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Current Affairs - 05 October 2025

WHAT IS DHVANI MISSILE?



- It is an **hypersonic missile** being developed by **India's Defence Research and Development Organisation (DRDO)**.
- The Dhvani is being **developed as a Hypersonic Glide Vehicle (HGV)**, a revolutionary weapon system that combines **blistering speed with unprecedented maneuverability**.
 - Unlike conventional cruise missiles that follow predictable flight paths, the Dhvani will be **launched to extreme altitudes before gliding toward its target at hypersonic speeds**.
 - This unique capability **makes it nearly impossible to detect** and even harder to intercept, rendering most existing missile defense systems obsolete.
 - It will be capable of **striking both land-based and maritime targets with pinpoint precision**.
- It can fly at **speeds exceeding Mach 5 or 6**, nearly 7,400 km per hour.
- It has **estimated ranges between 6,000 to 10,000 kilometers**.

What sets Dhvani apart is its **sophisticated design**.

- The missile features a **blended wing-body configuration** measuring approximately 9 meters in length and 2.5 meters in width.
 - Its **advanced heat protection system**, utilizing ultra-high-temperature ceramic composites, can withstand temperatures between 2,000-3,000°C generated during atmospheric reentry.
 - The **stealth-optimized geometry**, including angled surfaces and smooth contours, dramatically reduces its radar cross-section, making it **virtually invisible to enemy tracking systems**.
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INDIA-CHINA FLIGHTS TO RESUME

- Direct air connectivity between India and China was **suspended at the onset of the Covid-19 pandemic**, which halted international travel worldwide.
- However, while other countries gradually restored air routes, flights between India and China remained grounded due to deteriorating bilateral ties following the **2020 Line of Actual Control (LAC) standoff**.
- India's reluctance to resume direct services stemmed from ongoing border tensions and diplomatic friction, even as China consistently pressed for their reinstatement.
- **Early Signs of Thaw and Diplomatic Engagements**
 - With bilateral relations showing signs of improvement in 2024–25, the two sides began to explore ways to normalise travel.
 - The first major breakthrough came during Foreign Secretary's visit to Beijing in January 2025, where both nations agreed "in principle" to resume direct flights.
 - This momentum continued in August, when Chinese Foreign Minister Wang Yi's visit to New Delhi led to an agreement to restart air services "at the earliest" and ease visa procedures for tourists, businesspersons, journalists, and other travellers.
- **Ongoing Negotiations Through 2024**
 - Throughout 2024, the issue of flight resumption featured in multiple rounds of discussions between Indian and Chinese foreign and aviation officials.
- **Final Diplomatic Push in Late 2024**
 - Momentum built toward the end of 2024, when External Affairs Minister S. Jaishankar and Wang Yi met in Rio de Janeiro on the sidelines of the G20 Summit. Their discussions followed a key breakthrough — a border patrolling arrangement, signalling de-escalation along the LAC.
 - Soon after, Prime Minister Narendra Modi and President Xi Jinping met at the BRICS Summit in Russia, effectively paving the way for direct flight resumption — a symbolic and practical step toward normalising India-China ties.

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Direct Flights to Boost Connectivity and Competition

- Both Indian and Chinese airlines are poised to benefit significantly from the resumption of direct air connectivity between the two countries after a five-year hiatus.
- Before the pandemic, direct flights accounted for over 45% of all India-China passenger traffic — a market both sides now aim to reclaim and expand.
- The suspension of direct routes, combined with strict visa norms, had forced passengers to rely on connecting flights through hubs in Southeast Asia such as Singapore, Bangkok, Kuala Lumpur, and Hong Kong.
- As a result, airlines from these regions captured the market, with **Hong Kong remaining the top transit point** due to its separate visa regime.
- Currently, India-China passenger traffic stands at less than half of 2019 levels, but demand remains robust, especially for business and trade-related travel.
- With the return of direct flights, passengers will benefit from greater convenience, reduced travel time, and lower fares as competition intensifies among Indian, Chinese, and third-country carriers.
- The renewed connectivity is expected to not only revitalise air travel but also strengthen bilateral trade and people-to-people exchanges.

