

Topics - MINDS MAPS included (Daily current affairs 2nd January 2025)

- Target UPSC CSE Prelims 2025
- **Similipal Biosphere Reserve**
- **Indian Navy's New Platforms Commissioning**
- **Nitrate Contamination in Groundwater: A 2023 Overview**
- **Student Enrolment Trends in India (2023-24)**
- **Political and Demographic Challenges in Southern India**
- **China's Technological Ascendancy:**
- **Mains**



By saurabh Pandey



THE HINDU

Target Mains -2025/26 -

Q “Growing case of Bribery and Corruption is the result of social and ethical sanction” Discuss

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Q. Countries bordering Yemen.

1) Kuwait

2) Iran

3) Saudi Arabia

4) Oman

How many of the given countries border Yemen.

A) One Only

B) Two Only

C) Three Only

D) All four

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Tiger released back into Odisha's Similipal reserve

The Hindu Bureau

BHUBANESWAR

Zeenaat, the three-year-old tiger that had been wandering for three weeks near the boundaries of three States before being brought to Odisha's Similipal Tiger Reserve, was released into a soft enclosure in the reserve's southern division on Wednesday, marking a new home for the big cat as the New Year begins.

Zeenaat was translocated from the Tadoba-Andhari Tiger Reserve in Maharashtra to the Similipal Tiger Reserve on November 14 as part of a strategy to boost the genetic diversity of the reserve's big cat population.

It has been a matter of concern that a significant number of tigers in Similipal displayed pseudo-melanism, characterised by black stripes that are much more pronounced than the typical colouration of a Royal Bengal Tiger. This is



Zeenaat had been keeping forest officials on their toes for over three weeks.

largely a result of inbreeding.

Under the supervision of the National Tiger Conservation Authority, Zeenaat, and another tiger Jamuna, were released into the Similipal Tiger Reserve.

Zeenaat was released into the wild following 10 days of acclimatisation in the core area of Similipal's northern division. The dispersing female tiger, in process of establishing her territory, strayed into Jharkhand and then West Bengal in the first week of December. After weeks of hide and seek, Zeenaat was captured in West Bengal on December 29.

Topic → Similipal Biosphere Reserve

- Located in the State of Odisha, the Similipal Biosphere Reserve lies within two biogeographical regions: the Mahanadian east coastal region of the Oriental realm and the Chhotanagpur biotic province of the Deccan peninsular zone.
- Volcanic sedimentary rocks are aligned in three concentric rings and accentuate the area's geologic formations. The highest peak in the Similipal hill range is Khairiburu (1,168 metres).
- Numerous waterfalls and perennial streams flow into major rivers, such as the Budhabalang, Baitarani and Subarnarekha.
- The biosphere reserve has the largest zone of Sal in all of India. In addition, the tropical monsoon climate provides ideal circumstances for the development of a distinctive biodiversity, highlighted by 1,076 species of vascular plants.

- Among them are 93 species of orchids, 300 species of medicinal plants and 52 species of endangered flora. Two endemic Orchid species are *Eria meghasaniensis* and *Tainia hookeriana*.
- Other noteworthy flora species include *Callicarpa arborea* (a species of beautyberry), *Bombax ceiba* (Cotton tree) and *Madhuca longifolia* (Mahua).
- Two tribes, the Erenga Kharias and the Mankirdias, inhabit the reserve's forests and practise traditional agricultural activities (the collection of seeds and timber).
- Other dominant tribes include the Ho, Gonda and Munda, among others. Similipal's cultural significance is characterized by stories and paintings that date back to the Ramayana, Mahabharata and Puranas, many of which mention local sites linked with specific mythological stories.
- For example, a sacred grove called Shami Vrikhya is said to have been the secret hiding place of the bow and arrow of the hero Arjuna.

Scorpene-class submarine among 3 frontline platforms to be inducted by Navy on Jan. 15

The Hindu Bureau

NEW DELHI

The Indian Navy is set to commission three frontline platforms into service at the Naval Dockyard, Mumbai, on January 15. These are the sixth and last Scorpene-class submarine, *Vagsheer*; the fourth and last of the Project-15B stealth destroyers, *Surat*; and the lead ship of the Project-17A stealth frigates, *Nilgiri*.

“This historic event will provide a significant boost to the Indian Navy’s combat potential while underscoring the country’s pre-eminent status in indigenous shipbuilding. The successful commissioning of these advanced warships and submarines highlights the rapid progress made in warship de-

sign and construction, cementing India’s position as a global leader in defence manufacturing,” the Navy said in a statement.

All three platforms had been manufactured at Mazagon Dock Shipbuilders Ltd. (MDL), Mumbai. While the two ships are indigenously designed, the Scorpene-class submarines are manufactured in India under licence from Naval Group of France.

Nilgiri, the lead ship of Project-17A, is a major advancement over the Shivalik-class frigates, incorporating significant stealth features and reduced radar signatures through state-of-the-art technology. The Project-15B destroyer, *Surat*, is the culmination of the follow-on class to the Kolkata-class (Project-15A)



Naval boost: The sixth Scorpene-class submarine *Vagsheer*.

destroyers, featuring substantial improvements in design and capabilities. Both ships were designed by the Navy’s Warship Design Bureau and equipped with advanced sensors and weapon packages developed primarily in India or through strategic collaborations with leading global

manufacturers, the Navy stated.

