Topics - MINDS MAPS included (Daily current affairs 10th & 9th March 2025

SAURABH PANDEY

CSE

SOMETIMEN INVITATIONS
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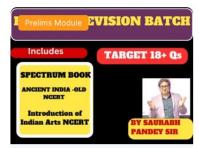
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NEW TIGER RESERVE



New Tiger Reserve: Madhav National Park in Madhya Pradesh is now India's 58th tiger reserve, announced by Union Environment Minister Bhupender Yadav.

State Recognition: This is the ninth tiger reserve designated in Madhya Pradesh, highlighting the state's commitment to wildlife conservation.

Current Tiger Population: The reserve currently hosts five tigers, including two recently born cubs.



FACTS

The Madhav National Park is situated on the northern fringe of the Central Highlands of India forming a part of the Upper Vindhyan Hills intermixed with plateaus, and valley sections.

Sakhya Sagar and Madhav Sagar are the two lakes in the southern part of the park, providing the aquatic biodiversity and lifeline for the terrestrial species.

Marsh Crocodiles are in abundance in Sakhya Sagar lake. Due to this, the lake looks like a "Crocodile Safari" and attracts special attention of tourists. Madikhera dam is situated in the North Western part of the Park.





Jalanatheswarar temple in Thakkolam



m Historical Significance: The Jalanatheswarar temple in Thakkolam is a key site for Tamil history, particularly during the Chola dynasty.

Structural Damage: The temple's northern outer wall has collapsed, and the temple tank is in poor condition, requiring urgent restoration.

Age of the Temple: The temple dates back to the 6th Century and was originally constructed by the Pallavas.

Inscriptions: There are 51 inscriptions in the temple, including references to Pallava king Aparajita and the town's original name, Thiruvural.

Cultural Recognition: The Central Industrial Security Force recently renamed its training center in honor of Chola prince Rajaditya, highlighting the area's historical importance.

Chronological Insights: Inscriptions help establish the chronology of the Chola Dynasty, with significant dates linked to King Aditya I and solar eclipses.

First rear fuselage for LCA Mk1A manufactured by Indian private sector handed over to HAL

The Hindu Bureau

BENGALURU

In a first, the rear fuselage for the light combat aircraft (LCA) Tejas MkIA, manufactured by Alpha Tocol Engineering Services Private Ltd., a private sector enterprise, was handed over to Hindustan Aeronautics Ltd. (HAL) here on Sunday.

Defence Minister Rajnath Singh, who was present, termed the handing over a milestone in the historic journey of India's defence manufacturing sector.

"The ceremony is a testimony to India's progress towards *aatmanirbharta* (self-reliance) in defence, and the government's commitment towards enhanced public-private



Major milestone: Rajnath Singh with Air Chief Marshal A.P. Singh and HAL Chairman and MD D. K. Sunil in Bengaluru. PTI

partnership," Mr. Singh said.

A fuselage is part of the main body of the aircraft, which holds the pilot, passengers and cargo, while the rear fuselage supports the tail section and its associated components.

HAL had placed orders

with various Indian private companies, including Larsen & Toubro Ltd., Alpha Tocol Engineering Services Private Ltd., Tata Advanced Systems Ltd., VEM Technologies Private Ltd., and Lakshmi Machine Works (LMW) Ltd. for supplying major modules for a

contract involving 83 LCA Mk1A. HAL has already manufactured 12 LCA MK1A rear fuselages, which are on the aircraft in the manufacturing line.

With this supply, a major structure module produced by an Indian private partner will be integrated into the LCA MkIA aircraft, enabling HAL to meet additional delivery commitments for the Indian Air Force from 2025-26 onwards.

Minister visits IAM

Mr. Singh visited the Institute of Aerospace Medicine (IAM). He was briefed about the IAM's unique role in pilot training, medical evaluation, and aeromedical research.

He also inspected the dynamic flight simulator.

high performance human centrifuge used for high-G training of fighter pilots, and the spatial disorientation simulator for training the pilots of the Armed Forces to avert the risk of spatial disorientation in flight.

He also launched the 'Indian Council of Medical Research Extramural Research Project: Centre for Advanced Research'.

"From the defence perspective, space has emerged as a major domain in warfare. As we are touching new heights in space, we need to explore more possibilities in aerospace medicine. There is a need for increased R&D as research in any high-end complex technology provides benefits to many fields." Mr. Singh said.



Fuselage

- In a first, the rear fuselage for the light combat aircraft (LCA) Tejas Mk1A, manufactured by Alpha Tocol Engineering Services Private Ltd., a private sector enterprise, was handed over to Hindustan Aeronautics Ltd. (HAL.
- A fuselage is part of the main body of the aircraft, which holds the pilot, passengers and cargo, while the rear fuselage supports the tail section and its associated components





Mostly Spherical
Fuselage Components
(actual not manufacturable by
Polygon Forming)

Mostly Cylindrical Fuselage Components (actual manufacturable by Polygon Forming) Mostly Spherical Fuselage Components (actual not manufacturable by Polygon Forming)

Indian team makes doubly secure ink to thwart counterfeiting

Scientists from INST Mohali and BARC Mumbai have made an ink using strontium bismuth fluoride nanoparticles. While existing fluorescent inks are visible only under ultraviolet light or infrared light but not both, the scientists said their ink fluoresces in light from both parts of the spectrum, making it more secure

Unnati Ashar

overnments and financial institutions take painstaking efforts to consolidate banknotes, cheques, and passports with a variety of security features to protect them from counterfeiting. Yet ever so often a counterfeiter emerges who can recreate these features and pass off fake documents as real ones. In response, institutions constantly develop newer and better components that are even harder to falsify

Now, scientists from India have come up with an ink they say can make counterfeiters' jobs harder.

