

SEPTEMBER

9

# CRUX 10

10 News. 10 Sources. One Place



 **The Indian EXPRESS** live **mint** **पॉइंट**

**DownToEarth**  
FORTNIGHTLY ON POLITICS OF DEVELOPMENT,  
ENVIRONMENT AND HEALTH

**Science  
Reporter**



विज्ञान एवं  
प्रौद्योगिकी मंत्रालय  
MINISTRY OF  
SCIENCE AND  
TECHNOLOGY



**MK Yadav Sir**

# Table of Contents

- 1 Presbyopia
- 2 Lunar Nuclear Plant On Moon
- 3 Konyak Tribe
- 4 NIDHI Programme
- 5 Agni-4 Ballistic Missile
- 6 INDIAsize Initiative
- 7 Enemy Property
- 8 Gross Value Added (GVA)
- 9 Study on Plastic Pollution
- 10 Yudh Abhyas

### PRESVU: EYE DROPS WHICH 'REDUCE DEPENDENCY ON READING GLASSES'

ANONNA DUTT  
NEW DELHI, SEPTEMBER 8

MUMBAI-BASED Entod Pharmaceuticals has announced that the Drug Controller General of India (DCGI) — the country's apex drug regulator — has approved its new eye drop, which has been "specifically developed to reduce dependency on reading glasses for individuals affected by presbyopia."

According to the company, the eye drop PresVu is the first of its kind in India, and that Entod has "applied for a patent for this invention in terms of its formulation and the process".



PresVu is a pharmaceutical intervention for presbyopia, also corrected using glasses or LASIK surgery. [X.com/EntodPharma](http://X.com/EntodPharma)

#### What is presbyopia?

Presbyopia is an age-related condition in which the eyes gradually lose the ability to focus on nearby objects. People usually start to develop presbyopia at around the age of 40. According to doctors, spectacles are one of the most effective ways to manage the condition.

#### How does PresVu work?

The active ingredient — chemical compounds in medicines that have an effect on the body — in PresVu is pilocarpine. The compound contracts the iris muscles, which control the size of the pupil and help humans see things clearly, thereby enabling one's eyes to focus better on nearby objects, according to Entod Pharmaceuticals.

The company also said that PresVu uses "advanced dynamic buffer technology" — essentially, a base solution — to adapt to the pH level (a scale used to measure how acidic or basic a substance is) of tears. This ensures that the eye drop has "consistent efficacy and safety for extended use, keeping in mind that such drops will be used for years at a stretch".

PresVu is a prescription-only medicine and, according to doctors, its impact is unlikely to last beyond four to six hours. It should not be used by people

who have inflammation of the iris. Regular use of PresVu may lead to itching and redness, eyebrow pain, and muscle spasms in the eyes.

#### Is this a novel therapy?

Although Entod's claims make it seem that PresVu is a new therapy, pilocarpine, the main compound used in the eye drop, has been available in India for decades now.

Speaking to *The Indian Express*, Dr Mahipal Sachdeva, chairman of Centre for Sight, a chain of eye hospitals and clinics in India, said, "While pilocarpine has been in use as

the first line therapy for cataract, its property of temporarily improving the depth of focus is something that has been known for quite some time. The drug has been tried for presbyopia in other countries as well".

The United States Food and Drug Administration approved a pilocarpine eye drop for presbyopia in 2021.

In India, the government decides on the ceiling price of pilocarpine in 4% and 2% concentrations. PresVu has pilocarpine in 1.25% concentration.

**Context:** Entod Pharmaceuticals, based in Mumbai, has received approval from the Drug Controller General of India (DCGI) for its new eye drop, designed to reduce dependency on reading glasses for those with presbyopia.

