

# CURRENTLY — 1st SEPTEMBER 2026

## 1. India's GDP Growth: Real GDP Grows 7.8% in Q1 FY 2026–27

**Source:** PIB, Ministry of Statistics & Programme Implementation

**GS:** GS-III — Indian Economy | Growth & Development

## 2. Indus Waters Treaty: India Rejects Court of Arbitration Award

**Source:** Ministry of External Affairs

**GS:** GS-II — India–Pakistan Relations | International Treaties & Dispute Resolution; GS-III — Water Resources

## 3. Magnetar Reveals Quantum Behaviour of Empty Space

**Source:** The Hindu

**GS:** GS-III — Science & Technology | Space Technology | Fundamental Physics

## 4. Lake Ontario Renaming Row: Geography and Geopolitics

**Source:** The Indian Express

**GS:** GS-I — Geography | Important Geographical Features; GS-II — International Relations

## 5. CERN's Future Collider: India's Role in Next-Generation Particle Physics

**Source:** The Hindu

**GS:** GS-III — Science & Technology | Fundamental Physics | Mega-Science Projects

## 6. Ramon Magsaysay Awards 2026: Recognising Leadership in Asia

**Source:** The Hindu

**GS:** GS-II — International Relations | Human Rights; GS-IV — Ethics | Public Service

## 7. INS Nipun: Boosting India's Underwater & Submarine Rescue Capability

**Source:** The Hindu

**GS:** GS-III — Defence Technology | Maritime Security | HADR



## QUARTERLY ESTIMATES OF GROSS DOMESTIC PRODUCT FOR THE FIRST QUARTER (APRIL-JUNE) OF 2026-27

Real GDP during Q1 of FY 2026-27 has observed a growth rate of 7.8%

Nominal GDP has registered 10.3% growth during Q1, FY 2026-27

Indian Economy has sustained Growth Momentum despite Global Headwinds

Posted On: 31 AUG 2026 4:00PM by PIB Delhi

The Ministry of Statistics and Programme Implementation (MoSPI) is releasing in this Press Note, the **Quarterly Estimates of Gross Domestic Product (GDP) for the First Quarter (Q1, April-June) of Financial Year (FY) 2026-27** along with its Expenditure components both at **Constant (2022-23) and Current prices**. The press release is structured as follows,

In the context of Indian economy, consider the following statements :

1. The growth rate of GDP has steadily increased in the last five years.
2. The growth rate in per capita income has steadily increased in the last five years.

Which of the statements given above is/are correct ?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

# 1. India's Real Gross Domestic Product Grows 7.8% in Q1 FY 2026–27

**Source:** Press Information Bureau

**Subject:** Indian Economy | National Income | Economic Growth

**Context:** The Ministry of Statistics and Programme Implementation (MoSPI) released the first-quarter estimates for Financial Year 2026–27.

- **Real Gross Domestic Product (GDP) grew 7.8%**, compared with 6.9% in Q1 FY 2025–26; **Nominal GDP grew 10.3%**.

## 1. Gross Domestic Product — Basics & New Series

- **Gross Domestic Product (GDP):** Market value of all final goods and services produced **within India** during a given period.
- **Real GDP:** Measured at **constant prices**; removes inflation to show the actual change in output.
- **Nominal GDP:** Measured at **current prices**; reflects both changes in output and prices.
- **Base year:** The reference year whose prices are used to calculate real GDP. India has shifted the base year from **2011–12 to 2022–23**.
- **Why 2022–23?** It is a more recent and relatively normal year, allowing the national accounts to better reflect the **current structure of the Indian economy**, with updated data sources and improved methodology.

## 2. Why Did GDP Grow 7.8%? — Major Drivers

- **Services — strongest driver:** Services grew **10%**, led by **financial, real estate, Information Technology and professional services (12.1%)** and trade, hotels, transport and communication (**8.5%**).
- **Manufacturing — industrial momentum:** Manufacturing grew **9.2%**, supporting overall industrial expansion.
- **Construction — infrastructure activity:** Construction grew **7.7%**, reflecting continued investment and infrastructure-related activity.
- **Investment — major boost:** **Gross Fixed Capital Formation (GFCF) grew 11.9%**, indicating stronger investment in productive assets and capacity.

- **Consumption — domestic demand: Private Final Consumption Expenditure (PFCE) grew 7.1%**, showing continued household demand.

- **Agriculture — additional support:** Agriculture and allied activities grew **3.6%**, supported by agricultural output.

### 3. **Significance of 7.8% Growth**

- **Broad-based expansion:** Growth is supported by **services, manufacturing, construction, investment, consumption and agriculture**.

- **Investment-led growth:** Strong GFCF indicates expansion of productive capacity, important for **future growth and employment**.

