्रदेश (379.19 मेगावाट), हिमाचल प्रदेश (153.43 मेगावाट), राजस्थान (135.14 मेगावाट), ओडिशा (95.40 मेगावाट) और मेघालय (55.22 मेगावाट) हैं।

- Gujarat is the highest importer of electricity (528.17 MW), followed by Haryana (212.63 MW), Maharashtra (187.50 MW), Delhi (162.97 MW), Punjab (160.82 MW), and Tamil Nadu (128.37 MW) in 2022-23.

गुजरात 2022-23 में सबसे बड़ा बिजली आयातक (528.17 मेगावाट) रहा, इसके बाद हरियाणा (212.63 मेगावाट), महाराष्ट्र (187.50 मेगावाट), दिल्ली (162.97 मेगावाट), पंजाब (160.82 मेगावाट) और तमिलनाडु (128.37 मेगावाट) हैं।

No compensation for pollution burden

प्रदूषण भार के लिए कोई मुआवजा नहीं

- India's electricity and environmental regulatory structures do not compensate States that generate electricity from central sector thermal power plants.

भारत की बिजली और पर्यावरणीय विनियामक संरचनाएं केंद्रीय क्षेत्र के थर्मल पावर प्लांट्स से बिजली उत्पन्न करने वाले राज्यों को मुआवजा नहीं देती।

- Net exporting States of central sector power producers bear the burden of all pollution, while net importing States enjoy clean electricity.

केंद्रीय क्षेत्र के बिजली उत्पादक राज्यों को पूरा प्रदूषण भार उठाना पड़ता है, जबकि आयातक राज्य स्वच्छ बिजली का लाभ उठाते हैं।

- Central sector thermal power is mainly produced in coal-rich States such as Jharkhand, Chhattisgarh, and Odisha.

केंद्रीय क्षेत्र की थर्मल बिजली मुख्य रूप से कोयला समृद्ध राज्यों जैसे झारखंड, छत्तीसगढ़ और ओडिशा में उत्पन्न होती है।

- Despite producing maximum thermal electricity, per capita electricity consumption in coal-rich States remains significantly lower than in economically better-off States.

अधिकतम थर्मल बिजली उत्पादन के बावजूद, कोयला समृद्ध राज्यों में प्रति व्यक्ति बिजली खपत आर्थिक रूप से संपन्न राज्यों की तुलना में काफी कम रहती है।



Proposed compensation mechanism

प्रस्तावित मुआवजा तंत्र

- Electricity produced and consumed within the same State internalizes all benefits and costs. However, when one State produces electricity and another consumes it, the producing State bears a negative externality.
एक ही राज्य में उत्पन्न और खपत की गई बिजली के सभी लाभ और लागत उसी राज्य में समाहित होते हैं। लेकिन जब एक राज्य बिजली उत्पन्न करता है और दूसरा उसे खपत करता है, तो उत्पादक राज्य नकारात्मक बाह्य प्रभाव झेलता है।
- Thermal power-producing States under the central sector should be compensated for all the electricity consumed by other States.
केंद्रीय क्षेत्र के तहत थर्मल पावर उत्पादक राज्यों को अन्य राज्यों द्वारा खपत की गई बिजली के लिए मुआवजा दिया जाना चाहिए।
- Two possible mechanisms for compensation:
मुआवजे के दो संभावित तंत्र:
 - States where central sector power plants are located can tax thermal power generation.
जिन राज्यों में केंद्रीय क्षेत्र के पावर प्लांट स्थित हैं, वे थर्मल बिजली उत्पादन पर कर लगा सकते हैं।
 - Alternatively, the Union government can collect and transfer the generation tax to the producing State.
या फिर केंद्र सरकार उत्पादन कर एकत्र कर उत्पादक राज्य को हस्तांतरित कर सकती है।
- The Finance Commission of India can also provide compensation. The last three Finance Commissions have transferred funds to States under environmental and climate change concerns through grants and horizontal devolution criteria.
भारत का वित्त आयोग भी मुआवजा प्रदान कर सकता है। पिछले तीन वित्त आयोगों ने अनुदानों और क्षैतिज हस्तांतरण मानदंडों के माध्यम से पर्यावरण और जलवायु परिवर्तन संबंधी चिंताओं के तहत राज्यों को धन हस्तांतरित किया है।
- The Sixteenth Finance Commission should consider India's international climate commitments and develop a fiscal roadmap to achieve these goals.
सोलहवें वित्त आयोग को भारत की अंतरराष्ट्रीय जलवायु प्रतिबद्धताओं पर विचार करना चाहिए और इन लक्ष्यों को प्राप्त करने के लिए एक वित्तीय रोडमैप विकसित करना चाहिए।
- Whatever the mechanism, thermal power-producing States under the central sector should be compensated adequately for carrying the burden of other States' electricity consumption.
किसी भी तंत्र के तहत, केंद्रीय क्षेत्र के अंतर्गत आने वाले थर्मल पावर उत्पादक राज्यों को अन्य राज्यों की बिजली खपत के बोझ के लिए उचित रूप से मुआवजा दिया जाना चाहिए।



How did a DDoS attack cripple Kaveri 2.0?

What happened to Kaveri 2.0, the web-based portal which streamlines property registrations in Karnataka? How does a Distributed Denial of Service attack operate? How can a company or firm protect themselves against such kind of cyberattacks? Was the social media platform X also victim to a DDoS attack?

GS Paper III: Cyber Security

EXPLAINER

John Xavier

The story so far:

In January, web-based portal Kaveri 2.0, which streamlines property registrations in Karnataka, faced sporadic, crippling server outages. On investigating the outage, the Revenue Department and E-Governance Department concluded that it was not due to "technical glitches" but a "motivated Distributed Denial of Service (DDoS) attack" on Kaveri 2.0, which was launched in 2023 to reform land registration.

What happened after the attack?

Following the incident, K. A. Dayananda, Inspector General of Registrations and Commissioner of Stamps (IGR & CS) lodged a complaint with the cyber-crime police. The Cybercrime, Economic offences, Narcotics (CEN) police registered a case under the Information Technology Act, 2000, against the unidentified miscreants. "The Kaveri 2.0 faced some performance issues during December 2024. Upon analysis and inputs from the Centre for Smart Governance [CSG], it was found that these issues were caused by a malicious DDoS attack using automated tools or bots," the FIR said.

What is a DDoS attack?

A DDoS attack is a malicious attempt to disrupt the normal functioning of a targeted server, service, or network by overwhelming it with a flood of internet traffic. Unlike a Denial of Service (DoS) attack, which typically involves a single source, a DDoS attack leverages multiple compromised systems, often infected with malware, to generate the traffic. These compromised systems are collectively known as a botnet. Such attacks may be aimed at saturating the bandwidth of a particular site, exploiting weaknesses in the network protocol stack, or targeting specific weaknesses in



GETTY IMAGES

applications or services. DDoS attacks can lead to service downtime, which render services unavailable, leading to a disruption or potential loss of revenue. While DDoS attacks do not directly steal data, they can be used as a distraction while other forms of cyberattack, such as data breaches, are executed. Organisations that fall victim to DDoS attacks may suffer reputational damage, as customers and partners question their ability to protect against cyber threats.

What happened to Kaveri 2.0?

The Kaveri 2.0 portal experienced performance issues in December 2024 and January 2025. Fake accounts were created, and entries were made into the database using these accounts, overwhelming the system. The attack involved 62 email accounts originating from 14 IP addresses, highlighting the

distributed nature of the assault. In January 2025, a similar attack occurred, with extremely high traffic observed from citizen-side users for Encumbrance Certificate (EC) searches, which was eight times more than usual. At one point, the portal received 6.2 lakh requests in just two hours from malicious users using random keywords to perform searches. This surge in traffic crippled the portal, reducing the number of registrations.

How can such attacks be mitigated?

To protect against DDoS attacks, organisations implement advanced traffic filtering mechanisms to distinguish between legitimate and malicious traffic. Monitoring tools can help identify unusual traffic patterns and take pre-emptive actions. Enforcing rate limiting can control the number of requests a user can make in a given time

frame, preventing the system from being overwhelmed. Bot detection technologies, such as CAPTCHA challenges and behavioural analysis, can identify and block automated tools or bots. Additionally, robust authentication mechanisms and regular security audits can strengthen the security of online services and prevent unauthorised access. Organisations can also work closely with cybersecurity agencies to help investigate attacks and identify perpetrators. They can share information and collaborate on mitigation strategies to prevent future attacks. This will include having a dedicated team to monitor and respond to security incidents. For the user, knowing about the risks of phishing and other social engineering attacks can help prevent account compromises.

What next for Kaveri 2.0?

The cyberattack crippled the Kaveri 2.0 portal, and registrations fell significantly on February 1 and 4. While the portal was restored on February 5, the DDoS attack should serve as a wake-up call for organisations, particularly government agencies, to prioritise cybersecurity and implement robust mitigation strategies.

What are other major DDoS attacks?

There are several such attacks, but most recently Elon Musk-owned X was targeted in August 2024. Mr. Musk reported that the platform experienced a massive DDoS attack, which caused delays and disruptions. This attack occurred just before his scheduled conversation with U.S. President Donald Trump, highlighting the vulnerability of even high-profile platforms to cyber threats.

In another occasion, in 2015, Microsoft-owned code repository GitHub was targeted by a China-based botnet. The attack specifically aimed two GitHub projects that provided tools to circumvent Chinese censorship. The attack involved injecting malicious JavaScript code into the browsers of visitors to Baidu, China's most popular search engine, and other sites using Baidu's analytics services.

THE GIST

A DDoS attack is a malicious attempt to disrupt the normal functioning of a targeted server, service, or network by overwhelming it with a flood of internet traffic.

Following the incident, K. A. Dayananda, Inspector General of Registrations and Commissioner of Stamps (IGR & CS) lodged a complaint with the cyber-crime police.

The cyberattack crippled the Kaveri 2.0 portal, and registrations fell significantly on February 1 and 4. While the portal was restored on February 5, the DDoS attack should serve as a wake-up call for organisations, particularly government agencies, to prioritise cybersecurity.

DDoS Attack Cripples Kaveri 2.0 DDoS

हमला कावेरी 2.0 को ठप करता है

In January 2025, the web-based portal Kaveri 2.0, which streamlines property registrations in Karnataka, faced sporadic, crippling server outages.

- जनवरी 2025 में, वेब-आधारित पोर्टल कावेरी 2.0, जो कर्नाटक में संपत्ति पंजीकरण को सुगम बनाता है, अनियमित, गंभीर सर्वर बाधाओं का सामना कर रहा था।
- After investigation, the Revenue Department and E-Governance Department concluded that the issue was not due to technical glitches but a motivated Distributed Denial of Service (DDoS) attack.



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



- जांच के बाद, राजस्व विभाग और ई-गवर्नेंस विभाग ने निष्कर्ष निकाला कि यह समस्या तकनीकी खराबी के कारण नहीं, बल्कि एक सुनियोजित डिस्ट्रीब्यूटेड डिनायल ऑफ सर्विस (DDoS) हमला था।

What happened after the attack?

हमले के बाद क्या हुआ?