Aviation facilities


“The vessels have undergone rigorous trials, including machinery, hull, fire-fighting, and damage-control assessments, as well as proving all navigation and communication

systems at sea, making them fully operational and ready for deployment.”

Equipped with modern aviation facilities, *Nilgiri* and *Surat* can operate a range of helicopters, including Chetak, Dhruv, Sea King, and the newly inducted MH-60R, during both day and night operations. Features such as a Rail-Less Helicopter Traversing System and a Visual Aid and Landing System ensure seamless operations under all conditions, the Navy said. “These ships also include specific accommodations to support a sizeable complement of women officers and sailors, aligning with the Navy’s progressive steps toward gender inclusion in frontline combat roles.”

Topic → Indian Navy's New Platforms Commissioning

Overview of New Platforms

 Commissioning Date: The Indian Navy will commission three new platforms on January 15 at the Naval Dockyard, Mumbai.


 New Platforms: These include:

Scorpene-class submarine Vagsheer

Project-15B stealth destroyer Surat

Project-17A stealth frigate Nilgiri

Indigenous Manufacturing

 All three vessels were manufactured at Mazagon Dock Shipbuilders Ltd. in Mumbai, highlighting India's capabilities in indigenous shipbuilding.

Advanced Features

🛡️ Nilgiri and Surat: Incorporate significant advancements in stealth technology and design improvements over previous classes, enhancing their combat potential.


Rigorous Trials

🔧 The vessels have completed extensive trials, ensuring they are fully operational and ready for deployment with advanced navigation and communication systems.

Aviation Capabilities

🚁 Both Nilgiri and Surat are equipped with modern aviation facilities, allowing them to operate various helicopters, including the newly inducted MH-60R.

Gender Inclusion

 The ships include accommodations for women officers and sailors, reflecting the Navy's commitment to gender inclusion in combat roles.

Summary

The Indian Navy is set to enhance its combat capabilities with the commissioning of three advanced warships, showcasing indigenous manufacturing and modern technology.

SC to hear if pressing a bribe on a public official is abetting graft

The Hindu Bureau

NEW DELHI

The Supreme Court has agreed to examine if pressing a bribe on a public official, who has explicitly refused it, will amount to the criminal offence of abetting corruption under the Prevention of Corruption Act.

A Bench headed by Justice Dipankar Datta agreed, in a recent order, to examine whether Section 12 of the Prevention of Corruption Act, 1988 could be invoked in the case. Section 12 provides that “whoever abets any offence punishable under this Act, whether or not

that offence is committed in consequence of that abetment, shall be punishable with imprisonment for a term which shall be not less than three years, but which may extend to seven years and shall also be liable to fine”.

Abetment of illegal gratification to public officials was a substantive offence recognised under Section 165A of the Indian Penal Code. It was repealed with the coming of the Prevention of Corruption Act.

Section 12 was enforced as a law only from July 26, 2018 through an amendment in the 1988 Act.

The current case dealt with a person who alleged-

ly offered a bribe of ₹2 lakh to a police officer in 2016 in connection with the illegal manufacturing and hoarding of gutkha in Odisha.


Senior advocate S. Nagamuthu, appearing for the petitioner, contested that there was no unanimity among the High Courts on whether Section 12 could be invoked as regards an alleged voluntary offer of bribe made prior to July 26, 2018.

He pointed out that the High Courts of Madras and Bombay had taken opposite views.

The court, agreeing to deal with the issue, stayed the trial and posted the case after mid-January.

Topic → Supreme Court Review on Bribery and Corruption


Overview

 Supreme Court Review: The Supreme Court is set to examine if offering a bribe to a public official who has refused it constitutes abetting corruption under the Prevention of Corruption Act.


Legal Framework

 Section 12: Focuses on the abetment of offenses punishable under the Prevention of Corruption Act, 1988.

Penalties

 Imprisonment: Section 12 stipulates imprisonment of 3 to 7 years for those who abet offenses under the Act, along with potential fines.


Historical Context

 Previous Legislation: Abetment of illegal gratification was previously recognized under Section 165A of the Indian Penal Code but was repealed with the introduction of the Prevention of Corruption Act.


Amendment Details

 Enforcement Date: Section 12 was enforced from July 26, 2018, following an amendment to the 1988 Act.

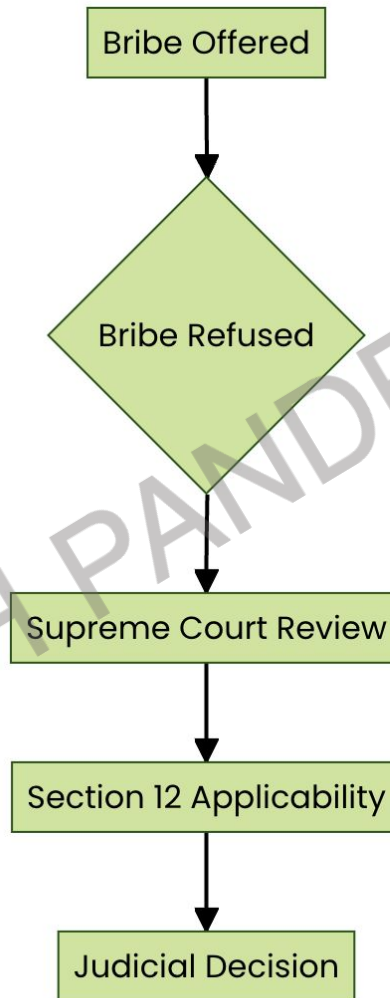
Case Details

 Bribery Incident: The case involves a ₹2 lakh bribe offered to a police officer in 2016 related to illegal gutkha manufacturing in Odisha.