Security printing

Counterfeiting is a serious threat to a range of enterprises. Spurious medicines packaged to look like the real thing can delay proper treatment or even kill. Branded consumer goods these days have tamper-resistant packaging to prevent cheats from selling low-quality replicas.

The printing of items with safeguards against counterfeiting is called security printing. It implements features that humans can detect by themselves or using simple tools. Examples include optically variable ink (whose colour appears to change when viewed from different angles), watermarks, holograms, and security threads. Features like raised shapes and shifting textures are security-printed features a person can check using the sense of touch.

Security printing can also incorporate more complex features that only machines can detect. Some modern passports include a small radio-frequency identification chip that only a scanner can read. Other examples include invisible barcodes, digital watermarks, and holograms.

A nanoparticle solution

An important security-printed feature on Indian banknotes is a number panel in fluorescent ink located at the lower left corner. The numbers here are visible only in ultraviolet light.

Scientists from the Institute of Nano Science and Technology (INST), Mohali, and the Bhabha Atomic Research Centre (BARC), Mumbai, have now reported a new ink they have made using nanoparticles. Nanoparticles are objects less than 100 nm (nanometres) wide. Because of their small size, they have properties that don't appear in larger objects: they interact differently with light, respond differently to magnetic fields, and are chemically more reactive.

That the discovery of ways to manufacture semiconductor



A close-up view of a 500-rupee note showing the security thread feature in the form of a series of polygons running the note's breadth. ISHANT MISHRA/UNSPLASH

nanoparticles with unusual properties won three scientists the 2023 Nobel Prize for chemistry speaks to nanoparticles' transformative effect on the world.

A simple recipe

In the new study, the nanoparticles were made of Sr₂BiF₇ (strontium bismuth fluoride) doped with lanthanide ions. Doping is the process of deliberately adding impurities to an existing crystal to give it properties it previously didn't have.

Scientists used the coprecipitation technique to make the particles. "To do this, all the metal salts in the required quantity are dissolved in a suitable solvent. Once you get a clear solution, the required amount of precipitation agent is added while stirring," INST scientist and study coauthor Sanyasinaidu Boddu said. Then they used a centrifuge to separate the deposited material out.

"The proposed compound is a new composition and is the first time we have synthesised it by a simple coprecipitation method at just above room temperature. which is very easy to scale up," Boddu added. The team then doped the Sr2BiF7 nanocrystals with ions of erbium and vtterbium, both lanthanide elements, and blended them with easily available polyvinyl chloride (PVC) ink. Finally, they used the screen printing technique to print some letters and numbers. Screen printing uses a stencil and a squeegee to transfer an image onto paper.

Two-light trick

When the researchers shone 365-nm wavelength ultraviolet light on these symbols, they emitted a cool blue glow.

Counterfeiting is a serious threat to a range of enterprises. Spurious medicines packaged to look like the real thing can delay proper treatment or even kill. Branded goods have special packaging to prevent cheats from selling low-quality replicas

This process is called fluorescence: when an object absorbs light of one wavelength and emits light of a longer wavelength. Under 395-nm light, the letters glowed magenta. And when the researchers directed near infrared light of 980 nm at the letters, they fluoresced with an orange-red colour.

According to the team, currently available fluorescent inks are visible only under ultraviolet light or infrared light but not both, adding that their ink stands out because it fluoresces in both the ultraviolet and the near-infrared parts of the spectrum. This, they contended in

their paper, makes their ink more secure. This low-cost ink also remains effective under varied brightness, temperature, and humidity conditions.

The study was published in ACS Applied Materials and Interfaces in September 2024.

Towards practical use

Bipin Kumar Gupta, senior principal scientist and professor at the CSIR National Physical Laboratory in New Delhi, who wasn't involved in the study. said the paper didn't report the quantum yield of the system. Quantum yield specifies how well the system converts

incident light into fluorescence. "Ouantum vield is crucial for applications such as light emitting diodes and display devices. However, a very high quantum yield is not necessary for security applications. ... From our report, it is very clear that the material is showing very good brightness under different excitation wavelengths, and that is sufficient for practical applications," Boddu said.

Gupta received an Indian patent for a bi-luminescent security ink on January 30, 2025, after a US patent for the same object in February 2022. This ink is composed of gadolinium vanadate (GdVO4) doped with europium and emits red and green light under ultraviolet light of two wavelengths.

"To print security features on, say, currency notes, generally offset printing and not screen printing is used," Gupta said when asked about the applicability of the ink developed at INST.

Offset printing uses a system of three rollers. One cylinder 'offsets' the image from a metal plate to a rubber blanket. The image is then transferred to the printing surface. Offset-printed images are sharper and capable of printing smaller

"I agree that screen printing is not used for currency notes. However, there are many other places where you can use screen printing ... We are [also] working towards offset printing," Boddu said. "There are a few more steps to take this material to direct practical applications. and we are working on these steps."