- K. A. Dayananda, Inspector General of Registrations and Commissioner of Stamps (IGR & CS), filed a complaint with the **cyber-crime police**.
 - के. ए. दयानंद, पंजीकरण महानिरीक्षक और स्टाम्प आयुक्त (IGR & CS) ने साइबर अपराध पुलिस में शिकायत दर्ज करवाई।
- The **Cybercrime, Economic Offences, Narcotics (CEN) police** registered a case under the **Information Technology Act, 2000** against unidentified attackers.
 - साइबर अपराध, आर्थिक अपराध, नारकोटिक्स (CEN) पुलिस ने सूचना प्रौद्योगिकी अधिनियम, 2000 के तहत अज्ञात हमलावरों के खिलाफ मामला दर्ज किया।
- The **Centre for Smart Governance (CSG)** found that performance issues in **December 2024** were caused by a **malicious DDoS attack** using **automated tools or bots**.
 - सेंटर फॉर स्मार्ट गवर्नेंस (CSG) ने पाया कि दिसंबर 2024 में प्रदर्शन की समस्या स्वचालित उपकरणों या बॉट्स का उपयोग करके किए गए दुर्भावनापूर्ण DDoS हमले के कारण हुई थी।

What is a DDoS attack?

DDoS हमला क्या है?

- A **DDoS attack** is a **malicious attempt** to disrupt the normal functioning of a **targeted server, service, or network** by overwhelming it with a **flood of internet traffic**.
 - DDoS हमला एक दुर्भावनापूर्ण प्रयास होता है, जिसमें किसी निर्दिष्ट सर्वर, सेवा, या नेटवर्क को बड़े पैमाने पर इंटरनेट ट्रैफिक से बाधित किया जाता है।
- Unlike a **Denial of Service (DoS) attack**, which involves a **single source**, a **DDoS attack** uses **multiple compromised systems (botnet)** to generate the traffic.
 - डिनायल ऑफ सर्विस (DoS) हमले के विपरीत, जिसमें केवल एक स्रोत शामिल होता है, DDoS हमला कई संक्रमित सिस्टम (बॉटनेट) का उपयोग करता है।
- These attacks may **saturate bandwidth**, exploit **network vulnerabilities**, or target **specific applications**.
 - ये हमले बैंडविड्थ को संतृप्त कर सकते हैं, नेटवर्क कमजोरियों का फायदा उठा सकते हैं, या विशिष्ट एप्लिकेशन को निशाना बना सकते हैं।
- **DDoS attacks** cause **service downtime**, disrupting services and potentially leading to **revenue loss**.



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



- DDoS हमले सेवा बंदी का कारण बनते हैं, जिससे सेवाओं में बाधा और राजस्व हानि हो सकती है।
- While **DDoS attacks do not directly steal data**, they can act as **distractions** for other cyberattacks, like **data breaches**.
 - DDoS हमले सीधे डेटा चोरी नहीं करते, लेकिन वे डेटा उल्लंघनों जैसे अन्य साइबर हमलों के लिए ध्यान भटकाने का कार्य कर सकते हैं।
- Victim organizations may suffer **reputational damage**, as customers question their **cybersecurity measures**.
 - प्रभावित संगठनों की प्रतिष्ठा को नुकसान हो सकता है, क्योंकि ग्राहक उनकी साइबर सुरक्षा पर सवाल उठा सकते हैं।

What happened to Kaveri 2.0?

कावेरी 2.0 के साथ क्या हुआ?

- The portal experienced **performance issues** in **December 2024 and January 2025**.
 - पोर्टल ने दिसंबर 2024 और जनवरी 2025 में प्रदर्शन संबंधी समस्याओं का सामना किया।
- **Fake accounts** were created, and **entries** were made into the database using these accounts, **overwhelming the system**.
 - फर्जी खाते बनाए गए, और इन खातों का उपयोग करके डेटाबेस में प्रविष्टियां की गईं, जिससे सिस्टम अतिभारित हो गया।
- The attack involved **62 email accounts** from **14 IP addresses**, demonstrating its **distributed nature**.
 - इस हमले में 62 ईमेल खाते और 14 IP पते शामिल थे, जो इसकी वितरित प्रकृति को दर्शाते हैं।
- In **January 2025**, a similar attack occurred, with **extremely high traffic** observed from citizen-side users for **Encumbrance Certificate (EC) searches**.
 - जनवरी 2025 में एक समान हमला हुआ, जिसमें नागरिकों द्वारा दायित्व प्रमाणपत्र (EC) खोजों के लिए अत्यधिक उच्च ट्रैफिक देखा गया।
- At one point, the portal received **6.2 lakh requests** in just **two hours** from **malicious users** using **random keywords**.
 - एक समय पर, पोर्टल को मात्र दो घंटों में 6.2 लाख अनुरोध प्राप्त हुए, जो दुर्भावनापूर्ण उपयोगकर्ताओं द्वारा यादृच्छिक कीवर्ड का उपयोग करके किए गए थे।
- This traffic surge **crippled the portal**, reducing the number of **registrations**.
 - इस ट्रैफिक वृद्धि ने पोर्टल को ठप कर दिया, जिससे पंजीकरण की संख्या कम हो गई।

Was Social Media Platform X also a Victim of a DDoS Attack?

क्या सोशल मीडिया प्लेटफॉर्म X भी DDoS हमले का शिकार हुआ?

- As of now, **there is no confirmed report** of a DDoS attack on X (formerly Twitter).



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



- अब तक, X (पूर्व में ट्विटर) पर DDoS हमले की कोई पुष्टि रिपोर्ट नहीं है।

How can such attacks be mitigated?

ऐसे हमलों को कैसे रोका जा सकता है?

- To protect against **DDoS attacks**, organisations implement advanced **traffic filtering mechanisms** to distinguish between legitimate and malicious traffic.
DDoS हमलों से बचाव के लिए, संगठन उन्नत ट्रैफिक फ़िल्टरिंग तंत्र लागू करते हैं ताकि वैध और हानिकारक ट्रैफिक के बीच अंतर किया जा सके।
- **Monitoring tools** can help identify **unusual traffic patterns** and take **pre-emptive actions**.
निगरानी उपकरण असामान्य ट्रैफिक पैटर्न की पहचान करने और पूर्व-सक्रिय उपाय लेने में मदद कर सकते हैं।
- **Enforcing rate limiting** can control the number of requests a user can make in a given time frame, preventing the system from being overwhelmed.
दर सीमित करना उपयोगकर्ता द्वारा निर्धारित समय में किए गए अनुरोधों की संख्या को नियंत्रित कर सकता है, जिससे सिस्टम पर अधिक भार न पड़े।
- **Bot detection technologies**, such as **CAPTCHA challenges** and **behavioral analysis**, can identify and block **automated tools** or **bots**.
बॉट पहचान तकनीकें, जैसे CAPTCHA चुनौतियाँ और व्यवहार विश्लेषण, स्वचालित उपकरणों या बॉट्स को पहचानकर उन्हें ब्लॉक कर सकती हैं।
- Additionally, **robust authentication mechanisms** and **regular security audits** can strengthen online security and prevent **unauthorised access**.
इसके अलावा, मजबूत प्रमाणीकरण तंत्र और नियमित सुरक्षा ऑडिट ऑनलाइन सुरक्षा को मजबूत कर सकते हैं और अनधिकृत पहुंच को रोक सकते हैं।
- Organisations can also work closely with **cybersecurity agencies** to investigate attacks and identify perpetrators.
संगठन साइबर सुरक्षा एजेंसियों के साथ मिलकर हमलों की जांच और अपराधियों की पहचान कर सकते हैं।
- They can share information and collaborate on **mitigation strategies** to prevent future attacks, including having a **dedicated team** to monitor and respond to security incidents.
वे जानकारी साझा कर सकते हैं और रोकथाम रणनीतियों पर सहयोग कर सकते हैं ताकि भविष्य के हमलों को रोका जा सके, जिसमें एक समर्पित टीम भी शामिल हो जो सुरक्षा घटनाओं की निगरानी और प्रतिक्रिया दे।
- For the user, awareness about the risks of **phishing** and **social engineering attacks** can help prevent account compromises.



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



उपयोगकर्ताओं के लिए, फिशिंग और सामाजिक इंजीनियरिंग हमलों के जोखिमों के बारे में जागरूकता खाते की सुरक्षा में मदद कर सकती है।

What next for Kaveri 2.0?

कावेरी 2.0 के लिए आगे क्या?

- The **cyberattack** crippled the **Kaveri 2.0** portal, and **registrations fell significantly** on **February 1 and 4**.
साइबर हमले ने कावेरी 2.0 पोर्टल को प्रभावित किया, और 1 व 4 फरवरी को पंजीकरण में भारी गिरावट आई।
- While the portal was restored on **February 5**, the **DDoS attack** should serve as a **wake-up call** for organisations, particularly **government agencies**, to **prioritise cybersecurity**.
हालांकि पोर्टल 5 फरवरी को बहाल कर दिया गया था, यह **DDoS हमला** संगठनों, विशेष रूप से सरकारी एजेंसियों के लिए साइबर सुरक्षा को प्राथमिकता देने की चेतावनी है।
- They should implement **robust mitigation strategies** to prevent such incidents in the future.
उन्हें भविष्य में इस तरह की घटनाओं को रोकने के लिए **मजबूत सुरक्षा रणनीतियाँ** लागू करनी चाहिए।

What are other major DDoS attacks?

अन्य बड़े DDoS हमले कौन से हैं?

- One of the most recent attacks targeted **Elon Musk-owned X** in **August 2024**.
अगस्त 2024 में एलन मस्क के स्वामित्व वाले X पर एक बड़ा हमला हुआ।
- **Elon Musk** reported that the platform experienced a **massive DDoS attack**, causing **delays and disruptions**.
एलन मस्क ने बताया कि प्लेटफॉर्म को भारी DDoS हमले का सामना करना पड़ा, जिससे देरी और बाधाएँ आईं।
- This attack occurred just before his scheduled **conversation with U.S. President Donald Trump**, highlighting the vulnerability of even **high-profile platforms**.
यह हमला अमेरिकी राष्ट्रपति डोनाल्ड ट्रंप के साथ उनकी अनुसूचित बातचीत से ठीक पहले हुआ, जिससे यह स्पष्ट हुआ कि उच्च-स्तरीय प्लेटफॉर्म भी साइबर खतरों के प्रति संवेदनशील हैं।
- Another significant attack happened in **2015**, targeting **Microsoft-owned GitHub** by a **China-based botnet**.
2015 में माइक्रोसॉफ्ट के स्वामित्व वाले GitHub को चीन-आधारित बॉटनेट द्वारा निशाना बनाया गया था।

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur
Email Id : info@patrioticias.in
Contact Number : 9971932488
Website : patrioticias.in



- The attack specifically targeted two GitHub projects that provided tools to bypass Chinese censorship.
इस हमले ने विशेष रूप से दो GitHub प्रोजेक्ट्स को निशाना बनाया, जो चीनी सेंसरशिप को दरकिनार करने के उपकरण प्रदान करते थे।
- It involved injecting malicious JavaScript code into the browsers of visitors to Baidu, China's most popular search engine.
इस हमले में Baidu (चीन का सबसे लोकप्रिय सर्च इंजन) के आगंतुकों के ब्राउज़र में हानिकारक जावास्क्रिप्ट कोड इंजेक्ट किया गया था।
- Other sites using Baidu's analytics services were also affected.
Baidu के विश्लेषण सेवाओं का उपयोग करने वाली अन्य वेबसाइटें भी प्रभावित हुईं।

What is the Aravali safari park project?

Across how many villages is the proposed project going to be spread across? Why have several retired Indian Forest Service officers written a letter to the Prime Minister urging him to scrap the project?