- **Domestic resilience:** Strong services and consumption provide a cushion against **global economic and geopolitical uncertainties**.

- **Policy relevance:** Sustained high growth strengthens India's ability to pursue **infrastructure expansion, employment generation and long-term development goals**.



## Media Releases

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31 August, 2026

### Matters pertaining to the illegally-constituted so-called Court of Arbitration

Today, the illegally constituted so-called Court of Arbitration (CoA) has issued what it termed as an award concerning Interim Measures and Status of the Indus Waters Treaty.

2. This so called Court was constituted by the World Bank in patent breach of the terms of the Treaty and India categorically rejects its so-called award, just as it has firmly rejected all prior pronouncements by this illegally constituted body.

3. India has never recognised the existence in law of this illegally-constituted and so-called Court of Arbitration, and has consistently maintained that the very establishment of this alleged arbitral body constitutes a grave violation of the Indus Waters Treaty. Accordingly, India has never appeared before this body and has refused to take any cognisance of its earlier pronouncements.

4. This so-called Court of Arbitration has no jurisdiction whatsoever to pronounce on India's sovereign decisions. Its pronouncements, now or in the future, will have no effect on India's actions in connection with the projects being undertaken by India.

5. India's decision to hold the Indus Waters Treaty in abeyance remains in force.

Bishkek

August 31, 2026

## 2. Indus Waters Treaty: India Rejects Court of Arbitration Award

**Source:** Ministry of External Affairs, Government of India **GS:** India–Pakistan Relations | International Treaties & Institutions | International Dispute Resolution  
**GS-III:** Water Resources | Hydropower

**Context:** India has rejected the latest award of the **Court of Arbitration (CoA)** relating to the Indus Waters Treaty (IWT), maintaining that the Court was **illegally constituted in breach of the Treaty** and has no jurisdiction over India. India has reiterated that the **IWT remains in abeyance**.

## 1. Indus Waters Treaty, 1960: Basic Framework

1. The **Indus Waters Treaty (IWT)** was signed between India and Pakistan in 1960, with the **World Bank as a signatory and facilitator**.
2. It provides for the utilisation of the six rivers of the Indus system:
  - **Eastern Rivers — Ravi, Beas and Sutlej**: Primarily allocated to India.
  - **Western Rivers — Indus, Jhelum and Chenab**: Primarily allocated to Pakistan, while India retains specified rights, including **hydropower generation**, subject to Treaty conditions.
3. The Treaty also establishes the **Permanent Indus Commission** and a specific mechanism for resolving differences and disputes.

## 2. What is the Present Dispute?

1. Pakistan objected to certain design features of India's **Kishenganga and Ratle Hydroelectric Projects** on the Western Rivers.
2. The dispute concerns the **interpretation and application of technical provisions** of the IWT governing India's permissible utilisation of these rivers.
3. Thus, the original dispute is essentially about **whether India's projects conform to the technical requirements of the Treaty**.
4. Its wider significance lies in the fact that the disagreement has now developed into a dispute over **which Treaty mechanism has the authority to decide these questions**.

## 3. How Does the IWT Resolve Such Disputes?

The Treaty provides a **graded dispute-resolution mechanism**:

1. **Permanent Indus Commission**: Provides the primary **bilateral forum** for India and Pakistan to discuss questions arising under the Treaty.
2. **Neutral Expert**: Deals with specified **technical differences**.
3. **Court of Arbitration**: Provides for formal arbitration of disputes falling within the Treaty's arbitral mechanism.

**The distinction is important:** a technical *difference* is not automatically the same as a legal *dispute* requiring arbitration.

## 4. Why Did the Dispute Move to Arbitration?

1. **Pakistan** sought to have the Kishenganga and Ratle issues examined by a **Court of Arbitration**.
2. **India** maintained that the issues were technical in nature and should be referred to a **Neutral Expert**.

3. The **World Bank facilitated the establishment of both processes**, resulting in parallel proceedings.
4. India objected to this arrangement, arguing that **parallel proceedings on overlapping issues were not envisaged by the IWT**.

## 5. India's Objection to the Court of Arbitration

1. India maintains that the CoA was **constituted in patent breach of the IWT**.
2. India has therefore **never recognised the legal existence of this particular arbitral body**.
3. It has consequently **not participated in the CoA proceedings** or accepted its pronouncements.
4. India's position is therefore **not a rejection of arbitration per se**; the IWT itself contains an arbitration mechanism. Its objection is to the **constitution and jurisdiction of this particular CoA**.

## 6. Court of Arbitration and Permanent Court of Arbitration

1. **Court of Arbitration (CoA)**: The specific arbitral tribunal constituted to adjudicate the India–Pakistan dispute under the IWT.
2. **Permanent Court of Arbitration (PCA)**: An international institution providing **administrative and secretariat support** to arbitral proceedings.
3. Therefore, the **PCA should not be confused with the CoA**; the PCA is not itself deciding the Indus Waters dispute.