Chinese Airlines Held Majority of Pre-Pandemic India-China Traffic

- Before the Covid-19 pandemic, **Chinese carriers dominated direct air traffic between India and China, operating nearly 70% of the total flights.**
 - Beijing's strong push for resuming direct air connectivity and easing visa restrictions stems from this pre-existing advantage. However, industry analysts believe the balance may shift once flights resume.
 - India's aviation landscape has evolved — Air India, now privatised and financially stronger, is aggressively expanding its international footprint, and IndiGo is prioritising global routes.
 - This could enable Indian airlines to reclaim a larger share of the India-China travel market.
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SC'S TET MANDATE AND THE LOOMING CRISIS OF EMPTY SCHOOLS

- The Supreme Court's recent directive mandating that all in-service teachers for Classes 1 to 8 in non-minority schools must clear the **Teachers' Eligibility Test (TET)** within two years has sparked widespread concern among States.
- Tamil Nadu, in particular, has filed a review petition warning that the ruling could trigger a crisis of "empty classrooms," as lakhs of unqualified teachers face disqualification or forced retirement.
- The issue has opened a deeper debate on balancing the constitutional right to quality education with the practical realities of India's vast school system.

Understanding the Teachers' Eligibility Test

- The **Teachers' Eligibility Test (TET)** was introduced as a key quality benchmark under the **Right of Children to Free and Compulsory Education (RTE) Act, 2009**.
- Conducted by both the Central and State governments, it serves as a minimum qualification for appointment as a teacher in elementary schools (Classes 1-8).
- The **National Council for Teacher Education (NCTE)**, under Section 23(1) of the RTE Act, mandates passing the TET to ensure national standards in teacher quality.
- The rationale behind this test is to strengthen teacher competency and bring consistency in the recruitment process across States.
- However, the challenge arises with its retrospective implementation for teachers already in service before the RTE came into effect.

Key Highlights of the Supreme Court Judgment

- In its **September 1, 2025** judgment, a two-judge Bench of the Supreme Court ruled that all in-service teachers in non-minority schools who have more than five years of service left must **clear the TET within two years** or face **compulsory retirement**.
- Teachers with less than five years of service are exempted but will need a TET qualification if they seek promotion.



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- While acknowledging that the decision may appear “harsh,” the Bench emphasised that **ensuring qualified teaching personnel** is central to the constitutional mandate of **Article 21A**, which guarantees the right to free and compulsory education for children aged 6 to 14.
- Additionally, the judgment referred to a larger Bench the question of whether **minority educational institutions**, currently exempt from the RTE Act under the 2014 Pramati Educational and Cultural Trust case, should also be brought under its purview to prevent misuse of minority status to bypass teacher qualification norms.

State Concerns and the Risk of Classroom Vacancies

- Tamil Nadu, which employs over **4.49 lakh teachers** in government and aided schools, has highlighted that nearly **3.9 lakh** of them are **not TET-qualified**.
- Implementing the Supreme Court order, therefore, risks **mass teacher disqualification**, potentially crippling the State’s school education system and affecting millions of students.
- The State argues that the ruling creates a **direct conflict with Article 21A**, as it could simultaneously uphold quality standards while undermining the availability of teachers and disrupting classroom learning.
- Other States are likely to follow Tamil Nadu in seeking judicial review, given the magnitude of potential disruption.

Broader Implications for Teacher Policy and Education Quality

- The judgment underscores a national policy dilemma: how to reconcile the need for **qualified teachers** with the practical realities of **teacher shortages**, especially in rural and remote areas.
 - While TET aims to improve education quality, enforcing it rigidly on in-service teachers, many of whom have decades of experience, raises equity and livelihood concerns.
 - Education experts have warned that an abrupt implementation could lead to a wave of teacher retirements, **reducing teacher-student ratios**, particularly in public schools already struggling with staffing shortages.
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ORGAN DONATION IN INDIA - CHALLENGES AND THE WAY FORWARD

- While India **ranks third globally** in the total number of **organ transplants** (over 18,900 in 2024), the country's organ **donation rate remains critically low**, particularly for deceased donations.
- Though India reports 1,60,000 road traffic deaths annually, **only 1,000–1,200 deceased organ donations occur per year**.
- This means, **India is heavily reliant on living donors** for most transplants, especially for kidneys (for which, overall 13,476 transplants performed in 2024) and liver (4,901 transplants).
- **Statistics:**
 - **Living vs. deceased donors:** In 2024, India recorded just 1,128 deceased donors compared to over 15,000 living donors. Over 700 of these deceased donors came from just six southern states.
 - **Donor-per-million rate:** India's donation rate is **less than 1 donor per million** population, far behind developed countries like **Spain** (~48 per million) and the US (~36 per million).
 - **Supply-demand gap:** With over 63,000 people needing a kidney transplant and 22,000 needing a liver, the demand for organs vastly outstrips the supply, and **thousands die each year while waiting**.