GS Paper III:
Environment

The story so far:

The Haryana government's ambitious 3,858 hectare Aravali safari park project spread across Gurugram and Nuh – which was one of the poll promises of the ruling Bharatiya Janata Party last year – is envisaged to be the world's largest safari park. However, the project has faced stiff opposition ever since it was first mooted.

What is the project?

As per the tender invited by the Haryana Tourism Department, the proposed Aravali safari park will have animal cages, guest houses, hotels, restaurants, auditoriums, an animal hospital, childrens' parks, botanical gardens, aquariums, cable cars, a tunnel walk with exhibits, an open-air theatre and eateries. The project has now been transferred to

the forest department and an expert committee has been set up to oversee it. Of the total 3,858 hectares proposed in the tender, 2,574 will be spread across 11 villages in Gurugram and the remaining 1,284 in Nuh, across its seven villages.

Why is there opposition?

The hills in the southern districts of Gurugram and Nuh are a part of Aravali, the oldest fold mountain range in the world. It runs diagonally across Rajasthan extending from Champaner in Gujarat in the southwest to near Delhi in the northeast for about 690 km. It is ecologically significant as it combats desertification by checking the spread of the Thar Desert towards eastern Rajasthan, and performs the role of an aquifer with its highly fractured and weathered quality rocks allowing water to percolate and recharge the groundwater. It is also a rich habitat to a wide spectrum

of wildlife and plant species.

A group of 37 retired Indian Forest Service officers have written a letter to Prime Minister Narendra Modi seeking to scrap the project arguing that the project's aim is to simply increase tourist footfall and not conserve the mountain range. The "primary purpose of any intervention in an eco-sensitive area should be 'conservation and restoration' and not destruction", the letter said. The increased footfall, vehicular traffic and construction will disturb aquifers under the Aravali hills which are critical reserves for the water-starved districts of Gurugram and Nuh (the groundwater level in the two districts has been categorised as "over-exploited" by the Central Ground Water Board). Additionally, the location of the project falls under the category of "forest", which is protected under the Forest Conservation Act, 1980. Besides, Haryana

has very low forest cover of 3.6%, and therefore, the State needs rewilding of natural forests and not destructive safari projects, the letter said.

What are the laws protecting Aravali?

Of the approximately 80,000 hectare Aravali hill area in Haryana, a majority is protected under various laws and by orders of the Supreme Court and NGT. "The most widespread protection to the Aravalis comes from the Punjab Land Preservation Act (PLPA), 1900. The Special Sections 4 and 5 of the Act restrict the breaking of land and hence deforestation in hills for non-agricultural use....Recently around 24,000 hectares has been notified as Protected Forest under the Indian Forest Act, as a proposed offset to forest land diversion in the Nicobar islands.... Similarly, the T.N. Godavaran Thirumulpad judgment (1996) extends legal protection to forests as per dictionary meaning – which should cover the remaining Aravali areas that are not notified as forest....the Regional Plan-2021 for the National Capital Region also offers crucial protection, designating the Aravalis and forest areas as "Natural Conservation Zone" and restricting the maximum construction limit to 0.5%," said Gurugram-based forest analyst Chetan Agarwal. Mr. Agarwal suggested that instead of a safari park, the government should declare a national park or sanctuary in the Aravalis.

THE GIST

The proposed Aravali safari park will have animal cages, guest houses, hotels, restaurants, auditoriums, an animal hospital, children parks, botanical gardens, aquariums, cable cars, a tunnel walk with exhibits, an open-air theatre and eateries.

The hills in the southern districts of Gurugram and Nuh are a part of Aravali, the oldest fold mountain range in the world.

A group of 37 retired Indian Forest Service officers have written a letter to Prime Minister Narendra Modi seeking to scrap the project arguing that the project's aim is to simply increase tourist footfall and not conserve the mountain range.

What is the Aravali safari park project?

अरावली सफारी पार्क परियोजना क्या है?

The Haryana government's ambitious 3,858-hectare Aravali safari park project is spread across Gurugram and Nuh.

हरियाणा सरकार की महत्वाकांक्षी 3,858 हेक्टेयर की अरावली सफारी पार्क

परियोजना गुरुग्राम और नूह में फैली हुई है।

- It was one of the poll promises of the ruling Bharatiya Janata Party (BJP) last year.
यह भारतीय जनता पार्टी (BJP) का पिछले वर्ष का चुनावी वादा था।
- The project is envisaged to be the world's largest safari park, but it has faced strong opposition ever since it was first proposed.



इस परियोजना को दुनिया का सबसे बड़ा सफारी पार्क बनाने की योजना है, लेकिन इसे प्रस्तावित किए जाने के बाद से ही कड़ा विरोध झेलना पड़ा है।

What is the project?

परियोजना क्या है?

- As per the tender invited by the Haryana Tourism Department, the proposed Aravali safari park will include:

हरियाणा पर्यटन विभाग द्वारा आमंत्रित टेंडर के अनुसार, प्रस्तावित अरावली सफारी पार्क में निम्नलिखित सुविधाएँ होंगी:

- Animal cages, guest houses, hotels, restaurants
पशु पिंजरे, अतिथि गृह, होटल, रेस्टोरेंट
- Auditoriums, an animal hospital, children's parks, botanical gardens
प्रेक्षागृह, एक पशु अस्पताल, बच्चों के पार्क, वनस्पति उद्यान
- Aquariums, cable cars, a tunnel walk with exhibits
एक्वेरियम, केबल कार, प्रदर्शनी के साथ सुरंग मार्ग
- An open-air theatre and eateries
खुले थिएटर और भोजनालय
- The project has now been transferred to the Forest Department, and an expert committee has been set up to oversee it.
अब इस परियोजना को वन विभाग को हस्तांतरित कर दिया गया है, और इसे देखने के लिए एक विशेषज्ञ समिति बनाई गई है।
- Out of the total 3,858 hectares, 2,574 hectares will be spread across 11 villages in Gurugram, while 1,284 hectares will be in 7 villages of Nuh.
कुल 3,858 हेक्टेयर में से 2,574 हेक्टेयर गुरुग्राम के 11 गाँवों में और 1,284 हेक्टेयर नूह के 7 गाँवों में फैला होगा।

Why is there opposition?

इसका विरोध क्यों हो रहा है?

- The hills in the southern districts of Gurugram and Nuh are part of Aravali, the oldest fold mountain range in the world.
गुरुग्राम और नूह के दक्षिणी जिलों की पहाड़ियाँ अरावली का हिस्सा हैं, जो दुनिया की सबसे पुरानी वलित पर्वत श्रृंखला है।
- The Aravali range runs diagonally across Rajasthan, extending from Champaner in Gujarat in the southwest to near Delhi in the northeast, covering about 690 km.
अरावली श्रृंखला राजस्थान में तिरछी फैली हुई है और यह गुजरात के चंपानेर से दिल्ली के पास तक फैली हुई है, जिसकी लंबाई लगभग 690 किमी है।



- The range is **ecologically significant** as it:
यह श्रृंखला पारिस्थितिक रूप से महत्वपूर्ण है क्योंकि यह:
 - **Combats desertification** by preventing the **spread of the Thar Desert** towards eastern Rajasthan.
यह थार रेगिस्तान के पूर्वी राजस्थान की ओर फैलाव को रोकने में मदद करता है।
 - Acts as an **aquifer**, with its **highly fractured and weathered rocks** allowing **water percolation** and **groundwater recharge**.
यह एक भूजल भंडार की तरह काम करता है, जहां दरारदार और अपक्षयित चट्टानें जल संचयन और भूजल पुनर्भरण में मदद करती हैं।
 - Provides **habitat** to a **wide range of wildlife and plant species**.
यह अनेक वन्यजीवों और पौधों की प्रजातियों के लिए आवास स्थल है।
- A group of **37 retired Indian Forest Service (IFS) officers** have written a letter to **Prime Minister Narendra Modi**, urging him to **scrap the project**.
37 सेवानिवृत्त भारतीय वन सेवा (IFS) अधिकारियों ने प्रधानमंत्री नरेंद्र मोदी को पत्र लिखकर परियोजना को रद्द करने की माँग की है।
- They argue that the project's **aim is to increase tourism**, rather than **conserving the Aravali mountain range**.
उनका तर्क है कि इस परियोजना का उद्देश्य पर्यटन को बढ़ाना है, न कि अरावली पर्वत श्रृंखला का संरक्षण करना।
- The letter states that the **primary purpose** of any intervention in an **eco-sensitive area** should be "**conservation and restoration**", not **destruction**.
पत्र में कहा गया है कि किसी भी पर्यावरण-संवेदनशील क्षेत्र में हस्तक्षेप का मुख्य उद्देश्य "संरक्षण और पुनर्स्थापन" होना चाहिए, न कि विनाश।
- **Increased footfall, vehicular traffic, and construction** will disturb aquifers under the **Aravali hills**, which are **critical water reserves** for the **water-starved districts of Gurugram and Nuh**.
बढ़ता पर्यटक आगमन, वाहन यातायात और निर्माण कार्य अरावली पहाड़ियों के जल भंडारों को प्रभावित करेगा, जो गुरुग्राम और नूह जैसे जल संकटग्रस्त जिलों के लिए महत्वपूर्ण जल स्रोत हैं।
- The **Central Ground Water Board** has categorized the **groundwater level** in **Gurugram and Nuh** as "**over-exploited**".
केंद्रीय भूजल बोर्ड ने गुरुग्राम और नूह के भूजल स्तर को "अत्यधिक दोहन" की श्रेणी में रखा है।

Additional Concerns About the Project

परियोजना से जुड़ी अतिरिक्त चिंताएँ

The location of the project falls under the category of "forest", which is protected under the Forest Conservation Act, 1980.



यह परियोजना "वन" श्रेणी में आती है, जो वन संरक्षण अधिनियम, 1980 के तहत संरक्षित है।

- Haryana has a very low forest cover of 3.6%, and therefore, the State needs rewilding of natural forests, not destructive safari projects.
हरियाणा का वन क्षेत्र केवल 3.6% है, इसलिए राज्य को प्राकृतिक वनों के पुनर्विकास की जरूरत है, न कि विनाशकारी सफारी परियोजनाओं की।

What are the laws protecting Aravali?

अरावली को संरक्षित करने वाले कानून कौन से हैं?