## 7. India's Decision to Hold the IWT in Abeyance

1. Following the **Pahalgam terrorist attack**, India announced that the IWT would be held **in abeyance**.
2. India linked the continuation of the Treaty to Pakistan **credibly and irrevocably ending its support for cross-border terrorism**.
3. India has reiterated that this decision **continues to remain in force**.
4. This has added another legal dimension to the dispute: **what is the status of Treaty obligations and dispute-resolution proceedings while India maintains the Treaty in abeyance?**

## 8. Latest Award and India's Response

1. The CoA has issued an award concerning **interim measures and the status of the IWT**.
2. India has **categorically rejected** the award on the basis of its longstanding objections to the CoA's constitution and jurisdiction.

3. India maintains that the CoA has **no jurisdiction over India's sovereign decisions**.
4. Accordingly, India has stated that the CoA's **present or future pronouncements will have no effect on India's actions concerning its projects**.

## 9. Significance for India

1. **Water Security:** The dispute has implications for India's utilisation of its permitted rights over the Western Rivers, particularly its **hydropower potential**.
2. **India–Pakistan Relations:** The abeyance of the IWT represents a major setback to one of the longest-standing institutional arrangements between the two countries.
3. **International Law:** The case raises questions concerning **treaty interpretation, arbitral jurisdiction and the use of multiple dispute-resolution mechanisms**.
4. **Sovereignty:** It highlights the tension between **international adjudication and a State's claim that an adjudicatory body lacks jurisdiction over its sovereign decisions**.
5. **Institutional Mechanisms:** It demonstrates how the IWT combines **bilateral negotiation, technical determination and arbitration** rather than relying on a single dispute-resolution mechanism.

# How a star with an extreme magnetic field could prove space is not empty

The work could pave the way to show that the 'nothingness' of space is actually a complex and active medium, and help scientists refine their maps of the universe

Vasudevan Mukunth

**Q**uantum physics has made numerous strange predictions, and scientists have checked and confirmed many of them. But one of the strangest ones persists unresolved. In the 1930s, the German physicists Werner Heisenberg and Hans Heinrich Euler proposed that empty space is not really empty. Instead, they predicted that in the presence of a magnetic field, the vacuum of space would behave like a crystal, changing the properties of light passing through it.

The trouble with testing this prediction – called vacuum birefringence – is that the magnetic field has to be extraordinarily strong.

In a study published in *Nature* on August 5, astronomers from Australia, Canada, Japan, South Africa, Taiwan, and the U.S. reported it had observed such birefringence using two satellites and a telescope in Australia, almost confirming the prediction at long last.

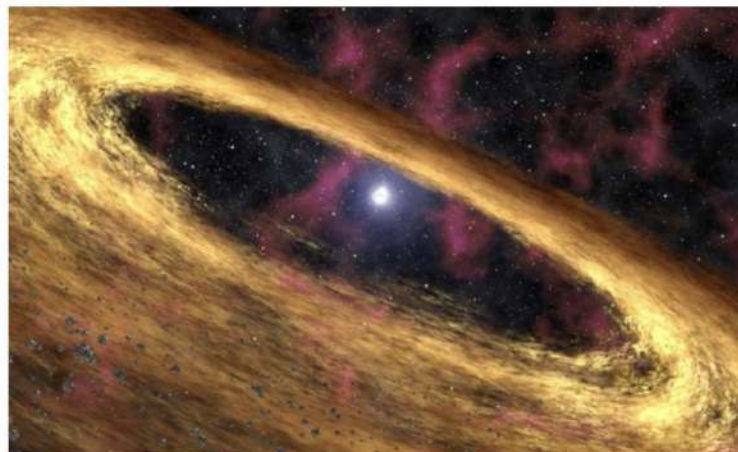
The work could prove 'nothingness' is actually a complex and active medium and also potentially help scientists refine their maps of the universe.

## Staggering numbers

In classical physics, a vacuum is absolute nothingness. But in quantum electrodynamics (QED) – which is a theory in quantum physics – a vacuum is a soup of virtual particles: pairs of electrons and anti-electrons that constantly pop in and out of existence, and so quickly that they cannot be observed.

Normally, these virtual particles have a negligible effect on light. But when a magnetic field nearby becomes strong enough, it changes how the short-lived charged particles can move, so they respond differently to light depending on the direction in which its electric field is vibrating. This part of space will then behave like a calcite crystal when light passes through it, splitting it into different paths depending on its electric field. (As an electromagnetic wave, light consists of electric and magnetic fields travelling through space.)