Judicial Discrepancy

 High Court Opinions: There is a lack of consensus among High Courts regarding the applicability of Section 12 for bribes offered before its enforcement date, with differing opinions from the Madras and Bombay High Courts.

Summary: The Supreme Court will review whether offering a bribe to a public official who has refused it constitutes abetting corruption under the Prevention of Corruption Act, focusing on the implications of Section 12.



'Excessive nitrates found in groundwater in 440 districts'

Report suggests that about 56% of India's districts face the problem largely due to subsidised synthetic nitrogenous fertilizer, a key input for farming; a level more than 45 mg per litre is high

Jacob Koshy
NEW DELHI

Excessive nitrates have been found in groundwater in 440 districts as of 2023, an increase from 359 such districts in 2017, a report by the Central Groundwater Board (CGWB) said on Wednesday. This is a health hazard, particularly for young children, and a source of environmental toxicity.

The data suggest that about 56% of India's districts have excessive nitrates – defined as more than 45 mg per litre – in groundwater, largely due to the use of subsidised synthetic nitrogenous fertilizer, a key input for farming.

Of the 15,239 groundwater samples collected from across the country for testing, 19.8% had nitrates or nitrogen compounds above the safe limits. This proportion has not shifted much since 2017. In the 13,028 samples analysed in 2017, 21.6% had excessive nitrates.

Rajasthan, Karnataka, and Tamil Nadu reported the highest nitrate contamination problem, with



The Central Ground Water Board estimates that the stage of groundwater extraction is 60.4%, the same since 2009. FILE PHOTO

49%, 48%, and 37%, respectively, of their tested samples reporting numbers beyond the safe limit.

Rajasthan, Madhya Pradesh, and Gujarat have a long-standing nitrate problem with relative levels fairly constant since 2017, the report says. However, regions in central and southern India are reporting an increasing trend, provoking worry.

"Maharashtra (35.74%), Telangana (27.48%), Andhra Pradesh (23.5%) and Madhya Pradesh (22.58%) also show notable levels of nitrate contamination, pointing towards growing concern in central and

southern regions of India," the report notes.

The monsoon rain tends to increase nitrate levels, with 30.77% of samples contaminated in the pre-monsoon period compared with 32.66% after the rainy season.

Other major chemical contaminants affecting groundwater quality are fluoride and uranium. Fluoride concentrations exceeding the permissible limit are "a major concern" in Rajasthan, Haryana, Karnataka, Andhra Pradesh, and Telangana. Rajasthan and Punjab reported the highest number of samples with uranium con-

centration exceeding 100 ppb (parts per billion).

Anything over 30 ppb of uranium is considered unsafe and several of these samples were predominant in regions of Rajasthan, Gujarat, Haryana, Punjab, Tamil Nadu, Andhra Pradesh, and Karnataka, where groundwater is being over-exploited, with more water being drawn out than is being replenished by rain or other means.


In an accompanying report on the availability of groundwater across India, the CGWB estimates that on the whole, the stage of groundwater extraction across the country is 60.4%, roughly the same as it has been since 2009, when measurements began biennially (and annually since 2022).


About 73% of the blocks analysed for groundwater levels are in the "safe" zone, meaning that they are replenished enough to compensate for the water drawn out.


This is a sharp rise from the 67.4% in 2022. However, there were 343 fewer blocks analysed for the 2024 assessment, compared to 2022.


Topic → Nitrate Contamination in Groundwater: A 2023 Overview


Key Insights


 **Increase in Nitrate Contamination:** In 2023, groundwater in 440 districts shows excessive nitrate levels, up from 359 districts in 2017.

 **Health Risks:** Elevated nitrate levels are hazardous to health, particularly affecting young children, and contribute to environmental toxicity.

 **Extent of Contamination:** 56% of India's districts report nitrate levels exceeding 45 mg/l, largely due to the use of subsidized synthetic fertilizers.

 **Sample Analysis:** Among 15,239 groundwater samples, 19.8% surpass safe nitrate limits, a slight decrease from 21.6% in 2017.