### Presbyopia

- **About:** It is an age-related condition in which the eyes gradually lose the ability to focus on nearby objects.
- **Onset:** It typically starts around the age of 40.
- **Management:** Spectacles are one of the most effective ways to manage the condition.
- **How Does PresVu Work?**
  - **Active Ingredient:** PresVu contains pilocarpine, which is a chemical compound that affects the body by contracting the iris muscles.
  - **Mechanism:** Pilocarpine helps improve focus on nearby objects by controlling the size of the pupil.
  - **Technology:** PresVu uses "advanced dynamic buffer technology" to adapt to the pH level of tears, ensuring consistent efficacy and safety for extended use.
  - **Prescription Status:** PresVu is available by prescription only.
  - **Duration of Effect:** The impact of PresVu is generally effective for four to six hours.
  - **Side Effects:** Potential side effects include itching, redness, eyebrow pain, and muscle spasms in the eyes.
  - **Historical Use:** Pilocarpine has been used for cataract therapy and is known to temporarily improve the depth of focus. It has been tried for presbyopia in other countries as well.
- **Regulatory Information:**
  - **FDA Approval:** The United States Food and Drug Administration approved pilocarpine eye drops for presbyopia in 2021.
  - **Price Regulation:** In India, the government regulates the ceiling price for pilocarpine in 4% and 2% concentrations, while PresVu contains pilocarpine in a 1.25% concentration.

# India to join China, Russia for lunar N-power plant?

Srinivas Laxman

Call it lunar diplomacy or what you may. Two archrivals, India and China, are likely to team up with Russia for setting up a nuclear power plant on the Moon. This is according to a recent report in EurAsian Times, referring to Russia's state-owned news agency Tass, saying this was highlighted by Rosatom chief, Alexey Likhachev. Rosatom is Russia's state nuclear energy corporation that has ties with India.

Speaking at the Eastern Economic Forum recently at Vladivostok in Russia, Likhachev said: "...with the involvement of the international community, our Chinese

## In a 1st, Chandrayaan records seismic signs

In a first-ever collection of seismic data from Moon's south pole, Chandrayaan-3 has detected over 250 seismic signals, some of which may be linked to moonquakes. The findings have been published by Isro researchers in ICA-RUS, a scientific journal. **P13**

and Indian partners are very interested in this."

India's interest in the project assumes significance in the context of it planning a manned mission to the Moon by 2040 and setting up a base.

► **0.5 MW output. P 13**

**Context:** India and China are expected to collaborate with Russia to establish a nuclear power plant on the Moon, marking a significant step in lunar exploration and energy development.

## Nuclear Power Plant on Moon

- **About:** The project will be led by Rosatom, Russia's state nuclear energy corporation. The initiative aligns with India's plans for a manned lunar mission by 2040 and the establishment of a lunar base.
- **Objective:** To build a small nuclear power plant capable of generating up to half a megawatt of energy, providing the necessary power for the base.
- **Energy for Lunar Base:** The reactor will provide energy for a proposed lunar base, which Russia and China are jointly working on. India's desire for a lunar base coincides with its possible participation in the lunar power project.
- **Complex Construction:** The construction of this lunar nuclear power plant will be complex. Russia previously revealed that it would likely be carried out autonomously without the direct involvement of humans.
- **International Lunar Research Station (ILRS):** In 2021, Russia and China announced plans to build a joint lunar base called the International Lunar Research Station (ILRS) which could be commissioned in phases between 2035 and 2045.

## Significance of the Nuclear Power Plant

- **Establishing a lunar colony:** For which a stable and continuous energy source is essential and nuclear power is viewed as the most viable solution.
- **Power in Shadowed Areas:** The reactor can be positioned in permanently shadowed lunar regions, potentially where water ice exists, ensuring continuous power production through lunar nights.
- **Weather Independence:** The plant produces energy unaffected by lunar weather conditions, ensuring reliable power supply.
- **Support for NASA's Goals:** The reactor could bolster NASA's efforts to maintain a sustained human presence on the Moon for at least a decade.

## Konyak Union seeks Nagaland CM's help to rectify 'faulty' boundary line on Google Maps

**Context:** The Konyak Union, the apex body of Nagaland's Konyak community, has expressed concern over an inaccurate boundary depiction of their traditional territory on Google Maps.

