PRAJYA

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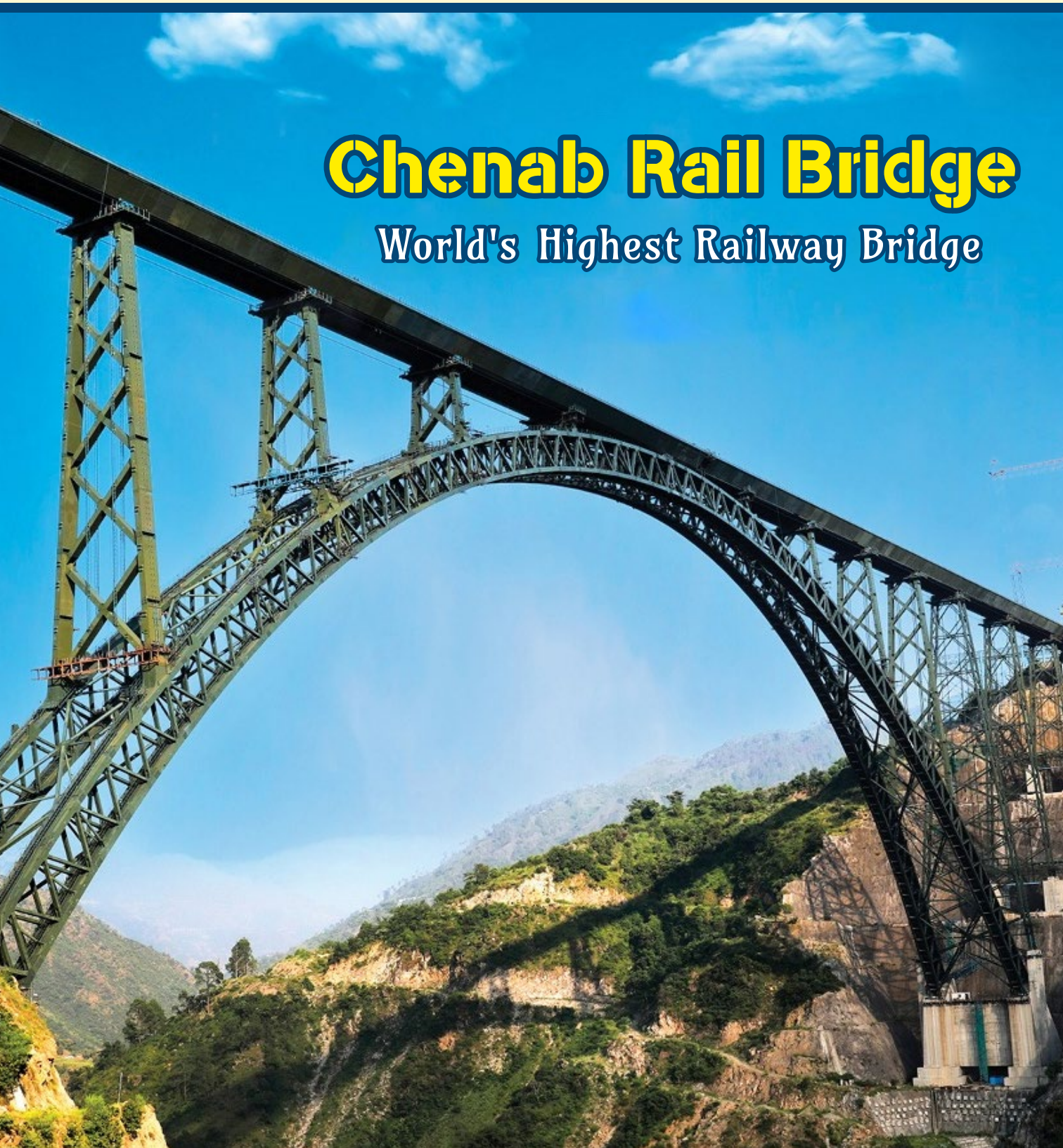


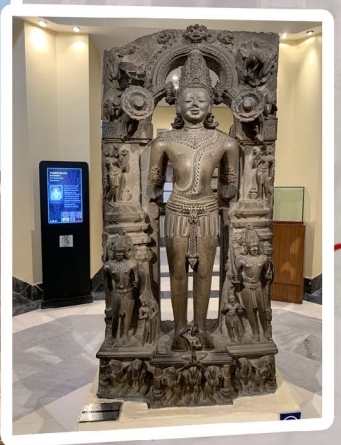
Chenab Rail Bridge

World's Highest Railway Bridge

International Museum Day

"Museums are an important means of cultural exchange, enrichment of cultures and development of mutual understanding, cooperation and peace among peoples."

18th May



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FROM THE EDITOR'S DESK

"Science is fun. Science is curiosity. We all have natural curiosity. Science is a process of investigating. It's posing questions and coming up with a method. It's delving in."

Two great scientists believed in this idea and lived to popularise science.

Dr Saroj Ghose, an icon in the field of Indian science, pioneered the science museum movement in India. Understanding the challenges that India faces, he didn't stop and lament. He instead found a workable solution. He literally took science to young learners. By creating a network of science museums and centres in his lifetime, he ensured that science was made interactive, accessible and a source of inspiration to millions. This rightly won him the epithet ***"Bhishma Pitamah* of Indian Science Museums".**

The other luminary of our focus is **Dr Jayant Narlikar,** a prolific writer and a science populariser. He exemplified and fostered excellence in astronomy research. He reached out to not just the university faculty and guided many PhD students. He was equally keen on promoting science among school children and the general public. He founded the Inter-University Centre for Astronomy and Astrophysics (IUCAA) in Pune. Monthly lectures, science camps and workshops became regular events.

Indian science firmament is poorer now because of the passing away of these two megastars.

May their spirit live on to create many who will inherit their rich legacy and contribute to scientific pursuits.

Read, reflect and revert with your thoughts and feelings.

We look forward to your support and suggestions.

- Editorial Team

Dear Readers,

There have been requests from quite a few readers for hard copies of Prajya. We understand that quite a high percentage of our young readers keep revisiting some articles, and a handy print version within reach induces one to read more often, highlight things and make notes. This also partly contributes to students spending less screen time. The Prajya team is happy to bring to you the issue in print.

However, there are few things that we want to be careful about:

A. We don't want to print more than what is required and

B. Keep the cost of the print version (plus postage) within reasonable limits.

Please note that the access to free online e-version will continue.

So, it will greatly help us if you could fill in the details in the link provided.

http://bit.ly/Prajya

Happy Reading !

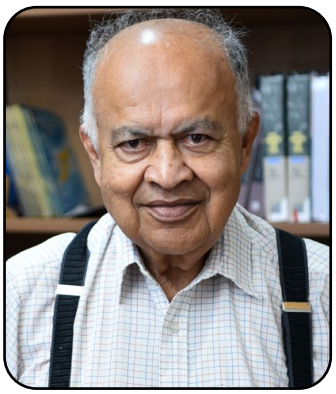
Watch out for the Monthly Prajya Quiz online

Visit https://davchennai.org/publications/prajya-news-magazine/

Content

International Current Affairs

National Current Affairs



Defence updates

General Knowledge

Smt A Laxmi

New World Leaders

Sudan - Kamil Idris is first PM since 2023 Civil War

Sudan's army chief Gen. Abdel-Fattah Burhan appointed **Kamil al-Taib Idris** as the country's first prime minister since the onset of civil war in April 2023.

The appointment follows the military's recent gains against RSF (Rapid Support Forces), especially the retaking of Khartoum in March 2025. The decision is part of efforts to restore civilian-led governance amid international pressure and humanitarian crisis.

Who is Kamil al-Taib Idris?

- A respected legal expert and diplomat.
- Former legal adviser at Sudan's UN mission.
- Member of the UN International Law Commission.
- Viewed as neutral and non-partisan, improving acceptance across factions, including RSF supporters.

Objectives of the appointment

- To form a transitional government that may lead to elections and civilian rule.
- Restore political legitimacy domestically and internationally.
- Serve as a counter to RSF's Nairobi charter, which calls for a secular, democratic, decentralised Sudan and aims to create a parallel government.

Background of the conflict

- **April 2023:** War broke out between Sudan's military and the paramilitary RSF, both once allies in the country's transitional leadership.
- **Root cause:** A power struggle over control of security forces and political leadership.
- Conflict has spread beyond Khartoum to various regions.

Humanitarian impact

- Over 20,000 deaths reported (unofficial toll likely to be higher).
- 13 million displaced, with 4 million refugees fleeing to neighbouring nations.
- 25 million people, half of Sudan's population, faced

DO YOU KNOW ?

- **Nairobi charter - a political charter signed in Nairobi by Sudanese factions to establish a framework for a "new Sudan".**

severe hunger and food insecurity.

Portugal- Luís Montenegro reappointed as PM

Luís Montenegro has been reappointed as the Prime Minister of Portugal following the country's recent general elections. Montenegro will lead a minority government under the 25th Portuguese administration as the Democratic Alliance won 91 seats out of 209.

Portugal recently concluded its general elections. The final results—following the count of overseas ballots—led to the reappointment of Luís Montenegro. His statement rejecting Chega's push for constitutional reform has drawn attention, signalling a pragmatic approach to governance under a minority setup.

Focus areas

- Economic growth
- Reforming public services
- Transforming the national health system
- Rejection of constitutional reform: Montenegro stated that constitutional revision is not on the immediate agenda.

Annalena Baerbock - President of 80th UN General Assembly session

Former German Foreign Minister Annalena Baerbock (44) was elected as the President of the 80th United Nations General Assembly (UNGA).

Her appointment is crucial, given the ongoing Ukraine and Gaza conflicts, and the deadlock in the UN Security Council, which has enhanced the relevance of the General Assembly as a platform for international cooperation and dialogue.

Election highlights

- **Votes received:** Annalena Baerbock – 167 | Helga Schmid – 7 | Abstentions – 14
- **Regional group representation:** Western European and Others Group (WEOG).
- **Gender milestone:** First woman from WEOG; fifth woman overall to lead the General Assembly.
- Annalena Baerbock is the youngest to become the president of UNGA.

Who is Annalena Baerbock?

- Former Foreign Minister of Germany (Green Party).

- Known for strong advocacy of climate action, human rights and diplomatic engagement.

Key priorities

- Enhancing efficiency and effectiveness of the UN system.
- Advancing the 2030 agenda for sustainable development.
- Making the General Assembly a truly inclusive and representative platform.

Context

- The UNGA Presidency rotates annually among five regional groups.
- The 80th session comes at a time of deadlock in the

DO YOU KNOW ?

- **This is the first time Chega has become the second-largest party, reflecting a shift in Portugal's political landscape from traditional centre-right/ centre-left dominance.**

Security Council, especially over global conflicts like Ukraine and Gaza.

- The UNGA's role has increased under the "Veto Initiative" of 2022, ensuring Security Council vetoes are followed by Assembly debates.

South Korea - Lee Jae-myung elected President

In a historic electoral shift following months of political unrest, Lee Jae-myung, the liberal opposition leader from South Korea's Democratic Party, has been elected as the new President.

The election follows the ouster of Yoon Suk Yeol, who imposed martial law in a failed attempt to curb dissent. Lee's win comes amid regional geopolitical tension, U.S. tariff issues and North Korea's nuclear threats.

Key objectives

- Rebuild public trust post political turmoil.
- Drive economic revitalisation and reduce inequality.
- Pursue pragmatic diplomacy, balancing ties with U.S., Japan, China and North Korea.
- Promote peaceful engagement with North Korea without drastic concessions.

Background of Lee Jae-myung

- Governor of Gyeonggi Province.
- Mayor of Seongnam City.
- Rose to prominence with an anti-establishment, pro-reformist image.
- Noted for his rags-to-riches story, starting as a child labourer.

Significance of the win

- Marks a turning point from authoritarianism to democracy after the martial law crisis.
- Reflects public frustration with conservative missteps.
- Symbolises a left-liberal comeback in South Korean politics.

Poland - Karol Nawrocki elected President

Karol Nawrocki, a 42-year-old conservative historian and former boxer, has been elected as the next President of Poland, securing 50.89% of the vote in a tightly contested election against liberal Warsaw Mayor Rafal Trzaskowski. He will succeed Andrzej Duda.

Poland held its presidential elections and Karol Nawrocki narrowly defeated Rafal

Trzaskowski. Nawrocki is backed by Donald Tusk and the Law and Justice Party (PiS).

Background and political context

- Historian and former boxer, previously the head of the Institute of National Remembrance (INR).
- The Law and Justice (PiS) party ruled Poland from 2015 to 2023, losing power to Donald Tusk's centrist coalition.
- Nawrocki was chosen as a fresh face untainted by PiS-era scandals.

Highlights

- **Final vote tally:** Karol Nawrocki – 50.89%, Rafal Trzaskowski – 49.11%.
- Early exit polls had suggested a Trzaskowski victory, later reversed as more votes were counted.
- The close race reflects deep ideological divides in Polish society.

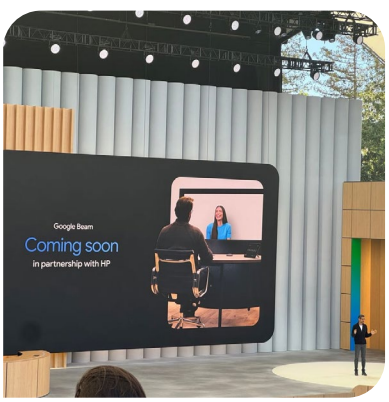
Shri Mrithyunjay GN

Over the course of the pandemic we entered an age of video calls, one where we are now so used to seeing people through screens. While it has been unprecedented in terms of the connections it provides, how real does it feel?

Google is trying to ask—what if we could take this one step further?

Can we move away from seeing a 2D version of our family or friends on a small screen to making it so that it feels like they are actually there in front of us?

At the 2025 edition of Google I/O, their yearly conference where they reveal the technology Google is working on, Beam was unveiled.



Google Beam attempts to solve the limitations of video calls.

Picture this: you sit across from a friend, family or colleague; only, they aren't in the room. What you see is a vivid, almost three-dimensional version of them, fully capturing their subtle movements, lifelike gestures and even real eye contact. Not using headsets or goggles but rather just their presence.

While it sounds like magic, it essentially consists of six strategically placed cameras that capture every nuance—from a sideways glance to a head nod—and feed it into an AI-powered video capture software that, along with the image, also captures the distance of the person from the camera.

This captured data is processed on the cloud and streamed to another screen that reconstructs an image, making it seem like the person is present in front of you in real time, despite their being in an entirely different location.

Beam's current incarnation is tailored for enterprise settings, where clear communication can mean the difference between deeper insight and a misunderstanding. Google has teamed up with Hewlett-Packard (HP) to develop the hardware, called the HP Dimension with Google Beam, a futuristic tabletop rig unveiled at InfoComm 2025, which can be placed in a conference room.

Early adopters are already testing the waters. Companies like Deloitte, Salesforce, NEC and Duolingo are piloting Beam in meeting rooms, lobbies and labs.

Beam does not only aim to be an evolution of video conferencing but it also looks towards bridging language gaps. A new real-time speech translation feature (starting with English and Spanish) mimics not only the speaker's words, but also their tone, rhythm and even lip movements. While it has already been rolled out in Google Meet, a newer iteration of this is expected to be tested on the Beam prototypes.

As Beam transitions from a Google lab curiosity to active use in boardrooms across the world, one can't help but wonder: is this the beginning of the end for the flat, video call?

Smt Archana Sundar

Stories of grit and glory

Indians are making history - breaking barriers, setting records and showing the world what resilience and brilliance truly look like.

Have you noticed something extraordinary happening in India lately? It feels like we're living in a moment that future generations will read about in textbooks. Whether it is literature or sports, Indians are making history - breaking barriers, setting records and showing the world what resilience and brilliance truly look like.

Let's take a moment to celebrate this golden era we're in. Trust me, by the time you finish reading this, you'll feel nothing short of inspired.

Banu Mushtaq – A literary force

She just became the first-ever author writing in Kannada to win the **International Booker Prize.** Her book ***Heart Lamp*** is not just a winner; it's the first short story collection ever to win the award!

Heart Lamp is a powerful collection of 12 stories written over three decades of insight and lived experience poured into fiction. These stories spotlight the lives of muslim women in South India, with themes of strength, survival and quiet resistance.

And let's not forget **Deepa Bhasthi,** the talented translator who brought *Heart Lamp* to English readers around the world. She shares the prize with Mushtaq, becoming the **first Indian translator** to win the International Booker.

In her acceptance speech, Mushtaq said something that really stuck with me: "No story is ever small… In a world that often tries to divide us, literature remains one of the last sacred spaces where we can live inside each other's minds." That's the magic of her writing—it connects you to lives you might never otherwise know.

Her personal story? Just as inspiring. Banu grew up in a conservative Muslim neighbourhood in Karnataka. Her father made sure she got an education in Kannada, even though her early learning was in Urdu. She started writing during a tough period in her marriage, and those early struggles shaped her fierce, resilient characters.