(Unnati Ashar is a freelance science journalist. unnati a@ymail.com)



THE GIST

Security printing can incorporate features that only machines can detect. Some passports include a chip that only a scanner can read. Other examples include invisible barcodes, digital watermarks, and holograms

Nanoparticles interact differently with light and magnetic fields and are chemically more reactive. The discovery of ways to manufacture semiconductor nanoparticles won three scientists the 2023 Nobel Prize for chemistry

Researchers say, 'The proposed compound is a new composition and is the first time we have synthesised it by a simple coprecipitation method at just above room temperature, which is very easy to scale up'

The Role of Nanoparticles in Ink Development -Currency printing



What Are Nanoparticles?

Recently, scientists from the Institute of Nano Science and Technology (INST) in Mohali and the Bhabha Atomic Research Centre (BARC) in Mumbai have made significant strides in developing new inks using nanoparticles. These tiny particles are less than 100 nanometers wide, which is about 1/100,000th the width of a human hair!

Properties of Nanoparticles

Because of their minuscule size, nanoparticles exhibit unique properties that larger objects do not. They interact differently with light, respond uniquely to magnetic fields, and are chemically more reactive. This makes them incredibly useful in various applications, including the development of advanced inks for banknotes.



The Composition of the New Ink

Doping Process Explained

The new ink is made from strontium bismuth fluoride (Sr2BiF7) doped with lanthanide ions. Doping involves adding impurities to a crystal to give it new properties. In this case, the addition of lanthanide ions enhances the ink's fluorescent capabilities, making it even more effective for security purposes.

The Manufacturing Process



Coprecipitation Technique

To create these nanoparticles, the researchers used a coprecipitation technique. This involves dissolving metal salts in a solvent to form a clear solution, then adding a precipitation agent while stirring. This method is not only effective but also easy to scale up for mass production.

Screen Printing Method

Once the nanoparticles are ready, they are blended with polyvinyl chloride (PVC) ink and printed onto the banknotes using a screen printing technique. This method uses a stencil and a squeegee to transfer the design onto the paper, ensuring precision and clarity.



The Two-Light Trick: How It Works

Fluorescence Explained

When the researchers shine a 365-nm wavelength ultraviolet light on the printed symbols, they emit a cool blue glow. This phenomenon, known as fluorescence, occurs when an object absorbs light of one wavelength and emits light of a longer wavelength. Under 395-nm light, the letters glow magenta, and when exposed to near-infrared light of 980 nm, they fluoresce with an orange-red color. This multi-color fluorescence adds an extra layer of security to the banknotes.

Conclusion



The innovative use of nanoparticles in the development of fluorescent inks for Indian banknotes is a testament to the power of science and technology in enhancing security features. As counterfeiting techniques evolve, so too must the methods we use to protect our currency. The collaboration between INST and BARC not only showcases the potential of nanotechnology but also highlights the importance of continuous research in safeguarding our financial systems.

WHAT IS IT?

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Preprints: papers but by name

Vasudevan Mukunth

A preprint paper is a scientific paper made available to read before it has been sent for consideration by a peer-reviewed scientific journal.

Once a group of scientists finishes conducting a study and has collected its findings, it writes up the study's methods and conclusions in a paper and publishes it in a journal. If the journal is peer-reviewed, the journal's editor will share the manuscript with a few independent scientists working in the same field. If their comments are encouraging, the editor accepts the paper for publishing.

A preprint is a paper scientists have written up and uploaded to a preprint repository; if the repository is on the internet, anyone on the web can read it. After uploading a paper as a preprint, the authors may or may not send it to a journal as well.

The quality of science in preprints varies depending on the field and the repository. arXiv (pronounced 'archive') is the world's largest and oldest repository, hosting preprints on mathematics, physics, astronomy, engineering, etc. Since it was launched in 1991,



Today, preprints are popular among open-access advocates. IÑAKI DEL OLMO/UNSPLASH

other repositories like bioRxiv, chemRxiv, medRxiv, PsyArXiv, and SSRN Electronic Journal have also come up.

Today, preprints are popular among open-access advocates because they are free to read whereas many journals often charge readers a hefty fee to read papers. Critics have also pointed out that peer review — which remains the main difference between preprints and published papers — fails to catch research that has been deliberately faked.

(mukunth.v@thehindu.co.in)



For feedback and suggestions

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Preprint:

Definition of Preprint: A preprint is a scientific paper made available for public reading before it undergoes peer review by a journal.

Process of Publication: After conducting a study, scientists write a paper detailing their methods and findings, which can be submitted to a peer-reviewed journal.

Peer Review: In peer-reviewed journals, the manuscript is evaluated by independent scientists; positive feedback can lead to acceptance for publication.
Accessibility: Preprints are uploaded to repositories, allowing anyone on the internet to read them, enhancing accessibility compared to traditional journals.

Quality Variation: The quality of preprints can vary significantly based on the scientific field and the repository used for publication.



major Repositories: arXiv is the oldest and largest preprint repository, with others like bioRxiv, chemRxiv, medRxiv, PsyArXiv, and SSRN emerging since its launch in 1991.

Solution Open Access Advocacy: Preprints are favored by open-access advocates as they are free to read, contrasting with many journals that charge fees.