For vacuum birefringence to become noticeable, the magnetic field has to be around 88 trillion times stronger than the earth's magnetic field, and more than 500 million times as strong as the ultra-powerful magnets in the world's largest science experiment, the CERN supercollider. These are staggering numbers far beyond the abilities of current technologies, so physicists have been looking for proof of vacuum birefringence in outer space, where objects called magnetars generate the



An artist's impression of the magnetar 4U 0142+61. In May 2022, the IXPE satellite had hinted at vacuum birefringence around this dead star. NASA

universe's most extreme magnetic fields.

Sometimes the core of a dead star can collapse to form a neutron star. Neutron stars with powerful magnetic fields are called magnetars.

## Railroading polarisation

The international team focused its attention on one magnetar named 1E 1547.0-5408, located 14,700 lightyears away. As independent experts Ekaterina Sokolova-Lapa and Joern Wilms wrote in a commentary accompanying the team's paper, "1E 1547.0-5408 belongs to a rare subclass of magnetars that also emit pulses at radio wavelengths".

By combining X-ray and radio frequency measurements, then, the team could piece together the geometry of the magnetar's magnetic field.

If the vacuum of space were truly empty – as in classical physics – the X-rays from the magnetar would reach the earth with a low degree of polarisation. But the team found the opposite: the NASA Imaging X-ray Polarimetry Explorer (IXPE) satellite in particular detected very high levels of polarisation, up to 80% in some instances, which is the smoking gun of vacuum birefringence.

As X-rays leave the magnetar and move through the surrounding space, QED predicts that their electric field will have to lock itself into one of two directions – a condition that unmagnetised space does not impose – thus polarising the light.

Since these directions are defined by the direction of the magnetic field, the X-rays' polarisation is effectively railroaded along the magnetic field lines. And as the X-rays travel away from the magnetar, their polarisation will stay fixed even as the magnetic field becomes less and less able to 'hold on'.

According to the team, the amount of polarisation dropped as the energy of the X-rays increased, which QED predicts as well. The team was also able to elucidate that the magnetar rotated along an axis that aligned almost perfectly with its magnetic poles, like a top spinning upright – a detail that informed the team's models of how the X-rays from the magnetar would look with and without vacuum birefringence.

The models that did not account for the phenomenon fit substantially worse with the telescope data than those that included it.

## Direct observation

Other than IXPE, the team had also used the Neutron Star Interior Composition Explorer instrument onboard the International Space Station and the Murrumbidgee radio telescope in Australia.

The finding takes a big step towards bolstering space's character as a complex medium that both gravity and magnetism can manipulate.

On a final note, the team wrote in its paper that its next goal is "to more

directly probe the nature of the ... polarisation". And this, the commentary noted, requires "coordinated astronomical campaigns that observe multiple magnetars and cover a wider part of the electromagnetic spectrum".

The current finding is indirect because the astronomers recorded polarised light and inferred from that that it had passed through extremely magnetised space.

## Not yet proven

As Sokolova-Lapa and Wilms put it, the high polarisation reported in the study only proves vacuum birefringence if the team's model of the magnetar's geometry is correct. If, instead, its axis of rotation and magnetic poles are further apart, the X-rays could have been polarised by plasma on the magnetar's surface.

A paper published in *The Astrophysical Journal* by researchers from Italy, Spain, and the U.K. has already raised doubts about the alignment.

Physicists are also interested in the vacuum resonance: a distinctive dip in the polarisation – from one of the two allowed directions to the other – at a specific energy level. The international team itself reported a dip but said it was too noisy to be dispositive.

But one way or another, the dark voids between the stars we see when we look up are far from dead, buzzing with activity.

(mukunth.v@thehindu.co.in)

## THE GIST

▼ In the presence of strong magnetic fields, a phenomenon called vacuum birefringence can make the vacuum of space behave like a crystal and polarise light passing through it.

▼ Using NASA's IXPE satellite, NICER instrument, and Australia's Murrumbidgee radio telescope, researchers observed highly polarised X-rays from magnetar 1E 1547.0-5408, matching predictions made by quantum electrodynamics (QED).

▼ The evidence depends on models of the magnetar's geometry, and some scientists suggest the observed polarisation could instead be caused by plasma near the star; further observations of more magnetars are needed for a direct confirmation.

**56.** Consider the following pairs :

| <i>Objects in space</i> | <i>Description</i>                                                              |
|-------------------------|---------------------------------------------------------------------------------|
| 1. Cepheids             | : Giant clouds of dust and gas in space                                         |
| 2. Nebulae              | : Stars which brighten and dim periodically                                     |
| 3. Pulsars              | : Neutron stars that are formed when massive stars run out of fuel and collapse |

How many of the above pairs are correctly matched?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

### 3. Magnetar Reveals Quantum Behaviour of Vacuum

Source: The Hindu

GS-III: Science & Technology | Space Technology | Fundamental Physics

**Context:** Observations of highly polarised X-rays from the magnetar 1E 1547.0–5408 have provided evidence for vacuum birefringence, a phenomenon predicted by Quantum Electrodynamics (QED).