She has faced backlash too—threats, even a knife attack—for speaking up for women's rights, especially around prayer spaces. But none of that stopped her. She says, **"The basic struggles of women and marginalised communities continue,"** and she's been telling those stories fearlessly for decades.

Her journey is a powerful example of how words can become weapons of change—and how courage and creativity can come together to leave an indelible mark on the world.

Meanwhile, on the playing field, India is reaching new milestones.

Okay, now let's shift gears—because what's happening in **Indian sports** right now is just as thrilling. Athletes from across the country are smashing records and making headlines. Here's a snapshot.

Kush Maini's big F2 moment

In May 2025, this 24-year-old from Bangalore became the **first Indian to win a Formula 2 race,** and not just any race— but the **Monaco Grand Prix**. That's one of the toughest, most iconic tracks in the world.

Kush started from pole position in the sprint race and held his nerve like a professional. Coming from a racing family, he has been working his way up the ranks for years. This win is not just personal—it is huge for Indian motorsports.

It is also symbolic. India has long been a cricket-loving nation, but this moment shows we are ready to compete in global arenas across every sport.

Neeraj Chopra breaks 90

Remember when javelin ace **Neeraj Chopra** won Olympic gold and put us on cloud nine? Well, he's done it again. On 16th May 2025, he finally threw **90.23 metres** at the **Doha Diamond League**—breaking that elusive 90-metre barrier.

Sure, he came second in the event, but this throw? It was historic. He's the **first Indian** and only the **third Asian** to do it. His goal now? Making 90+ in throws. Knowing Neeraj, he probably will.

This isn't just about numbers. It is about consistency, determination and pushing limits—not just for himself, but for the entire nation watching him with pride.

Chess is India's game now

India's chess scene is exploding—and we love to see it.

- **R Praggnanandhaa** just won his **first Grand Chess Tour title** at the **Superbet Classic** in Budapest. After a tough three-way tie, he dominated the blitz tiebreaks and walked away with the top prize.

- **Aravindh Chithambaram,** another Indian GM, won the **Stepan Avagyan Memorial** in Armenia and is now **ranked 9th in the world**.

- And on his **19th birthday, D Gukesh,** the reigning world champion, beat Fabiano Caruana in an Armageddon

tiebreaker at **Norway Chess 2025.**

Together, these young grandmasters are reshaping the global chess landscape and proving that India is not just producing talent—it is producing legends.

India's football and shooting stars shine bright

The **Indian U-19 team** won the (South Asian Football Federation) **SAFF Championship** in a nail-biting penalty shootout against Bangladesh. The final score was 4–3 after a 1-1 draw. Held in Yupia, Arunachal Pradesh, this win marks our second SAFF U-19 title—and a big step forward for youth football in India.

The victory wasn't just about the trophy. It was about heart, teamwork and believing that we belong on the big stage. It is moments like these that shape the next generation of Indian athletes.

Then there is **Kanak Budhwar**, the 17-year-old shooting sensation.

She clinched **gold in the 10-metre air pistol** event at the

(International Shooting Sport Federation) **ISSF Junior World Cup** in Germany, scoring a phenomenal **239.0**. Fun fact? She took up pistol shooting only because she was underweight for rifle shooting. Talk about turning a challenge into an opportunity!

Kanak's discipline, passion and quiet confidence are a reminder that greatness often comes from unexpected beginnings.

Ice hockey

This might just be the most heart-warming story of all. The **Indian women's ice hockey team** won **bronze at the 2025** (International Ice Hockey Federation) **IIHF Women's Asia Cup**—our first-ever medal in the tournament!

Most of the players are from Ladakh, and they train on natural ice.

Their gear? Often second-hand. Their facilities? Bare minimum. But their spirit? Absolutely unmatched. **From finishing last in 2016 to standing on the podium in 2025—this team is the definition of perseverance.**

Their story isn't just about sport—it's about representation, inclusion and the courage to dream beyond limitations.

What does this signify?

We are living in a time where India's stories, talents and dreams are not just being heard but celebrated across the world. Whether it's a short story written in Kannada or a javelin flying past 90 metres, whether it's a blitz chess game or a penalty shootout—it all comes down to one thing: determination.

Each of these triumphs—literary or athletic—is built on years of quiet hard work, sacrifices, setbacks and moments of doubt. And yet, every person mentioned here chose to push through. That's what makes this era special—not just the wins, but the will behind them.

This golden wave is more than a series of headlines. It's a call to every young Indian—to pick up the pen, lace up their shoes, aim for that next move and believe in their own ability.

So yes, go ahead—feel proud, feel inspired, and above all, believe.

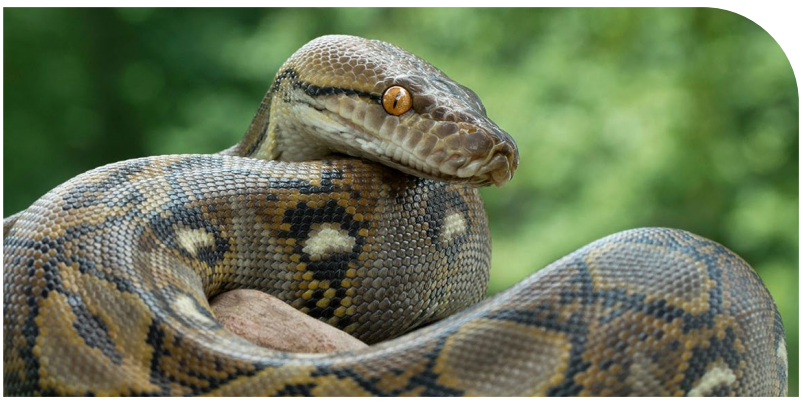
Kum Pavithra S

World's largest snake discovered

The Amazon rainforest, often called the lungs of the earth, has once again surprised the world with an amazing discovery — a new species of snake that is now considered the largest ever recorded. Scientists have named it the **Northern Green Anaconda** and it has broken records with its enormous size, measuring a whopping 26 feet in length and weighing about 500 kilograms.

This exciting discovery was made deep in the Amazon, in the **Bihueri Waorani Territory** of Ecuador, during an expedition in 2022. It was officially recognised and published in May 2024 and widely reported in May 2025 as one of the most significant wildlife discoveries in recent years. The expedition was part of a documentary being filmed by National Geographic, and the research team worked closely with the indigenous Waorani people, who have lived in the rainforest for generations and know its secrets better than anyone.

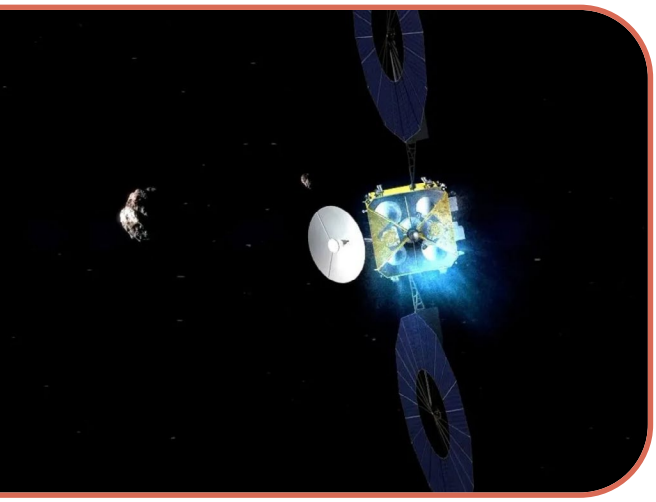
Until recently, all green anacondas were thought to be one species — the Southern Green Anaconda. But after studying the DNA of various anacondas across South America, scientists found out that the Northern Green Anaconda is actually genetically different. In fact, the genetic gap between the two species is about 5.5%, which is more than double the difference between humans and chimpanzees!



These snakes are not venomous but are powerful hunters. They live mostly in water and kill by wrapping around their prey and squeezing tightly. Their diet includes animals like fish, birds and capybaras. As apex predators, they help maintain balance in the rainforest's food chain.

This discovery is not just about breaking records—it shows how much we still don't know about our planet. **It reminds us that nature is full of wonders waiting to be discovered and that protecting our environment is not a choice, but a responsibility.**

Smt Sunita D Behera

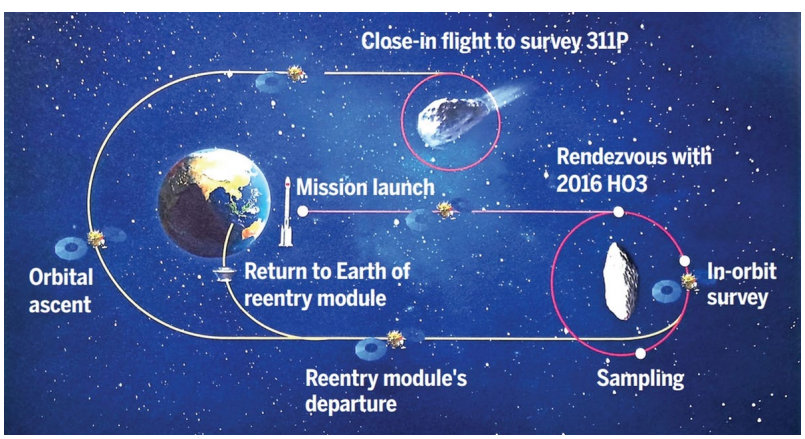


Tianwen-2 to collect asteroid samples

On 24th May 2025, China launched its Tianwen-2 spacecraft, beginning a 10-year mission to collect samples from a near-Earth asteroid called **Kamoʻoalewa** (2016 HO3). This marks another major step in China's growing space exploration efforts.

Tianwen-2 lifted off aboard a Long March 5 rocket from the Wenchang Space Launch Centre in Hainan province. The spacecraft will travel millions of kilometres through space to reach Kamoʻoalewa by 2025. Once there, it will land briefly on the asteroid's surface to collect rock and soil samples using robotic tools. These samples will be stored on board for the return trip to Earth, expected in 2031.

Kamoʻoalewa is a small asteroid that orbits the sun and remains relatively close to Earth. Scientists believe it could be made of material that dates back to the early solar system, over 4 billion years ago. Studying these ancient materials can help scientists understand how planets, including Earth, were formed.



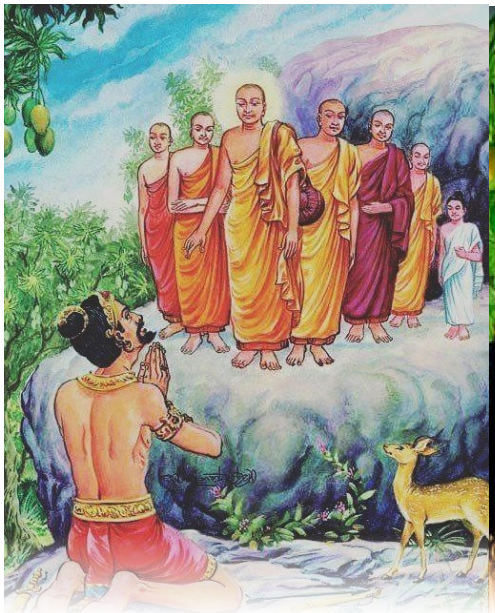
After the sample collection, Tianwen-2 will continue its journey to fly by another asteroid, 311P/PANSTARRS, known for its unusual dust tail. This will give scientists more information about how asteroids behave and evolve.

The mission follows the success of Tianwen-1, which placed a rover on Mars in 2021. With Tianwen-2, China joins the United States and Japan in conducting asteroid sample-return missions, showing its growing capability in deep space exploration.

The name "Tianwen" means "questions to heaven", a reflection of humanity's curiosity and desire to explore the universe.

By returning samples from space, missions like Tianwen-2 offer valuable insights into the building blocks of our solar system and the origins of life on Earth.

Smt Gaayathiri V



Poson Poya

2,000 years of Buddhism in Sri Lanka

Poson Poya is one of the most sacred Buddhist observances in Sri Lanka, celebrated on the full moon day in the month of June. It marks a pivotal moment in Sri Lankan history — the official introduction of Buddhism to the island over 2,000 years ago. On this day, in the 3rd century BCE, the Indian monk Arahat Mahinda, son of the Mauryan Emperor Ashoka, arrived in Sri Lanka and met King Devanampiyatissa at Mihintale.

Their meeting was a peaceful and profound exchange that led to the king and his people embracing Buddhism as their guiding philosophy. This event did not just introduce a new religion but initiated a cultural and civilisational transformation. Buddhism influenced every aspect of Sri Lankan life — from art, literature and education to governance, healthcare and architecture. It also introduced ethical principles such as non-violence, compassion, mindfulness and respect for all living beings.

Poson Poya is celebrated with immense devotion and national participation. Thousands of pilgrims, clad in white, make their way to Mihintale and other sacred sites to observe rituals, meditate, listen to Dhamma sermons and perform acts of charity. The atmosphere is serene and spiritually uplifting. The country is adorned with Poson lanterns, *pandals* depicting scenes from the life of the Buddha, and "*dansalas*" — free food stalls offered as acts of merit.

Beyond its religious significance, Poson Poya represents the Sri Lankan people's deep-rooted connection to their spiritual heritage. It is a time for reflection on Buddhist teachings and a reminder of the peaceful values that have guided the nation for over two millennia. As Sri Lanka commemorates more than 2,000 years of Buddhism, Poson Poya continues to be a beacon of cultural pride, spiritual inspiration and national unity.

Smt Vaishnavi V

New sea route to the northeast via Myanmar

A new sea route for India's northeastern states is being developed through Myanmar, bypassing Bangladesh. This sea route is an emerging strategic and economic initiative aimed at enhancing connectivity, reducing logistics costs and boosting trade between India and Southeast Asia. This is a part of the **Kaladan Multi-Modal Transit Transport Project in Myanmar** funded by the Ministry of External Affairs which will connect Kolkata port in India to Sittwe port in Myanmar by sea; then inland waterways from Sittwe to Paletwa on the Kaladan river; by road from Paletwa to Zorinpui in Mizoram and the rest of the northeast.

A key part of this is the **Shillong-Silchar Highway,** which will link to the Kaladan project and provide a crucial connection to Mizoram, Tripura and Manipur.

This project is a response to Bangladesh interim government chief adviser Muhammad Yunus's remark in Beijing this March that ***North-East India is "landlocked" and Dhaka is the "only guardian of the ocean for all this region", seeking "extension of the Chinese economy".***

Section	Mode	Distance	Development Stage
Kolkata → Sittwe	Sea	~539 km	Operational
Sittwe → Paletwa	River (Inland Waterways)	~158 km	Navigable river transport
Paletwa → Zorinpui (Myanmar)	Road	~108 km	Last 50 km is yet to be completed
Zorinpui → Aizawl (India)	Road	~100 km	Under construction
Aizawl onward (Silchar → Shillong)	Road	~300 km	Under construction

Strategic and economic importance

Bypassing the Chicken's Neck: Siliguri Corridor, a narrow passage, often described as India's Achilles' heel, is prone to blockade during conflict with China and Bangladesh. This project will provide a crucial alternative route through Myanmar, reducing India's reliance on the Siliguri Corridor and enhancing its security.

1. Boosting regional connectivity and trade

Upon completion, the corridor is expected to reduce the Kolkata-Mizoram transit distance by 1,000 km, saving 3-4 days in cargo movement. The corridor supports India's goal of connecting with Southeast Asia, aligning with India's "Act East" policy.

2. Enhancing India's geopolitical influence

Counter to China's presence in Myanmar i.e., China-Myanmar Economic Corridor (CMEC), India's Kaladan Project is a strategic counterbalance to ensure India's influence in Myanmar, fostering stronger ties.

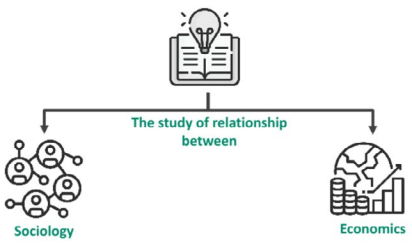
3. Economic development and socio-economic upliftment

The project is expected to unlock the economic potential of India's northeastern states by providing better access to international trade routes and attract investments, boost industries and create job opportunities, leading to socio-economic upliftment in the region.

4. Addressing security concerns

This will help India safeguard its borders and maintain sovereignty over its northeastern region, which faces various security challenges, and enhance regional stability.

What is Socioeconomics?



Trade and Investments Cooperations

ASEAN is **India's 4th largest trading partner,** accounting for **10% of India's total trade.**

Nearly 50% of India's trade is centered in the Indo-Pacific Region and the **Indian Ocean carries 90% of India's trade and energy.**

Japan is the 5th largest investor in the Indian economy.