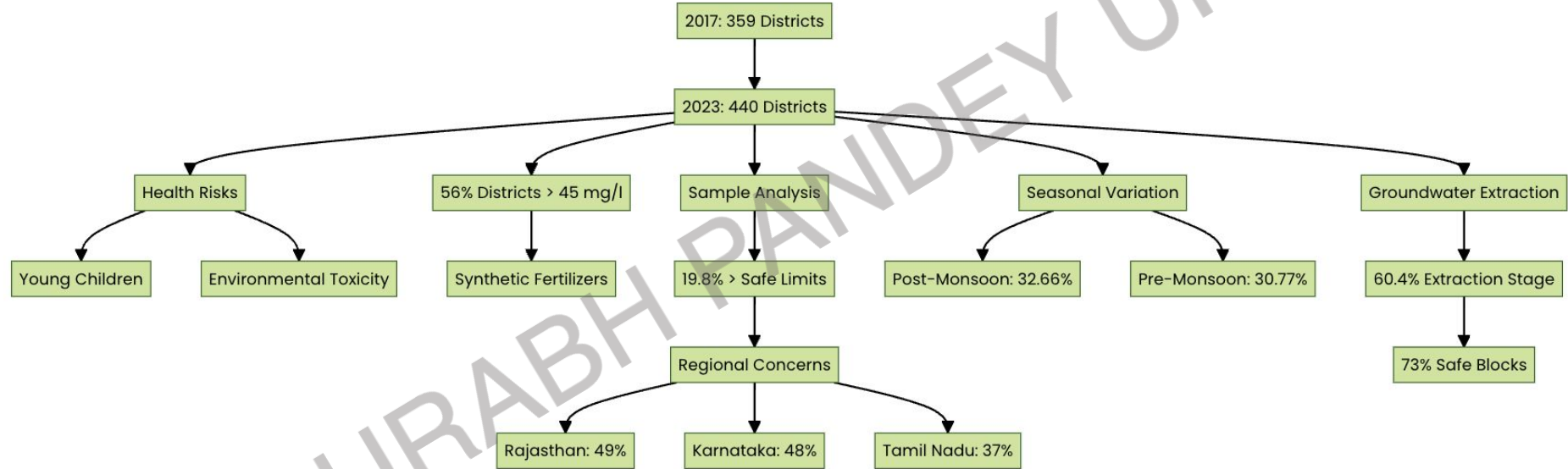
 Regional Concerns: Rajasthan, Karnataka, and Tamil Nadu exhibit the highest contamination rates, with 49%, 48%, and 37% of samples exceeding safe limits, respectively.

 Seasonal Variation: Nitrate contamination rises during the monsoon, with 32.66% of samples affected post-rainy season compared to 30.77% pre-monsoon.

 Groundwater Extraction: The extraction stage is at 60.4%, with 73% of analyzed blocks classified as "safe," an increase from 67.4% in 2022.

Summary: Groundwater in India is significantly contaminated with nitrates, posing health risks, especially to children, with notable regional and seasonal variations

Nitrate Contamination Overview:



School enrolment down by over a crore in 2023-24: report

The Hindu Bureau
NEW DELHI

The total enrolment of students has dropped by over a crore in 2023-24 from that of the previous years, show the latest data released by the Education Ministry.

A total of 24.8 crore students enrolled in the academic year 2023-24, the Unified District Information System for Education Plus (UDISE+) report released by the Ministry said. Over the past four years, the enrolment number has hovered around 26 crore.

Education officials have said in the report that the data show some real changes from the previous years as this exercise of maintaining a separate student base is unique and different and incomparable from that of 2021-22 or the previous years. The UDISE+ facilitates online uploading of data at the school level with inbuilt validation checks and the subsequent data verification at the block, district and State levels ensures data reliability and timely completion.

In 2018-19, the total enrolment of students in school was 26.02 crore, which increased in 2019-20 by 1.6% and crossed 26.45 crore, an increase of more than 42 lakh students. The enrolments slightly fell in 2020-21 as compared with 2019-20. In 2021-22, as compared with 2020-21, the total enrolment increased by 0.78%. Even according to data from back in 2021-22, the total enrolment was 26.3 crore.

In 2022-23, there was a drop in enrolment with 25.18 crore students being registered and there was a further fall in 2023-24 to 24.8 crore in the total enrolment, a drop of 6% (nearly 1.22 crore students) as compared with 2018-19.

In 2022-23, the Ministry started a revitalised UDISE+ ecosystem which captures data on more than 60 fields for each student and to maintain the uniqueness of the child, the Aadhaar details were also collected on a voluntary basis.

In the latest report, more than 19.7 crore students provided Aadhaar numbers by 2023-24 voluntarily, the report said.

Officials have stated that UDISE+ 2022-23 data is not strictly comparable with the previous reports on various educational indicators such as Gross Enrol-



Over the past four years, the enrolment number has hovered around 26 crore.

ment Ratio, Net Enrolment Ratio, dropout rates and so on. Since 2022-23, more efforts have been put in accurately establishing student and teacher credentials to weed out duplicate or ghost entries for specific identification of beneficiaries for various educational schemes.


Apart from Aadhaar, a separate unique educational ID (UID) for every student has been created in the UDISE+ portal to cover each and every child under the ecosystem of UDISE+, officials said.


"Through the creation of unique student and teacher identities, credentials of individuals students and teachers in the education ecosystem can be established more accurately leading to weeding out of duplicate or ghost entries resulting in precise identification of beneficiaries for benefit transfers of Samagra Shiksha scheme, PM POSHAN Scheme, National Scholarship scheme etc. (and) can bring significant savings to government in future years," the report said. While in 2018-19, 13.53 crore boys were enrolled, this saw a drop to 12.87 crore enrolments in 2023-24, a decrease of 4.87%, while enrolment of girls decreased from 12.49 crore in 2018-19 to 11.93 crore in 2023-24, a decrease of 4.48%.