- Of the approximately 80,000-hectare Aravali hill area in Haryana, a majority is protected under various laws and by orders of the Supreme Court and NGT.
हरियाणा में लगभग 80,000 हेक्टेयर में फैली अरावली पहाड़ियों का अधिकांश भाग विभिन्न कानूनों और सुप्रीम कोर्ट व NGT के आदेशों द्वारा संरक्षित है।
- The most widespread protection to the Aravalis comes from the Punjab Land Preservation Act (PLPA), 1900.
अरावली को सबसे व्यापक संरक्षण पंजाब भूमि संरक्षण अधिनियम (PLPA), 1900 से मिलता है।
- Special Sections 4 and 5 of the Act restrict the breaking of land and deforestation in hills for non-agricultural use.
इस अधिनियम की विशेष धारा 4 और 5 भूमि कटाव और गैर-कृषि उद्देश्यों के लिए पहाड़ियों में वनों की कटाई पर रोक लगाती है।
- Recently, around 24,000 hectares has been notified as Protected Forest under the Indian Forest Act as a proposed offset to forest land diversion in the Nicobar Islands.
हाल ही में, लगभग 24,000 हेक्टेयर को भारतीय वन अधिनियम के तहत संरक्षित वन घोषित किया गया है, जो निकोबार द्वीप समूह में वन भूमि स्थानांतरण की क्षतिपूर्ति के रूप में प्रस्तावित है।
- The T.N. Godavarman Thirumulpad judgment (1996) extends legal protection to forests as per dictionary meaning, which should cover the remaining Aravali areas that are not notified as forests.
टी.एन. गोदावरमन तिरुमुलपद निर्णय (1996) ने वनों को उनके शब्दकोशीय अर्थ के अनुसार कानूनी संरक्षण दिया, जिससे वे अरावली क्षेत्र भी संरक्षित होते हैं, जो आधिकारिक रूप से वन घोषित नहीं किए गए हैं।
- The Regional Plan-2021 for the National Capital Region (NCR) also provides crucial protection, designating the Aravalis and forest areas as 'Natural Conservation Zone'.
राष्ट्रीय राजधानी क्षेत्र (NCR) के लिए क्षेत्रीय योजना-2021 भी महत्वपूर्ण संरक्षण प्रदान करती है, और अरावली व वन क्षेत्रों को 'प्राकृतिक संरक्षण क्षेत्र' घोषित करती है।



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



- Under this plan, the **maximum construction limit is restricted to 0.5%** in these areas.
इस योजना के तहत, इन क्षेत्रों में निर्माण सीमा अधिकतम 0.5% तक सीमित है।
- **Forest analyst Chetan Agarwal** suggested that instead of a **safari park**, the government should **declare a national park or sanctuary in the Aravalis**.
वन विश्लेषक चेतन अग्रवाल ने सुझाव दिया कि सफारी पार्क के बजाय, सरकार को अरावली में एक राष्ट्रीय उद्यान या अभयारण्य घोषित करना चाहिए।

PATRIOTIC IAS



High levels of microbes found in river water at Kumbh, says CPCB report

GS Paper III: Pollution

The Hindu Bureau

NEW DELHI

High levels of faecal coliform (microbes from human and animal excreta) were found in river water in which people took holy dip during Maha Kumbh in Prayagraj, according to a report submitted to the National Green Tribunal (NGT) by the Central Pollution Control Board (CPCB).

“River water quality was not conforming with the primary water quality for bathing with reference to Faecal Coliform [FC] at all the monitored locations on various occasions. Huge number of people taking bath at Prayagraj during Maha Kumbh in river, including on auspicious bathing days, eventually led to increase in faecal concentration,” an NGT order quoted the CPCB report. The CPCB report was submitted to the green



Big crowd: Devotees taking a dip at the Sangam during Maha Kumbh in Prayagraj earlier this month. SANDEEP SAXENA

court on February 3.

The Principal Bench of the NGT comprising Chairperson Justice Prakash Shrivastava, Judicial Member Justice Sudhir Agarwal and Expert Member A. Senthil Vel was hearing a plea about the quality of Ganga and Yamuna rivers in Prayagraj.

“So far as the UPPCB [Uttar Pradesh Pollution Control Board] is concerned no comprehensive action taken report as di-

rected by the Tribunal in paragraph 19(viii) of the order dated December 23, 2024 has been filed. Along with the covering letter addressed to the Registrar General dated January 28, 2025 the In-charge, Central Laboratory, UPPCB has enclosed certain water test reports. Thus, we find that the order of the Tribunal to file comprehensive action taken report has not been complied with by the UPPCB,” the order said.



High Levels of Microbes Found in River Water at Kumbh, Says CPCB Report

कुंभ में नदी के पानी में उच्च स्तर के माइक्रोब पाए गए, CPCB रिपोर्ट

High levels of faecal coliform (microbes from human and animal excreta) were found in the river water in which people took a holy dip during Maha Kumbh in Prayagraj, according to a report submitted to the National Green Tribunal (NGT) by the Central Pollution Control Board (CPCB).

मानव और पशु मल से उत्पन्न उच्च स्तर के फीकल कोलीफॉर्म (सूक्ष्मजीव) प्रयागराज में महाकुंभ के दौरान श्रद्धालुओं द्वारा स्नान किए गए नदी के पानी में पाए गए, यह केंद्रीय प्रदूषण नियंत्रण बोर्ड (CPCB) द्वारा राष्ट्रीय हरित अधिकरण (NGT) को सौंपी गई रिपोर्ट में उल्लेखित है।

- “River water quality was not conforming with the primary water quality for bathing with reference to Faecal Coliform (FC) at all the monitored locations on various occasions”, stated the NGT order quoting the CPCB report.
"नदी के पानी की गुणवत्ता स्नान के लिए आवश्यक प्राथमिक जल गुणवत्ता के अनुरूप नहीं थी, विशेष रूप से फीकल कोलीफॉर्म (FC) के संदर्भ में सभी निगरानी स्थानों पर विभिन्न अवसरों पर", यह NGT के आदेश में CPCB रिपोर्ट के हवाले से कहा गया।
- A huge number of people taking bath at Prayagraj during Maha Kumbh, especially on auspicious bathing days, eventually led to an increase in faecal concentration.
महाकुंभ के दौरान, विशेष रूप से शुभ स्नान दिनों में, प्रयागराज में बड़ी संख्या में लोगों के स्नान करने के कारण नदी में फीकल सांद्रता (गंदगी का स्तर) बढ़ गया।
- The CPCB report was submitted to the green court on February 3, 2025.
CPCB रिपोर्ट को 3 फरवरी 2025 को ग्रीन कोर्ट में प्रस्तुत किया गया।

NGT Hearing on Water Quality in Ganga and Yamuna

गंगा और यमुना में जल गुणवत्ता पर NGT की सुनवाई

- The Principal Bench of the NGT, comprising Chairperson Justice Prakash Shrivastava, Judicial Member Justice Sudhir Agarwal, and Expert Member A. Senthil Vel, was hearing a plea about the quality of Ganga and Yamuna rivers in Prayagraj.
NGT की प्रधान पीठ, जिसमें अध्यक्ष न्यायमूर्ति प्रकाश श्रीवास्तव, न्यायिक सदस्य न्यायमूर्ति



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



सुधीर अग्रवाल और विशेषज्ञ सदस्य ए. सेंथिल वेल शामिल थे, प्रयागराज में गंगा और यमुना की जल गुणवत्ता से संबंधित याचिका पर सुनवाई कर रही थी।

- "So far as the UPPCB (Uttar Pradesh Pollution Control Board) is concerned, no comprehensive action taken report has been filed", as directed by the Tribunal in paragraph 19(viii) of the order dated December 23, 2024.
"जहां तक उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड (UPPCB) की बात है, ट्रिब्यूनल के 23 दिसंबर 2024 के आदेश के अनुच्छेद 19(viii) के अनुसार कोई व्यापक कार्रवाई रिपोर्ट प्रस्तुत नहीं की गई है"।
- Along with a covering letter addressed to the Registrar General dated January 28, 2025, the In-charge of the Central Laboratory, UPPCB, has enclosed certain water test reports.
28 जनवरी 2025 को रजिस्ट्रार जनरल को संबोधित एक पत्र के साथ, UPPCB की केंद्रीय प्रयोगशाला के प्रभारी ने कुछ जल परीक्षण रिपोर्टें संलग्न की हैं।
- The Tribunal found that the order to file a comprehensive action taken report has not been complied with by the UPPCB.
ट्रिब्यूनल ने पाया कि व्यापक कार्रवाई रिपोर्ट दायर करने के आदेश का UPPCB द्वारा अनुपालन नहीं किया गया है।



FM downplays **FII outflows**, says investors booking profits

Trends show how investments in India are yielding good returns, says Finance Minister, dismisses concerns that the Indian stock market had become less attractive for retail and foreign investors

GS Paper III: Capital Market

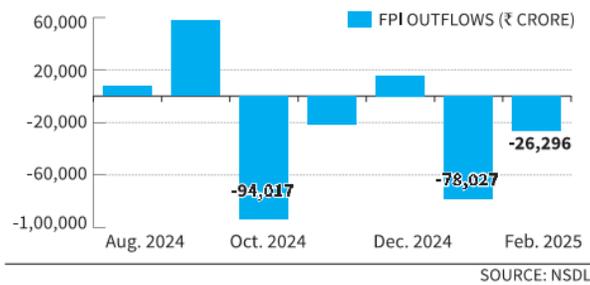
Ashokamithran T.
MUMBAI

Steady foreign institutional investment (FII) outflows from India's equity markets show investors are booking profits, indicating investments in India are yielding good returns, Finance Minister Nirmala Sitharman said at a post-Budget media briefing here on Monday.

"FIIs also go out when they are able to, or in a position to book profits. Indian economy today has an environment in which investments are also leading

Downward slope

The chart shows FPI flows from August 1, 2024 to February 17, 2025. January 2025 saw the highest outflows since October 2024



SOURCE: NSDL

good returns. That's also happening," Ms. Sitharman said, dismissing concerns that the Indian stock market had become less at-

tractive for retail and foreign investors alike.

Underlining the volatility of foreign investors, Finance Secretary Tuhin

Kanta Pandey said, "As you know FIIs keep moving up and down depending upon where they want to really park themselves. And it is not true that FIIs are really moving from one emerging market to another."

Whenever there was global uncertainty, "they are ready to go back to the U.S., where they belong," Mr. Pandey added.

Acknowledging that there were demand-supply issues that needed to be addressed, he said that these were temporary and the Indian economy was resilient.

FM downplays FII outflows, says investors booking profits

वित्त मंत्री ने एफआईआई के निवेश को कमतर बताया, कहा निवेशक मुनाफा कमा रहे हैं

Trends show how investments in India are yielding good returns, says Finance Minister, dismisses concerns that the Indian stock market had become less attractive for retail and foreign investors

वित्त मंत्री ने कहा कि रुझान दर्शाते हैं कि भारत में निवेश से अच्छा रिटर्न मिल रहा है, उन्होंने इस चिंता को खारिज किया कि भारतीय शेयर बाजार खुदरा और विदेशी निवेशकों के लिए कम आकर्षक हो गया है

Steady Foreign Institutional Investment (FII) Outflows from India's Equity Markets
भारत के शेयर बाजारों से steady विदेशी संस्थागत निवेश (FII) बहिर्वाह



- **Finance Minister Nirmala Sitharaman** said that **steady foreign institutional investment (FII) outflows** show that investors are **booking profits**, indicating investments in India are yielding **good returns**.

वित्त मंत्री निर्मला सीतारमण ने कहा कि **steady विदेशी संस्थागत निवेश (FII) बहिर्वाह** यह दिखाते हैं कि निवेशक **लाभ ले रहे हैं**, जो यह संकेत देता है कि **भारत में निवेश अच्छे लाभ दे रहे हैं**।

- **FII**s also withdraw when they are able to or in a position to book profits, indicating that the **Indian economy** provides an environment where investments lead to good returns. **FII**s तब भी बाहर जाते हैं जब वे **लाभ** ले सकते हैं या ऐसा करने की स्थिति में होते हैं, यह दर्शाता है कि **भारतीय अर्थव्यवस्था** एक ऐसा वातावरण प्रदान करती है जहां निवेश **अच्छे लाभ** लाते हैं।

- Ms. Sitharaman dismissed concerns that the **Indian stock market** had become less attractive for **retail and foreign investors**.

श्रीमती सीतारमण ने इस चिंता को खारिज किया कि **भारतीय शेयर बाजार रिटेल और विदेशी निवेशकों** के लिए कम आकर्षक हो गया है।

- **Finance Secretary Tuhin Kanta Pandey** emphasized the volatility of foreign investors, stating that **FII**s move based on where they want to park themselves and it's not true that they are shifting from one emerging market to another.