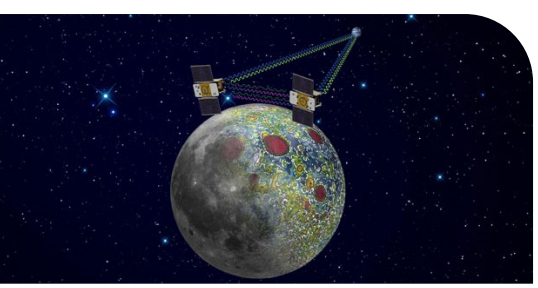
DO YOU KNOW ?

The Act East Policy is India's foreign policy initiative focused on strengthening economic, strategic and cultural ties with countries in the Indo-Pacific region, particularly Southeast Asia.

Smt Silpa Nandakumar

Mystery of Moon's asymmetry solved

The moon, whether full, crescent or hidden in the vastness of space, remains a captivating and enigmatic presence, symbolising both mystery and breathtaking beauty. For decades, one of the biggest enigmas that has puzzled humankind is its asymmetry - the difference between the side that we see and its dark side that is hidden. The side facing the earth has dark, smooth plains, whereas the unseen part is more rugged. NASA has finally come out with the answer to this age-old question: why the moon is so uneven. The NASA findings from the GRAIL (Gravity Recovery and Interior Laboratory) mission provide insights into the Moon's internal structure, volcanic history and thermal evolution.



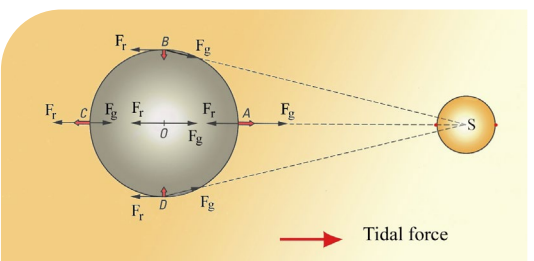
The GRAIL mission's Ebb and Flow spacecraft (launched in 2011) orbited the Moon, gathering data on its gravitational field. Researchers led by Ryan Park at JPL used this data to determine the Love number, an indicator of a planet's or moon's internal structure. (The Love number reveals how much a celestial body deforms under gravitational forces, providing information about its internal composition.) The study's findings showed that the m oon's Love number was 72% higher than predicted, suggesting significant asymmetry in its mantle. This asymmetry means that one side of the moon's mantle is more prone to deformation, stretching and compression than the other.

Scientists attribute the moon's asymmetrical internal structure to the following factors:

1. **Volcanic eruptions:** Lava flows on the visible side, generating heat and making rocks softer and more elastic.

2. **Temperature differences:** The visible side is up to 170°C warmer than the dark side, affecting how rocks react to gravitational forces.

3. **Tidal forces:** The moon's rocks are stretched and compressed, causing moonquakes, especially on the warmer side.



This study promises potential insights into the geological differences in Mars, Ganymede (Jupiter's largest moon) and other celestial bodies.

Nature Conservation

Shri Sridhar P

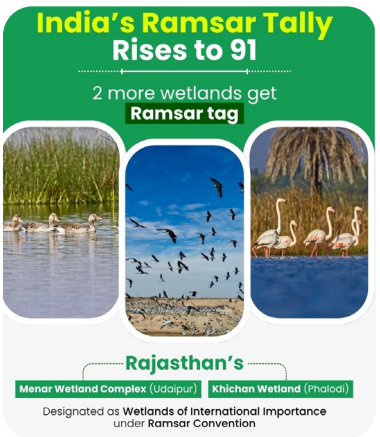
Olivia- a marine conservation success by the Indian Coast Guard

Operation Olivia is an initiative by Indian Coast Guard (ICG) to protect Olive Ridley sea turtles during their annual mass nesting along the Odisha coast specifically from November to May. The operation focuses on safeguarding these turtles, especially in the **Gahirmatha beach** and other coastal areas. ICG is best equipped not only to protect our coasts but also to protect Olive Ridley turtles, especially with speed boats, authority and modern technology.

Olive Ridley turtles are the most abundant sea turtles, yet are considered endangered due to habitat loss for their nesting. **Synchronised mass nesting** is quite unique to Olive Ridley turtles, known as **arribadas.** The survival rates for the hatchings are quite low for they are preyed upon by feral dogs, eagles, crows and snakes when they make their way to the sea. Apart from natural predation, plastic pollution, unregulated fishing, poaching and marine and coastal pollution take a heavy toll.

ICG works with NGOs who are well versed in marine biology, local fishing communities and State Pollution Control Board to help Olive Ridley turtles survive peacefully in the wild. **The programme launched in 1980 has so far saved 7 lakh Olive Ridley turtles**.

Rajasthan gets two more Ramsar sites



Two wetlands from Rajasthan - **Khichan** in Phalodi and **Menar** in Udaipur - have been added to the Ramsar list of Wetlands of International Importance. With this, the total number of Ramsar sites in India is 91. India's commitment to protecting ecosystems, its alignment with global sustainability goals and also the role of public participation in safeguarding natural habitats are evident through this.

Khichan

- Attracts migratory Demoiselle cranes in thousands regularly.
- An important point along Central Asian Flyway for migratory birds to stop over.
- Promotes bird watching tourism and thus boosts economy.

Menar

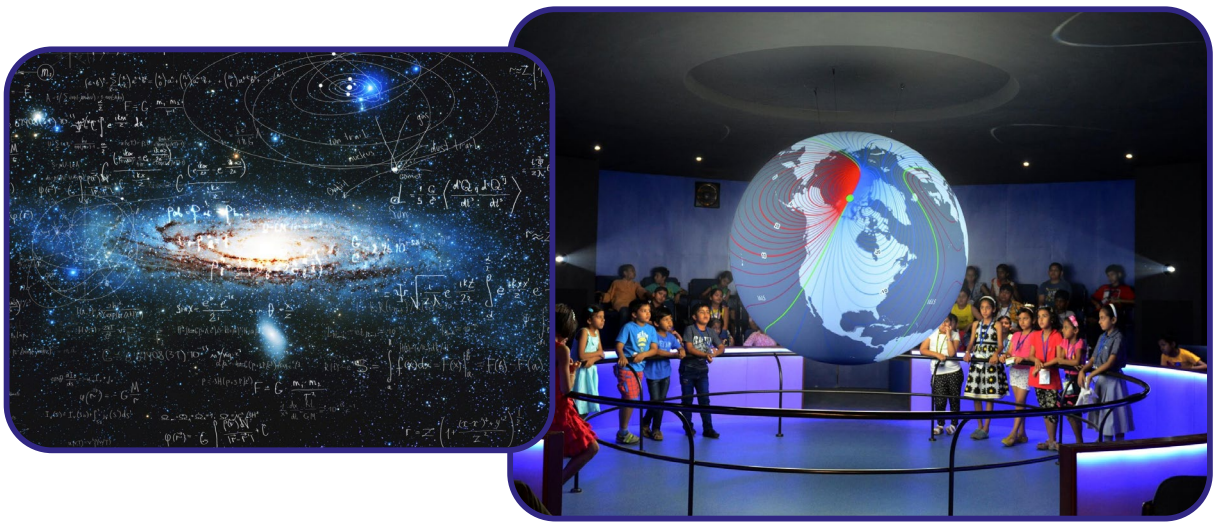
- Popularly called "bird village" because of the bird population.
- Is a habitat for more than 150 species of birds including pelicans, storks and flamingos.
- Local community actively participates in conservation efforts.

Wetlands

- Control floods; help recharge groundwater.
- Act as carbon sinks and natural filters of water.
- Support economy through fishing, farming and tourism.
- Maintain ecological balance and hence crucial for climate regulation.

DO YOU KNOW ?

India signed the Ramsar Convention Treaty in 1982. It has been proactive in framing environmental policies steadily and also adding its tally of Ramsar sites.



A huge loss to the Indian science ecosystem

The science ecosystem of India had a significant setback in the month of May 2025. India lost two greats with international acclaim – one who popularised Science and took it to a large section of the population and the other a practising astrophysicist. This article is a small attempt to outline their achievements.

Dr. Saroj Ghose was born on 1st September 1935.

Dr. Saroj Ghose

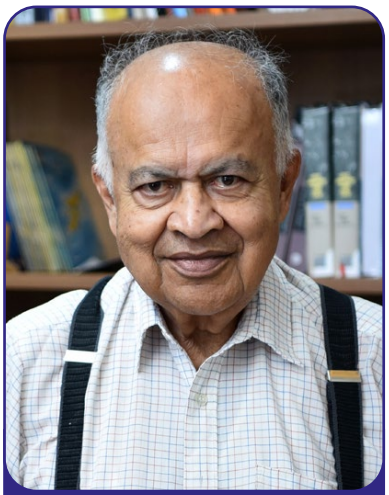
Right from his school days he was a brilliant student and he graduated in Electrical and Communication Engineering from Jadhavpur University. In 1958 he joined the Birla Industrial and Technological Museum (BITM) under the aegis of the CSIR as a Technical Officer. He became in charge of the BITM in 1965. He launched the Mobile Science Museum the same year. Today India has 48 Mobile Science Exhibition buses. The philosophy behind such mobile exhibitions is **"If children cannot come to the science Museum, the Science Museum will go to them"**. In 1970 he went to the US to do his M.S. in Control Engineering at Harvard University and then he was engaged with the research of the History of Science and Technology, at the Smithsonian Institution, Washington, DC. He then returned to India and earned his Ph.D.

Inspired by The Exploratorium in San Francisco he opened the Nehru Science Centre at Mumbai- the first of its kind in India.

This is an initiative that helps children to learn science through interactive exhibits. In 1979 the Government of India formed the National Council of Science Museums (NCSM) and Dr. Ghose was made the Director and then the Director General in 1986. **In 1979 he opened the world's first Science Park.** To spread the message of science, 18 science centres and one science city (Kolkata) were created under his guidance. He conceptualised International Mega Travelling Exhibition titled **"India- A heritage of Science"**. This was hugely popular across the world and the NCSM earned international recognition for popularising science.

He held several important positions in the International Council of Museums, Paris and was its President for two terms. Several awards and recognitions came his way including the Padma Shri and Padma Bhushan. His goal was to create scientific awareness and nurture creativity and scientific temper in children.

To this end he mentored many students and educators. The ***Bishma Pitamaha*** of Indian science museums breathed his last on 17th May 2025. His legacy is bound to continue.



Dr. Jayant Vishnu Narlikar

Dr. Jayant Narlikar was born on 19th July 1938 into an academic family. His father was a professor of Mathematics and Theoretical Physics and his mother was a Sanskrit scholar. He did his schooling at Varanasi and his under graduation at BHU and continued his education at Cambridge. He completed his Mathematical Tripos (a Mathematics course taught at the Cambridge University). He was awarded the bachelor's degree and was a "senior wrangler". Senior Wrangler is described as the greatest intellectual achievement attainable in Britain.

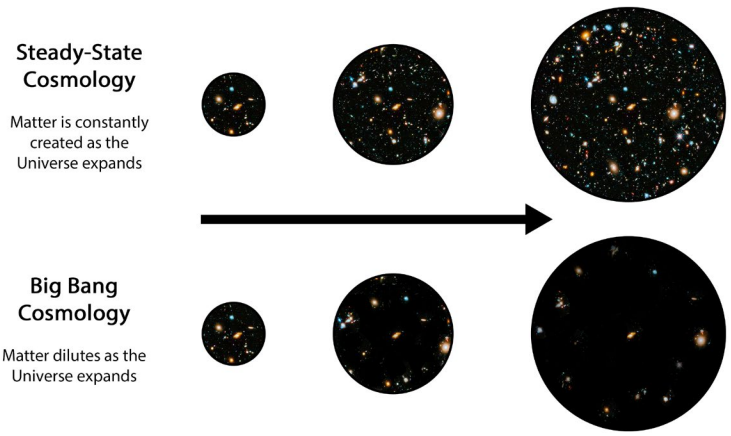
Dr.Narlikar commenced his research career as a student in theoretical cosmology under the guidance of Fred Hoyle in Cambridge. He obtained his Ph.D in 1963 and he was then a Post doctoral fellow at the King's College, Cambridge. Along with Hoyle, he was the founding member of the Institute of theoretical Astronomy in Cambridge. In 1972 when he returned to India, the government entrusted him with the responsibility of building a strong research group in Physics and Astronomy at the Tata Institute of Fundamental Research. In 1981 he became the founding member of the World Cultural Council and in 1988 he was appointed the founding Director of the Inter-university centre for Astronomy and Astrophysics (IUCAA).

He was also the Chairperson of the Committee responsible for developing text books in Science and Mathematics at the NCERT.

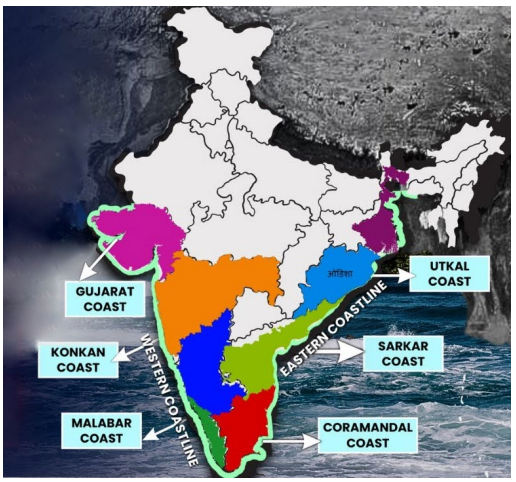
The two most important research works of Narlikar were the **Hoyle-Narlikar theory of gravity** that presented an alternative to Einstein's general theory of relativity and the Quasi-Steady State Cosmology model that he presented as an alternative to the Big Bang model. **All through his life he encouraged students to challenge dogmas with scientific rigour.**

Prof. Narlikar won innumerable awards and accolades. He was a Padma Bhushan and a Padma Vibhushan awardee. His teacher Fred Hoyle said, **"If I have seen further than others, it is by standing on the shoulders of a Jayant".** Can any other tribute be more valuable? Prof. Jayant Narlikar left his mortal body on the 20th May 2025.

The real tribute that all of us can pay to these two giants is imbibing the culture of questioning and scientific rigour in all our activities.



Smt Sarada Devi Ravutu



India's new coastal length

India's coastline length has been a topic of interest for geographers, policymakers and the general public alike. **Recently, India's coastline has been revised from 7,516 km to 11,099 km, representing an increase of approximately 48%.** This change is not due to the addition of new landmass but is the result of using more accurate digital mapping techniques and updated measurement methodologies. The revised length provides a more precise representation of India's natural borders and can influence coastal management and the understanding of vulnerabilities.

Old vs. New

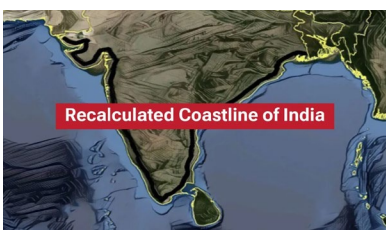
The previous measurement was based on data from the 1970s and utilised a straight-line approach. The new measurement incorporates more detailed mapping, accounting for bays, estuaries, inlets and other geomorphological features.

Improved mapping

The revision employs digital mapping at a scale of 1:2,50,000, allowing for a more accurate depiction of the coastline's intricate details.

Impact on coastal management

The increased coastline length can affect coastal regulation policies, vulnerability assessments and planning for coastal development and disaster management.



States with increased coastline

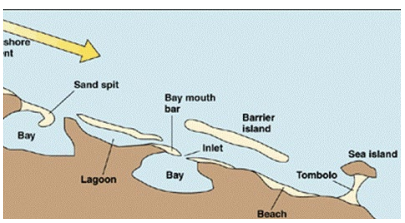
States such as **Gujarat** and **West Bengal** experienced significant increases in their coastline length due to the updated methodology.

States with decreased coastline

Puducherry saw a rare contraction in its coastline length as a result of the revised methodology.

No land gain

It is important to emphasise that this increase in coastline length does not indicate any landmass being added to India's territory.



DO YOU KNOW ?

- **Coastal management: Taking care of coastal areas. It involves planning and taking actions to protect these areas from erosion, flooding and pollution.**
- **The straight-line method approximates the coastline by dividing it into a series of shorter straight lines. The lengths of these lines are then summed to provide an estimate of the total coastline length.**
- **Difference between bay and estuary: A bay is a body of water partially enclosed by land and directly connected to a larger body of water, like an ocean or sea, while an estuary is a coastal body of water where freshwater from rivers mixes with saltwater from the ocean.**
- **Inlet: a narrow strip of water extending from a larger body of water (like a sea, lake or ocean) into the land.**

Shri Sampath D

News from Northeast

Celebrating 50 years of Sikkim's statehood

A Journey from monarchy to democracy 16th May 2025 marked the 50th anniversary of Sikkim's merger with India and its formal recognition as the 22nd state of the Indian Union through the Constitution (36th Amendment) Act, 1975.