### 1. Magnetars: Natural Laboratories for Extreme Physics

1. Magnetars are highly magnetised neutron stars, formed from the collapsed cores of massive stars.
2. They possess extremely strong magnetic fields, making them suitable for studying physical phenomena that cannot be reproduced under ordinary conditions on Earth.
3. The study of 1E 1547.0–5408 used its extreme magnetic environment to test predictions of QED.

### 2. What is the Quantum Vacuum?

1. In classical physics, vacuum is regarded as empty space.
2. In quantum physics, vacuum is subject to quantum fluctuations, including temporary virtual electron–positron pairs.
3. Normally, these effects are extremely weak, but an exceptionally strong magnetic field can make them observable.

### 3. Vacuum Birefringence

1. Birefringence normally refers to a material causing different components of light to behave differently according to their polarisation.
2. QED predicts that an extremely strong magnetic field can make even vacuum behave as a birefringent medium.
3. Consequently, light travelling through the magnetised vacuum can undergo a change in its polarisation.
4. This quantum phenomenon is called vacuum birefringence.

Strong magnetic field → quantum vacuum is modified → propagation of light is affected → polarisation changes

### 4. How Was It Detected?

1. NASA's Imaging X-ray Polarimetry Explorer (IXPE) measured the polarisation of X-rays emitted by the magnetar.
2. Additional X-ray and radio observations helped establish the geometry of its magnetic field.

3. The observed high X-ray polarisation was consistent with theoretical predictions that include vacuum birefringence.
4. Thus, the observation provides an important astrophysical test of QED under extreme magnetic-field conditions.

## **5. Scientific Significance**

1. Tests fundamental physics: Allows QED to be tested in magnetic fields enormously stronger than those achievable in terrestrial laboratories.
2. Nature of vacuum: Shows that vacuum can possess observable quantum properties under extreme conditions.
3. Understanding neutron stars: Polarisation measurements provide information about the magnetic-field structure and physical processes around magnetars.
4. X-ray polarimetry: Demonstrates its potential as a tool for studying extreme astrophysical environments.

• GLOBAL

# Can Trump rename Lake Ontario as Lake America?

**Rishika Singh**

*New Delhi, August 30*

US PRESIDENT Donald Trump last week signed an executive order to rename Lake Ontario, situated on the US-Canada border, as “Lake America”. The order said the lake was a “tremendous asset to the United States and part of our Nation’s heritage”.

In response, Canadian Prime Minister Mark Carney wrote in a post on X that the name Ontario (also the name of a Canadian province) comes from the indigenous Wendat people. “The name is more than 400 years old, predating both the Confederation of Canada and the Declaration of Independence of the United States of America...reality means calling it Lake Ontario – then, now and always,” he wrote.

## *Why the move*

Lake Ontario is part of the Great Lakes system, along with Lake Superior, Michigan, Huron and Erie, spanning the US-Canada border. According to the US National Ocean and Atmospheric Administration (NOAA), the lakes system holds about 90% of the freshwater in the US and approximately 20% of the world’s freshwater supply. Forty million people across the two countries depend on it for clean drinking water.



In his executive order, Trump cited a range of reasons for the decision — including the US’s investments in the lake to keep it open for free shipping, Canada spending comparatively less on it.



## 4. Lake Ontario Renaming Row: Geography and Geopolitics

Source: The Indian Express

GS-I: Geography | Important Geographical Features

GS-II: International Relations | US–Canada Relations

**Context:** US President Donald Trump has ordered steps to rename Lake Ontario as “Lake America”, drawing opposition from Canada. The issue highlights the geographical importance of the Great Lakes and the political significance of geographical names.

### 1. Great Lakes and Lake Ontario

1. The Great Lakes are five interconnected freshwater lakes of North America — Superior, Michigan, Huron, Erie and Ontario (HOMES) — located along the US–Canada border.
2. Together, they hold about 20% of the world’s surface freshwater and support drinking water, navigation, industry and commerce; nearly 40 million people depend on them for drinking water.
3. Lake Ontario is the easternmost and smallest by surface area of the five Great Lakes. It lies between Ontario (Canada) and New York (USA).
4. The Great Lakes–St. Lawrence system ultimately drains into the Atlantic Ocean through the St. Lawrence River.
5. Lake Michigan is entirely within the US; the other four Great Lakes are shared by the US and Canada.

## **2. Why the Renaming?**

1. Trump cited the lake’s importance to the US in terms of investment, shipping, exploration, settlement, commerce and defence.
2. The proposal comes amid heightened US–Canada trade tensions, including tariff disputes.
3. Canada continues to use the established name Lake Ontario.