वित्त सचिव तुहिन कांत पांडे ने विदेशी निवेशकों की **उथल-पुथल** पर जोर दिया, यह कहते हुए कि **FII**s उस स्थान पर जाते हैं जहां वे अपने निवेश को रखना चाहते हैं और यह सच नहीं है कि वे एक उभरते हुए बाजार से दूसरे में जा रहे हैं।

- Whenever there is **global uncertainty**, **FII**s are ready to move back to the **U.S.**, where they are primarily based.

जब भी **वैश्विक अनिश्चितता** होती है, **FII**s वापस **अमेरिका** जाने के लिए तैयार होते हैं, जहां वे मूल रूप से स्थित होते हैं।

- **Finance Secretary** acknowledged that there are **demand-supply issues** that need to be addressed, but assured that these were **temporary** and that the **Indian economy** remains **resilient**.

वित्त सचिव ने स्वीकार किया कि कुछ **मांग-आपूर्ति समस्याएँ** हैं जिन्हें हल करने की आवश्यकता है, लेकिन यह आश्वासन दिया कि ये **अस्थायी** हैं और **भारतीय अर्थव्यवस्था लचीलापन** बनाए रखती है।



Experts intrigued by inclusion of electoral bonds in new I-T Bill

GS Paper III: Taxation

Press Trust of India
NEW DELHI

Experts are intrigued by the new Income Tax (I-T) Bill, 2025 retaining provisions related to electoral bonds, struck down by the Supreme Court as unconstitutional last year. They say it could be a legislative oversight or the government's intention to bring it back in another form.

Electoral bonds have been mentioned in the I-T Bill's Schedule VIII, which deals with 'income not to

be included in the total income of political parties and electoral trusts'.

Under the I-T Act, 1961, anonymous donations received through electoral bonds by political parties from firms and individuals are exempt.

Strategic decision

Amrg & Associates senior partner Rajat Mohan said mentioning electoral bonds in the new Bill could be a strategic decision to leave room for future electoral financing reforms.

Experts intrigued by inclusion of electoral bonds in new I-T Bill

नए आयकर विधेयक में चुनावी बांड को शामिल किए जाने से विशेषज्ञ चिंतित

Experts Intrigued by New Income Tax Bill Retaining Provisions on Electoral Bonds

नई आयकर विधेयक में चुनावी बांड से संबंधित प्रावधानों को बनाए रखने पर विशेषज्ञ हैरान

- Experts are intrigued by the Income Tax (I-T) Bill, 2025, which retains provisions related to electoral bonds, previously struck down by the Supreme Court as unconstitutional in 2024.

विशेषज्ञ नए आयकर (I-T) विधेयक, 2025 को लेकर हैरान हैं, जिसमें चुनावी बांड से संबंधित प्रावधान बनाए गए हैं, जिन्हें 2024 में सुप्रीम कोर्ट द्वारा असंवैधानिक करार दिया गया था।

- The provisions have been mentioned in the I-T Bill's Schedule VIII, which deals with income not to be included in the total income of political parties and electoral trusts. इन प्रावधानों का उल्लेख आयकर विधेयक की अनुसूची VIII में किया गया है, जो राजनीतिक दलों और चुनावी ट्रस्टों की कुल आय में शामिल नहीं की जाने वाली आय से संबंधित है।
- Under the I-T Act, 1961, anonymous donations received through electoral bonds by political parties from firms and individuals are exempt. आयकर अधिनियम, 1961 के तहत, राजनीतिक दलों द्वारा फर्मों और व्यक्तियों से चुनावी बांड के माध्यम से प्राप्त गुमनाम दान को छूट दी जाती है।
- Rajat Mohan, senior partner at Amrg & Associates, said mentioning electoral bonds in the new bill could be a strategic decision to leave room for future electoral financing reforms. Amrg & Associates के वरिष्ठ भागीदार राजत मोहन ने कहा कि नए विधेयक में चुनावी बांड का उल्लेख भविष्य में चुनावी वित्तपोषण सुधारों के लिए जगह छोड़ने का रणनीतिक निर्णय हो सकता है।



'AI can impact critical thinking at work'

GS Paper III: Impact of AI

NEW DELHI

High levels of confidence in generative AI applications such as ChatGPT, Gemini and CoPilot can be a drag on 'knowledge workers' exercising critical thinking, researchers from Carnegie Mellon University and Microsoft Research concluded in a paper.

Knowledge workers are typically white collar employees. The paper is due to be discussed at the Conference on Human Factors in Computing Systems in Japan this April.

"Quantitatively, considering both task and user-specific factors, a user's task-specific self-confidence and confidence in GenAI are predictive of whether critical thinking is enacted and the effort of doing so in GenAI-assisted tasks," researchers said.



"Specifically, higher confidence in GenAI is associated with less critical thinking, while higher self-confidence is associated with more critical thinking," they added.

- **Knowledge workers** are typically **white-collar employees**.
ज्ञान श्रमिक आमतौर पर सफेद कॉलर कर्मचारी होते हैं।
- The paper is due to be discussed at the **Conference on Human Factors in Computing Systems** in **Japan** this **April**.
यह पेपर इस अप्रैल में जापान में कंप्यूटिंग सिस्टम में मानव कारकों पर सम्मेलन में चर्चा के लिए प्रस्तुत किया जाएगा।
- Researchers state that **task-specific self-confidence** and confidence in **GenAI** predict whether critical thinking is enacted and the effort required for such tasks.
शोधकर्ताओं का कहना है कि कार्य-विशिष्ट आत्मविश्वास और GenAI में आत्मविश्वास यह भविष्यवाणी करते हैं कि क्या आलोचनात्मक सोच लागू की जाएगी और ऐसे कार्यों के लिए आवश्यक प्रयास।

'AI can impact critical thinking at work'

'AI कार्यस्थल पर आलोचनात्मक सोच को प्रभावित कर सकता है'

High Levels of Confidence in Generative AI Applications Can Impact Critical Thinking

जनरेटिव एआई एप्लिकेशनों में उच्च स्तर का आत्मविश्वास आलोचनात्मक सोच पर प्रभाव डाल सकता है

• **Researchers** from **Carnegie Mellon University** and **Microsoft Research** concluded that high levels of confidence in generative AI applications like **ChatGPT**, **Gemini**, and **CoPilot** can hinder critical thinking in knowledge workers.

कार्नेगी मेलन विश्वविद्यालय और माइक्रोसॉफ्ट रिसर्च के शोधकर्ताओं ने निष्कर्ष निकाला कि **ChatGPT**, **Gemini**, और **CoPilot** जैसे जनरेटिव एआई एप्लिकेशनों में उच्च स्तर का आत्मविश्वास ज्ञान श्रमिकों में आलोचनात्मक सोच को बाधित कर सकता है।



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



- Specifically, **higher confidence in GenAI** is linked with **less critical thinking**, while **higher self-confidence** is associated with **more critical thinking**.
विशेष रूप से, GenAI में उच्च आत्मविश्वास कम आलोचनात्मक सोच से जुड़ा है, जबकि उच्च आत्मविश्वास अधिक आलोचनात्मक सोच से जुड़ा है।

PATRIOTIC IAS



China's EAST reactor keeps the fire of magnetic fusion burning

EAST is a testbed reactor for ITER, an international megaproject in which six countries are working together to build a tokamak to sustain nuclear fusion. EAST's successes are important for ITER's future because the latter has come under criticism for its delayed timelines and cost overruns

GS Paper III: S&T

Shamim Haque Mondal

In January 20, Chinese scientists reported that they were able to maintain a plasma at a temperature of 100 million degrees C for about 1,066 seconds in a nuclear fusion reactor called the Experimental Advanced Superconducting Tokamak (EAST).

In 1938, physicists Otto Hahn and Fritz Strassmann found that energy is produced when the nucleus of an atom breaks apart, a process that Lise Meitner and Otto Frisch explained a year later as a process called "fission". Only four years later, physicists used this principle to build and operate the world's first reactor with a sustainable nuclear fission reaction.

By this time physicists also knew that energy is also produced when two atomic nuclei fuse together, a process called fusion. Nuclear fission produces harmful radioactive waste whereas nuclear fusion doesn't. This is why developing a nuclear fusion reactor has become an important technological goal for a world keenly interested in new sources of clean energy.

The tritium problem

The problem is the amount of energy required to start and sustain a fusion reaction. A nuclear fission reaction can be kicked off by shooting neutrons of suitable energy at the atoms of unstable nuclei like uranium. For fusion to occur, however, the nuclei need to be exposed to a temperature of at least 100 million degrees C.

The lightest nucleus in nature is of hydrogen, consisting of a single proton. An isotope of hydrogen called deuterium has one proton and one neutron in its nucleus. The nucleus of another isotope called tritium has one proton and two neutrons. Deuterium-deuterium fusion requires a higher temperature to begin than deuterium-tritium fusion. This is because the extra neutron in the tritium nucleus helps overcome the repulsion of like-charges between the protons.

The fusion of a deuterium and a tritium nucleus creates a non-radioactive helium-4 nucleus, a neutron, and 17.6 MeV of energy, which is significant. The neutron can be directed to a blanket of materials surrounding the reactor that capture it and release more heat.

While deuterium is abundant in seawater, there are no natural deposits of tritium and it is very hard to produce. At present it is mostly created as a by-product in heavy-water fusion reactors in Canada, India, and South Korea.

The temperature problem

Yet another challenge for nuclear fusion is the temperature. For two nuclei to fuse, two things need to happen: the like-charges in the nuclei (due to the protons) need to be overcome, then the particles need to come within around 1 femtometre (fm) of each other so they can bond with each other using the strong nuclear force.

This force is the strongest fundamental force in nature and is responsible for keeping protons and neutrons together in the nuclei of atoms. But on the flip side, it only acts across very short distances: 1 fm is roughly one-fourth the width of a carbon nucleus. This is why the nuclei need to be heated to such high temperatures to give them enough energy to overcome their repulsion and get so close to each other.

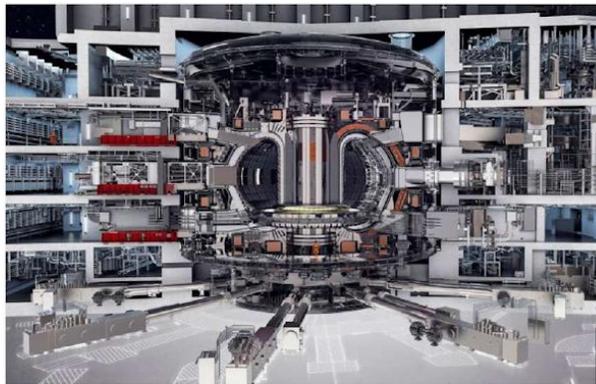
There are different reactor designs to achieve nuclear fusion by meeting these conditions. One set of designs involves the use of a tokamak – a donut-shaped vessel where the nuclei are confined, like in a cage, and made to fuse.

A magnetic cage

Inside the vessel, a deuterium gas is exposed to about 20 million degrees C, when matter exists in the plasma state. The charged particles are stripped from their respective atoms and float around freely. Next, the particles are exposed to a very strong magnetic field that acts like an invisible net, trapping the particles along the field lines. This method is called magnetic confinement.