Nestled in the eastern Himalayas, Sikkim was once a **Buddhist kingdom ruled by the Chogyal dynasty.** At the time of India's independence in 1947, Sikkim became a protectorate under India, with New Delhi handling its foreign affairs, Defence and Communications. However, the internal governance remained with the monarchy, creating a unique but unstable political setup. The seeds of political change took root in the early 1970s, leading to a historic referendum in April 1975, where an overwhelming majority voted for abolishing the monarchy and joining the Indian Union. This decision was legally cemented through constitutional amendments and parliamentary approval, changing the course of Sikkim's history. With its population of just over 6 lakhs it enjoys a high literacy rate of 81.4%.

The state is famed for its peaceful landscapes, rich cultural diversity and the majestic Mount Kanchenjunga, India's highest peak.

Sikkim's 50-year journey exemplifies India's strength as a pluralistic, federal democracy that accommodates diversity while promoting national integration. As India celebrates this milestone, Sikkim's story reminds us of the delicate transition from monarchy to democracy.

In 2003, Sikkim committed to becoming fully organic. By 2016, **it became the world's first 100% organic state**, **a milestone in sustainable agriculture recognised globally.** As regards tourism it has emerged as a lifeline for the state with its focus on eco-tourism and homestays. Further Sikkim contributes significantly to renewable energy sector, **producing a notable share of the northeast region's 40% hydropower potential**, as per the Northeast Electric Power Corporation Limited (NEEPCO).

Tripura launches Viksit Krishi Sankalp Abhiyan to empower farmers

In a significant step toward enhancing agricultural productivity and farmer welfare, the Tripura government has announced the launch of the "***Viksit Krishi Sankalp Abhiyan"***. The campaign, part of a Central initiative aims to raise awareness about state and centrally sponsored schemes across villages and gram panchayats to increase farm output and reduce costs.

It will help in increasing agricultural production and productivity and reduce input costs for farmers. Further it will enhance farmers' income through better access to government schemes and educate farmers about scientific techniques and innovations in agriculture.

It is a joint initiative of Amarpur KVK and Amarpur divisional agriculture department officials and it has been organised in three different venues in Karbook block in Gomati Tripura. To make the Abhiyan successful many government agency officials graced the programme and created awareness and inspiration amidst local farmers over modern agricultural techniques.

The campaign aims to educate farmers about modern technologies, establish direct communication between policymakers, scientists and farmers.

Pu Lalduhoma declares Mizoram a fully literate state

In a landmark moment for the nation's educational journey, Chief Minister of Mizoram, Pu Lalduhoma officially declared Mizoram a fully literate state. Mizoram with 98.2% literacy rate became the first fully literate state under the ULLAS (Understanding Lifelong Learning for All in Society) initiative. It is seen that this achievement is not just a statistic, but a transformational milestone, one that speaks of the collective will, discipline and vision of the people.

As per the 2011 Census, it recorded a literacy rate of 91.33%, ranking third in India. Building on this strong foundation, the ULLAS – **Nav Bharat Saaksharta Karyakram** (New India Literacy Programme) was implemented to identify and educate the remaining non-literate individuals.

A door-to-door survey conducted by Cluster Resource Centre Coordinators (CRCCs) across the state in August–September 2023 identified 3,026 non-literates. Out of these, 1,692 learners were actively engaged in teaching-learning activities. By this account, Mizoram had crossed the full literacy mark, i.e., above 95% literacy rate (to be considered equivalent to Full literacy) as defined by Ministry of Education, Government of India.

Krishi Vigyan Kendras (KVK) are agricultural extension centres in India that bridge the gap between research and farmers by disseminating improved agricultural technologies and practices. They are part of the National Agricultural Research System (NARS) and are established at the district level.

Aizawl becomes 4th northeast capital linked to national railway network

In a major boost to connectivity in the northeast, Aizwal, the capital of Mizoram, has been successfully linked to the national railway network through the **Bairabi–Sairang rail line** making it the fourth capital city in the Northeast to gain rail connectivity, following Guwahati, Agartala and Itanagar.

The 51.38 km Bairabi–Sairang rail line extends from Bairabi, Mizoram's only previous railhead near the Assam border in Kolasib district, to Sairang, a satellite town about 20 km from Aizawl. Construction of the line posed significant engineering challenges due to the rugged terrain of Mizoram. The project features 48 tunnels spanning a total of 12.85 km, 55 major bridges, 87 minor bridges, five road overbridges and six road under bridges. Among the standout structures is **Bridge No. 196, which rises to 104 metres, 32 metres taller than Delhi's Qutub Minar.**

The Bairabi-Sairang line is part of a plan that includes several new lines and doubling projects to improve infrastructure and connectivity in the Northeast. As of April 2024, a total of 18 railway projects spanning 1,368 km, with an investment of ₹74,972 crore, are in progress across the northeast. Out of this, ₹40,549 crore has already been spent, underlining the government's commitment to transforming transportation in the region.

This achievement is expected to significantly enhance passenger and freight movement, stimulate socio-economic growth and fulfil a long-standing aspiration of the people of Mizoram to see trains arriving in the heart of their capital.

IICA sets foot in Northeast with first regional campus in Shillong

In a significant step The Indian Institute of Corporate Affairs (IICA), under the Ministry of Corporate Affairs, has decided to strengthen corporate governance and development in India's northeast by acquiring land for its first regional campus in Shillong, Meghalaya.

Backed by ₹100.95 crore under the **PM-DevINE** (Prime Minister's Development Initiative for Northeast) scheme, the new campus is envisioned as a hub for specialised training, research and policy advisory in critical areas. IICA formally acquired 5 acres of land in Shillong, marking the establishment of its first regional campus outside Delhi. The campus will be located alongside IIM Shillong, National Law University Meghalaya and NIFT, fostering academic synergy. The new campus will also facilitate partnerships with state universities and local institutions within Knowledge City to deliver region-specific training and capacity-building programmes, catering to the socio-economic ambitions of the northeast.

This growth marks IICA's long-term promise to nurturing ethical entrepreneurs, skilled professionals and accountable leaders from the heart of India's northeast. An airport is also being developed in Shillong to boost connectivity.

Kum Anu Narayan

The new digital address

The Department of Posts has launched a new and innovative system called DIGIPIN, designed to give people a more precise and accurate way of identifying locations. Unlike the traditional PIN codes, which cover large areas, DIGIPIN provides a unique 10-digit code that pinpoints the exact location of a property, whether it is a home, office or any other place.

To get your own DIGIPIN, you can visit a designated government website. Simply enter your address or find your location on the map and the website will generate your 10-digit digital code. The Department of Posts has shared the programming code for DIGIPIN logic publicly, so it can be used even without an internet connection.

Benefits

1. **Precision:** DIGIPIN can locate places within a 4-meter square.
2. **Efficiency:** It makes deliveries faster and more accurate, and helps emergency responders reach the right place quickly.
3. **Inclusivity:** It helps areas such as rural or underdeveloped regions that do not have clear addresses.
4. **Privacy:** DIGIPIN does not store any personal data.

DIGIPIN is a geocoded addressing system, meaning it uses latitude and longitude to create a unique code for every location in India. This system divides the country into small 4m x 4m grids (like a map with tiny squares), and each grid gets its own 10-character alphanumeric code.

However, postal addresses remain the same. A PIN code covers a large area, like a neighbourhood or a locality, while DIGIPIN identifies a much smaller area such as a specific house or building. DIGIPIN is just an additional tool to make location identification more accurate. It complements the current postal system and makes finding places much easier.

DIGIPIN helps in areas where traditional addresses might not work well, like in rural villages, forests or places with changing addresses. It is especially useful in places where people do not have a clear or permanent address, making it difficult to deliver goods or provide emergency services such as ambulances and fire trucks. This system will help in getting these services to the right spot more quickly and accurately.

In short, DIGIPIN is a big step forward in making addresses more accurate and accessible. It will play an important role in India's future growth and development.

Shri Mrithyunjay GN

Unearthing unheard stories

Archaeology often feels like listening to long-forgotten voices beneath our feet—and India, with its layered history, appears to be speaking with renewed clarity.

Three recent discoveries from Kutch, Tamil Nadu and Maharashtra have invited us to listen to ancestors from thousands of years ago.

Early Harappan beacon near the Rann of Kutch (~5,300 years ago)

In the arid stretches near Lakhapar village, Kutch, a settlement dating back roughly 5,300 years has come to light—placing it in the Early Harappan period (around 3300–2600 BCE), a time before the Indus Valley Civilisation matured into its full urban form.

This site is dated to be from around the same time as the early Dholavira; a major Harappan city in Gujarat known for its sophisticated water management system and urban planning.

Excavated by researchers from the University of Kerala, the find spans nearly thirty thousand square metres beside the ancient course of the now-lost Gandi river. Archaeologists uncovered stone and shale walls, suggesting carefully planned homes, along with a ceramic link: pottery pieces belonging to both Early and Late Harappan phases.

Among these was Pre-Prabhas Ware, a rare kind of pottery known only from a few sites in Gujarat.

These distinctive ceramic pieces, dated to a transitional phase between the Harappan and early Bronze Age cultures, feature thick fabrics and a red-slipped surface, indicating cultural overlap or continuity. A red-slipped surface refers to a pottery or ceramic surface that has been coated with a thin layer of reddish clay (slip) before firing.

An even more important discovery is a burial pit accompanied by Pre-Prabhas Ware—the first ever funerary context associated with this pottery, offering vital clues about burial rituals in this desert settlement.

This site helps us fill the gaps between the early and late Harappan eras, documenting a fully developed city in western India long before the great Harappan cities like Mohenjo-daro and Harappa reached the apex of their development.

Shiva Temple in Melur, Tamil Nadu (~800 CE)

In Udampatti, Melur taluk, local diggers and officials uncovered the foundation of an 800-year-old Shiva temple, known as **Thennavanisvaram,** dated to around 1217–1218 CE under the reign of **King Maravarman Sundara Pandyan**—a powerful ruler of the second Pandya empire.

Stone inscriptions give us a glimpse of administrative life and city life. One document records the sale of a waterbody named Nagankudi for 64 *kasu* (traditional currency); it also specifies tax-exemption for land dedicated to temple use.

The stone inscriptions record fiscal policy in medieval Tamil Nadu, referencing land measurement units like *veli, ma,* and *mavarai*, and tax terms such as *kadamai* (obligatory tax), *viniyogam* (allocation), and *idhayar vari* (temple dues).

This reinforces the theory that these temples functioned not only as a place of worship but also as an economic hub, integrating religion, agriculture and governance into a place, making it accessible for multitudes of people.

Iron Age Civilization in Pachkhed, Maharashtra (~3,000 years ago)

In central India's Yavatmal district, Maharashtra, a mound outside Pachkhed village has revealed evidence of an ancient community, with signs of habitation as deep as 8.73 metres, indicating continuous occupation over many centuries.

The 2023–24 excavation, led by Dr Prabash Sahu of Nagpur University, uncovered Iron Age structures dating back about 3,000 years—circular homes with limestone floors, wooden posts, clay hearths (*chulhas*), and a trove of artifacts: iron tools, terracotta vessels, bone ornaments and semi-precious stone beads, suggesting early craftsmanship and trade.

Stratigraphy—layer-by-layer study of the earth—shows this site passed through four key cultural phases:

An **Iron Age agrarian society**, with few preserved written records followed by a settlement under the **Satavahana rule** (from around 1st century BCE to 2nd century CE). Next came **Medieval habitation,** and finally the site took on the role of a watchtower during the **Nizam period** (18th –20th century), indicating continued strategic relevance.

Soil samples have been sent to the Inter-University Accelerator Centre (IUAC) in New Delhi for AMS (Accelerator Mass Spectrometry) dating, a method that will provide precise timelines. If the 3,000-year estimate holds, it will offer fresh insight into early agrarian village life in central India.

Each archaeological discovery is a voice from the past, calling out across centuries, holding stories of the lives our ancestors lived.

Each of these stories makes the vibrant the tapestry of Ancient India fuller and richer.

Smt T R Shubha

Metrological News

India celebrates 150 years of the metre convention

India celebrated the 150th anniversary of the Metre Convention on World Metrology Day (20th May 2025) with the release of a poster themed "Measurements for all times, for all people".

The celebration also paid tribute to India's rich metrological heritage right from the Indus Valley Civilization to the Mauryan Empire's regulated weight systems as described in the Arthashastra. Dept. of Consumer Affairs, GoI announced a slew of measures with the aim to align India's legal metrology standards with global benchmarks.

Announcements and reforms

OIML certificates

India has become the 13th country globally to authorise issuance of OIML (International Organization of Legal Metrology) certificates.

DO YOU KNOW ?

- **Metrology** is the scientific study of measurement, establishes common standards for units and instruments.
- **The Metre Convention,** signed on **20th May 1875,** setup the metric (SI) system and laid the foundation for international cooperation in measurement science.
- **World Metrology Day** celebration was initiated in 1999 by the International Committee for Weights and Measures. **(CIPM)** to commemorate this global agreement.
- India joined the **Metre Convention** in 1957 following the enactment of the **Standards of Weights and Measures Act,** 1956.
- **Legal metrology** ensures accuracy in weights and measures crucial for trade, consumer protection and law enforcement.
- **OIML certificate** is an internationally recognised document issued by the International Organization of Legal Metrology for measuring instruments.

- It enhances global trust in India's measurement systems, allowing Indian manufacturers to gain wider acceptance in global markets.

1 mg precision mandate for gold trade

- To ensure fair weighing practices in the jewellery sector aimed at strengthening consumer protection in high-value transactions.

"One Nation, One Time" initiative under Draft IST Rules 2025

- Under Time Dissemination Project, it aims to deliver Indian Standard Time (IST) with millisecond-level time accuracy, through five Regional Reference Standard Laboratories (RRSLs), ensuring consistency in timekeeping across critical sectors like telecom, banking and transport.

eMaap portal launched

- Digitises legal metrology operations in 18 states by offering services like online licensing, registration, enforcement tracking, etc., enhancing transparency and reducing bureaucratic hurdles.

Wildlife news

Arunachal Pradesh welcomes new butterfly species: *Euthalia malaccana*

A rare butterfly species, *Euthalia malaccana,* also known as **Fruhstorfer's Baron,** has been officially recorded in India for the first time, highlighting a significant range extension for the Southeast Asian insect. The discovery was confirmed in the Leparada district of Arunachal Pradesh, with photographic evidence collected between 2023 and 2024 at an elevation of 685 metres.

Citizen scientist **Roshan Upadhaya**, popularly known as the '**Butterfly Man of Arunachal**,' documented the butterfly in Basar, Arunachal Pradesh. **Taslima Sheikh,** a fellow citizen scientist based in Lucknow, collaborated with Upadhaya during fieldwork, working closely with local guides in remote regions. Basar is also renowned for its distinct cultural heritage and rich traditions.

Roshan's observations were published in the April 2025 issue of **SHILAP Revista de Lepidopterología, an international entomology journal.** The team recorded five individuals of the species over the course of one year. *Euthalia malaccana* belongs to the family *Nymphalidae* and subfamily *Limenitidinae,* commonly referred to as the "Barons." While the butterfly is native to parts of Southeast Asia such as northern Thailand, the Malay Peninsula and the Sunda Islands, this discovery marks its first confirmed appearance within the Indian territory, specifically the Eastern Himalayas.

The male of the species features a characteristic blue apical spot on the forewing, while the female bears a larger, paler blue version of the same. Both males and females also exhibit small reddish spots on the hindwings, though these are less prominent than those seen in similar species such as *Euthalia lubentina*. Experts say the discovery not only expands the known distribution of *E. malaccana* but also underlines the critical role of citizen science in biodiversity research.

This record also adds to the growing evidence that the Eastern Himalayas are a biodiversity hotspot with many undocumented species. While ecological and conservation data for this species within India is still limited, similar *Euthalia* butterflies are typically forest dwellers with specialised larval host plant dependencies. Researchers emphasise the importance of continued monitoring to understand its habitat preferences and conservation needs. The find further cements the fact that Arunachal Pradesh also has a rich ecosystem and it is very important to initiate the need to protect its environment.

Telangana notifies Kumram Bheem Conservation Reserve to boost Tiger Corridor

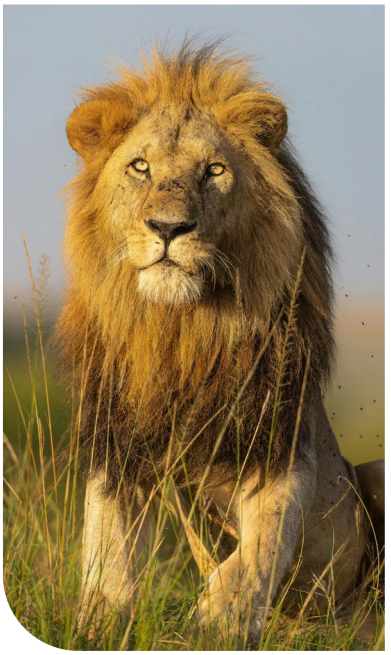
The Telegana Government has taken a crucial step in wildlife conservation where they announced Kawal-Tadoba tiger corridor as the Kumram Bheem Conservation Reserve. Covering approximately 1,493 sq. km, this newly designated reserve aims to provide protection to India's tiger population and preserve vital biodiversity within the central Indian landscape. The reserve spans across the Asifabad and Kagaznagar forest divisions. It encompasses 78 reserve forest blocks, including Garlapet, Ada, Manikgarh East, Manikgarh West and others.