### Konyak Tribe

- **About:** It is the largest tribal group in Nagaland, also found in parts of Arunachal Pradesh and Myanmar.
- **Settled:** The Konyaks reside in around a hundred villages in the Mon district of Nagaland.
- **Occupation:** Historically, the Konyaks were hunters and warriors, but their main occupation now is agriculture.
- **Tattooed:** A distinct feature of the Konyaks is their tattooed faces, which easily identify members of the tribe.
- **Head-hunters:** In the past, the Konyaks were known as headhunters, often bringing back the heads of rivals as war trophies.
- **Skilled Artisans:** Konyaks are talented artisans, proficient in making firearms, baskets, bamboo works, and weaving.
- **Learning Institutions:** The Konyak tribe has learning institutions similar to the "morung" found in other Naga tribes.
- **Society:** The Konyak society is patriarchal, with male dominance prevalent in societal roles.
  - The eldest son in a family typically inherits the paternal property.
- **Religion:** Before the advent of Christianity into Nagaland, the Konyaks were the believers of "Animism" worshipping different objects of nature. About 95% of the population follows the Christian faith now.
- **Autonomous Villages:** Naga villages, including Konyak settlements, are autonomous units, typically situated on hilltops.



## Celebration of 8 years of the NIDHI underscores Prime Minister Modi's commitment to empower Women entrepreneurs and extend financial inclusion, declares Dr. Jitendra Singh

**Context:** The Union Minister of Science and Technology recently inaugurated 8 new NIDHI i-TBIs across India and launched a DST-NIDHI website at IIT Delhi, marking 8 years of the Department of Science and Technology's NIDHI initiative.

### NIDHI Programme

- **About:** It is an umbrella programme conceived and developed by the Technology Translation and Innovation (TTI) Division, Department of Science & Technology.
- **Full form:** National Initiative for Developing and Harnessing Innovations (NIDHI)
- **Objective:** To nurture Startups through scouting, supporting and scaling of innovations by providing them with a series of programme components tailored towards the critical initial phases of the Startup journey.
- **Key Components:**
  - **NIDHI PRAYAS:** Promotion and Acceleration of Young and Aspiring technology entrepreneurs – Support from Idea to Prototype
  - **NIDHI – EIR:** Entrepreneur In Residence – Support system to reduce risk for entrepreneurs.
  - **NIDHI – TBI:** Technology Business Incubator (NIDHI-TBI) – Converting Innovations to start-ups.
  - **NIDHI – iTBI:** Inclusive- Technology Business Incubator – A new variant of the NIDHI-TBI launched in 2022-'23.
  - **NIDHI – Accelerator:** Startup Acceleration Programme – Fast tracking a start-up through focused intervention.
  - **NIDHI – SSS:** Seed Support System – Providing early stage investment
  - **NIDHI – COE:** Centres of Excellence – Globally competitive facilities to help startups go global.
- **Funding Agency:** National Science & Technology Entrepreneurship Development Board (NSTEDB).
- **8 new NIDHI i-TBIs across India:** 1. Central University of Rajasthan Ajmer. 2. Guru Angad Dev Veterinary and Animal Sciences University Ludhiana, Punjab 3. BLDE Bijapur, Karnataka 4. Aligarh Muslim University 5. Pranveer Singh Institute of Technology Kanpur, Uttar Pradesh 6. Guru Ghasidas Vishwavidyalaya (Central University) Bilaspur, 7. GSSS Institute of Engineering and Technology for Women Mysore, Karnataka 8. University of Petroleum & Energy Studies (UPES) Dehradun,)

### i-TBIs (Inclusive TBI)

- It is a three years duration initiative Supported by DST for educational institutions who are likely to foster innovation and entrepreneurship culture among the students, faculties, entrepreneurs, and nearby communities.

# Agni-4 ballistic missile successfully test-fired in Odisha

**Context:** Recently, India has completed a successful test-fire of Agni-4 Ballistic Missile.

## Agni-4 Ballistic Missile

- **About:** It is a long-range, surface-to-surface ballistic missile
- **Conducted under:** Aegis of the Strategic Forces Command, a part of India's Nuclear Command Authority (NCA).
- **Developed by:** Defence Research and Development Organisation (DRDO).
- **Range:** 4,000 kilometres.
  - In 2012, Agni-4 covered more than 3,000 km in 20 minutes
- **Payload:** The 20-metre-long missile can carry a payload of 1,000 kg and can be fired from a road-mobile launcher.
- **Previously known as:** Agni-2 Prime.