States like Bihar, Uttar Pradesh and Maharashtra saw among the highest drop in enrolments. In 2018-19, Bihar reflected an enrolment of over 2.49 crore students which dropped to over 2.13 crore (a dip of over 35.65 lakh students) in the respective years UDISE+ report data. Similarly, Uttar Pradesh had shown enrolment of 4.44 crore students in 2018-19 which dropped by 28.26 lakh to 4.16 crore in latest data. Maharashtra recorded a decrease of 18.55 lakh students from over 2.32 crore to 2.13 crore in the latest report.


Topic → Student Enrolment Trends in India (2023-24)


Overview of Enrolment Changes

 Significant Drop in Enrolment: Total student enrolment decreased to 24.8 crore in 2023-24, down by over 1 crore from previous years.

 Historical Context: Enrolment numbers have hovered around 26 crore for the past four years, with a notable drop from 25.18 crore in 2022-23.

Data Accuracy and Systems

 Data Reliability: The UDISE+ system ensures data accuracy through online uploads and validation checks at multiple administrative levels.

 Unique Identifiers: Implementation of a unique educational ID (EID) and voluntary Aadhaar collection to maintain student uniqueness and reduce duplicate entries.

Gender and State-Specific Trends

 Gender Disparity:

Boys' enrolment fell from 13.53 crore in 2018-19 to 12.87 crore in 2023-24.


Girls' enrolment dropped from 12.49 crore to 11.93 crore in the same period.

 State-Specific Declines:

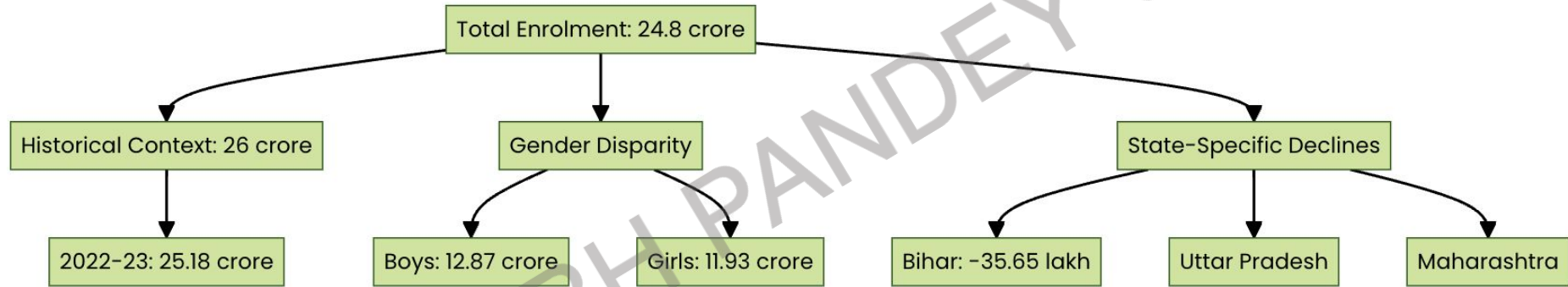
States like Bihar, Uttar Pradesh, and Maharashtra experienced the highest enrolment drops.

Bihar lost over 35.65 lakh students.

Data Collection Challenges

 Comparative Data Limitations: The 2022-23 UDISE+ data is not directly comparable to previous years due to changes in data collection and validation methods

Enrolment Trends and Disparities:



Summary: Student enrolment in India has significantly declined in 2023-24, with notable drops in specific states and gender disparities, while new data systems aim to improve accuracy and reliability.

Tackling delimitation by reversing population control

Recently, the Chief Ministers of Andhra Pradesh and Tamil Nadu, N. Chandrababu Naidu and M.K. Stalin, respectively, were quite peeved about the question of the proposed delimitation exercise and the possibility, subsequently, of the loss of parliamentary seats. This is very likely as the two States, along with the other southern States, are ahead of the rest of India in terms of fertility transition – implying a reduced share of the population when compared with the northern region. What is galling to people in general, and not necessarily just the politicians in south India, is that success in “family planning” will surely reduce the number of seats of the less populated States in Parliament.

“The state government [Andhra Pradesh] is thinking of enacting a law that would make only those with more than two children eligible to contest local body elections,” Mr. Naidu had said. Earlier, Andhra Pradesh had passed a piece of legislation barring people with more than two children from contesting local polls. Mr. Naidu said, “We have repealed that law, and we are now considering reversing it.... Government may provide more benefits to families with more children.”

Mr. Stalin’s response was, “Today, as there is a scenario of decreasing Lok Sabha constituencies, it raises the question why should we restrict ourselves to having fewer children?” Mr. Stalin added in jest, “Why not aim for 16 children?”

The example of China

The question that arises in the light of the reactions and the responses of the Chief Ministers is: would it be possible to arrest fertility decline and, moreover, reverse it by attempting to increase it? It is evident that the attainment of low fertility in the course of fertility transition is hardly reversible by intervention, but in the natural course of events, there might be a minor



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It is too
simplistic a
solution that is
being put forth
by some
politicians in the
southern States

reversal as suggested by experience worldwide. Despite this understanding, there are attempts being made in some countries to reverse the fertility trend through incentivisation, but to no effect. China’s one-child policy was one of the desperate measures to realise population control. The consequences confronting the Chinese state on varied fronts include problems in the marriage market, a dependency burden and, above all, extreme low fertility beyond the scope for reversal.