## **3. Canada’s Position**

1. Canadian Prime Minister Mark Carney opposed the proposed change.
2. He noted that Ontario derives from an Indigenous Wendat name, predating both Canadian Confederation and US independence.
3. Thus, the dispute also involves Indigenous heritage and historical geographical nomenclature.

## **4. Can the US Unilaterally Change the Name?**

1. There is no single global authority that determines the official name of every geographical feature.
2. The US can adopt “Lake America” in its own official records, including those maintained by the US Geological Survey (USGS).
3. However, such a domestic change does not automatically bind Canada or other countries.
4. Consequently, different jurisdictions and digital mapping platforms may continue to use different names; Google Maps, for instance, can display names according to the user’s location and applicable naming conventions.

# CERN is exploring how India can be part of its future: Director-General

**Vinaya Deshpande Pandit**  
MUMBAI

The world needs more mega-science projects, Mark Thomson, Director-General of CERN (European Organization for Nuclear Research), said in Mumbai on Monday.

He was in the city for the India premiere of *The Peace Particle*, a documentary on the CERN, at the Tata Institute of Fundamental Research. Mr. Thomson also delivered an address on "Particle physics: today and tomorrow".

While answering questions on the future projects of the CERN, Mr. Thomson said the Future Circular Collider would push the boundaries of innovation, technology, and imagination. The Future Circular Collider would be a new 91-km ring, which is expected to be operational by 2045-



CERN D-G Mark Thomson.  
VINAYA DESHPANDE PANDIT

48. Its final stage would collide electrons and positrons. It has not yet been approved, but the CERN expected a positive decision by 2028, he said.

"Also, we are pausing for four years to bring a brighter version of LHC [Large Hadron Collider], which will be more powerful. We will use technologies we have not used before, because they were not there. In the very long term, we are looking at

what happens in the future, after the LHC. We call it the Future Circular Collider. This will be an ambitious project, pushing the boundaries of technology, innovation and imagination, and is a project for humanities. Not just for particle physics. It is a scientific, visionary project," he said.

## Particle accelerator

The LHC, built by CERN, is the world's largest and most powerful particle accelerator. The 27-km tunnel accelerates two beams of subatomic particles to near the speed of light and smashes them together. The Higgs boson was discovered using it.

The LHC was officially shut down on June 29, 2026. It is scheduled to remain offline till 2030.

The High-Luminosity LHC will have 10 times

more brightness than the LHC.

"It will be an incredible scientific opportunity which will give a lot more data, better detectors and new techniques. It has real discovery potential," Mr. Thomson said.

He said that while we now know a lot about the universe, many deep mysteries remain, such as why it is made only of matter with hardly any antimatter, and what constitutes the unknown 95% of its mass and energy.

On the CERN's interest in India, Mr. Thomson said the country had great technological strength. "India has excellent technologies, is well-organised and has brilliant people. We are looking at CERN's future and how India can be a part of that," he said in conversation with *The Hindu* after the programme.

## 5. CERN's Future Collider: India Explores a Role in the Next Generation of Particle Physics

Source: The Hindu

GS-III: Science & Technology | Space & Nuclear Technology | Particle Physics

**Context:** CERN is exploring the possibility of greater Indian participation in its future mega-science projects, particularly the

proposed Future Circular Collider (FCC), which would succeed the Large Hadron Collider (LHC).

## **1. CERN and the Large Hadron Collider**

1. CERN (European Organization for Nuclear Research) is a major international centre for particle physics.
2. Its Large Hadron Collider (LHC) is the world's largest and most powerful particle accelerator.
3. The LHC is a 27-km underground ring that accelerates two beams of subatomic particles to near the speed of light and collides them.
4. The Higgs boson was discovered through experiments at the LHC, providing important evidence for the mechanism through which elementary particles acquire mass.
5. The LHC was shut down on 29 June 2026 for a planned upgrade and is expected to remain offline until 2030.

## **2. High-Luminosity LHC**

1. The LHC is being upgraded to the High-Luminosity LHC (HL-LHC).
2. It is expected to provide around 10 times greater luminosity/brightness than the present LHC.
3. Higher luminosity means more particle collisions, generating larger datasets and improving the ability to detect rare physical phenomena.

## **3. Future Circular Collider (FCC)**

1. CERN is studying the Future Circular Collider, envisioned as the next major step beyond the LHC.
2. It would have a circumference of about 91 km, substantially larger than the LHC's 27 km ring.
3. The FCC is intended to push the boundaries of particle physics, accelerator technology and detector capabilities.
4. Its long-term programme could involve different stages of particle collisions; the proposed final stage would collide electrons and positrons.
5. The project is still under consideration and has not yet received final approval; a positive decision is expected around 2028, according to the article.
6. Its longer-term operation is envisaged around the 2040s.