This landscape supports a thriving wildlife population, including resident and breeding tigers, with more than 45 unique transient tigers recorded over the past decade. It is also home to a wide array of carnivores such as leopards, wild dogs, sloth bears, wolves, hyenas, honey badgers and jungle cats, alongside a rich prey base comprising *gaur, sambar, nilgai, chital*, four-horned antelope, *muntjac* and Indian gazelle. The reserve boasts over 240 bird species, notably the Malabar Pied Hornbill and the Long-billed Vulture.

According to the Tiger Census 2022, at least four adult tigers and three cubs currently inhabit the area, while since 2015, three tigresses have collectively given birth to 17 cubs. The All-India Leopard Estimation 2022 further recorded eight leopards in the region.

To support ongoing conservation efforts, a dedicated management committee has been formed, including key stakeholders such as the Kumram Bheem Asifabad District Forest Officer (serving as convenor), panchayat sarpanches, representatives from conservation NGOs and officials from veterinary, agriculture and forest departments.

Gujarat's lion population grows by 32%



According to the 16th Asiatic Lion Census, the Forest Department of Gujarat has achieved a significant milestone in lion conservation, with the population increasing by 32% over the past five years to reach 891 individuals as of 2025. This notable growth reflects the success of sustained conservation efforts and effective habitat management. This update is important as it shows progress in conservation, while also pointing out new challenges, especially in how humans and wildlife live together. It follows the approval of **Project Lion** which has a budget of ₹2,900 crore to improve lion habitats.

The Asiatic lion, scientifically known as *Panthera leo persica*, is a lion subspecies primarily found in and around the Gir Forest in Gujarat, India. For the last 5 years, the lion population has increased from 674 to 891. Notably, the number of female lions has risen to 330, indicating a promising trend for future population stability and growth.

Satellite populations of Asiatic lions now total 497 across nine different regions. These include areas like Barda Wildlife Sanctuary, the Jetpur region and the Babra-Jasdan belt. The lion population in Mityala Wildlife Sanctuary has also doubled to 32. Additionally, for the first time, 22 lions have been recorded in a newly identified corridor area.

India's first : Vistadome jungle safari train introduced in UP

Uttar Pradesh has unveiled a unique way to experience the wild, combining rail travel with the beauty of nature. The state government, in collaboration with Indian Railways, has launched India's first-ever Vistadome jungle safari train, offering passengers a panoramic journey through some of the country's most biodiverse landscapes.

The new train service connects the **Dudhwa Tiger Reserve** and **Katarniaghat Wildlife Sanctuary,** providing travellers with an immersive safari experience from the comfort of their seats. This innovative venture is set to transform wildlife tourism by offering passengers an immersive experience in the Vistadome coach, bringing them closer to nature than ever before.

The Vistadome coach offers rotating plush seats, extra-large glass windows and a transparent rooftop so you can enjoy the exceptional view of Uttar Pradesh's stunning landscapes that also include wetlands, grasslands, farmlands and dense forests.

The scenic route stretches 107 kilometres between **Bichia** (Bahraich) and **Mailani** (Lakhimpur Kheri), taking approximately four and a half hours. The train operates twice daily:

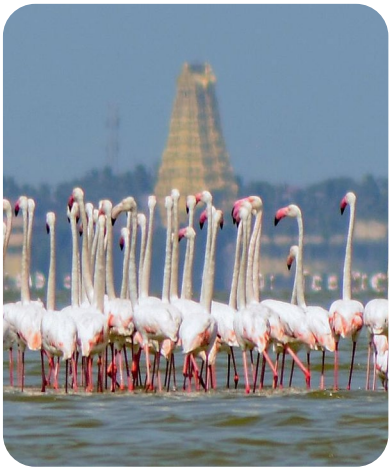
- **Train 52259** departs from Bichia at 11.45 am and arrives at Mailani at 4.10 pm.
- **Train 52260** returns from Mailani at 6.05 am, reaching Bichia at 10.30 am.

Passengers will get the opportunity to travel through nine forest based stations, including Manjhara Purab, Khairatia Bandh Road, Tikunia, Dudhwa and Palia Kalan, offering glimpses of wildlife right from the tracks. The jungle safari is more than just a scenic ride, thereby playing an essential role in education and community empowerment. Weekly trips organised by the Youth Tourism Club aims to introduce schoolchildren to the importance of wildlife conservation. Familiarisation tours for influencers and bloggers will help spread the word about the initiative to a global audience.

Additionally, the project supports local communities by promoting sustainable tourism. Partnerships with local homestays and resorts in forest adjacent areas create jobs and drive economic growth. Plans to improve transport links from Lucknow to Katarniaghat, including potential subsidies, will make the journey even more accessible to tourists.

Tamil Nadu declares Dhanushkodi as Greater Flamingo Sanctuary

In a major move for wildlife conservation, the Government of Tamil Nadu has officially designated Dhanushkodi as a Greater Flamingo Sanctuary. Spanning across 5.3 sq. km, this newly declared sanctuary will provide a safe haven for one of the most iconic migratory bird species, the Greater Flamingo, and aims to boost efforts in preserving the region's unique biodiversity.



Situated at the southern tip of India, Dhanushkodi is already known for its natural beauty and rich marine ecosystem. This new sanctuary aims to protect the Greater Flamingo, which migrates to the region during the winter months, using the coastal wetlands for nesting and feeding. The sanctuary status will help safeguard these important habitats, ensuring the flamingos and other migratory birds have a safe environment to thrive.

In addition to protecting the flamingos, the sanctuary will play an important role in preserving the region's broader biodiversity, benefiting a variety of coastal wildlife. With stricter regulations on human activity and development, conservation efforts will focus on habitat restoration, eco-tourism and local community engagement. This move is expected to boost Tamil Nadu's reputation as a hub for wildlife tourism, attracting bird watchers, nature lovers and environmental enthusiasts from around the world. The sanctuary will not only bring economic benefits to the region through eco-tourism but also raise awareness about the importance of preserving natural habitat.

Smt Sandhya Nair

News from the mountains

Geeta Samota - First woman CISF officer to scale Everest

Geeta Samota of the Central Industrial Security Force etched her name in the history books by becoming the first woman officer from the Forces to scale Mount Everest — the highest peak at 8,849 m on 29th May 2025.

Born into a family of four sisters in the modest environs of Chak village in Rajasthan's Sikar district, Geeta's journey from rural India to the top of the world is a testament to perseverance and purpose.

A grievous injury during her college days cut her sporting ambitions short. It opened the door to a new pursuit: mountaineering.

CAREER GRAPH

- **2011**- Joined the CISF.
- **2015**-Enrolled in a basic mountaineering course at the Indo-Tibetan Border Police training institute in Auli.
- **2019**- Became the first woman from any Central Armed Police Force to summit both Mount Satopanth (7,075 m) in Uttarakhand and Mount Lobuche (6,119 m) in Nepal.

Having already climbed five of the world's highest peaks, she now has only North America and Antarctica left to complete the prestigious Seven Summits challenge.

Geeta was honoured with the International Women's Day Award 2023 by the Delhi Commission for Women and the "Giving Wings to Dreams Award 2023" by the Ministry of Civil Aviation.

Vishwanath Karthikey Padakanti - Youngest Indian mountaineer

Vishwanath Karthikey Padakanti from Hyderabad has become the **youngest Indian** and the **second youngest person in the world** to complete the legendary 7 Summits challenge. His final ascent came on 27th May when he summited Mount Everest after weeks of gruelling climbing.

His fascination with mountaineering started at the age of 11, when he joined his sister on a hike to Mount Rudugaira in Uttarakhand.

His remarkable achievements include climbing Europe's tallest mountain, Mount Elbrus, from both its east and west sides in a **span of 24 hours**, testifying to his great stamina and expertise.

On 23rd May 2025, a Joint National Mountaineering Team from India comprising instructors from the country's premier mountaineering institutes summited Mount Everest, marking a historic collaboration between India's top mountaineering institutes.

The endeavour aimed to promote national integration and institutional collaboration in mountaineering and encourage excellence in adventure sports.

Led by

- Col Anshuman Bhadauria, Principal of NIM (Nehru Institute of Mountaineering) Uttarkashi.
- Col Hem Chandra Singh, Principal of JIM&WS. (Jawahar Institute of Mountaineering and Winter Sports)

GOI's new initiatives

Over the past 10 years the Government of India has been launching various initiatives in the interest of the people. One common feature in almost all the schemes is the endeavour to involve the people, reaching out to the intended beneficiaries and being eco-friendly. Let us look at **three initiatives launched in May 2025**.

Amrit Bharat Station Scheme (ABSS)

This is a long term initiative launched by the Indian Railways in 2023 to redevelop 1309 railway stations in a phased manner, across the nation.

This scheme encompasses upgrading station infrastructure, modernisation of station buildings, integrating both sides of the city through the station and improving connectivity with other modes of transport such as buses and metro services. The scheme also emphasises eco-friendly initiatives, noise-reducing tracks and much more. Special emphasis is also given to make the stations accessible for the differently abled. The ultimate aim is to transform railway stations into city centres that would cater to needs beyond transportation. The stations will have aesthetically designed facades, landscaped areas,

kiosks, roof plazas, expanded parking areas and improved signage and lighting systems.

Another important feature is that the planning will incorporate local culture, heritage and architecture. This aspect is well illustrated in the Dwaraka station that draws its inspiration from the Dwarakadheesh temple and the Ahmedabad station that draws inspiration from the Modhera Sun temple.

On 22nd May 2025, Prime Minister Modi inaugurated 103 Amrit Bharat Railway stations located in 86 districts across 18 states. The cost involved is ₹1,100 crores. These stations would certainly enhance the travel experience of millions. In the overall target of 1,309 stations 75

are in Tamil Nadu and in this phase of 103 stations, 9 are located in TN.

Chenab Bridge

PM Modi inaugurated the Chenab Rail Bridge, an engineering marvel, on 6th June 2025. The bridge is built over River Chenab in Jammu & Kashmir. **This is the tallest and the longest spanning single–arch bridge, in the world.** The length of the bridge is 1315 m, the free span length is 467 m and the height is 359 m using 27 k tonnes of steel. **It is 35 m taller than the Eiffel Tower at Paris**. It is part of the 272 km Baramulla-Srinagar-Udhampur railway connection. The Himalayan terrain had steep slopes wherein horses and mules were used initially to approach the site and then modest roads were built.The steep slopes of the Himalayas were tamed using massive consolidation grouting. Grouting is a construction process that involves filling gaps or voids with a fluid-like material called grout, making them sturdy for arch foundations.

All bridge structures were accurately 3D modelled and the model of the steel structures even included correct welding grooves. The temporary ropes and their anchorage towers used in the outrigger installation of the arch have also been modelled. The design also factored the demanding earthquake load and the potential explosive load on the structures.

The site and altitude at which it is located was also a challenge from a wind engineering perspective. In such rough topographies, standard models of wind and turbulence are likely to be off the mark. Hence a special type of wind tunnel testing was conducted to assess the design wind parameters. Wind tunnel tests were conducted with the help of state-of-the-art technology. The construction of the bridge was done by **Afcons Infrastructure Ltd.**

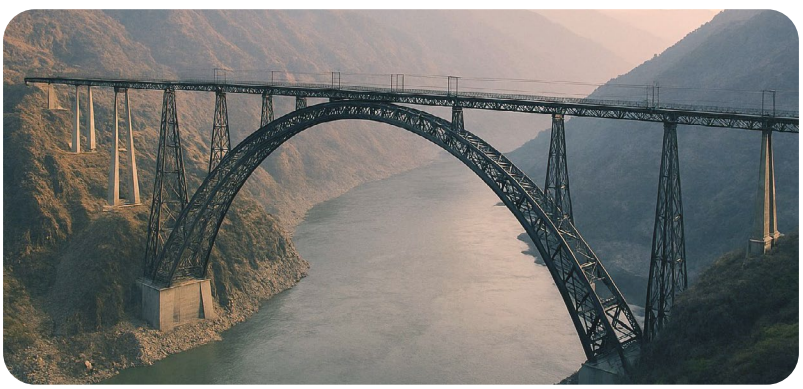
India can proudly say that Kashmir and Kanyakumari are connected by rail.

Ek Ped Maa ke naam 2.0

On the World Environment Day (5th June), Ek Ped Maa Ke Naam 2.0 was launched. This is an initiative in which trees are planted in the name of one's mother.

This is a tribute to motherhood and Mother Earth. Eco clubs for Mission LiFE web portal and a microsite for *Ek Ped Maa Ke Naam* were also launched. This is essentially an initiative aimed at nature conservation and environmental protection. This is also a reminder to all of us about the *bharatiya* way of life – living in harmony with nature unlike the western philosophy of conquering nature. **The *bharatiya* knowledge systems stressed that human – nature relationship is symbiotic and not exploitative.** A good example of this would be the relationship between a cow and its calf.

The target for this year is to plant 10 crore plants as against last year's 5. This campaign will run up to 30th September 2025. While this a programme for every citizen, schools would be good vehicles to spearhead this, involving the students, parents and the local community. This will go a long way in nurturing eco-friendly behaviour in people that would drive India achieve its sustainability target of Net Zero by 2070.



Smt Ramamani N

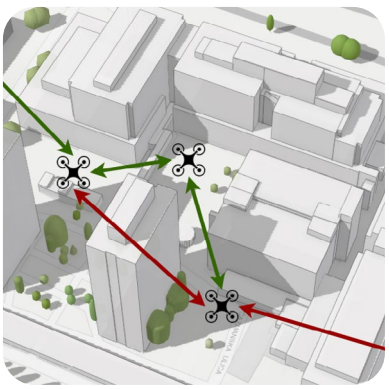
Students of Bharat shine globally

Introduction

Indian students are making history on multiple fronts. They are exemplifying excellence at prestigious competitions held across the globe.

AerialRobotics IITKanpur secures 1st place globally

An **International Conference on Unmanned Aircraft Systems** was recently held in **Charlotte, North Carolina, USA,** showcasing the incredible potential of innovation and teamwork. During this inspiring event, a competition challenged students to demonstrate their skills in coordination, planning and detection using Crazyflies. Teams were tasked with deploying a fleet of Unmanned Aerial Vehicles (UAVs) in an urban environment to locate and identify potential threats. From launching at the base to identifying several targets within a known area, the competition pushed the limits of ingenuity. Teams maintained constant communication with the base and all UAVs, overcoming obstacles and ensuring success.



The ICUAS UAV Competition brought together 26 teams from diverse corners of the globe, including India, Hong Kong, China, Brazil, USA, Mexico, Armenia, Saudi Arabia, Pakistan, Czechia, Poland, Italy, Croatia and South Korea, showcasing the spirit of collaboration and excellence. After a rigorous evaluation process, five finalists were selected: AIRo Lab from The Hong Kong Polytechnic University, China; Center for

AERIAL ROBOTICS
IIT KANPUR

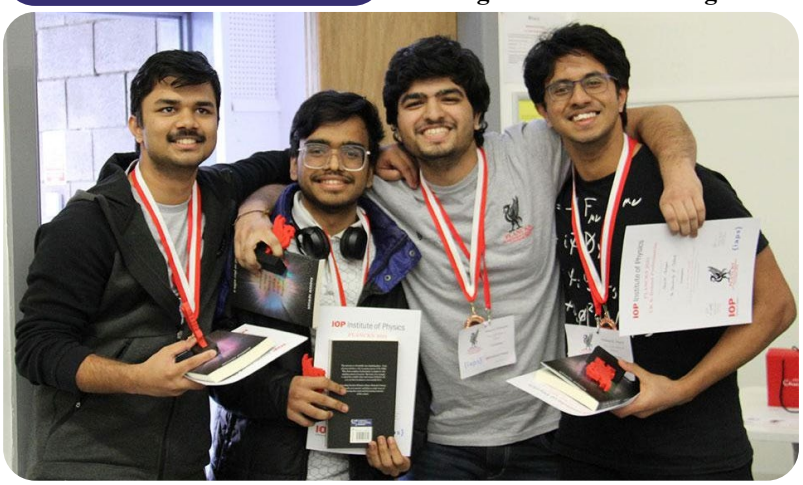
Scientific Innovation and Education (CSIE) from Armenia; Aerial Robotics IITK from the Indian Institute of Technology, Kanpur, India; AGH AVADER from AGH University of Krakow, Poland; and KNU ARRF from Kyungpook National University, South Korea.