Summary: Preprints are publicly accessible scientific papers shared before peer review, with varying quality and several established repositories.

BIG SHOT





A general view shows erosion on Miami Beach in Queensland, Australia, after the sand was washed away by Storm Alfred on March 9. After days of hovering off the coast as a category 2 tropical cyclone generating heavy weather across the region, Alfred weakened into a tropical depression before making landfall in the evening of March 8. AFP



Mapping - Miami Beach (QUEENSLAND - Australia)

Closing the gender gap in the higher judiciary



Inequality at the top

However, there remains a glass ceiling for women in the higher judiciary. The share of women judges in the High Courts is only 14.27% (109 out of 764). In eight High Courts, the number of woman judges is limited to just one. The High Courts of Uttarakhand, Meghalaya, and Tripura have no woman judge. The Allahabad High Court, which is the largest High Court in the country with 79 judges at present. has only three women judges (2%). Not only is there a disproportionately low number of women judges in the High Courts, but they are also appointed later than men. The average age of appointment of men is 51.8 years, but for women it is 53 years. Thus, women judges do not reach positions of seniority. Out of 25 High Courts, only the Gujarat High Court has a woman Chief Justice.

The numbers for the Supreme Court are much worse, with only two women judges serving at present - Justice B.V. Nagarathna and Justice Bela Trivedi. With Justice Bela Trivedi due to retire in June 2025, the top Court will be left with just one woman judge. The last woman judge appointed to the Supreme Court was in 2021. Since then, 28 judges have been appointed to the Supreme Court, and not a single of them is a woman. Over the last 75 years, the Supreme Court has elevated nine men from the Bar directly to the Supreme Court, but only one woman has been elevated directly from the Bar to the Court.

from the Bar to the Court.

Many justifications are given for
not appointing women. It is said
that there are not enough eligible



Jayna Kothari

Senior Advocate, Supreme Court of India

women candidates, not enough women with seniority, or that women do not want to become judges. All of this is merely top dressing, when the underlying factor is one of deep inequality, to borrow the analogy of Dr. B.R. Ambedkar. One of the main causes for the exclusion of women from the higher judiciary is deep-rooted and systemic inequality, where women are seen as inferior within the legal profession. Women lawyers nominated for judgeship face heightened scrutiny. Far from compromising on merit, women are almost always required to prove merit more than men.

We also have the collegium

opaque and

system of appointments, which is

non-transparent. There ACCELERATE are no clearly stated **ACTION FOR** criteria for eligibility or merit and there is no transparency in the process. This also works against women. The collegiums almost always comprise men and little or no effort is taken to get names of meritorious women lawyers for elevation. This is not the only hurdle. Even when names of women are recommended by the collegium, women are disproportionately not confirmed by the government, Since 2020, nine women's names were recommended by the collegium for appointment to the High Courts, but were not confirmed. Of these, five were the only names to be rejected. This year, as we celebrate

This year, as we celebrate International Women's Day and 75 years of the Supreme Court, we need a transformation of our courts. Constitutional courts have to be gender equal in the true sense, where women are working, serving and leading in equal measure, especially on the Bench.

appointments to the Supreme Steps towards equality

We have to

ensure that

Court and High

normalised that

it does not seem

ordinary at all

Courts are so

out of the

women's

Women's representation in the judiciary is key to ensuring that courts represent their citizens and hand down sound judgments. Having an equal number of women on the Bench will enhance the legitimacy of courts and give a signal that our judiciary is inclusive and representative of the people whose lives they affect. First, the collegium could frame

a transparent process and provide clear criteria for appointment. This must include a process for lawyers to express interest in being considered for appointment, such as through applications. There must be clear criteria based on the highest standards of excellence and integrity, and a specified time frame during which the recommendations be made. Second, there has to be a focus on gender diversity while making appointments. Diversity while making appointments. Diversity und merit

are not contradictory; rather, in a

judiciary more

pluralistic society such as

ours, diversity makes the

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not half, is composed of women. This will mandate the appointment of a competent. independent, and impartial judiciary capable of upholding constitutionalism and the rule of law in the country, through a process that ensures selections solely based on merit and encourages diversity in the range of persons appointed, so as to enhance public confidence in the institution. Most importantly, gender balance needs to be a stated objective of the judiciary in making appointments.

Justice Indira Banerjee, a former judge of the Supreme Court, famously said in one of her interviews that she did not want any fanfare when she was appointed just because she was a woman. We have to ensure that women's appointments to the Supreme Court and High Courts are so normalised that it does not seem out of the ordinary at all.



Women in Indian Judiciary



The legal landscape in India has evolved dramatically, with women breaking barriers and making their mark. Yet, as we celebrate these achievements, we must also confront the stark realities of inequality that persist at the highest levels of the judiciary.

The Glass Ceiling in Higher Judiciary

Despite the progress, a glass ceiling remains firmly in place for women in the higher judiciary. The statistics are disheartening, with only 14.27% of judges in High Courts being women.

Current Statistics on Women Judges

In several High Courts, the representation of women judges is alarmingly low. For instance, the Allahabad High Court, the largest in the country, has only three women judges, a mere 2%.

Disparities in Appointment Ages



Interestingly, women are appointed to these positions at a later age than their male counterparts, which further hinders their chances of reaching senior roles.