## **4. Why is the FCC Needed?**

The LHC has significantly improved our understanding of the Universe, but several fundamental questions remain unanswered, including:

1. Why is the Universe dominated by matter rather than antimatter?
2. What constitutes the approximately 95% of the Universe that is not ordinary visible matter, i.e. dark matter and dark energy?
3. Are there new particles or forces beyond the Standard Model of particle physics?

The FCC could provide higher-energy collisions, larger datasets and more precise measurements, potentially revealing physics beyond the Standard Model.

## **5. India and CERN**

1. CERN is exploring how India can participate in its future projects.
2. According to CERN Director-General Mark Thomson, India possesses:
  - strong technological capabilities;
  - well-organised scientific institutions; and
  - a large pool of scientific and engineering talent.
3. Greater Indian participation could therefore involve contributions to advanced accelerator technology, detectors, computing and scientific research.
4. This would strengthen India's role in international mega-science collaborations.

## **6. Significance for India**

1. **Advanced technology:** Participation can accelerate capabilities in particle accelerators, superconducting technologies, detectors, electronics and high-performance computing.
2. **Human-resource development:** Provides Indian scientists and engineers access to frontier international research and large-scale scientific collaboration.
3. **Fundamental science:** Enables India to contribute to research into Higgs physics, antimatter, dark matter and physics beyond the Standard Model.
4. **International scientific diplomacy:** Strengthens India's position in global mega-science projects and international research networks.

# Magsaysay honour for Myanmar activist, Singapore lawyer, Bangladeshi aid giver

**Associated Press**  
PHILIPPINES

A Singaporean diplomat who led adoption of UN oceans treaty, a Myanmar activist who put his freedom on the line for democracy, and a former Bangladeshi teacher who brought compassion to the poor were named on Monday as the winners of this year's Ramon Magsaysay Awards.

Singaporean lawyer and diplomat Tommy Koh, 88, was recognised for promoting international dialogue and the rule of law. He is best known for presiding over a U.N. conference of more than 150 countries, which adopted the U.N. Convention on the Law of the Sea in 1982.



Bo Kyi, Runa Khan and Tommy Koh. RAMON MAGSAYSAY FOUNDATION

"Of enormous significance to maritime countries, this 'constitution for the oceans' defined territorial waters and the economic rights of countries to their coastal waters and provides mechanisms for settling disputes," the awards body said.

Bo Kyi, the 61-year-old winner from Myanmar, has spent seven years in prison

for a life spent in resistance against widespread human rights violations by Myanmar's military.

In March 2000, Bo Kyi and fellow former political prisoners organised the Assistance Association for Political Prisoners, which has "devoted itself to documenting political imprisonment, supporting detainees and their families

and ensuring the continued visibility of the junta's political prisoners in Myanmar," the awards body said.

Runa Khan, 67, of Bangladesh won the award for "her profound empathy for the poorest of the poor in her country."

Coming from an affluent family, she first served as a teacher to poor children in 1979. In 2002, she established an organisation called "Friendship Bangladesh" that helped the most destitute "deal with climate change, educate their children, empower women, create livelihood opportunities and bring social justice to the excluded," according to the awards body.

## 6. Ramon Magsaysay Awards 2026: Recognising Leadership in Asia

Source: The Hindu

GS-II: International Relations | Human Rights | International Institutions

GS-IV: Ethics | Human Values | Public Service

**Context:** The 2026 Ramon Magsaysay Awards have honoured Tommy Koh (Singapore), Bo Kyi (Myanmar) and Runa Khan (Bangladesh) for their contributions to international law and diplomacy, human rights and democratic values, and inclusive development respectively.

### 1. Ramon Magsaysay Award — Basics

1. The Ramon Magsaysay Award was established in 1957 in memory of Ramon Magsaysay, former President of the Philippines.
2. It recognises individuals and organisations for selfless service, integrity and transformative leadership in Asia.
3. It is widely regarded as one of Asia's most important recognitions for public service and social leadership.

## **2. 2026 Awardees**

### **Tommy Koh — Singapore**

1. Diplomat and international lawyer, recognised for promoting international dialogue and the rule of law.
2. Presided over the 1982 UN Conference on the Law of the Sea, which adopted the United Nations Convention on the Law of the Sea (UNCLOS).
3. His contribution is particularly associated with multilateral diplomacy and international maritime law.

### **Bo Kyi — Myanmar**

1. Human-rights activist and former political prisoner, recognised for his long-standing work for democracy and human rights.
2. Spent seven years in prison for political activism.
3. Co-founded the Assistance Association for Political Prisoners (AAPP) in 2000.
4. AAPP documents political imprisonment and supports political detainees and their families.