Ultimately, the winner was **Aerial Robotics IITK;** a testament to hard work, creativity and the bold pursuit of knowledge.

PLANCKS Physics Contest

Students from the Indian Institute of Science (IISc), Bengaluru, have made history by **ranking sixth in the PLANCKS** (Physics League Across Numerous Countries for Kick-ass Students) 2025, marking the highest position ever achieved by an Indian team in this prestigious global physics competition.

PLANCKS 2025
BARCELONA



PLANCKS, organised by the Royal Spanish Society of Physics and the International Association of Physics Students, challenges participants with complex physics problems that test their creativity and knowledge. The IISc team, with **Simar Narula, Ritabrata Ghosh, Susmit Roy and Avik Das**, excelled in a demanding four-hour exam held in Barcelona, showcasing their exceptional problem-solving skills. **The questions were not simple; they necessitated a solid understanding of concepts, sharp logical reasoning and maintaining composure in high-pressure situations.**

This achievement reflects IISc's commitment to academic excellence and innovation, inspiring students to pursue similar achievements in the future.

Leenormit Lepcha selected for ISRO YUVIKA 2025

Leenormit Lepcha, a Class IX student at Eklavya Model Residential School, Swayem, Mangan district, has achieved a remarkable milestone by being selected for the Indian Space Research Organisation's prestigious **Young Scientist Programme (YUVIKA) 2025**. This selection highlights her academic excellence and the growing opportunities for students from remote and tribal regions of Sikkim.

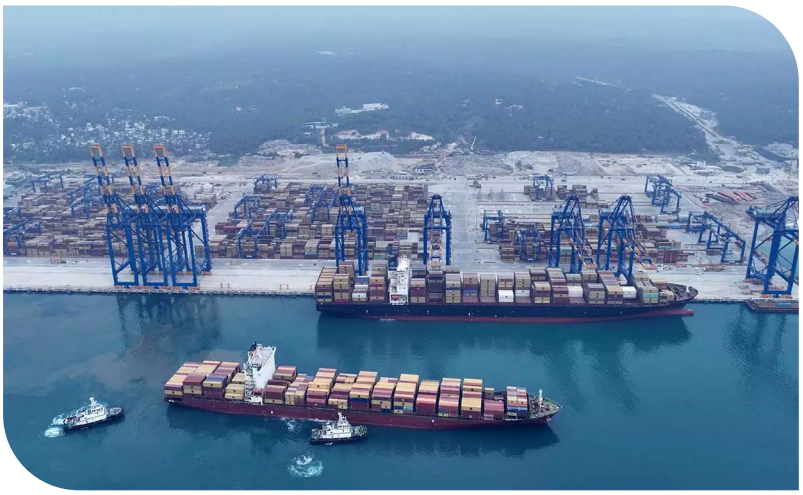
The programme, recently held at the National Remote Sensing Centre (NRSC), Hyderabad, aims to nurture scientific curiosity among young students and provide them with hands-on exposure to space science and technology.

Lepcha's selection is a proud moment for Eklavya Model Residential School, which continues to empower tribal students through quality education. The achievement demonstrates the school's commitment to fostering talent and bridging educational gaps for students in the region.

Conclusion

These remarkable achievements mark a transformative era for Indian students, exemplifying cutting-edge UAV innovation, groundbreaking performance in global physics challenges and rising prominence in space science. Their collaborative spirit and intellectual rigour unite diverse disciplines, unequivocally inspiring future generations to push creative boundaries and redefine the landscape of scientific achievement.

Shri Sampath D



Strategic jetty at Vizhinjam Harbour

To bolster India's coastal surveillance and maritime mission capability, the Indian Coast Guard (ICG) commissioned a modern dedicated jetty at Vizhinjam Harbour in Kerala on 7th June 2025. The 76.7-metre-long structure is strategically positioned near international shipping routes. **It will facilitate quicker ICG vessel deployment and turnaround, improving mission readiness for fisheries protection, coastal surveillance, search and rescue, and anti-smuggling.**

Advantageously positioned just 10 nautical miles from key international shipping lanes and adjacent to the Vizhinjam International Transshipment Deepwater Port, the new jetty is expected to play a critical role in safeguarding India's southwestern coastline. It is a significant advancement in fortifying the coastal security framework and guaranteeing quicker reaction times in the area. It aligns with **India's Maritime Vision 2030 and Sagarmala Programme.**

Further, it

- Promotes integrated coastal defence with participation from central and state stakeholders.
- Reflects India's focus on blue economy and secure trade environments.
- Facilitates quicker disaster response, especially relevant for Kerala's vulnerable coastline.

Established in February 1977 with a fleet of just seven ships to patrol India's waters and a 2.01 million square km Exclusive Economic Zone, the Indian Coast Guard has grown significantly. It now comprises around 190 surface ships dedicated to maritime law enforcement, safety and protection.

Vizhinjam is home to the upcoming Vizhinjam International Deepwater Seaport, expected to be India's first mega transshipment port. Located near major international maritime shipping lanes, the region is crucial for trade, logistics and maritime domain awareness. The new ICG jetty enhances India's ability to monitor and respond to threats in one of the busiest sea routes in the world. The launch of the new jetty is also in line with India's transition toward a Blue Water Navy and a robust Coast Guard Force capable of operating across the expanse of the Indian Ocean Region (IOR). While the Indian Navy undertakes power projection and naval diplomacy, ICG's mission continues to expand in domains such as maritime border management, anti-poaching operations and marine environment protection.

The commissioning of the dedicated jetty at Vizhinjam thus signifies more than mere infrastructure enhancement. It marks a firm commitment to territorial integrity, economic security and the sovereign assertion of maritime rights.

As India accelerates investments in coastal infrastructure and integrates next-generation surveillance technologies such as **Long-Range Identification and Tracking (LRIT)** and **Automatic Identification Systems (AIS)**, facilities like the Vizhinjam ICG jetty will play a pivotal role in shaping a secure and resilient maritime future.

Smt Manju Aildasani

News from the Railways

India unveils its most powerful single unit electric locomotive

On 28th May 2025, Prime Minister Narendra Modi inaugurated Indian Railways' first 9000 horsepower (HP) electric locomotive in Dahod, Gujarat.

Developed under the **Make in India** initiative in collaboration with Siemens India, the powerful single-unit locomotive is set to revolutionise freight mobility by reducing congestion, turnaround time and operational costs.

Highlights

- Fitted with Kavach, India's indigenous Train Collision Avoidance System.
- Generates local employment and boosts indigenous manufacturing.
- Supports sustainable growth and strengthens India's export potential and is certified as a green manufacturing unit.
- Enhances railway safety and comfort with modern driver cabins and low-noise operation.

Udhampur-Srinagar-Baramulla Rail Link fully operational after 28 years

The Udhampur-Srinagar-Baramulla Rail Link (USBRL) is now fully operational after 28 years of construction, with the final section between Sangaldan and Katra inaugurated by PM Modi marking a significant milestone in India's infrastructure development.

The 272-kilometer railway line, which began construction in 1997, faced numerous challenges and involved the construction of the world's highest railway bridge over the Chenab River and India's longest operational rail tunnel.

Project timeline and phased commissioning

- **1997-** USBRL project sanctioned.
- **April 2005-** 55 km long section between Jammu and Udhampur.
- **October 2008** – In Kashmir, 68 km long Anantnag-Mazhom rail link.
- **February 2009** – 32 km long Mazhom - Baramulla rail link from Baramulla to Anantnag.
- **October 2009** - Anantnag to Quazigund towards Jammu.
- **June 2013** - Quazigund to Banihal with 11.215 km long Pir Panjal tunnel.

- **July 2014** - The Udhampur-Katra line from the Jammu side.
- **February 2024** – Banihal to Sangaldan rail link.
- **June 2025** – Sangaldan to Katra completed the missing link from Banihal to Katra.

Multilingual AI to railway services

In a milestone step towards enhancing linguistic inclusion and AI-driven digital transformation in Indian Railways, the **Digital India BHASHINI Division (DIBD)** and the **Centre for Railway Information Systems (CRIS)** have signed a Memorandum of Understanding (MoU). This integration will allow millions of Indian citizens to access real-time railway information and support in 22 Indian languages, thus eliminating language as a barrier to public engagement.

The MoU was formally signed in New Delhi by Amitabh Nag, CEO of BHASHINI and G.V.L. Satya Kumar, Managing Director of CRIS.

The MoU outlines a comprehensive, multi-pronged strategy for deployment, which includes:

1. Multilingual chatbots and voice assistants for queries, bookings and grievance redressal.
2. Over-the-counter digital interfaces for ticketing and enquiry at physical railway counters.
3. Infrastructure scaling through both cloud-based and on-premises models.
4. Platform integration for deploying multilingual AI capabilities across:
   - Websites
   - Mobile applications
   - Information kiosks
   - Call centres
5. Real-time speech-based interactions with railway systems using live voice input, facilitating faster and more intuitive service delivery.

Shri Sridhar P

Ayush Nivesh Saarthi portal launched

India has launched 'Ayush Nivesh Saarthi' portal to attract investments into traditional medicines sector, specifically Ayurveda, Yoga and other indigenous health care practices. The digital platform developed by the Ministry of Ayush in collaboration with **Invest India** aims to streamline the investment process by providing a single window for information on policies, projects and incentives into the Ayush sector. The portal is designed to position India as a global hub for natural health care and wellness.

Why alternative forms of medicine are important? Modern medicine is largely evidence-based with rigorous scientific studies, and is validated through innumerable trials, post marketing surveillance and thorough documentation. Most important modern medicine is blessed with enormous investment in research and development. The operative adjective in traditional medicine is "holistic". With great emphasis on mind, body and disease connection, traditional medicine is practised in many countries alongside modern medicine, often complementing each other. New research shows that mind has powerful role in the healing process. Another undeniable fact is that most allopathic medicines find their origins in flora and fauna that traditional medicine is often based on. Traditional medicine is affordable for many and works in many cases where allopathy doesn't or the alternatives are prohibitively expensive. With global investment comes increased allocation of resources to research, trials, documentation, marketing training, validation…all that goes into greater acceptance.

Molecular test kits for detecting deadly Amoeba

Infectious diseases do take a heavy toll in India. That is quite understandable for India is a tropical country with a very high population density especially in its cities, which serves as a fertile breeding ground for the spread of infectious diseases. Though many of these diseases are self-limiting they can cause significant morbidity and sometimes be fatal in children, infants, elderly and immune- compromised adults.

Evolution of lab diagnostics

Distinctly apart from the science of clinical diagnosis is lab diagnostics which uses chemicals, instruments, dyes etc., to identify pathogens or metabolic disturbances. From simple chemicals to liquid chromatography to enzyme linked assays called ELISA, lab diagnostics have evolved to provide more accurate diagnosis. Molecular diagnostics is the latest. It uses molecular probes to make the diagnosis.

Kerala state public health lab's achievement

Kerala's state public health lab has achieved a major milestone by developing an inhouse molecular test kit to detect deadly brain affecting amoeba. These are free living amoebas which can cause **meningoencephalitis,** a fatal brain infection.

There are 400 species of free-living amoebas of which 6 are pathogenic to humans. Earlier they used cerebrospinal fluid tapping to identify some pathogens. But it was slightly risky. Now using PCR technology (polymerase chain reaction technology) Kerala's state public lab has achieved this. This advancement enables faster, more accurate diagnosis, improving treatment outcomes for some rare but fatal infections.

Insurance scheme for senior citizens introduced

Ayushman Vay Vandhana scheme was launched under the aegis of Pradhan Mantri Jan Arogya in 2024. This scheme offers free medical insurance worth ₹5 lakhs annually for Indian citizens who are 70 years of age and above, irrespective of the financial status of the beneficiary. The scheme ensures access to health care coverage across India without the worry of financial burden.

India's unique demography

Currently India is the most populous country in the world with a population of 1.44 billion people. It is relatively a young population with median age at 28 years and 65% of the population below 35 years of age. As of the 2011 census there were 39 million people over 70 years of age and projected to increase to 319 million by 2050. That is a huge number that is prone to age related health issues. Out of pocket spends for health care is among the highest. Against this background, this scheme is of vital necessity.

The scope and spread of Ayushman Vay Vandhana scheme

The scheme offers cashless treatment at 29,870 empanelled hospitals, including 13,173 private ones across India covering the entire gamut of diagnostics, consultation hospitalisation and surgical procedures. 2,000 medical procedures are covered with no caveats on preexisting conditions. Patients with private health insurance or Employees' State Insurance Scheme (ESIS) health cover can also benefit. Since its launch, 25 lakh senior citizens have enrolled and treatments ranging from stroke to cardiac surgeries have been covered for 24,000 patients. The ease of enrolling makes it very user friendly. **Ayushman Vay Vandhana health care scheme for senior citizens truly caters to the unmet need of the health issues of senior citizens.**

Col Shashidhar MV (Retd)

National Security Advisory Board revamped

General

The National Security Advisory Board (NSAB) was first constituted in December 1998 as a body composed of eminent persons outside the government. India's three-tier national security structure has:

- **National Security Council (NSC)** – Apex body headed by the Prime Minister.
- **Strategic Policy Group (SPG)** – Chaired by the National Security Advisor (NSA).
- **National Security Advisory Board (NSAB)** – Advisory body providing long-term analysis.

The NSAB has no statutory or constitutional status. It is a non-permanent body, its composition is decided by GoI or NSA.

Necessity

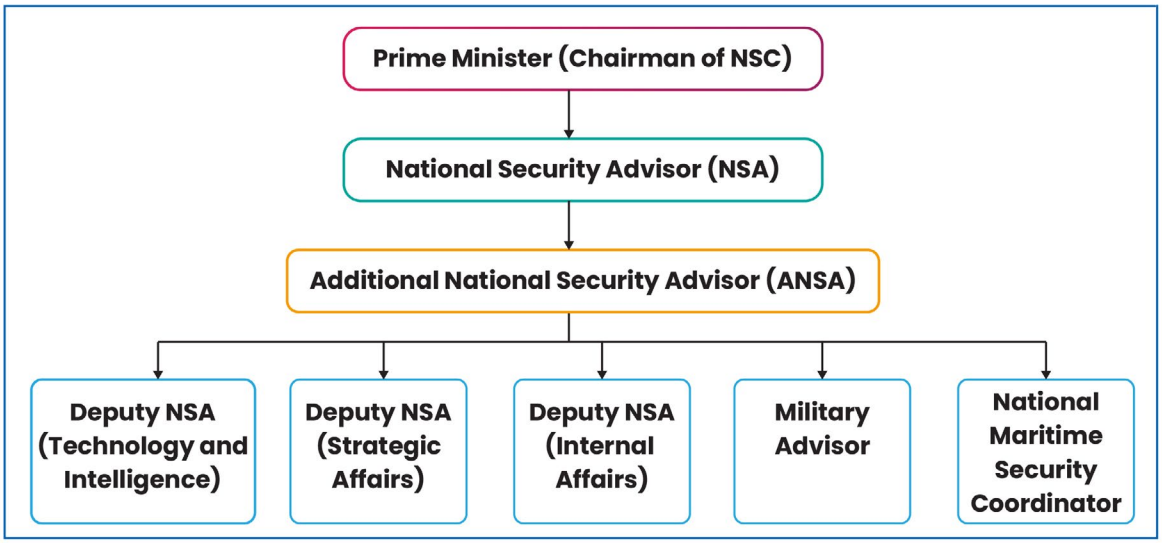
- Provides a broad-based long-term strategic perspective and analysis on national security challenges by recommending solutions and policy options.
- Incorporates views from outside the government by inviting insights from non-bureaucratic lens.
- Ensures informed decision-making on complex and evolving global threats in both linear and non-linear domains (cyber, space, terror, climate, etc).

Composition

- Headed by a Chairperson (usually a former senior Govt official or expert).
- Comprises seven members of eminence from multi-disciplinary fields (both serving and former diplomats, senior military officials, academicians, economists, scientists and technology experts).
- Members are appointed by the Prime Minister's Office (PMO) or on NSA's recommendations.

Revamping of NSAB

The reconstitution of NSAB has been envisaged post the insidious and dastardly terrorist attack in Pahalgam (J&K) on 22nd April 2025 which resulted in the death of over two dozen people on holiday with their families. The reshuffle occurred against a backdrop of heightened regional tensions clearly highlighting the GoI's intent and commitment to solidifying its national security framework through a diverse team of experts.



The new board and its agenda

Alok Joshi, a former chief of the Research and Analysis Wing (RAW) has now been appointed as the Chairman of National Security Advisory Board (NSAB). A 1976-IPS officer from Haryana cadre, he took over as Secretary, RAW in 2022.

The other board members

Military Veterans

- Air Marshal P.M. Sinha (Former Western Air Commander)
- Lt Gen A.K. Singh (Former Southern Army Commander)
- Rear Admiral Monty Khanna

Police Officers

- Rajiv Ranjan Verma (Retired IPS)
- Manmohan Singh (Retired IPS)

Diplomat

- Venkatesh Varma (retired IFS)

Agenda for the re-constituted board include - neighbourhood and Western strategy and security, border management, maritime security, internal security, strategic industries, technology and communications.