Quick and forced regulatory measures to restrict reproduction have never paid dividends beyond restricting population counts. In fact, an emphasis on limiting population counts without caring for its composition that sustains the population may well be considered unplanned. China’s case is an example wherein the state is facing numerous crises at this point over the familial transitions underway and the consequential burden of social security provisioning on the state.

An imbalanced population composition reached by intruding into the natural course of transition will pose problems that would only be remedied through promoting migration. Efforts at incentivising reproduction and adoption of a pro-natal population policy may not be an alternative as seen in countries such as Japan and South Korea. Hence, the response of the southern States to the emerging threat may well be considered premature and ineffective in the long run.

Varied population counts

The course of fertility decline in India’s States does show signs of a convergence across space and characteristics but a population momentum keeps the demographic divide wider between regions. Given this circumstance, population counts between provinces may not be the appropriate criterion to have political

representation that will defy the federal structure of our nation. ‘One person one vote’ may well be ideal but the difference in numbers of political representation in one region will be skewed beyond proportions. Unless these counts are weighed with some characteristics in terms of appropriating political representation, it will be unfair, for example, to a region that ushered in development with population control. This brings in a recognition of demographic divide apparent with education, coupled with the number of children being the criteria for shaping political outcomes.

Impact on women

Encouraging women to have more children may be easier said than done. In the current circumstances, a woman’s personal loss in engaging in reproduction is much greater than imagined given the state’s approach in facilitating the same. When the state celebrates the fertility decline and its dividend has benefited the larger cause, its implication in a woman’s life has been less than expected. Therefore, thinking about fertility reversal needs to be preceded by measures of guaranteeing the state’s social support for the additional children on the one hand and compensation for women’s engagement in reproduction on the other.

Reversing fertility could well be ideal in terms of maintaining a sustainable population but the regional population imbalance can perhaps be addressed through migration in immediate terms. What needs to be answered is the ensuing disadvantage of a lower population count and political representation that can only be resolved provided the count gets an equivalence in valuation in terms of capability characteristics. Therefore, the ultimate solution lies not in reversing fertility but in revising count-based political representation in the delimitation exercise.

Topic → Political and Demographic Challenges in Southern India

Political Concerns

Chief Ministers: N. Chandrababu Naidu (Andhra Pradesh) and M.K. Stalin (Tamil Nadu) are concerned about losing parliamentary seats due to proposed delimitation based on declining fertility rates in southern states.

Fertility Transition

Demographic Shift: Southern states are experiencing a fertility transition, leading to a reduced share of the population compared to northern states, potentially impacting political representation.

Legislative Actions

Policy Changes: Andhra Pradesh is considering a law to restrict local body election candidates to those with more than two children, reversing a previous law that barred candidates with more than two children.

Debate on Family Size 🤔

Humorous Suggestion: Stalin humorously suggested that with decreasing Lok Sabha constituencies, there should be no restriction on family size, even jokingly proposing aiming for 16 children.

Global Context 🌍

International Examples: The text discusses global attempts to reverse fertility decline, citing China's one-child policy as a failed example, leading to various social issues and demographic imbalances.

Political Representation ⚖️

Demographic Divide: The demographic divide in India suggests that population counts alone should not determine political representation, as it may unfairly disadvantage regions that have successfully implemented population control.

Impact on Women

Complex Challenges: Encouraging higher birth rates among women is complex, as the state must provide social support and compensation for the challenges women face in raising children.

Summary: The Chief Ministers of Andhra Pradesh and Tamil Nadu express concerns over potential loss of parliamentary seats due to declining fertility rates, leading to discussions on family size, legislative changes, and the implications for political representation and women's roles

The race for fighters: the IAF's dilemma

China has already fielded two fifth generation fighter jets becoming the only country other than the U.S. to have more than one fifth gen fighter. In comparison, the Indian Air Force is at 31 fighter squadrons, desperately awaiting new inductions and with no fifth gen fighter in the line-up for at least a decade

FULL CONTEXT

Dinakar Peri

In the last two weeks, taking the world by surprise, China unveiled a series of high technology platforms establishing its technological supremacy. These include two stealth fighter jets, the launch of an amphibious naval ship, a new "comprehensive" scientific research ship for global deep-sea exploration, a supersonic civil jet prototype and a new bullet train dubbed the world's fastest. The timing couldn't have been starker, highlighting the widening technological gap with the Indian Air Force (IAF) which is struggling to maintain its fighter squadron strength as modernisation is plagued by delayed deliveries.

Chinese military modernisation

Last week, videos emerged on social media of two stealth fighter jets in tail-less configuration. One of them a massive jet with delta-wing design, featuring three engines hinting at a likely long range, flying over Chengdu in Sichuan province went viral on social media 'X'. Videos of the second smaller jet featuring a smaller twin-engine design with swept wings emerged a day later. Reports suggest that the larger jet was designed by Chengdu Aircraft Corporation while the smaller jet is from the rival Shenyang Aircraft Corporation. However, there has been no official comments from China or from their state media so far on the developments.

The People's Liberation Army Air Force (PLAAF) of China has already fielded two fifth generation fighter jets, the medium J-35 and the heavy J-20, becoming the only country other than the U.S. to have more than one fifth gen fighter. With the two new jets, dubbed by many commentators as sixth gen-fighters which is debatable, China has, undoubtedly, taken giant strides in the technology race.