### **Runa Khan — Bangladesh**

1. Development worker recognised for her work with poor and vulnerable communities.
2. Founded Friendship Bangladesh in 2002.
3. The organisation works on climate-change adaptation, education, women's empowerment and livelihood opportunities.
4. Her work focuses on community-based and inclusive development.

# Navy Chief: *INS Nipun* will enhance our critical underwater capabilities

Amrita Nayak Dutta  
New Delhi, August 31

*INS NIPUN* will significantly enhance the Navy's niche underwater capabilities required for multi-domain operations, Chief of Naval Staff Admiral Krishna Swaminathan said on Monday. He emphasised that this dedicated Diving Support and Submarine Rescue Vessel adds specialised capability for complex underwater operations and to respond to emergencies in one of the world's most "challenging and mysterious environments".

The Navy Chief was speaking at the commissioning ceremony of *INS Nipun* in Mumbai. Vice Admiral Sanjay Vatsayan, Flag Officer Commanding-in-Chief, Western Naval Command, other senior naval officers, representatives from Hindustan Shipyard Ltd., Visakhapatnam, among others, were present.

*INS Nipun* is the second Diving Support Vessel (DSV) of the Nistar Class and is a strong addition to the Navy's deep-sea diving and underwater support capabilities.

"We are living through a period of significant strategic



Navy Chief Admiral Krishna Swaminathan, Vice Admiral Sanjay Vatsayan along with other officers during the commissioning ceremony of *INS Nipun* in Mumbai on Monday. ANI

churn. The maritime environment is becoming increasingly contested, and the threat perceptions are constantly evolving and morphing into newer forms," Admiral Swaminathan said.

He noted that while it may not always be possible to predict the exact nature of the threats India will face at any given time, it is critical to stay prepared for anticipated threats and build robust capabilities to tackle these challenges effectively, wherever they may arise.

He said the addition of this

capability will enable the Western Naval Command to strengthen its capabilities to operate above, on, and beneath the waves.

Stating that the vessel brings together a range of capabilities possessed by only a handful of navies, which includes the ability to embark the Indian Navy's deep submergence rescue vessel, he said submarine rescue is a discipline where preparedness admits little margin for delay.

"*Nipun's* ability to embark and operate the Indian Navy's Deep Submergence Rescue

Vessel significantly enhances our capacity to respond to a distressed submarine quite significantly — whether our own, or that of a partner Navy. This capability would also enable India to support submarine rescue and emerge as the 'preferred submarine rescue partner' in the region," he said.

He added that the vessel's specialised diving capabilities can support partner nations in underwater salvage and HADR missions, adding another dimension to the Navy's maritime cooperation efforts.

He said the Western Naval Command will now have to integrate *INS Nipun* fully into operational plans, exercise her capabilities rigorously, develop proficiency around her systems, and ensure that the ship is ready at the earliest for every task at sea.

*INS Nipun* is capable of supporting saturation, air and heliox diving and is equipped with remotely operated underwater systems for inspection and intervention. Its specialised diving complex, dynamic positioning capability and associated life-support and medical facilities enable the conduct of sustained and complex operations at sea.

## 7. **INS Nipun: Boosting India's Underwater & Submarine Rescue Capability**

Source: The Hindu

GS-III: Defence Technology | Maritime Security | HADR

**Context:** The Indian Navy commissioned INS Nipun, the second Diving Support Vessel (DSV) of the Nistar Class, to strengthen its deep-sea diving, underwater intervention and submarine rescue capabilities.

## **1. INS Nipun: Key Capabilities**

1. **Submarine Rescue:** Can embark and operate the Navy's Deep Submergence Rescue Vessel (DSRV) to rescue personnel from distressed submarines.
2. **Deep-Sea Diving:** Supports saturation, air and heliox diving for operations at varying depths.
3. **Underwater Intervention:** Equipped with Remotely Operated Underwater Systems (ROVs) for inspection and intervention.
4. **Dynamic Positioning:** Enables the vessel to maintain its position accurately during complex underwater operations.
5. **Medical & Life Support:** Specialised diving complexes and medical facilities enable sustained and complex underwater operations.
6. **Salvage & HADR:** Can undertake underwater salvage and support Humanitarian Assistance and Disaster Relief (HADR) missions.

## **2. Strategic Significance**

1. **Maritime Preparedness:** Enhances India's ability to respond rapidly to underwater emergencies in an increasingly contested maritime environment.
2. **Submarine Safety:** Strengthens India's capability to conduct independent submarine rescue operations.
3. **Regional Security:** Enables India to assist partner countries in submarine rescue, underwater salvage and HADR, supporting its role as a preferred security partner in the Indian Ocean Region.
4. **Operational Reach:** Enhances the Western Naval Command's ability to conduct specialised operations above, on and beneath the sea.