The Supreme Court: A Stark Reality

The situation in the Supreme Court is even more concerning. Currently, only two women judges serve, and with one set to retire soon, the future looks bleak.

The Numbers Speak

Over the last 75 years, the Supreme Court has seen only one woman elevated directly from the Bar, while nine men have made that leap. This disparity raises questions about the criteria used for such appointments.

Bar Elevation Disparities



The lack of women in the Supreme Court is not just a statistic; it reflects a systemic issue that needs urgent attention.

Justifications for Underrepresentation

Various justifications are often cited for the lack of women in higher judicial roles, but many of these are mere excuses.

Myths and Misconceptions

Claims that there aren't enough eligible women or that they don't aspire to be judges are misleading. The reality is much more complex.

Systemic Inequality

Deep-rooted biases and systemic inequality continue to undermine women's potential in the legal profession. Women often face heightened scrutiny and must prove their merit more than their male counterparts.

The Collegium System: A Barrier



The collegium system, responsible for judicial appointments, is another hurdle. Its opaque nature and lack of transparency work against women.

Lack of Transparency

Without clear criteria for eligibility, the process becomes subjective, often favoring men over equally qualified women.

Gender Bias in Recommendations

Even when women are recommended for judgeships, they face disproportionate rejection rates, further entrenching the status quo.

Steps Towards Equality

To address these disparities, concrete steps must be taken to ensure gender equality in the judiciary.

Framing a Transparent Process

Establishing a transparent process for judicial appointments is crucial. This includes clear criteria and a mechanism for lawyers to express interest in being considered.

Emphasizing Gender Diversity

Gender diversity should be a priority, ensuring that at least one-third of the higher judiciary is composed of women. This will enhance the legitimacy of the courts and foster public confidence.

Conclusion

As we reflect on the progress made by women in law over the past century, we must also acknowledge the work that lies ahead. Achieving true gender equality in the judiciary is not just a goal; it is essential for a fair and just legal system.

What does NEP, 2020 state about languages?

SAURABH PANDEY
CSE
TROMASICS TO CITIC BRILLIANCE

What does the National Education Policy 2020 say about the medium of instruction in schools? Should learning via the mother tongue or the local language be encouraged? What did the eighth All India School Education Survey find? Has the implementation of the three-language policy been a success in the country?

EXPLAINER

Maitri Porecha

The story so far:

amil Nadu's resistance to adopting the three-language policy as mandated under the National Education Policy (NEP, 2020) has brought the age-old language debate back under the limelight.

What does NEP 2020 state about language instruction?

Formed after five years of consultations, NEP, 2020 which replaces the previous education policy of 1986 has stated that wherever possible, the medium of instruction, for students in both public and private schools, until at least Grade 5, but preferably till Grade 8 and beyond, will be in the home language or the mother tongue or the local language or the regional language. Thereafter, the home or local language shall continue to be taught as a language wherever possible. Experts who penned the NEP, 2020, led by former Indian Space Research Organisation (ISRO) chairman K. Kasturirangan, suggested that young children learn and grasp non-trivial concepts more quickly in their home language or mother tongue. The NEP 2020 document states, "Research clearly shows that children pick up languages extremely quickly between the ages of two and eight and that multilingualism has great cognitive benefits to young students, children will be exposed to different languages early on (but with a particular emphasis on the mother tongue), starting from the Foundational Stage onwards." To that end adopting bilingualism (mother tongue along with English) is encouraged in the NEP.

In Haryana for instance, pre-school educators in anganwadis use study material like colourful textbooks to teach alphabets and numbers in Hindi and English, with both Hindi and English fonts printed on the same page accompanied



In rage: A protest by DMK-led coalition against the three-language policy in Chennai on February 18. PTI

with vivid imagery.

What did the AISES find regarding languages taught in schools?

The eighth All India School Education Survey (AISES), carried out by the National Council of Educational Research and Training (NCERT), remains the latest country-wide survey on the medium of instruction and languages taught. It points out that even though a majority number of schools have their mother tongue as the medium of instruction, this number has been coming down over the years (between 2002 to 2009). The eighth survey points out that 86.62% schools teach via the mother tongue at the primary stage as compared to 92.07% schools in the seventh survey. Pointing at the urban-rural divide, the eighth AISES points that 87.56% schools in rural and 80.99% schools in urban areas have their mother tongue as the medium of

instruction as compared to 92.39% schools in rural and 90.39% schools in urban areas in the seventh survey.

What is the three-language formula?

The current three-language formula proposed by NEP 2020 has considerably departed from the previously enunciated policy in 1968 which emphasised study of Hindi, English and a modern Indian language (preferably one of the southern languages) in Hindi-speaking States and Hindi, English and a regional language in non-Hindi speaking States. In contrast, the NEP 2020 states that it provides greater flexibility in the three-language formula, and that no language will be imposed on any State. But it does encourage some languages. The policy document dedicates an entire section to lauding Sanskrit and pushes for its inclusion as an option in the three-language formula. The policy

document also goes on to say that classical languages, including classical Tamil, Telugu, Kannada, Malayalam, Odia and additionally Pali, Persian, and Prakrit should be available as options.