ALOK JOSHI HEADS NEW NATIONAL SECURITY ADVISORY BOARD

Former R&AW chief Alok Joshi will be new chairman of the new National Security Advisory Board. He is former 1976 batch IPS officer of Haryana cadre. He will lead the seven-member board comprising retired officers from the armed.....

Conclusion

The reshaping of the NSAB signifies India's awareness of the intricate security challenges in ever changing global and regional landscape and its resolve to tackle issues head on with agility, specialised knowledge, strategic vision and commensurate action to enhance India's global image. The revamped NSAB's structure indicates an urgent need for a more collaborative and proactive national security strategy in today's global order.

Col Shashidhar MV (Retd)

First locally made **Hydrogen drones**

General

Unmanned aerial vehicles (UAV) or drones that used to improve our daily lives with logistics and mapping support are now being programmed to destroy things remotely as a lethal and effective tool in modern warfare with advancements in video-camera techniques, precision operations with improved GPS, stealth operations and faster speed.

In recent times, rapid capability improvements in our drone procurement and manufacturing has only moved north. This is due to the increasing demand for advanced surveillance and rapid response witnessed through recent attacks in Pahalgam and the wide-scale Operation Sindoor and ongoing Russia - Ukraine war and Israel-Palestine conflicts.

Our defence and aerospace sectors are undergoing rapid growth. Defence budget currently valued at approximately 2.29 lakh crores is projected to nearly double in the next 5-7 years.

Hydrogen powered drones

In what is a significant milestone for the defence landscape in India, both Paras Defence and Space Technologies and HevenDrones (a subsidiary of US Heven), a prominent Israeli drone manufacturer, (renowned for its autonomous, hydrogen-fuelled and mission-specific drones) have entered in to a strategic partnership in a landmark development under the **Make in India** initiative.

As per the MoU, there will be a new entity in India, dedicated to designing, manufacturing and supplying next-generation drone systems tailored for India's defence and homeland security requirements and to address global markets. Paras Defence brings its expertise in advanced optics, optronic systems and defence solutions, while HevenDrones contributes proprietary platforms and proven combat-tested technology.

UAV

UAV is an unmanned aerial vehicle, commonly known as a drone. It's an aircraft without a human pilot aboard.

UAS

UAS is a piece of unmanned aircraft systems:

- an unmanned aerial vehicle
- a Ground-based controller
- a system of communications

sUAS

sUAS is a small Unmanned Aircraft System and its associated elements (including communication links and the components that control the small UA).

Highlights

Hydrogen drones are powered by hydrogen fuel cells unlike battery operated ones. This significantly increases endurance. While typical battery-powered drones can fly for about 30 minutes, hydrogen-powered drones can stay airborne for up to 12 hours with an estimated payload capacity of 22 kg.

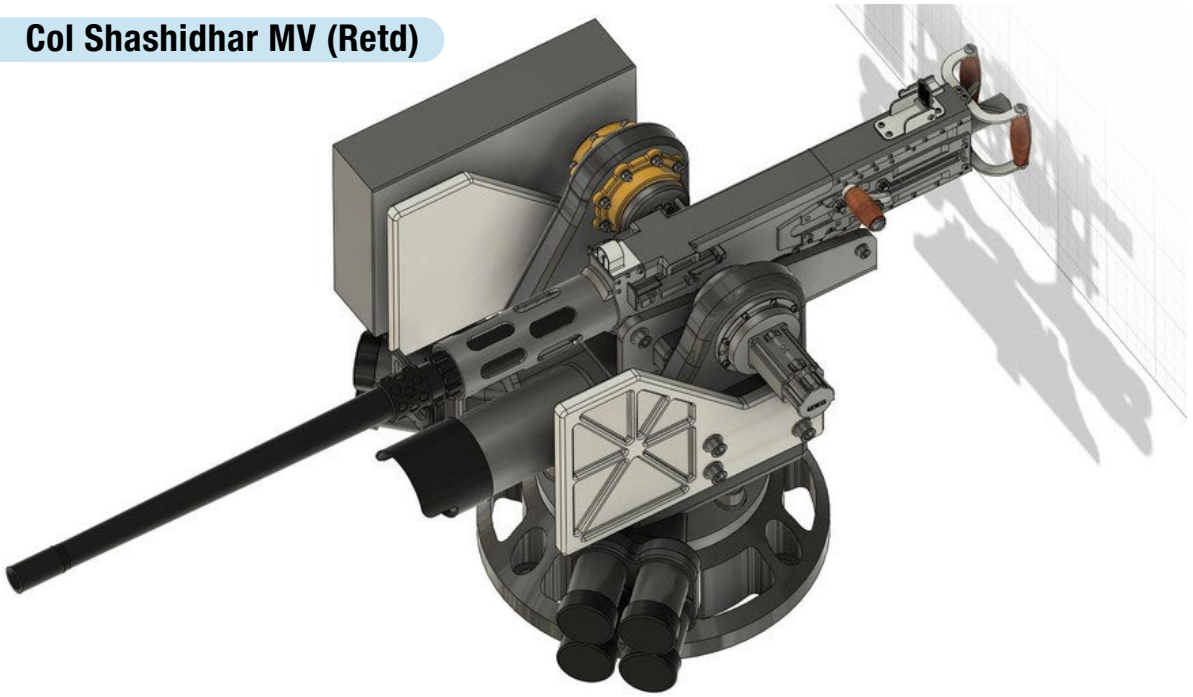
- **Extended endurance:** Capable of staying airborne five times longer than conventional battery-powered drones, greatly enhancing persistent surveillance capabilities.
- **Silent operation:** Near-silent functioning makes them ideal for covert, round-the-clock monitoring.
- **High-altitude surveillance:** Ability to hover at 500 metres, providing continuous oversight of vast and difficult terrains.
- **Advanced payloads:** Equipped with stabilised optical payloads, thermal imaging and wide-area coverage, these drones offer early detection, tracking and rapid threat assessment, which are crucial in challenging conditions where human patrols and traditional systems fall short.
- **Critical surveillance:** Designed to close gaps in persistent aerial visibility across identified vulnerable border areas with ability to operate uninterrupted at night and in adverse weather conditions.

Conclusion

Paras Defence's hydrogen-powered drones significantly enhance defence preparedness with the ability to detect, track and neutralise threats before they materialise. With their extended endurance, combat reliability, and rapid domestic deployment capability, these drones are set to play a pivotal role in enhancing India's border security and supporting broader national security objectives.

The strategic partnership merges Israeli combat readiness, US aerospace expertise and Indian manufacturing scale, resulting in high-impact, high-reliability platforms that are ready for immediate deployment.

Col Shashidhar MV (Retd)



NEXT GENERATION INDIGENOUS RCWS

This new family of RCWS has been designed to deliver high precision, rapid response and advanced situational awareness to our army and navy.

Backdrop

Early 2020, DRDO unveiled its first-ever **Remotely Controlled Weapon Station** (RCWS). A new combat module that carried no name, the system was designed to engage ground and aerial targets.

The RCWS was developed for the upgraded **Arjun Mark IA main battle tank** and also installed on the **C-431 ship of the Indian Coast Guard.** The module, thus could be modified for a wide range of wheeled and tracked combat platforms, naval ships and other platforms.

New family of RCWS

India's next-generation indigenous RCWS for the Army and Navy, developed by **Zen Technologies** in partnership with **AI Turing Technologies**, represent a significant leap in our defence modernisation and self-reliance programmes under the **Atmanirbhar Bharat** initiative.

Unveiled in late 2024 but officially showcased at **Aero India 2025**, this new family of RCWS has been designed to deliver high precision, rapid response and advanced situational awareness to our army and navy, all achieved as a result of intensive R&D at Zen Technologies (Ministry of Science and Technology recognised facility in Hyderabad). These systems are now tailored for use across a variety of platforms—land-based vehicles, naval ships and static defence installations. The family consists of:

Parashu (RCWS – 7.62 x 51 mm medium machine gun (MMG))

Parashu is a versatile, compact and lightweight RCWS meant for **light armoured vehicles, naval**

patrol crafts and **border outposts.** It can mount both **7.62 mm MMG** and **5.56 mm LMG,** giving it flexibility across different missions making it highly effective for rapid-response missions and modern asymmetric warfare.

Salient features

- **Thermal imaging** and **auto-tracking**
- **Elevation range:** -40º to +60º

- **Target detection range:** Up to 14 km.

Fanish (Tank Mounted RCWS – 12.7 x 108 mm heavy machine gun (HMG)

Specifically designed for India's **main battle tanks** like **T-72** and **T-90,** Fanish delivers robust firepower with a **12.7 mm heavy machine gun.**

Salient features

- **Cooled thermal camera**
- **Fibre Optic Gyro (FOG) stabilisation**
- **Elevation range:** -7º to +70º
- **Detection range:** Up to 14 km
- Suited for **all-weather** and **combat - intense environments** by significantly increasing both the lethality and survivability of armoured formations.

Sharur (Naval RCWS – 12.7 x 99 mm HMG)

Sharur is tailored for our **Navy** offering a dependable performance in rough seas. Designed to engage both **surface** and **low-flying aerial threats** within a 2 km range.

Salient features

- **High-accuracy stabilisation system.**
- Reliable in **low visibility** and **turbulent maritime conditions.**
- Ideal for **coastal patrol vessels** and **frigates** and enhances our Navy's capability to handle asymmetric threats including **piracy, terrorism and drone attacks.**

Durgam (Artillery rugged camera)

Unlike traditional weapon stations, Durgam is a **rugged optical surveillance system** designed for **reconnaissance** and **battlefield monitoring.** Its durability and clarity make it ideal for **high-risk zones**, where situational awareness, force protection gain paramount importance.

Salient features

- **Day/night thermal vision**
- **Real-time threat detection**
- Best deployed on **artillery, infantry vehicles** and **forward posts.**

Shaping the future of combat

This next-generation RCWS family plays a vital role in preparing our Armed Forces for a **modern and multi-domain warfare.** Whether defending land borders, protecting strategic sea lanes or securing remote military outposts, these systems offer unmatched versatility, precision and protection.

More than just hardware, they represent a shift towards **smart combat systems** that combine **AI, automation** and **tactical adaptability**—all made in India.

Conclusion

Next-generation RCWS solutions are expected to play a crucial role in addressing emerging security challenges, particularly in the context of increasingly complex and multi-domain warfare. **By equipping the Indian armed forces with cutting-edge, indigenous technology, these systems not only enhance national security but also position India as a global leader in critical defence technologies.**

Smt Meenakshi S

INSV Tarini completes world voyage

In a landmark achievement for India's maritime history and a powerful testimony to women empowerment, two Indian Navy officers, **Lieutenant Commander A. Roopa** and **Lieutenant Commander K. Dilna**, have successfully completed a double-handed circumnavigation of the globe aboard INSV Tarini under the mission **Navika Sagar Parikrama II**.

The motto of the expedition was "Courageous Hearts, Boundless Seas."

The goal of this journey was to sail around the world using a small sailing boat and this time, it was being done by two brave women officers of the Indian Navy. The Navy wanted to show the world how strong and skilled Indian women in uniform are and how good India is at building ships on its own.

The mission was flagged off in October 2024, from the Naval Ocean Sailing Node, Goa and it was part of the Indian Navy's push to develop ocean sailing skills and promote gender inclusion.

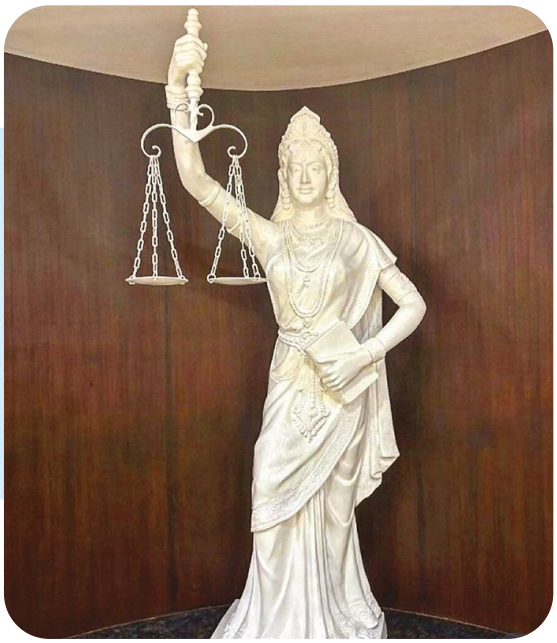
The vessel sailed around the world in double-handed mode, using only wind power. **The voyage covered a distance of 25,400 nautical miles in a period of eight months.** The vessel crossed the Indian, Pacific and Atlantic Ocean and touched the continents Asia, Australia, South America and Africa.

Cyclones, winds of up to 50 knots and freezing temperatures were some of the challenges faced by the voyagers. The most difficult leg was while navigating from Lyttelton to Port Stanley which included crossing the Drake Passage and rounding Cape Horn. The voyage showcases Indian Navy's strength in seamanship, training and endurance. This elevates India's stature in global maritime diplomacy.

The successful conclusion of Navika Sagar Parikrama II is being hailed as a significant milestone. During their time in Cape Town, the officers on INS Tarini did many activities to share their message of women empowerment and gender equality. They talked with people, shared their stories and showed how strong and capable Indian women can be.

INSV Tarini is an Indian Naval Sailing Vessel, a 56-foot sailboat involved in various expeditions. It was built in India and inducted into the Indian Navy in 2017.

New criminal codes in India (An introduction)



Question: What are the new criminal codes introduced in India?

Answer: India has introduced three new criminal codes, which are:

(i) **Bharatiya Nyaya Sanhita,** 2023

(ii) **Bharatiya Nagarik Suraksha Sanhita,** 2023

(iii) **Bharatiya Sakshya Adhiniyam,** 2023

These legislations mark a major shift in the country's criminal justice system, aiming to modernise and Indianise the legal framework.

Q: Which existing laws or legislations do these codes replace?

A: These new codes repeal and replace three foundational colonial-era criminal laws:

(i) The Indian Penal Code, 1860 (replaced by the Bharatiya Nyaya Sanhita);

(ii) The Code of Criminal Procedure, 1973 (replaced by the Bharatiya Nagarik Suraksha Sanhita); and

(iii) The Indian Evidence Act, 1872 (replaced by the Bharatiya Sakshya Adhiniyam).

Q: Why were these new criminal codes introduced?

A: The objective behind introducing these codes was to overhaul colonial-era legislation and align the Indian legal system with contemporary needs. A key emphasis has been placed on enhancing procedural efficiency, incorporating digital and electronic evidence and ensuring victim-centric and reformative justice.

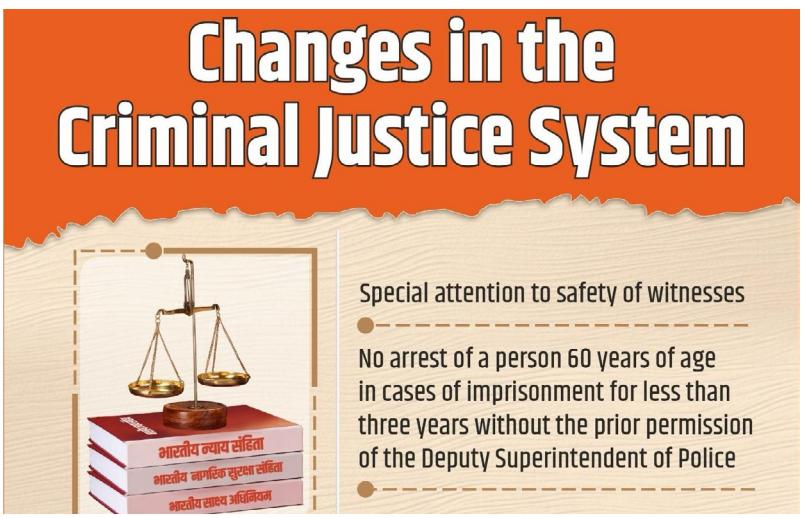
Q: What are some modifications and additions under the Bharatiya Nyaya Sanhita?

A: The Bharatiya Nyaya Sanhita, which replaces the Indian Penal Code, introduces several new provisions.

(a) Community service is now recognised as a form of punishment, promoting reform over retribution;

(b) The definition of 'gender' has been expanded to include transgender persons, aimed to recognise gender diversity in criminal law; and

(c) A dedicated chapter on crimes against women has been introduced.



Q: What are some modifications and additions under the Bharatiya Nagarik Suraksha Sanhita?

A: This Bharatiya Nagarik Suraksha Sanhita, which replaces the Code of Criminal Procedure, intends to bring in significant modernisation by virtue of provisions including the following:

(a) Forensic investigation is now mandatory for crimes punishable by seven or more years of imprisonment; and

(b) Summons and legal notices can now be served electronically, enhancing speed and efficiency in legal processes.