## India's Missile Arsenal Expansion

- **Agni-5:** It is a land based nuclear MIRV-capable Intercontinental Ballistic Missile (ICBM).
  - **Operational range:** 7,000–8,000 kilometres.
- **Agni I:** Medium Range with a Range of 700-800 km.
- **Agni II:** Medium Range with a Range more than 2000 km.
- **Agni III:** Inter-Medium Range with Range of more than 2,500 Km
- **Agni IV:** Inter-Medium Range with Range more than 3,500 km.
- **Agni- VI:** Longest of the Agni series, an Inter-Continental Ballistic Missile (ICBM) with a range of ICBM 11,000–12,000 km (Under development).



# Govt to soon launch INDIAsize initiative, says Textiles Minister Giriraj Singh

**Context:** The government will soon launch the highly anticipated 'INDIAsize' initiative, according to the Union Textiles Minister.

## INDIAsize Initiative

- **About:** It is led by the Ministry of Textiles, aims to create standardized measurements tailored to Indian body types.
- **Current Measurement Issues:** Presently, brands in India use US or UK size measurements (e.g., small, medium, large), which do not align well with Indian body types.
- **Need for Indian-Specific Measurements:** The discrepancy between Western body types and Indian measurements causes fitting issues and consumer dissatisfaction.
- **Goal:** To develop standardized body sizes to address fitting inconsistencies in the Indian apparel sector.
- **Data Collection Process:** The project will collect anthropometric data from over 25,000 individuals aged 15 to 65 using 3D body scanning technology.
- **Benefits for Retailers and Manufacturers:** The new body size chart will help both national and international retailers and manufacturers produce garments that better fit Indian body types, balancing demand and supply.
- **Future Impact:** INDIAsize will set a benchmark for both Indian and international fashion brands operating in India once implemented.

# Musharraf family's ancestral land in UP auctioned, fetches Rs 1.38 crore

**Context:** A parcel of land in Uttar Pradesh, once owned by the family of former Pakistan President, will be auctioned under the **Enemy Property Act**.

## Enemy Property

- **About:** It refers to assets left by individuals who migrated to China and Pakistan during or after the India-China war (1962) and the India-Pakistan wars (1965, 1971) and acquired citizenship of these countries.
- **Custodianship by:** Indian Government
- **Legal Framework:**
  - **Enemy Property is managed under:** Defence of India Act (1962) and the Enemy Property Act (1968).
  - **Classification of Enemy Property:** Immovable properties of those who migrated to Pakistan after the partition of 1947 or during the 1965 and 1971 wars were declared as 'enemy property.'
  - The descendants of these individuals, who are now Indian citizens, were also categorized under this 'enemy' classification.
  - **Tashkent Declaration 1966:** This declaration said India and Pakistan would discuss the return of the property and assets taken over by either side in connection with the conflict.
    - ✓ However, the Government of Pakistan disposed of all such properties in their country in the year 1971 itself.
  - **Enemy Property Act (1968):** It provided for the continuous vesting of enemy property in the Custodian of Enemy Property for India.
    - ✓ The central government, through the Custodian, is in possession of enemy properties spread across many states in the country.
    - ✓ Some movable properties too, are categorised as enemy properties.
  - **Amendment to Enemy Property Act:** The 2017 amendment expanded the definition of 'enemy subject' to include those who no longer hold enemy country citizenship.
    - ✓ The amended law provided that enemy property shall continue to vest in the Custodian even if the enemy or enemy subject or enemy firm ceases to be an enemy due to death, extinction, winding up of business or change of nationality, or that the legal heir or successor is a citizen of India or a citizen of a country which is not an enemy.

## What were the concerns regarding GDP?

THERE WERE A FEW concerns about the GDP data until the data for Q1 of FY25 was released last week. It says that GDP of the Indian economy has grown at 5.7% year-on-year in the first quarter of the current financial year. What has become a discussion point is the narrowing of gap between GDP growth and gross value added (GVA) growth of 5.8% for the same period. At sectoral/disaggregated level also, there are a few points to ponder on.