The recently released report to the U.S. Congress on the military and security developments involving the PRC for 2024 noted that the PLAAF and PLAN (Navy) Aviation together constitute the largest aviation force in the Indo-Pacific region. "The PLAAF is rapidly approaching technology typical of U.S. standards," it noted. The PLAAF and PLAN Aviation continue to field greater numbers of fourth-generation aircraft (now more than 1,300 of 1,900 total fighters, not including trainers) and probably will become a majority fourth-generation force in the next several years, the report added. In addition, the J-35 and J-20 are being added at a phenomenal rate and flight testing of the latest jets indicate a fairly advanced state, and that they have been under development for sometime.

The IAF's modernisation plan

The IAF is at 31 fighter squadrons as against the sanctioned strength of 42 squadrons, desperately awaiting new inductions and with no fifth gen fighter in the line-up for at least a decade, the only outlier among major countries.

Recent reports state that Pakistan has approved the procurement of 40 J-35s from China.

In an uncanny coincidence, very recently the Defence Ministry has appointed a committee led by the Defence Secretary to look into the overall capability development of the IAF. India has an ambitious plan lined up for the acquisition of over 500 fighter jets, a bulk of them to be indigenously designed and manufactured, majority of them for the



Need to catch up: Chinese ground crew members inspect a J-20 stealth fighter in Chengdu, in southwest China's Sichuan province in 2011. AP

IAF. However, these are at various stages of development and manufacturing and their timely deliveries are critical. Of these, the LCA variants will constitute the bulk. There are 83 LCA Mk1As on order but their deliveries have been delayed as the F-404 engines by General Electric (GE) have been delayed. A deal for 97 additional Mk1As is under discussion. The LCA-Mk2, fifth generation fighter the Advanced Medium Combat Aircraft (AMCA) and the Twin Engine Deck Based Fighter (TEDBF) for the Navy will have very ambitious development timelines but given the complexity and track record, it has to be seen how soon they are ready and available for induction.

The Defence Research and Development Organisation (DRDO) is working on the indigenous development of LCA-Mk2 aircraft and the AMCA, the Defence Ministry informed the Parliamentary standing committee on defence as per a report tabled earlier this month. "The deliveries for LCA-Mk2 and AMCA are expected to commence only into the next decade once the development cycle is successfully completed."

It must be noted that of the current 31 squadrons, the phase out of two MIG-21 squadrons has been extended due to the delayed deliveries of LCA-Mk1A. The Jaguars, Mirage 2000s and MIG-29s will begin going out by the end of the decade. For instance, by 2027-28, the first of the MIG-29s, inducted in the late 1980s, will start going out and by early 2040s, when most of these types will be phased out, some of the early lot of SU-30s will also start going out. The IAF has in all contracted 272 Su-30s, and a deal to procure 12 additional Su-30MKIs to replace the ones lost in accidents has just been signed while a major Sukhoi upgrade programme is in the final stages of approval.

Another critical procurement programme that hasn't progressed for several years is the H4 Multi-Role Fighter Aircraft (MRFA), a foreign jet intended to be manufactured in India with significant technology transfer. The Request For Information (RFI) for H4 MRFA was issued in April 2019 to global aircraft manufacturers but has since made no progress with even the preliminary Acceptance of Necessity (AoN) from the Government yet to be received. Given the long timelines for the procurement process, and factoring in the time to set up facilities in India and for the jets to roll out, the MRFA is unlikely to be available in significant numbers till the middle of the next decade.

As reported by *The Hindu* recently, in the backdrop of the controversy in the procurement of 36 Rafale fighter jets, the government is looking at a procurement model that is transparent and non-controversial for the MRFA.

Undercutting this urgency, IAF Air Chief Marshal A. P. Singh said in October that the MRFA was "needed as of yesterday". The larger and more capable LCA-Mk2 is under development and is supposed to do its first flight this October, with December 2027 to be the end of research and development for LCA-Mk2. "If these timelines are met and the MRFA is signed parallelly we are OK. We are not badly off. But if these timelines are pushed, then we need to look at alternatives," the Air Chief had stated.

In October 2022, then IAF chief ACM V. R. Chaudhary conceded that even with the LCA-Mk1A, LCA-Mk2 and the MRFA, "we will still be at 35-36 (squadrons) by middle of next decade."

It is pertinent to note that, barring the AMCA which will take sometime the LCA variants and the MRFA are all four gen plus fighters.

On the delay in the LCA-Mk1A, a

representative of the Ministry informed the House Panel that it "worries all of us". "LCA Mark 1 is dependent on GE-404 engines. The supply of GE-404 engines has been adjusted by GE for the last two years. Due to COVID, their supply chain has broken down. They have not been able to resume yet. They have promised that they will start giving GE engines from March this year, next year onwards, the supply would get stabilised," the representative submitted.

As soon as the engine problem is sorted out, we have planned to make 24 LCAs every year and then 30 every year, the representative stated. On the agreement between Hindustan Aeronautics Limited (HAL) and GE for the licence manufacture of the F-414 engines in India the Ministry representative expressed confidence that it should get it signed in the "next three to four months."

Aero-engine troubles

An aero-engine is likely to remain the single major dependency and the country's Achilles heel for a very long time. Imported engines, directly or 'co-manufactured' will power all indigenous jets and helicopters till the end of this century at the current rate. The licence manufacturing for the F-414 engine or the new HOKN engine likely to be co-developed and co-produced with France for the AMCA-Mk2 will still mean that India would be dependent on them for the most critical parts.