Engineers prefer to use electromagnets – special materials that generate a magnetic field when a current is passed through wires coiled around them – to create these fields because the field strength only depends on the amount of current in the wires. These wires are also superconducting: they can carry electric current with zero resistance if they are cooled to a very low temperature, which is achieved by blanketing them with liquid nitrogen or helium.

Inside EAST, both toroidal and poloidal



An exploded view of the ITER nuclear-fusion facility. A human figure in orange is shown just below the image's centre for scale. The tokamak is visible at the centre, with the D-shaped cross-section. OAK RIDGE NATIONAL LABORATORY

magnetic fields are generated by superconducting electromagnets. It is currently the world's only tokamak with this feature. Toroidal magnetic fields flow around the donut-shaped reactor while poloidal fields flow through its centre. Together, they keep the particles within from drifting into the vessel's walls and collapsing the plasma. Instead they move in a spiral pattern through the vessel, with opportunities to collide with each other and fuse.

The poloidal field also induces an electric current in the plasma. When parts of the plasma resist the flow of this current, heat is produced, adding to the energy required to achieve fusion.

Series of records

Through the years, EAST has been setting a series of records and validating the technologies used to achieve them. It was the first tokamak to sustain a plasma in high-confinement mode at around 50 million degrees C for more than 60 seconds in 2016 and for more than 100 seconds in 2017. In 2021, EAST achieved the world's first steady-state high-confinement plasma for 403 seconds – a world record that it broke on January 20, 2025, by sustaining a plasma for 1,066 seconds. For this achievement, operators provided twice the thermal power to EAST as they did for the 2023 feat, allowing the plasma to remain stable for longer.

At present, EAST isn't producing electricity. In fact, it is yet to reach a milestone called ignition: meaning it doesn't produce enough heat for more fusion reactions to occur, a.k.a. become self-sustaining. To produce usable

A nuclear fission reaction can be kicked off by shooting neutrons of suitable energy at the atoms of unstable nuclei like uranium. For fusion to occur, however, the nuclei need to be exposed to a temperature of at least 100 million degrees C

electricity, a tokamak needs to maintain millions of degrees C for at least a few hours.

EAST is a testbed reactor for ITER, an international megaproject in which six countries around the world, including India, and the European Union are working together to build a tokamak that will sustain nuclear fusion that releases more energy than that required to sustain the plasma.

A need for alternatives

Crucially, EAST's successes are important for ITER's future because the latter has come under criticism for its delayed timelines and cost overruns. With a bill already upwards of euro 18 billion, ITER has been called the most expensive science experiment in history – at a time in which the high cost of doing cutting-edge science has put off many governments from pursuing it.

Some research groups have also been trying to achieve nuclear fusion using methods that require fewer (but still considerable) resources. For example, one alternative to achieving magnetic confinement is a device called a stellarator. Whereas a tokamak has a simple donut shape, a stellarator has a

more twisting design that is harder to build and operate. But its advantage is that it does away with the need for a poloidal magnetic field to achieve a twisting magnetic field inside the vessel. Instead it achieves the desired field configuration using a more complicated architecture of external magnets.

Other designs do away with magnetic confinement altogether. In one technique, for example, a pellet of deuterium and tritium is hit with laser beams of extreme power.

Whereas a deuterium nucleus has one proton and one neutron, a tritium nucleus has one proton and two neutrons. When the beams strike the pellet, the energy causes the nuclei to compress and fuse, releasing more energy. The heat from the reactions could then be diverted to a pool of water, generating steam that drives a turbine and produces electricity.

In the light of lasers

In 2008, scientists at the Lawrence Livermore National Laboratory in the US began a project called 'Laser Inertial Fusion Energy' (LIFE) to test this idea. While they were able to develop lasers with the requisite power, the fusion output was found to be much lower than they had predicted. The project was cancelled in 2013 after it became clear it couldn't achieve ignition.

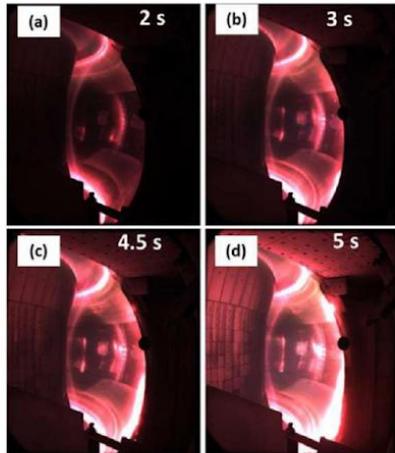
But another project at the same institute, called the National Ignition Facility (NIF), achieved the milestone in 2022. At the NIF, a system of 192 high-power lasers delivers 2.05 megajoules (MJ) of energy towards a small cylindrical capsule at the centre of the room. This capsule, called a hohlraum, is made of uranium-238 and plated with gold. It's about 2 mm wide. It contains a thin shell made of a polymer inside which deuterium and tritium atoms are placed in a frozen or gaseous state.

When electromagnetic radiation from the lasers enters the hohlraum, it strikes the inner wall and produces X-rays. Over a short span of time, the nuclei are bombarded by X-rays from all directions inside the hohlraum. Eventually they compress the fuel sample in a symmetric way and heat it up rapidly to around 100 million degrees C. In 2022, the NIF said it had used this technique to produce 3.15 MJ of energy, crossing the breakeven point.

On the other hand, ITER was launched in 2007 and is expected to produce its first plasma only in 2035, and over time also devour the world's meagre tritium reserves. The desperate need for sources of clean energy means achieving nuclear fusion may just be a matter of time, especially if governments continue to trust the scientists working on the required technologies. But which technology gets it over the line – magnetic, inertial or something else – remains to be seen. Some private sector enterprises are also beginning to enter the mix.

While the NIF has demonstrated a proof-of-concept ignition, EAST is keeping tokamaks in the hunt with its large scale and steady progress.

Shamim Haque Mondal is a researcher in the Physics Division, State Forensic Science Laboratory, Kolkata. shamimondal709@gmail.com



A fast visible wavelength camera's images of plasma inside the EAST Tokamak at various times. DOI:10.1088/1741-4326/AB62AC



TELEGRAM CHANNEL: <https://t.me/patrioticIAS>

YOUTUBE CHANNEL: <https://www.youtube.com/@PatrioticIAS>

CONTACT: 9971932488



China's EAST reactor keeps the fire of magnetic fusion burning

चीन का ईस्ट रिएक्टर चुंबकीय संलयन की ऊर्जा को जलाए रखता है

EAST is a testbed reactor for ITER, an international mega project in which six countries are working together to build a tokamak to sustain nuclear fusion. EAST's successes are important for ITER's future because the latter has come under criticism for its delayed timelines and cost overruns

ईएएसटी आईटीईआर के लिए एक टेस्टबेड रिएक्टर है, जो एक अंतरराष्ट्रीय मेगाप्रोजेक्ट है जिसमें छह देश परमाणु संलयन को बनाए रखने के लिए एक टोकामक बनाने के लिए मिलकर काम कर रहे हैं। ईएएसटी की सफलताएं आईटीईआर के भविष्य के लिए महत्वपूर्ण हैं क्योंकि बाद में इसकी देरी समयसीमा और लागत में वृद्धि के लिए आलोचना की गई है।

Chinese Scientists' Nuclear Fusion Breakthrough

चीन के वैज्ञानिकों की परमाणु संलयन में सफलता

- On January 20, Chinese scientists reported that they were able to maintain a plasma at a temperature of **100 million degrees C** for about **1,066 seconds** in a nuclear fusion reactor called the **Experimental Advanced Superconducting Tokamak (EAST)**.
20 जनवरी को, चीनी वैज्ञानिकों ने रिपोर्ट किया कि वे एक परमाणु संलयन रिएक्टर, **Experimental Advanced Superconducting Tokamak (EAST)** में लगभग **1,066 सेकंड** तक **100 मिलियन डिग्री C** तापमान पर प्लाज्मा बनाए रखने में सफल रहे।

The Discovery of Nuclear Fission

परमाणु विखंडन की खोज

- In **1938**, physicists **Otto Hahn** and **Fritz Strassmann** found that energy is produced when the nucleus of an atom breaks apart, a process that **Lise Meitner** and **Otto Frisch** explained a year later as a process called "fission."
1938 में, भौतिकविदों **ऑटो हान** और **फ्रिट्ज स्ट्रासमैन** ने पाया कि ऊर्जा तब उत्पन्न होती है जब परमाणु का नाभिक टूटता है, एक प्रक्रिया जिसे **लिज़ मीट्नेर** और **ऑटो फ्रिश** ने एक साल बाद "विखंडन" के रूप में समझाया।
- Only **four years** later, physicists used this principle to build and operate the world's **first** reactor with a sustainable nuclear fission reaction.
चार साल बाद, भौतिकविदों ने इस सिद्धांत का उपयोग करके दुनिया का **पहला** रिएक्टर बनाया और संचालित किया, जिसमें स्थिर परमाणु विखंडन प्रतिक्रिया थी।

Address : 3rd Floor, KV Tower, Padleyganj Road, Gorakhpur

Email Id : info@patrioticias.in

Contact Number : 9971932488

Website : patrioticias.in



Fusion vs. Fission

संलयन बनाम विखंडन

- By this time, physicists also knew that energy is also produced when two atomic nuclei fuse together, a process called **fusion**.
इस समय तक, भौतिकविदों को यह भी पता था कि ऊर्जा तब उत्पन्न होती है जब दो परमाणु नाभिक एक साथ संलयन करते हैं, जिसे **संलयन** कहा जाता है।
- **Nuclear fission** produces harmful radioactive waste whereas **nuclear fusion** doesn't. This is why developing a **nuclear fusion** reactor has become an important technological goal for a world keenly interested in new sources of **clean energy**.
परमाणु विखंडन हानिकारक रेडियोधर्मी कचरे का उत्पादन करता है जबकि **परमाणु संलयन** नहीं करता। यही कारण है कि **परमाणु संलयन** रिएक्टर का विकास एक महत्वपूर्ण प्रौद्योगिकी लक्ष्य बन गया है, विशेष रूप से ऐसी दुनिया के लिए जो **स्वच्छ ऊर्जा** के नए स्रोतों में गहरी रुचि रखती है।

The Tritium Problem

ट्रिटियम समस्या

- The problem is the amount of **energy** required to start and sustain a **fusion reaction**.
समस्या यह है कि **संलयन प्रतिक्रिया** शुरू करने और बनाए रखने के लिए कितनी **ऊर्जा** की आवश्यकता होती है।
- A nuclear fission reaction can be kicked off by shooting **neutrons** of suitable energy at the atoms of unstable nuclei like **uranium**. For fusion to occur, however, the nuclei need to be exposed to a temperature of at least **100 million degrees C**.
एक परमाणु विखंडन प्रतिक्रिया को उपयुक्त ऊर्जा वाले **न्यूट्रॉन** को अस्थिर नाभिकों जैसे **यूरेनियम** के परमाणुओं पर गोली मारकर शुरू किया जा सकता है। हालांकि, संलयन होने के लिए, नाभिकों को कम से कम **100 मिलियन डिग्री C** के तापमान पर रखा जाना चाहिए।
- The lightest nucleus in nature is of **hydrogen**, consisting of a single proton. An isotope of hydrogen called **deuterium** has one proton and one neutron in its nucleus. The nucleus of another isotope called **tritium** has one proton and two neutrons.
प्रकृति में सबसे हल्का नाभिक **हाइड्रोजन** का होता है, जिसमें एक प्रोटॉन होता है। हाइड्रोजन का एक आइसोटोप जिसे **डीयूटेरियम** कहते हैं, इसके नाभिक में एक प्रोटॉन और एक न्यूट्रॉन होता है। एक अन्य आइसोटोप जिसका नाम **ट्रिटियम** है, इसके नाभिक में एक प्रोटॉन और दो न्यूट्रॉन होते हैं।
- **Deuterium-deuterium fusion** requires a higher temperature to begin than **deuterium-tritium fusion**. This is because the extra neutron in the **tritium** nucleus helps overcome the repulsion of like-charges between the protons.
डीयूटेरियम-डीयूटेरियम संलयन को शुरू करने के लिए **डीयूटेरियम-ट्रिटियम संलयन** की तुलना में



उच्च तापमान की आवश्यकता होती है। इसका कारण यह है कि ट्रिटियम नाभिक में अतिरिक्त न्यूट्रॉन प्रोटॉन के बीच समान-चार्जों के प्रतिकार को दूर करने में मदद करता है।

Fusion Process: Deuterium and Tritium

संलयन प्रक्रिया: डीयूटेरियम और ट्रिटियम

- The fusion of a **deuterium** and a **tritium** nucleus creates a **non-radioactive helium-4 nucleus**, a neutron, and **17.6 MeV** of energy. The neutron can be directed to a blanket of materials surrounding the reactor that capture it and release more heat.