### GDP Vs GVA



## Why is the gap between GDP and GVA reducing?

THE DIFFERENCE BETWEEN GDP and GVA is the net taxes on products (not of subsidies). The huge gap between GDP and GVA growth in recent times is attributed to increasing buoyancy in taxes along with decline in subsidies. But this is not consistent across the quarters as there is

seasonality presence in most of the macro data and the gap is specifically found in the second half of the year. For Q1 FY24, GDP growth and GVA growth are 8.2% and 8.3% respectively. However, rest of the quarters in FY24 do find divergence between the two. Another plausible reason

could be, as explained by the RBI as well as the chief economic advisor, the decline in economic activity due to polls leading to lower tax collections. The GDP data also suggests such a trend as net tax growth is pegged at 4.1% in Q1 FY25 compared to 7.9% in same period last year.



## STATE OF THE ECONOMY

## What lies beneath headline GDP figure

While India's GDP slowed to a low of 6.7% in April-June this fiscal, the good news was that gross value added or GVA grew by 6.8% in the same period. **N.R Bhanumurthy** explains the reasons behind the closing gap between GDP and GVA and the consumption and investment trends

### 10.7%

RISE IN PRIVATE FINAL CONSUMPTION EXPENDITURE IN Q1 FY25 AGAINST 5.5% IN Q1 FY24 INDICATING A STRONG RECOVERY

DATA SUGGESTS AN EVEN RECOVERY IN CONSUMPTION IN BOTH RURAL AND URBAN AREAS

### > 35%

INVESTMENT RATE AS PERCENTAGE OF GDP LIKELY IN THE COMING QUARTERS

## Is the rebound in private consumption, as the GDP data suggests, sustainable?

THERE WAS A narrative of declining private consumption in the last few quarters. However, the latest data suggest a rebound to 10.7% of GDP compared to 5.5% in Q1 of FY24. In terms of real growth, private final consumption expenditure (PFCE) increased by 10.7% against 5.5% in Q1 of FY24. This clearly suggests a strong recovery in private consumption. But what's more important is that it is accompanied by a decline in

government final consumption expenditure (GFCE) even in absolute terms (in constant prices). This, again, could be due to the election impact that led to postponing of government expenditure, which might recover post elections.

However, the recovery trend in PFCE could continue due to less buoyancy in taxes as well as declining inflationary pressure on discretionary consumption items (read non-food).

## Is this driven only by rural India?

THERE WERE INFERENCES that PFCE has recovered due to recovery in rural consumption but not in urban areas. While a recovery in rural consumption is a good sign, suggesting rise in rural incomes or government transfers, one cannot suggest a decline in urban consumption. One simple reason is that a

large part of Q1 data is projected based on some macro indicators specified in Annexure-B.

All these indicators do have urban bias and, hence, the data do not suggest declining urban consumption. Rather, one could suggest an even recovery in both rural and urban areas.

## Has there been a recovery in investments?

THE DATA SUGGESTS that total investments (sum of gross fixed capital formation (GFCF), changes in stocks (CIS) and value added) in nominal terms is at 32.9% of GDP. In real terms, it is at as high as 36.9%. As there are issues with sectoral deflation, one may look at nominal terms. This investment rate of 32.9% is almost same as compared to that of Q2 of FY24 which was 33.9%. This is despite hold-up of government capital expenditure, especially at state level, due to the elections. Post-election recovery in government capital expenditure should revive the

The writer is director, Madras School of Economics. Views are personal.

# GROSS VALUE ADDED (GVA) (Syllabus: GS Paper 3 – Economy)

**Context:** Concerns about GDP data were addressed with the release of Q1 FY25 figures, showing a 5.7% year-on-year growth in India's GDP. Notably, the gap between GDP growth and gross value added (GVA) growth narrowed to 5.8% for the same period.