It will essentially be between France and the U.S. - U.S. for a part of the fighter fleet and France for the remainder of the fighter fleet and for almost all of the helicopter segment as more indigenous platforms come in.

The country can't claim to be fully self-reliant till it can field an aero-engine that is completely designed and developed in-house.

THE GIST

China unveiled a series of high technology platforms establishing its technological supremacy. These include two stealth fighter jets, the launch of an amphibious naval ship, and a new "comprehensive" scientific research ship for global deep-sea exploration.

India has an ambitious plan lined up for the acquisition of over 500 fighter jets, a bulk of them to be indigenously designed and manufactured. However, these are at various stages of development and manufacturing and their timely deliveries are critical.

An aero-engine is likely to remain the single major dependency and the country's Achilles heel for a very long time.

Topic → China's Technological Ascendancy: A New Era in Military Power

Introduction: China's Technological Showcase

Recent announcements of military innovations have sent shockwaves across the globe.

China's technological advancements are not merely impressive; they signify a shift in military power balance.

The unveiling of two stealth fighter jets, a new amphibious naval ship, and a rapid bullet train showcases China's ambition.

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The New Stealth Fighters: A Leap Forward

Design Features:

Two new stealth fighters, one massive with a delta-wing design and three engines, hinting at extended range capabilities.

The second, a smaller twin-engine jet with swept wings, showcases versatility in combat.

Global Implications:

With these additions, China is poised to rival the United States and its allies in air superiority.

The PLAAF's advancements challenge the Indian Air Force (IAF), which is struggling with modernization delays

Naval Advancements: The Amphibious Assault Ship

Strategic Features:

The new amphibious naval vessel enhances China's capability for rapid deployment in regional conflicts.

It allows for versatile operations, supporting both humanitarian missions and military engagements.

Regional Impact:

This advancement poses a significant challenge to India's naval presence in the Indo-Pacific.

China's growing naval strength could shift regional alliances and power dynamics.

The Fastest Bullet Train: Symbol of Innovation

Technological Insights:

The new bullet train prototype is not only a marvel of engineering but also crucial for military logistics.

Rapid movement of troops and supplies can now be achieved at unprecedented speeds.

Future Prospects:

This innovation signifies China's commitment to integrating advanced technology into its military framework.

It enhances response times and operational effectiveness in various scenarios.

The Indian Air Force: Challenges and Opportunities

Current Status:

The IAF is stuck at 31 squadrons, far below the sanctioned strength of 42. Delays in the production of indigenous aircraft have exacerbated the situation.

Future Plans:

An ambitious procurement of over 500 fighter jets is in the works, but timely delivery remains a concern.

The modernization of the IAF hinges on the successful development of indigenous technologies.

Conclusion: The Future of Military Technology in Asia

China's recent technological breakthroughs are a clarion call for military strategists globally.

As the balance of power shifts, it is imperative for nations like India to reassess their defense strategies.

The race for technological supremacy in Asia is just beginning, and the stakes have never been higher.

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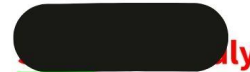
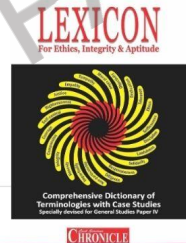
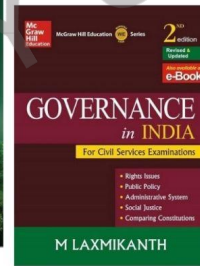
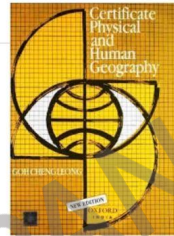
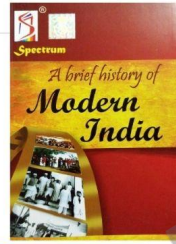
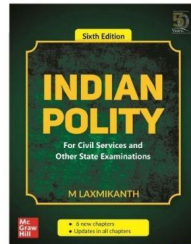
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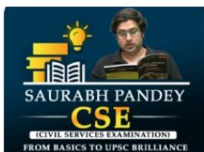
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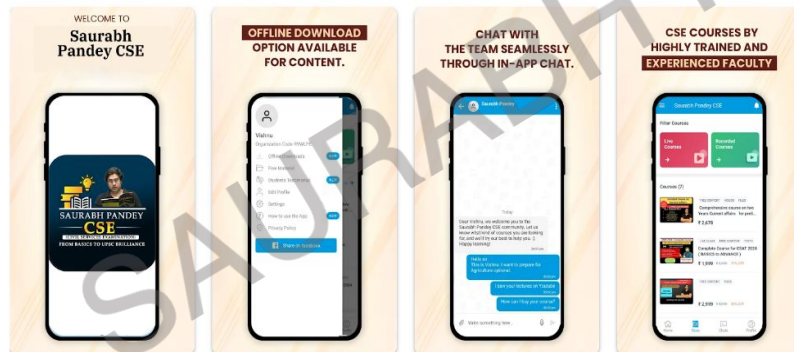
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1) Kuwait

2) Iran

3) Saudi Arabia

4) Oman

How many of the given countries border Yemen.

A) One Only

B) Two Only

C) Three Only

D) All four

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