Reasons Behind the Low Donation Rate:

- **Lack of awareness:** Widespread lack of public knowledge about organ donation, especially the concept of "**brain death**," is a major barrier. This leads to **misinformation and skepticism**.
- **Cultural and religious beliefs:** Deep-seated social and cultural factors, including beliefs about **life after death**, create hesitation and prevent families from giving consent for donation, even if the deceased had previously pledged.



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- **Family refusal:** Even with a donor pledge, family reluctance often results in refusal. A 2025 study cited family refusal as a significant factor for over 60% of respondents.
- **Weak deceased donation system:** Many hospitals lack the infrastructure, trained counselors, and trained intensivists needed to identify potential donors and counsel families effectively.
- **Lack of medical training:** **Example**, very few neurosurgeons, neurologists, and critical care specialists are trained during their MBBS studies to **certify brain death**.
- **Geographical disparities:** Transplant facilities are concentrated in **major cities**, and most deceased donation programs are confined to **southern and western states**.
- **High cost of transplant:** Most transplants occur in the **private sector**, and the high costs make them inaccessible for many people with end-stage organ failure.
- **Legal and ethical hurdles:** Complex legal and ethical issues, including concerns about illegal organ trafficking, can delay or hinder the donation process.

Government Steps to Boost Organ Donation in India:

- **Institutional reforms:**
 - The Indian government has taken several steps to improve organ donation rates through the National Organ and Tissue Transplant Organisation (NOTTO).
 - These include establishing the National Organ Transplant Programme (NOTP) to provide financial support for infrastructure and setting up regional and state bodies (ROTTOS and SOTTOs).
- **Legal reforms:** In 2023, the government **removed the upper age limit** for deceased donor registration and the state domicile requirement.
- **Digital initiatives:** Include a **unique NOTTO-ID system** to monitor transplants.

Conclusion: A comprehensive approach combining education, systemic reforms, and awareness can significantly enhance deceased organ donation rates, aligning with India's healthcare goals and ethical imperatives.



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AKSHAR FAST PATROL VESSEL



- It is the second in a series of eight **Adamy-class Fast Patrol Vessels (FPVs)**.
- The name 'Akshar' meaning 'imperishable', symbolises the ICG's steadfast resolve and commitment to ensuring safe, secure, and clean seas.
- It has been designed and **built indigenously by Goa Shipyard Limited and** contains over 60% indigenous content.

Features of Akshar Fast Patrol Vessel

- **Capacity:** The ship displaces approx. **320 tons** and is propelled by two 3,000 KW diesel engines, enabling a **maximum speed of 27 Knots**.
 - It has an endurance of 1,500 nautical miles at an economical speed.
 - ICGS Akshar is fitted with indigenously developed two **Controllable Pitch Propellers (CPP)** and gearboxes, offering superior maneuverability, operational flexibility and enhanced performance at sea.
 - The vessel also features an **Integrated Bridge System (IBS)**, Integrated Platform Management System (IPMS), and Automated Power Management System (APMS), augmenting operational efficiency and automation.
 - The ship will be based at **Karaikal, Puducherry**, under the administrative and operational control of Commander Coast Guard Region (East).
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WHAT ARE DARK STARS?



- Dark stars are **hypothetical objects** that may have inhabited the **early universe**.
- Scientists believe that dark stars **might be the oldest stars in the history of the universe** and may represent the **first phase of stellar evolution**.



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- These stars are **giant, much larger than our sun** or any of the other stars around today.
 - Dark stars **aren't actually dark**; they just **don't emit any visible light**.
 - That's **because instead of nuclear fusion**, which is the process that converts hydrogen into helium in the core of an ordinary star, **dark stars are powered differently**.
 - Astronomers believe that **dark matter heating is what powers them**.
 - Because there's **no fusion** happening inside them, **they aren't very hot**.
 - **Because dark stars don't rely on core fusion to stave off gravitational collapse, they're not extremely compressed** like normal stars.
 - Instead, dark stars are likely **giant, puffy clouds** that **shine extremely bright**.
 - A **single dark star** from the early Universe **could be as bright as an early galaxy containing many more standard stars**.
 - And even though they'd be massive — and potentially spewing gamma rays, neutrinos, and antimatter — so far, they've been **too faint to be detected because they don't emit visible light**.
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