## Gross Value Added (GVA)

- **About:** It is an economic productivity metric that measures the contribution of a corporate subsidiary, company, or municipality to an economy, producer, sector, or region.
- **Calculation:**  $GVA = GDP + SP - TP$ 
  - **Where:** SP= Subsidies on products and TP= Taxes on products
- **GVA Focus:** GVA is specific to a particular sector, indicating its production contribution.
- **Relationship Between GDP and GVA**
- **GDP Derivation:** The GDP is derived by looking at the GVA data.
- **Mathematical Relation:** The GDP and GVA are related by the equation:  $GDP = (GVA) + (\text{Taxes earned by the government}) - (\text{Subsidies provided by the government})$ .
- **Impact of Taxes and Subsidies:** If the taxes earned by the government are more than the subsidies it provides, the GDP will be higher than GVA.

| GDP                                                                                                                                                                                    | GVA                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| ➤ Total value of final goods and services produced within a country's borders within a specific period.                                                                                | ➤ Total value of goods and services produced, with the deduction of the intermediate value of consumption.  |
| ➤ Consumer perspective, demand side Includes private and public consumption, government outlays, investments, additions to private inventories, construction costs, and foreign trade. | ➤ Producer perspective, supply side Includes output produced by an individual producer, industry or sector. |
| ➤ Limited sector-wise information.                                                                                                                                                     | ➤ Provides a detailed sector-wise breakdown, aiding in formulating sector-specific policies and incentives. |
| ➤ Key for country-wide analysis and comparing incomes of different Economies.                                                                                                          | ➤ Crucial for policymakers to identify sectors requiring incentives or stimulus.                            |

# India tops plastic pollution rankings, emitting a fifth of global plastic waste

**Context:** According to new study India has become the world's largest plastic polluter, releasing 9.3 million tonnes annually.

## Key Highlights of the Study

- **Definition of Plastic Emissions:** The study defines plastic emissions as materials that move from a managed or mismanaged system (controlled or contained) to an unmanaged system (uncontrolled or uncontained — the environment).
- **India's Contribution:** India accounts for nearly one-fifth of global plastic emissions.
  - India generates approximately 0.12 kilograms of waste per capita per day.
- **Global Status:** Global plastic waste emissions reached 52.1 million tonnes (Mt) per year in 2020.
- **Sources of Plastic Emissions:** Littering is the largest emission source in the Global North, while uncollected waste dominates emissions in the Global South.
- **Major Plastic Polluters:** Nigeria is the second-largest plastic polluter followed by Indonesia.
- **Uncollected Waste:** Over two-thirds of the world's plastic pollution comes from uncollected waste, with 1.2 billion people (15% of the global population) lacking access to waste collection services.
- **Open Burning of Plastic Waste in 2020:** Around 30 million tonnes, or 57% of total pollution, was burned in uncontrolled conditions in 2020, posing health risks such as neurodevelopmental and reproductive disorders.

## Plastic

- **About:** It is a broad category of synthetic or semi-synthetic materials primarily composed of polymers, characterized by their plasticity—the capacity of a solid material to undergo permanent deformation when subjected to external forces.
- **Characteristic:** Plastic encompasses primarily of polymers.
- **Material Source and Composition:** chemicals based on fossil fuels, such as natural gas or petroleum.

## India's Efforts In Tackling Plastic Waste

- **Extended Producer Responsibility (EPR):** It is based on the polluter-pays principle, which aims to include producers of material goods in the management and treatment of waste and keep raw materials and goods in the economic cycle.
- **Plastic Waste Management Amendment Rules 2022:** It prohibits the manufacture, import, stocking, distribution, sale, and use of plastic carry bags that are thinner than 120 microns.
- **Plastic Parks:** India has established specialized industrial zones called Plastic Parks, dedicated to recycling and processing plastic waste.

# India's military diplomacy in top gear with back-to-back exercises

Dinakar Peri  
NEW DELHI

In the past few months, India's military diplomacy is at a hectic pace with back-to-back military exercises from countries far and wide for all three Services.

India-U.S. bilateral Army exercise Yudh Abhyas is set to commence at the Mahajan field firing ranges in Rajasthan on Monday.

Not far away, Phase-II of the Indian Air Force's largest multilateral exercise Tarang Shakti is under way at Jodhpur with eight countries, including India, participating with aircraft and 17 countries as observers.