Additionally, NEP 2020 mentions that in order to promote learning in mother tongue, high-quality textbooks, including in science, will be made available in home languages/mother tongue. To improve access to such educational materials, the NCERT released a set of digital books in 104 regional languages and dialects in 2024, which include Bengali, Khandeshi, Tulu, Ladakhi, Pashto, Bhili, Dogri, Lahuli (Pattani), Car Nicobarese among others. NCERT officials have said that it is the responsibility of the respective State Councils of Educational Research and Training (SCERTs) to facilitate translations in their respective languages. Last year, Assam following the NEP call, launched bilingual textbooks for Science and Maths in English, Assamese, Bodo as well as Bengali. Andhra Pradesh too introduced bilingual textbooks consisting of Telugu and English in 2023.

However, the implementation of the three-language formula has been poor. For instance, while Tamil was made the second language in 1969 by Haryana's former Chief Minister Bansi Lal, the language was removed from its status in 2010 due to lack of Tamil speakers. Similarly, State education officials in Himachal Pradesh have been unable to offer Telugu and Tamil as language options due to inability to find teachers for these languages.

What about foreign languages?

NEP 2020 states that foreign languages, such as Korean, Japanese, Thai, French, German, Spanish, Portuguese, and Russian, will also be offered at the secondary level. According to a plan formulated by the Central Board of Secondary Education (CBSE), students are to learn two Indian languages till Class 10, and in Class II and I2 they have an option to choose to learn one Indian language.

THE GIST

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The NEP, 2020 which replaces the previous education policy of 1986 has stated that wherever possible, the medium of instruction, for students in both public and private schools, until at least Grade 5, but preferably till Grade 8 and beyond, will be in the home language or the mother tongue.

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The current three-language formula proposed by NEP 2020 has considerably departed from the previously enunciated policy in 1968 which emphasised study of Hindi, English and a modern Indian language in Hindi-speaking States and Hindi, English and a regional language in non-Hindi speaking States.

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NEP 2020 states that foreign languages, such as Korean, Japanese, Thai, French, German, Spanish, Portuguese, and Russian, will also be offered at the secondary level.

Key Aspects of NEP 2020 on Language Instruction



- Medium of Instruction: The policy mandates that the medium of instruction in both public and private schools should be in the students' home language or mother tongue until at least Grade 5, and preferably until Grade 8 and beyond.
- Substitution Language Continuity: Post Grade 5, the home or local language should continue to be taught as a language wherever feasible.
- **Cognitive Benefits: Research highlighted in NEP 2020 shows that children grasp complex concepts more effectively in their home language, particularly between the ages of two and eight.**
- Multilingualism: The policy encourages early exposure to multiple languages, stressing the importance of the mother tongue while promoting bilingualism (mother tongue and English).



Practical Implementation: In Haryana, pre-school educators utilize colorful textbooks to teach alphabets and numbers in both Hindi and English, visually integrating both languages on the same page.

Expert Input: The NEP 2020 was formulated after five years of consultations, led by K. Kasturirangan, former chairman of ISRO.

Foundational Stage: The policy underscores the significance of language instruction starting from the Foundational Stage, fostering a robust linguistic foundation for young learners.

What is the three-language formula?



Three-Language Formula: A flexible approach, differing from the 1968 policy, which required Hindi, English, and a regional language.

Sanguage Options: Encourages inclusion of languages like Sanskrit and classical languages (Tamil, Telugu, Kannada, etc.) in the curriculum.

Mother Tongue Promotion: Emphasizes learning in the mother tongue, with high-quality textbooks in home languages.

Digital Resources: NCERT released digital books in 104 regional languages and dialects in 2024 to enhance educational access.

state Initiatives: States like Assam and Andhra Pradesh are implementing bilingual textbooks in various languages, aligning with NEP guidelines.

Implementation Challenges: Issues include the removal of Tamil as a second language in Haryana and a shortage of teachers for Telugu and Tamil in Himachal Pradesh.

Historical Context: The transition from the 1968 policy to NEP 2020 marks a significant shift in India's language education policy.

Are unique electoral ID numbers being duplicated?

What has the Trinamool Congress alleged with respect to EPIC numbers? How has the Election Commission of India responded? What is the ERONET digital platform?

Sreeparna Chakrabarty

The story so far:

n February 27, West Bengal Chief Minister Mamata Baneriee alleged that the ruling BIP was "with the blessings of Election Commission of India [EC]" including voters from other States in the West Bengal voters' list. She cited multiple voters with the same Electors Photo Identity Card (EPIC) numbers. The EC responded that irrespective of the EPIC number, a person can cast a vote only at their designated polling stations in their respective States or UTs. The poll body said it would remove these duplications. The Trinamool Congress rejected the clarification stating that it was a "cover-up".

What is an EPIC card?

The EPIC number is a 10-digit voter ID

card number issued by the EC to each voter. The number is a unique alphanumeric code assigned to each registered elector to prevent impersonation. It was introduced in 1993 under the Registration of Electors Rules, 1960, to enhance electoral transparency. It is assigned via the ERONET digital platform when a new voter registers, after which it is linked to State and constituency data to ensure regional uniqueness. The ERONET is a web-based platform which was developed for election officials, in multiple languages and scripts, to handle all processes pertaining to registration, migration, and deletion of names from electoral rolls. The platform automates the process of electoral roll management.

What was the EC's response?