डीयूटेरियम और ट्रिटियम नाभिक का संलयन एक गैर-रेडियोधर्मी हीलियम-4 नाभिक, एक न्यूट्रॉन, और 17.6 MeV ऊर्जा उत्पन्न करता है। न्यूट्रॉन को रिएक्टर के चारों ओर स्थित सामग्रियों के कंबल की ओर निर्देशित किया जा सकता है, जो इसे पकड़ते हैं और अधिक गर्मी जारी करते हैं।

The Tritium Production Problem

ट्रिटियम उत्पादन समस्या

- While **deuterium** is abundant in seawater, there are no natural deposits of **tritium** and it is very hard to produce.

जबकि डीयूटेरियम समुद्र के पानी में प्रचुर मात्रा में होता है, ट्रिटियम के प्राकृतिक भंडार नहीं होते और इसे बनाना बहुत मुश्किल है।

- At present, **tritium** is mostly created as a by-product in **heavy-water fission reactors** in **Canada, India, and South Korea**.

वर्तमान में, ट्रिटियम ज्यादातर हेवी-वाटर फिशन रिएक्टर्स में कनाडा, भारत, और दक्षिण कोरिया में सह-उत्पाद के रूप में उत्पन्न होता है।

The Temperature Challenge in Fusion

संलयन में तापमान चुनौती

- Yet another challenge for nuclear fusion is the **temperature**. For two nuclei to fuse, two things need to happen:

परमाणु संलयन के लिए एक और चुनौती तापमान है। दो नाभिकों के संलयन के लिए दो चीजें होनी चाहिए:

- The like-charges in the nuclei (due to the protons) need to be overcome, नाभिकों में समान-चार्जों (प्रोटॉनों के कारण) को दूर किया जाना चाहिए,
- Then the particles need to come within around **1 femtometre (fm)** of each other to bond using the **strong nuclear force**.

फिर कणों को लगभग 1 फेम्टोमीटर (fm) की दूरी तक एक-दूसरे के पास आना चाहिए ताकि वे मजबूत परमाणु बल का उपयोग करके जोड़ सकें।

- The strong nuclear force is the **strongest fundamental force** in nature but only acts across very short distances: **1 fm** is roughly one-fourth the width of a **carbon nucleus**.



मजबूत परमाणु बल प्रकृति में सबसे मजबूत मौलिक बल है लेकिन यह केवल बहुत छोटे फासलों पर कार्य करता है: 1 fm लगभग एक कार्बन नाभिक की चौड़ाई का चौथाई हिस्सा होता है।

Fusion Reactor Design: Tokamak

संलयन रिएक्टर डिजाइन: टोकामाक

- There are different reactor designs to achieve **nuclear fusion** by meeting these conditions. One set of designs involves the use of a **tokamak** — a **donut-shaped vessel** where the nuclei are confined, like in a cage, and made to fuse.
इन शर्तों को पूरा करके परमाणु संलयन प्राप्त करने के लिए विभिन्न रिएक्टर डिजाइन होते हैं। डिजाइनों के एक सेट में टोकामाक का उपयोग शामिल है — एक डोनट-आकार का पात्र जहाँ नाभिक एक पिंजरे की तरह बंद होते हैं और संलयन के लिए तैयार किए जाते हैं।

Magnetic Confinement

चुंबकीय संलयन

- Inside the vessel, a **deuterium gas** is exposed to about **20 million degrees C**, when matter exists in the **plasma state**.
पात्र के अंदर, डीयूटेरियम गैस को लगभग 20 मिलियन डिग्री C पर रखा जाता है, जब पदार्थ प्लाज्मा अवस्था में होता है।
- The charged particles are stripped from their respective atoms and float around freely. Next, the particles are exposed to a very strong **magnetic field** that acts like an invisible net, trapping the particles along the field lines. This method is called **magnetic confinement**.
चार्ज कणों को उनके संबंधित परमाणुओं से हटा दिया जाता है और वे स्वतंत्र रूप से तैरते हैं। इसके बाद, कणों को एक बहुत मजबूत चुंबकीय क्षेत्र के संपर्क में लाया जाता है जो एक अदृश्य जाल की तरह कार्य करता है, कणों को क्षेत्र रेखाओं के साथ पकड़ता है। इस विधि को चुंबकीय संलयन कहा जाता है।

Electromagnetic Superconductors

इलेक्ट्रोमैग्नेटिक सुपरकंडक्टर

- Engineers prefer to use **electromagnets** — special materials that generate a magnetic field when a current is passed through wires coiled around them.
इंजीनियरों को इलेक्ट्रोमैग्नेट्स का उपयोग करना पसंद है — विशेष सामग्रियाँ जो एक चुंबकीय क्षेत्र उत्पन्न करती हैं जब उनके चारों ओर लिपटे तारों के माध्यम से विद्युत धारा प्रवाहित की जाती है।
- These wires are also **superconducting**: they can carry electric current with zero resistance if they are cooled to a very low temperature, achieved by blanketing them with **liquid nitrogen** or **helium**.



ये तार सुपरकंडक्टिंग होते हैं: ये लिक्विड नाइट्रोजन या हीलियम से उन्हें ढककर बहुत कम तापमान पर ठंडा किया जाता है, तो वे शून्य प्रतिरोध के साथ विद्युत धारा प्रवाहित कर सकते हैं।

Inside EAST Tokamak

EAST टोकामाक के अंदर

- Inside **EAST**, both **toroidal** and **poloidal** magnetic fields are generated by superconducting electromagnets. It is currently the world's only tokamak with this feature.
EAST के अंदर, दोनों **टोरोइडल** और **पोलोइडल** चुंबकीय क्षेत्र सुपरकंडक्टिंग इलेक्ट्रोमैग्नेट्स द्वारा उत्पन्न होते हैं। यह वर्तमान में दुनिया का केवल एकमात्र टोकामाक है जिसमें यह विशेषता है।
- **Toroidal** magnetic fields flow around the donut-shaped reactor, while **poloidal** fields flow through its centre. Together, they keep the particles within from drifting into the vessel's walls and collapsing the plasma.
टोरोइडल चुंबकीय क्षेत्र डोनट-आकार के रिएक्टर के चारों ओर बहते हैं, जबकि **पोलोइडल** क्षेत्र इसके केंद्र से होकर गुजरते हैं। मिलकर, वे कणों को रिएक्टर की दीवारों में बहने से रोकते हैं और प्लाज्मा को ढहने से बचाते हैं।
- Instead, they move in a **spiral pattern** through the vessel, with opportunities to collide with each other and fuse.
इसके बजाय, वे रिएक्टर में **स्पाइरल पैटर्न** में चलते हैं, जिससे उन्हें एक-दूसरे से टकराने और संलयन करने का अवसर मिलता है।
- The poloidal field also induces an **electric current** in the plasma. When parts of the plasma resist the flow of this current, **heat** is produced, adding to the energy required to achieve fusion.
पोलोइडल क्षेत्र प्लाज्मा में एक **विद्युत धारा** भी प्रेरित करता है। जब प्लाज्मा के कुछ हिस्से इस धारा के प्रवाह का विरोध करते हैं, तो **गर्मी** उत्पन्न होती है, जो संलयन प्राप्त करने के लिए आवश्यक ऊर्जा में जोड़ती है।

Series of Records

रिकॉर्ड्स की श्रृंखला

- Through the years, **EAST** has been setting a series of records and validating the technologies used to achieve them.
वर्षों से **EAST** ने कई रिकॉर्ड स्थापित किए हैं और उन्हें प्राप्त करने के लिए इस्तेमाल की गई तकनीकों को प्रमाणित किया है।
- It was the first tokamak to sustain a plasma in high-confinement mode at around **50 million degrees C** for more than **60 seconds** in **2016** and for more than **100 seconds** in **2017**.
यह पहला टोकामैक था जो **2016** में **50 मिलियन डिग्री C** के आसपास उच्च-संवहन मोड में एक



प्लाज्मा को 60 सेकंड से अधिक समय तक बनाए रखने में सफल रहा और 2017 में 100 सेकंड से अधिक समय तक।

- In 2023, EAST achieved the world's first steady-state high-confinement plasma for **403 seconds** — a world record that it broke on **January 20, 2025**, by sustaining a plasma for **1,066 seconds**.

2023 में, EAST ने दुनिया का पहला स्थिर-राज्य उच्च-संवहन प्लाज्मा 403 सेकंड तक बनाए रखा – यह एक विश्व रिकॉर्ड था जिसे 20 जनवरी 2025 को तोड़ दिया गया, जब प्लाज्मा को 1,066 सेकंड तक बनाए रखा गया।

- For this achievement, operators provided **twice the thermal power** to EAST as they did for the **2023 feat**, allowing the plasma to remain stable for longer.

इस उपलब्धि के लिए, ऑपरेटरों ने 2023 की उपलब्धि के मुकाबले दोगुनी थर्मल पावर EAST को प्रदान की, जिससे प्लाज्मा को लंबे समय तक स्थिर बनाए रखा जा सका।

- At present, EAST isn't producing electricity. In fact, it is yet to reach a milestone called **ignition**: meaning it doesn't produce enough heat for more fusion reactions to occur, a.k.a. become self-sustaining.

वर्तमान में, EAST बिजली उत्पादन नहीं कर रहा है। वास्तव में, यह अभी तक इग्निशन नामक मील का पत्थर नहीं तक पहुँच पाया है: यानी यह अधिक फ्यूजन प्रतिक्रियाओं के होने के लिए पर्याप्त गर्मी उत्पन्न नहीं करता, अर्थात् यह स्व-निरंतर नहीं बन पाया है।

- To produce usable electricity, a tokamak needs to maintain **millions of degrees C** for at least a few hours.

उपयोगी बिजली उत्पादन करने के लिए, एक टोकामैक को कम से कम कुछ घंटों तक लाखों डिग्री C बनाए रखने की आवश्यकता है।

- EAST is a testbed reactor for **ITER**, an international megaproject in which **six countries** around the world, including **India**, and the **European Union** are working together to build a tokamak that will sustain nuclear fusion that releases more energy than that required to sustain the plasma.