The iconic A-10 Thunderbird close air support aircraft are flying over Indian air space for the first time as the U.S. has deployed them for the exercise along with F-16 jets. The countries deploying aircraft include Australia, Greece, Japan, Singapore, Sri Lanka, the UAE and the U.S. Bangladesh, which was scheduled to deploy a



U.S. and Indian Army soldiers during the India-U.S. joint exercise 'Yudh Abhyas', at Auli in Uttarakhand in November 2022. PTI

C-130 transport aircraft, has dropped out against the backdrop of recent domestic developments.

"Tarang Shakti: A force for unity! The 25th Fighter Squadron's A-10 Thunderbolt II and a C-17 Globemaster III assigned to Joint Base Lewis-McChord showcased their capabilities in India," the U.S. Pacific Air Forces headquartered in Hawaii said on the social media site X. The Malabar naval exercise comprising India, Australia, Japan and the U.S. is scheduled to be

held off the Visakhapatnam coast in the first half of October. Shortly after that, an Indian Army mechanised infantry contingent will head to Russia for bilateral exercise Indra.

**Largest U.S. contingent** This year's Yudh Abhyas is going to feature one of the largest U.S. contingents at the exercise with around 600 personnel and the U.S. Army also set to deploy Stryker infantry vehicles and the M142 HIMARS (High Mobility Artillery

Rocket System). Incidentally, the Stryker vehicles are currently being put to test by the Indian Army, and a few hundred vehicles of different variants are likely to be procured, including some mounted with the Javelin anti-tank guided missiles (ATGMs).

The talks for licence-manufacture of the vehicles are in "relatively" early stages, officials said. The U.S. has in the past demonstrated both the Stryker as well as the Javelin ATGM to the Indian Army during bilateral exercises and the Javelin was extensively evaluated by the Indian Army though the deal did eventually fall through. At present, India conducts more military exercises with the United States than with any other country.

The Indian Army's other major engagements include the 10th edition of the bilateral exercise Mitra Shakti with Sri Lanka held from August 12-25 at Army Training School, Maduru Oya, Sri Lanka.

**Context:** India-U.S. bilateral Army exercise Yudh Abhyas is set to commence at the Mahajan field firing ranges in Rajasthan.

## Yudh Abhyas

- **About:** It is the largest running joint military training and defense cooperation endeavor between India and the US.
- **Focus:** The exercise focuses on enhancing understanding, cooperation, and interoperability between the two armies.
- **Started:** 2004.
- **Largest U.S. Contingent:** This year's Yudh Abhyas will feature one of the largest U.S. contingents with approximately 600 personnel.
- **Advanced Vehicles and Systems:** The U.S. Army will deploy Stryker infantry vehicles and the M142 HIMARS (High Mobility Artillery Rocket System).
- **Current Indian Army Testing:** The Indian Army is currently testing the Stryker vehicles in various conditions and plans to procure a few hundred vehicles, including some with Javelin Anti-Tank Guided Missiles (ATGM).
- **Previous Evaluations:** The U.S. has previously demonstrated both the Stryker vehicles and Javelin ATGM to the Indian Army, though the Javelin deal did not go through.

## Other Exercises between India and the US

- **Army:** Yudh Abhyas and Vajra Prahar, **Navy:** MALABAR (Multilateral), **Air Force:** Cope India, Red Flag (Multilateral)

**FREE**



**Download PDF**



Login to theiashub.com



**Aaj Ka  
Quality Enrichment**  
(Toppers' Favourite PDF)



**News-CRUX-10**  
(10 News. 10 Sources. One Place)



**Monthly Editorials**  
(The Hindu & Indian Express)



**Daily Quiz (Prelims)**



**Government Schemes &  
Ministry Wise Year End  
Review**



**Free Enrichment PDFs**  
(Tailor Made Crisp Study Material)

**FREE**

**India's Best Answer Writing Sessions  
with**



Ritika Jindal



Simi Karan



Gaurav Budania



Mridul Shivhare

**IAS OFFICERS**

Log On To Our Unique  
**Free Answer Writing Sessions with Toppers (FAST) Portal**  
& Start Practicing!



**SCAN  
HERE**



**9560082909**



**t.me/theiashub**



**www.theiashub.com**



**/mkyadav**



**www.theiashub.com**