The Commission said that the allotment of identical EPIC numbers to some voters

from different States or UTs was due to the decentralised and manual mechanism being followed prior to shifting the electoral roll database of all States/UTs to the ERONET platform. "This resulted in certain State/UT CEO offices using the same EPIC alphanumeric series and leaving a scope for the possibility of duplicate EPIC numbers being allotted to electors in different Assembly Constituencies in different States/UTs".

However, it clarified that while EPIC numbers of some of the electors may be identical, the other details including demographic details, constituency and polling booth are different for voters with the same EPIC number. It said that irrespective of the EPIC number, an elector can cast a vote only at their designated polling station in their respective constituency in their State/UT where they are enrolled in the electoral roll and nowhere else. In order to allay

any apprehensions, the EC said that it would ensure allotment of unique EPIC numbers to registered electors. "Any case of duplicate EPIC number will be rectified by allotting a unique EPIC number. The ERONET 2.0 platform will be updated to aid and assist in this process".

What has Trinamool Congress said?

The Trinamool Congress has countered the EC clarification, Trinamool MP Saket Gokhale said that a voter was linked to his photo by the EPIC number. So, when a voter in Bengal goes to cast his vote, his photo on the electoral roll will be different if the same EPIC number has been allotted to a person in another State. This will lead to the refusal of voting due to a photo mismatch. He alleged that by allotting the same EPIC numbers in different States, voting can be denied to those who are likely to vote for non-BJP parties due to photo mismatch. He added that the EC rules mandate that the software used for issuing EPIC cards keeps track of every used and unused number to ensure that the same EPIC number is not allotted to multiple people.

"This clearly reeks of a conspiracy to conduct voter suppression in favour of the BJP, where voters in non-BJP areas are being targeted by issuing their EPIC numbers to people in other States" Mr. Gokhale said. The Trinamool Congress has promised to give more 'evidence' on the voter ID row.



THE GIST



West Bengal Chief Minister Mamata Banerjee alleged that the ruling BJP was including voters from other States in the West Bengal voters' list.



The EPIC number is a 10-digit voter ID card number issued by the EC to each voter. The number is a unique alphanumeric code assigned to each registered elector to prevent impersonation.



The Commission said that the allotment of identical EPIC numbers to some voters from different States or UTs was due to the decentralised and manual mechanism being followed prior to shifting the electoral roll database of all States/UTs to the ERONET platform.

Allegations of Voter Manipulation in West Bengal



Key Allegations and Responses

Allegations of Voter Manipulation: West Bengal Chief Minister Mamata Banerjee accused the BJP of manipulating the voter list with the help of the Election Commission of India (EC) by including voters from other states.

Q Duplicate Voter IDs: Banerjee highlighted instances of multiple voters sharing the same Electors Photo Identity Card (EPIC) numbers, raising concerns about electoral integrity.

EC's Response: The Election Commission clarified that despite duplicate EPIC numbers, individuals can only vote at their designated polling stations in their respective states or Union Territories (UTs).

EPIC Card and Electoral Processes



EPIC Card Details: The EPIC number is a unique 10-digit identifier issued to each voter to prevent impersonation, introduced in 1993 to enhance electoral transparency.

■ ERONET Platform: The EPIC is assigned through the ERONET digital platform, which manages voter registration, migration, and electoral roll updates in multiple languages.

Automation of Electoral Processes: ERONET automates electoral roll management, ensuring efficient handling of voter data and processes.

How is a census of river dolphins carried out? How many Gangetic dolphins are there? Why are both visual and acoustic surveys necessary?

Jacob Koshy The story so far:

The story so far:
the first ever census of Gangetic dolphins,
the only riverine dolphins in India,
which began four years ago, has found
6,327 of the species in the river Ganga and its
tributaries.

What did the census survey fund? The Environment Ministry on March 3, commemorated as World Wildlie Dax, released a report by the Wildlife Institute of India (WIII), a Ministry body, that said there are 6,234 Ganges river dolphins, and three Indias free dolphins (a related species). There are an average 3,275 in the Compact Private of the Private of the Indianaputra mainstreams is in the Bealmangutra (rebustless of the Compact of the Private of the Private of the Private of the mainstreams is in the Bealmangutra (rebustless of the Ganga tributaries; 584 in the Brahmaputra mainstream; 51 in the Brahmaputra tributaries; and three dolphins in the river Boxs. The effort began in 2021 and spanned a cumulative distance of 8,507 km along the stretches of the river and its tributaries. The maximum number of dolphins were reported in Utar Pradesh (2,387), followed by Bihar (2220), West Bengal (815) Assam (635) Jharkhand (162) Rajasthan and Madhya Pradesh (95) and Punjab (3).

Why was such a survey necessary?
River dolphins grow slowly and are found in some of the most threatened habitats, vulnerable particularly to getting entangled in the ness of fahermen. Project International Union for Dolphin was Conservation of Nature's Isunched on Red List, the Ganges river dolphin (Platanista gangetica) is classified as Dolphamend' Studies Surgery of Studies

gamgerica' is classified as Techangered'. Studies estimate that 4%-5% of conserve both dolphins die after getting entangled in fishing nets stakeholders such as the forest department, in all, 58 rivers both and 300 broad and 300 broad saves where Camertic.

boat and 30 by road survey where Gangetic dolphins have been sighted historically.