EAST एक परीक्षण रिएक्टर है ITER के लिए, जो एक अंतर्राष्ट्रीय मेगाप्रोजेक्ट है जिसमें भारत सहित छह देशों और यूरोपीय संघ के देशों द्वारा एक टोकामैक बनाने के लिए एक साथ काम किया जा रहा है, जो परमाणु संलयन को बनाए रखेगा और जो प्लाज्मा को बनाए रखने के लिए आवश्यक ऊर्जा से अधिक ऊर्जा जारी करेगा।

A Need for Alternatives

विकल्पों की आवश्यकता

- Crucially, EAST's successes are important for **ITER's** future because the latter has come under criticism for its delayed timelines and cost overruns.
महत्वपूर्ण रूप से, EAST की सफलता ITER के भविष्य के लिए महत्वपूर्ण हैं क्योंकि बाद को इसके विलंबित समयसीमा और लागत वृद्धि के लिए आलोचना का सामना करना पड़ा है।



- With a bill already upwards of **euro 18 billion**, ITER has been called the most expensive science experiment in history — at a time in which the high cost of doing cutting-edge science has put off many governments from pursuing it.
€18 बिलियन से अधिक के बिल के साथ, ITER को इतिहास का सबसे महंगा विज्ञान प्रयोग कहा गया है – उस समय में जब अत्याधुनिक विज्ञान करने की उच्च लागत ने कई सरकारों को इसे आगे बढ़ाने से हतोत्साहित किया है।
- Some research groups have also been trying to achieve nuclear fusion using methods that require fewer (but still considerable) resources.
कुछ शोध समूह भी ऐसे तरीकों का उपयोग करके परमाणु संलयन प्राप्त करने की कोशिश कर रहे हैं जो कम (लेकिन फिर भी पर्याप्त) संसाधनों की आवश्यकता होती है।
- For example, one alternative to achieving magnetic confinement is a device called a **stellarator**.
उदाहरण के लिए, चुंबकीय संलयन प्राप्त करने का एक विकल्प एक उपकरण है जिसे **स्टेलरेटर** कहा जाता है।
- Whereas a tokamak has a simple donut shape, a stellarator has a more twisting design that is harder to build and operate.
जहां एक टोकामैक का सरल डोनट आकार होता है, वहीं एक स्टेलरेटर का अधिक घुमावदार डिज़ाइन होता है जिसे बनाना और संचालन करना अधिक कठिन होता है।
- But its advantage is that it does away with the need for a poloidal magnetic field to achieve a twisting magnetic field inside the vessel.
लेकिन इसका लाभ यह है कि यह पोलोइडल चुंबकीय क्षेत्र की आवश्यकता को समाप्त कर देता है ताकि जहाज के अंदर एक घुमावदार चुंबकीय क्षेत्र प्राप्त किया जा सके।
- Instead, it achieves the desired field configuration using a more complicated architecture of external magnets.
इसके बजाय, यह बाहरी चुम्बकों की अधिक जटिल संरचना का उपयोग करके इच्छित क्षेत्र संरचना प्राप्त करता है।
- Other designs do away with magnetic confinement altogether.
अन्य डिज़ाइन पूरी तरह से चुंबकीय संलयन को समाप्त कर देते हैं।
- In one technique, for example, a pellet of **deuterium** and **tritium** is hit with laser beams of extreme power.
एक तकनीक में, उदाहरण के लिए, **ड्यूटीरियम** और **ट्रिटियम** की एक गोली को अत्यधिक शक्ति के लेजर बीमों से मारा जाता है।
- Whereas a deuterium nucleus has one proton and one neutron, a tritium nucleus has one proton and two neutrons.
जहां एक ड्यूटीरियम नाभिक में एक प्रोटॉन और एक न्यूट्रॉन होता है, वहीं एक ट्रिटियम नाभिक में एक प्रोटॉन और दो न्यूट्रॉन होते हैं।
- When the beams strike the pellet, the energy causes the nuclei to compress and fuse, releasing more energy.



जब बीम गोली से टकराती हैं, तो ऊर्जा नाभिकों को संकुचित और संलयन करने के लिए प्रेरित करती है, जिससे अधिक ऊर्जा निकलती है।

- The heat from the reactions could then be diverted to a pool of water, generating steam that moves a turbine and produces electricity.

प्रतिक्रियाओं से उत्पन्न गर्मी को फिर पानी के एक पूल में मोड़ा जा सकता है, जिससे भाप उत्पन्न होती है जो एक टरबाइन को घुमाती है और बिजली उत्पन्न करती है।

In the Light of Lasers

लेज़रों के प्रकाश में

- In **2008**, scientists at the **Lawrence Livermore National Laboratory** in the US began a project called '**Laser Inertial Fusion Energy**' (**LIFE**) to test this idea.

2008 में, अमेरिका के लॉरेंस लिवरमोर नेशनल लेबोरेटरी के वैज्ञानिकों ने इस विचार को परखने के लिए 'लेज़र इनर्शियल फ्यूजन एनर्जी' (**LIFE**) नामक परियोजना शुरू की।

- While they were able to develop lasers with the requisite power, the fusion output was found to be much lower than they had predicted.

हालाँकि वे आवश्यक शक्ति के साथ लेज़र विकसित करने में सक्षम थे, परंतु फ्यूजन उत्पादन उनकी भविष्यवाणी से कहीं कम पाया गया।

- The project was cancelled in **2013** after it became clear it couldn't achieve **ignition**.

2013 में परियोजना को रद्द कर दिया गया जब यह स्पष्ट हो गया कि यह **इग्निशन** प्राप्त नहीं कर सकती।

- But another project at the same institute, called the **National Ignition Facility (NIF)**, achieved the milestone in **2022**.

लेकिन उसी संस्थान में एक और परियोजना, जिसे **नेशनल इग्निशन फैसिलिटी (NIF)** कहा जाता है, ने **2022** में यह मील का पत्थर हासिल किया।

- At the **NIF**, a system of **192 high-power lasers** delivers **2.05 megajoules (MJ)** of energy towards a small cylindrical capsule at the center of the room.

NIF में, **192 उच्च-शक्ति वाले लेज़र** एक छोटी सिलिंड्रिकल कैप्सूल की ओर **2.05 मेगाजूल (MJ)** ऊर्जा भेजते हैं जो कमरे के केंद्र में स्थित है।

- This capsule, called a **hohlraum**, is made of **uranium-238** and plated with **gold**. It's about **2 mm** wide.

यह कैप्सूल, जिसे **होलरौम** कहा जाता है, **यूरेनियम-238** से बना है और **सोने** से प्लेटेड है। इसकी चौड़ाई लगभग **2 मिमी** है।

- It contains a thin shell made of a **polymer** inside which **deuterium** and **tritium** atoms are placed in a frozen or gaseous state.

इसके अंदर एक पतली परत होती है जो **पॉलिमर** से बनी होती है, जिसके अंदर **ड्यूटीरियम** और **ट्रिटियम** परमाणु एक ठोस या गैसीय अवस्था में रखे जाते हैं।

- When electromagnetic radiation from the lasers enters the hohlraum, it strikes the inner wall and produces **X-rays**.



जब लेज़रों से विद्युतचुंबकीय विकिरण होलरूम में प्रवेश करता है, तो यह भीतरी दीवार से टकराता है और X-रे उत्पन्न करता है।

- Over a short span of time, the nuclei are bombarded by **X-rays** from all directions inside the hohlraum.

कुछ समय के भीतर, नाभिकों पर होलरूम के अंदर सभी दिशाओं से X-रे का हमला होता है।

- Eventually they compress the fuel sample in a symmetric way and heat it up rapidly to around **100 million degrees C**.

अंततः ये ईंधन के नमूने को समान रूप से संकुचित करते हैं और इसे तेजी से **100 मिलियन डिग्री C** तक गर्म कर देते हैं।

- In **2022**, the NIF said it had used this technique to produce **3.15 MJ** of energy, crossing the **breakeven point**.

2022 में, NIF ने कहा कि उसने इस तकनीक का उपयोग करके **3.15 MJ** ऊर्जा उत्पन्न की, जिससे **ब्रेकइवन प्वाइंट** को पार किया गया।

- On the other hand, **ITER** was launched in **2007** and is expected to produce its first plasma only in **2033**, and over time also devour the world's meagre **tritium reserves**. दूसरी ओर, **ITER** को **2007** में लॉन्च किया गया था और यह अपनी पहली प्लाज्मा **2033** में ही उत्पन्न करेगा, और समय के साथ दुनिया के सीमित **ट्रिटियम भंडार** को भी समाप्त करेगा।

- The desperate need for sources of clean energy means achieving nuclear fusion may just be a matter of time, especially if governments continue to trust the scientists working on the required technologies.

स्वच्छ ऊर्जा के स्रोतों की तत्काल आवश्यकता का मतलब है कि परमाणु संलयन प्राप्त करना बस समय की बात हो सकती है, विशेष रूप से यदि सरकारें आवश्यक तकनीकों पर काम कर रहे वैज्ञानिकों पर विश्वास करना जारी रखें।

- But which technology gets it over the line — **magnetic, inertial** or something else — remains to be seen.

लेकिन कौन सी तकनीक इसे पूरी तरह से हासिल करेगी — **चुंबकीय, इनर्शियल** या कुछ और — यह देखना बाकी है।

- Some private sector enterprises are also beginning to enter the mix.

कुछ निजी क्षेत्र की कंपनियाँ भी इस क्षेत्र में कदम रख रही हैं।

- While the **NIF** has demonstrated a proof-of-concept **ignition**, **EAST** is keeping **tokamaks** in the hunt with its large scale and steady progress.

जबकि **NIF** ने **इग्निशन** का प्रमाण-सिद्ध अवधारणा दिखाया है, **EAST** अपनी विशाल पैमाने और steady प्रगति के साथ **टोकामैक** को दौड़ में बनाए हुए है।

TOPICS COVERED (PCS Special)



1. Manu Bhaker wins BBC Indian Sportswoman of the Year award / मनु भाकर ने बीबीसी इंडियन स्पोर्ट्सवुमन ऑफ द ईयर का पुरस्कार जीता

ANOTHER ACCOLADE

Manu Bhaker wins BBC Indian Sportswoman of the Year award

PCS



FILE PHOTO: R. RAGU

Star Indian pistol shooter Manu Bhaker was named the BBC Indian Sportswoman of the Year on Monday. **Other winners:** Sheetal Devi (Emerging Player of the Year), Mithali Raj (Lifetime Achievement Award), Avani Lekhara (Para Sportswoman of the Year) and Tania Sachdev (Changemaker Award).

Manu Bhaker wins BBC Indian Sportswoman of the Year award

मनु भाकर ने बीबीसी इंडियन स्पोर्ट्सवुमन ऑफ द ईयर का पुरस्कार जीता

Star Indian Pistol Shooter Manu Bhaker Named BBC Indian Sportswoman of the Year
स्टार भारतीय पिस्टल शूटर मनु भाकर को बीबीसी भारतीय महिला खिलाड़ी of the Year चुना गया

• **Manu Bhaker**, the star Indian pistol shooter, was named the **BBC Indian Sportswoman of the Year** on Monday.

मनु भाकर, स्टार भारतीय पिस्टल शूटर को बीबीसी

भारतीय महिला खिलाड़ी of the Year के रूप में सोमवार को चुना गया।

- Other winners include:

अन्य विजेताओं में शामिल हैं:

- Sheetal Devi - Emerging Player of the Year
- Mithali Raj - Lifetime Achievement Award
- Avani Lekhara - Para Sportswoman of the Year
- Tania Sachdev - Changemaker Award