How was the survey conducted? Nearly all wild animals that are surveyed from time to time are land animals. Observational techniques and statistical modelling methods nerhappen and statistical modelling methods have revolved one for your to estimate their methods of the your to estimate their methods and at a constant speed, independently recorded a dolphin sighting. Every time they sighted a dolphin, they noted the distance of the sighting from their boxt, whether the animals were adults or 'menonses', and whether it was the same dolphin sighted before. Then, these observations were correlated with an acoustic survey. Dolphins are largely billed and

communicate via sounds, or echo-location like buts. Scientists used a hydrophone, or an underwater microphone, that can record these underwater micropione, that can record their sounds. Using signal processing, it is possible to identify with a fairly high accuracy, unique individuals, the WII report said. For their final assessments, results from both these methods were combined with mathematical techniques. What are the threats faced by the dolphins? Accidental deaths from being entangled in fishing nets are a major threat. Unlike in poaching, where certain animals are actively hunted, dolphins wade into these nets and are unable to free themselves to break into the surface for air and are thus suffocated. surface for air and are thus sufficated. Large method lightens made from mylon and polythene moundinanear are particularly with the moundinanear are particularly with the moundinanear are particularly with the mounding to the international Union for Conservation of Nature's Red List, for Conservation of Nature See List, for Conserva sometimes "opportunistically killed." The oil extracted from their fat, or blubber, is used as a bait in India and Bandadesh for carbiner carlish

The First Census of Gangetic Dolphins



Introduction to Gangetic Dolphins

Have you ever heard of the Gangetic dolphin? These fascinating creatures are the only riverine dolphins found in India, and they play a crucial role in the ecosystem of the Ganga River. Recently, a groundbreaking census was conducted to assess their population, and the results are both exciting and concerning.

What Did the Census Survey Find?

On March 3, celebrated as World Wildlife Day, the Environment Ministry released a report from the Wildlife Institute of India (WII). This report revealed that there are 6,324 Ganges river dolphins and three Indus river dolphins, a closely related species.



Key Findings of the Census

The survey, which began in 2021, covered an impressive distance of 8,507 km along the Ganga and its tributaries. The findings showed that there are approximately 3,275 dolphins in the main stem of the Ganga, while 2,414 inhabit its tributaries. Additionally, the Brahmaputra River hosts 584 dolphins, with 51 in its tributaries, and three dolphins were spotted in the river Beas.

Distribution of Dolphins Across Regions

The census highlighted the distribution of these dolphins across various states. Uttar Pracest leads with 2,397 dolphins, followed by Bihar with 2,220, and West Bengal with 815. Other states like Assam, Jharkhand, Rajasthan, Madhya Pradesh, and Punjab also reported smaller populations.

The Importance of River Dolphins

These dolphins are not just cute faces; they are vital indicators of the health of river ecosystems. Their presence signifies a balanced environment, while their decline can signal serious ecological issues.

Project Dolphin: A Conservation Initiative

To address the challenges faced by these dolphins, Project Dolphin was launched on August 15, 2020, by Prime Minister Narendra Modi. This initiative aims to conserve both marine and riverine dolphins by involving various stakeholders, including the forest department and local fishermen.



Unique Challenges in Dolphin Counting

Traditional wildlife counting methods, like camera traps and tracking DNA, don't work well for dolphins. They don't leave behind traceable biological samples, making it difficult to estimate their numbers accurately.

Methodology: Visual and Acoustic Surveys

For the Project Dolphin survey, scientists employed a combination of visual and acoustic surveys. Two teams of observers on boats recorded dolphin sightings, noting their distance from the boat and whether they were adults or calves. They also used hydrophones to capture the sounds dolphins make, which helped identify individual dolphins.

What Are the Threats Faced by the Dolphins?

Despite the positive news from the census, these dolphins face numerous threats that jeopardize their survival.

Entanglement in Fishing Nets

One of the most significant threats is accidental deaths from entanglement in fishing nets. Unlike poaching, where animals are actively hunted, dolphins can become trapped in nets and suffocate. Large-meshed gillnets made from nylon and polythene are particularly dangerous.

Other Threats to Their Survival

In addition to entanglement, habitat degradation and pollution also pose serious risks to the Gangetic dolphins. As human activities continue to encroach on their habitats, the future of these magnificent creatures hangs in the balance.

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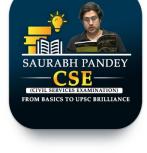
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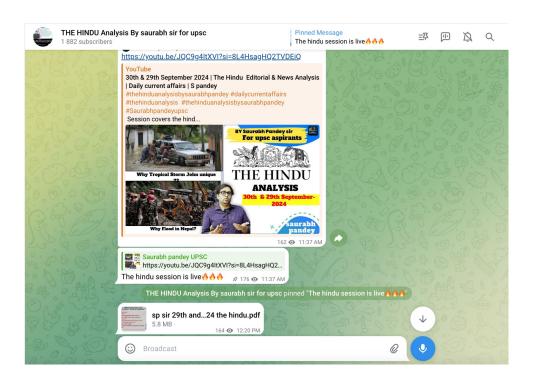


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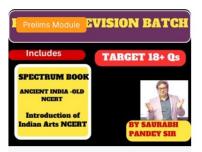
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