Q: What are the updates introduced under Bharatiya Sakshya Adhiniyam?

A: The Bharatiya Sakshya Adhiniyam, which replaces the Indian Evidence Act, aims to stay abreast with the digital age, by virtue of modifications such as the following:

(a) Electronic records are explicitly recognised as 'documents';

(b) The scope of admissible evidence is widened to include more forms of electronic records; and

(c) The definition of secondary evidence has been broadened, facilitating admissibility by the court.

Q: Since when are the new criminal codes effective and applicable in India?

A: The codes came into effect from 1st July 2024.

Sleep time wisdom

Satvik living for India's sleepless generation

Sleep is a vital component of health and development in children and adolescents. It supports cognitive function, emotional regulation, immune health and physical growth. However, in recent years, sleep problems among children and adolescents in India have become increasingly common. Studies estimate that nearly 20–30% of Indian children experience sleep disturbances, ranging from difficulties in falling asleep to fragmented sleep and frequent nighttime awakenings. These problems are often exacerbated by academic stress, screen overuse, poor sleep hygiene, urban lifestyle and in many cases, rising childhood obesity.

Obesity and sleep issues in children

Childhood obesity is an emerging epidemic in India, with rates rising due to sedentary lifestyles, processed food consumption and reduced physical activity. Obesity is closely linked with several sleep disorders such as **obstructive sleep apnea (OSA)**, restless leg syndrome and insomnia. Excess body weight can lead to upper airway obstruction during sleep, causing fragmented and poor-quality sleep.

Additionally, hormonal imbalances related to obesity can disrupt the sleep-wake cycle, further aggravating sleep difficulties. Chronic sleep deprivation, in turn, increases appetite-regulating hormones like ghrelin, leading to overeating and creating a vicious cycle between poor sleep and obesity. Addressing sleep issues in children, therefore, must include a holistic and preventive approach that also tackles underlying lifestyle and nutritional causes.

Satvik living, rooted in Ayurveda, Yoga and traditional lifestyle practices, emphasises harmony with nature and the body's own rhythms (circadian cycles). Naturopathic tools aim to restore balance through natural means like diet, lifestyle, environment and non-invasive therapies. When addressing sleep in children and adolescents, naturopathy offers gentle, safe and effective tools without the side effects of pharmaceuticals.

Below are key naturopathic tools and sleep aids recommended from an Indian perspective:

1. Futons and natural mattresses

Modern spring and foam mattresses often restrict airflow, trap heat and offer uneven support. In contrast, cotton-stuffed futons or organic coir mattresses recommended in Indian traditions promote better spinal alignment and natural body posture during sleep.

Benefits of futons:

- Made from breathable natural materials like cotton or wool.
- Help in temperature regulation during sleep.
- Maintain firm support, preventing improper posture.
- Avoid off-gassing of synthetic chemicals found in foam mattresses.

Traditional floor sleeping on cotton mats (*chatai* or futon-style bedding) aligns with natural sleep postures and has been shown to reduce backaches and restlessness, especially when paired with gentle stretching before bedtime.

2. Dietary practices

Diet plays a crucial role in regulating sleep, especially in growing children and adolescents. Consuming light, warm and easily digestible meals in the evening, such as vegetable *khichdi, moong dal* soup, or rice with ghee—helps calm the nervous system and aids restful sleep. Including tryptophan-rich foods like bananas, milk, *paneer* and soaked almonds supports the natural production of melatonin and serotonin, the hormones responsible for sleep and mood regulation. A glass of warm turmeric or nutmeg-infused milk before bedtime is a time-honoured tradition in many Indian households to promote deep sleep. It is best to avoid stimulants like caffeinated drinks, chocolates and packaged snacks after sunset, as they can interfere with the body's ability to unwind. Consistency in meal timing, ideally before 7:30 PM, along with mindful eating practices, like chewing slowly and eating in a calm environment are essential to support the digestive process and ensure the body is relaxed and ready for sleep.

3. Sleep-enhancing herbal aids

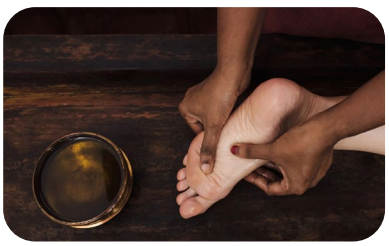
Several gentle herbs used in Ayurvedic and Siddha medicine can help promote restful sleep in children:

- ***Ashwagandha*:** Known for reducing cortisol levels and promoting calmness.
- ***Brahmi:*** Improves concentration and relaxes the nervous system.

- ***Tagara:*** A mild sedative and nerve tonic.
- ***Jatamansi:*** Helpful in managing anxiety and promoting deep sleep.

These herbs can be administered under professional guidance in the form of teas, oils or syrups suitable for children.

4. Foot massage with herbal oils



One of the most effective yet simple sleep aids in Indian naturopathy is *Padabhyanga* – foot massage with warm oils before bed. This technique activates vital *marma* points and helps regulate the nervous system. *Marma* points, in Ayurveda, are vital energy junctions in the body where flesh, veins, arteries, tendons, bones, and joints meet. These points are considered vulnerable yet crucial for maintaining health, as they are believed to be connected to the flow of *prana* (life force). Stimulating these points can help to balance energy, promote healing, and relieve various physical and mental ailments.

- Oils like *brahmi* oil, sesame oil or coconut oil infused with herbs can be used.
- Regular application soothes the nervous system, improves circulation and aids in falling asleep.

This practice is calming for young children and also helps in bonding when done by parents.

5. Evening routine and digital detox

An early and calming evening routine is crucial. According to Ayurvedic circadian wisdom, the hours between 6 PM to 10 PM are *Kapha*-dominant, ideal for winding down. Recommended practices:

- Finishing dinner before 7:30 PM.
- Turning off screens at least 1 hour before bed.
- Engaging in calming activities like reading, storytelling or chanting.

Exposure to bright lights, especially blue light from devices, delays melatonin production and disrupts the natural sleep rhythm. Encouraging screen-free evenings can drastically improve sleep quality.

6. Yoga and *pranayama* practices

Incorporating mild yoga asanas and breathing exercises before bedtime can help calm the mind and prepare the body for sleep.

Balasana (Child's pose) and ***Viparita Karani*** (legs-up-the-wall pose) are particularly effective.

Pranayamas like ***Anulom Vilom*** (alternate nostril breathing) or **Bhramari** (humming bee breath) activate the parasympathetic nervous system and reduce anxiety.

Children who follow regular yoga practices also show improved attention span, emotional regulation and sleep quality.

7. Aromatherapy and sleep environment

Fragrance has a strong impact on the subconscious mind. Essential oils like lavender, *vetiver* (*khus*) and chamomile can be diffused in the child's room or used in pillow sprays.

Additionally, the sleep environment should reflect *satvik* (pure and peaceful) qualities:

- Natural bedding
- Decluttered surroundings
- Dim lighting in warm tones
- Proper ventilation

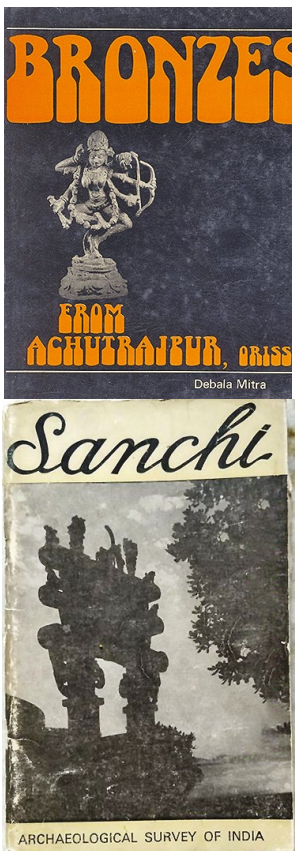
These elements help signal the brain that it is time to sleep.

Sleep is not a luxury, it is a biological necessity for the healthy growth and development of children and adolescents. In India, increasing screen time, poor lifestyle habits and rising childhood obesity have led to a sharp increase in sleep-related disorders. Indian wisdom, rooted in holistic well-being, provides time-tested, natural solutions for improving sleep.

From choosing natural cotton futons, practising oil massages and yoga, to cultivating a calm and screen-free bedtime routine, these tools are gentle yet profoundly effective. By integrating these into daily life, we can ensure that the next generation not only sleeps well but also lives well, with balance, vitality and harmony.

Dr. Debala Mitra

The first woman Director General of ASI



The entire outlook of the world on our country's past changed when Dr.Debala Mitra (14.12.1925 – 2.12.2003) became the first woman Director-General of ASI. A pioneering figure in the study of Indian art and architecture, particularly Buddhist monuments, Debala Mitra left an indelible mark through her meticulous scholarship and dedication towards excavations and preservation.

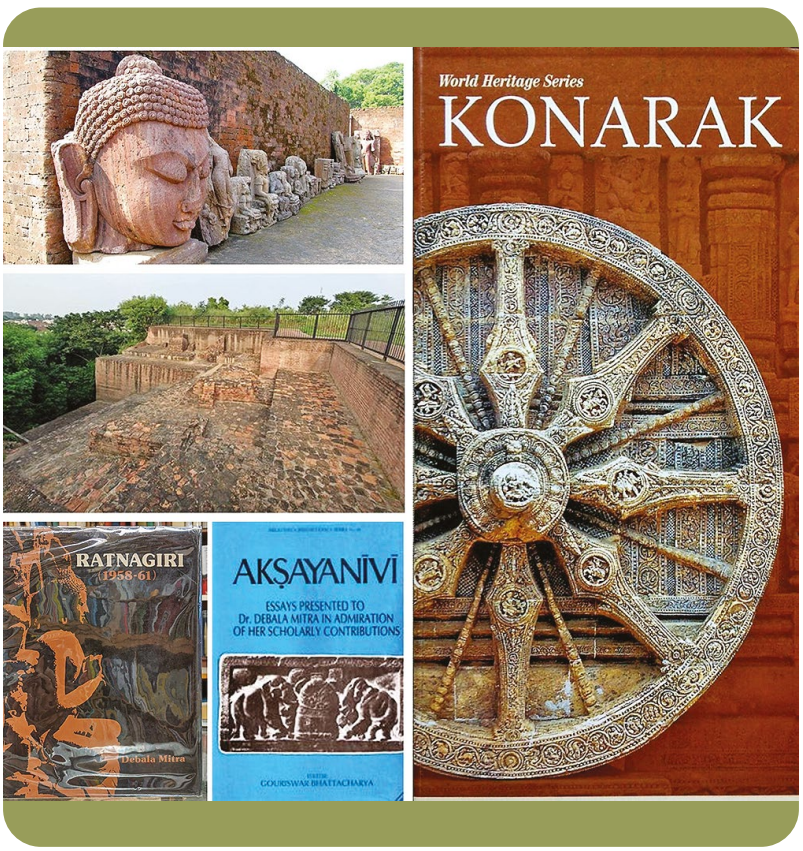
Debala was born to Rakhal Chand Pal, a school headmaster at Khulna in Bengal Province (now Bangladesh). She showed keen interest in learning and exploring things even as a little girl. She stood first in the Bengal presidency among the girls in the year 1940 passing five subjects: history, Sanskrit, geography, mathematics and hygiene. Young Debala got married while she was about to complete her school education. In fact, her elder brother Nirmal convinced about his sister's passion for learning took a promise from her in-laws to allow Debala to continue her academic journey after marriage. Her husband, Mohanlal Mitra, who had just started his career as a college teacher, and his family believed in the power of education and supported her. She again got first division in Intermediate of Arts and stood 19th in order of merit. She got a general scholarship award along with Ashutosh Mukherjee scholarship with exceptional marks in Sanskrit and completed her BA at Ashutosh College in 1944.

Debala completed her MA in ancient history and culture from the University of Calcutta in 1946,

and was awarded with a silver medal. She secured **Rai Radhika Prasanna Mukherjee gold medal**, **Harasundari silver medal, Inglish prize** and **Jyotsna Pathak memorial prize** on different subjects in the examinations. Gaining recognition for her academic prowess, she joined the Archaeological Survey of India (ASI) in 1952, served in different capacities in various parts of India and rose to become its first woman Director General in 1975.

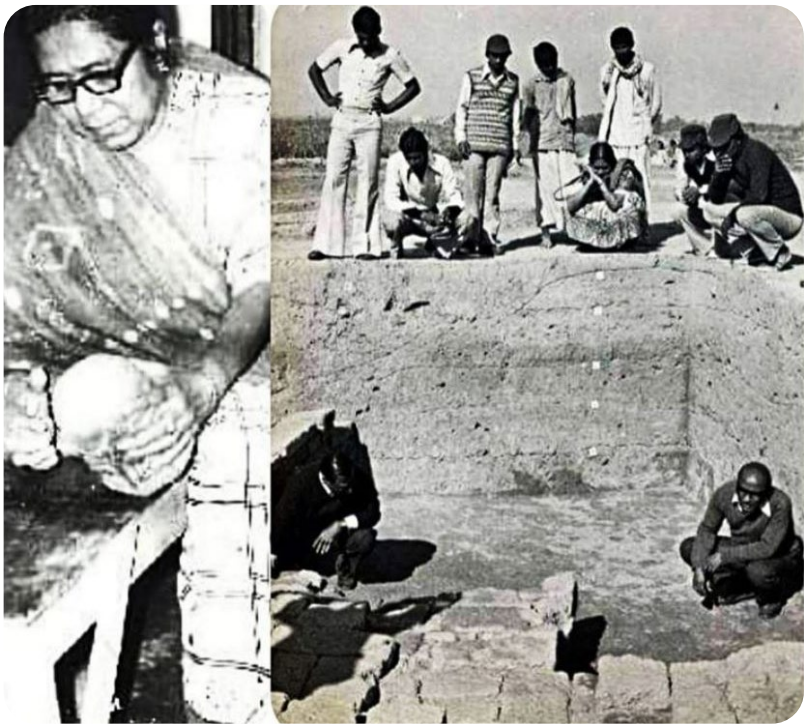
During her tenure at ASI, she played a significant role in archaeological excavations at Ropar (Harappan settlement in Punjab), Nohar, Sothi, Maski, Tamluk of Bengal, and she spearheaded excavations in Jaugada, Udaygiri, Khandagiri, Ratnagiri and many other sites in Orissa. Tilaurakot (identified as Kapilavastu), Kodan of Nepal and in northeast India.

Her excavations at Ratnagiri between 1958-1961 were a landmark achievement in Indian archaeology. Under her leadership, ASI discovered a large stupa surrounded by numerous smaller stupas, which established that Ratnagiri was a thriving Buddhist centre in olden days. The uncovering of three large monasteries, with richly carved stone gateway and central shrine containing a large Buddha statue, illustrated the architectural and artistic prowess of the time. Unearthing a vast and intricate Buddhist monastic complex with rich collection of plentiful sculptures, such as Buddha heads, bronze artifacts and concentrated stupas, attested the cultural and religious richness of Ratnagiri from the 5th to 13th centuries. Her comparative studies of diverse Buddhist locations reveal the widespread diffusion of Buddhist architecture, their religious rituals across our country and in neighbouring countries.



As an expert trained in the field of conservation and preservation, she insisted on documentation. **Her meticulous documentation of these artifacts in the *ASI's Memoirs of the Archaeological Survey of India* paved the way for further scholarly foundation for future researches.** Dr.Debala during her visit to Bodhgayā in 1987 had seen an 8th CE statue of Buddha in *Abhayamudrā*, photographed and catalogued it along with all other statues present there. To her shock, she found this huge statue missing in her next visit to the same monastery in March 1989. She reported this theft to ASI and plunged into action to trace the stolen idol thief. One of her friends drew her attention to a standing Buddha figure published in the catalogue of Metropolitan Museum of Art, New York, which was a new purchase through illegal trafficking in 1990. Thanks to her vivid cataloguing, Debala ascertained that it was the same sculpture that was missing from the Buddhist matam, then the ASI reported the matter to the Indian Embassy, New York. The statue was collected from Metropolitan Museum by ASI in 1999, after many rounds of debates. **Thanks to the efforts of Debala, this piece of history returned home, twenty five years after it was stolen from us.** She was not alive to see the Buddha statue reinstalled in the pilgrim city of Bodhgaya in 2016.

Balancing family and career is not easy for any caregiver. When one is in a field like archaeology, it needs extensive travelling and toiling under the sun. Considering the times when Dr.Mitra was leading our country's archaeological missions, the sacrifices she and her family made must be numerous.



She was awarded Doctor of Philosophy from University of Calcutta in 1975 for her elaborate thesis on Temple of Telkupi of West Bengal.

Her flair for languages grew with her interest to understand original texts, historical artefacts and various inscriptions. This motivated her to learn foreign languages too later, to work at places of historical importance across the world. She attended the French language course at Alliance Française and Language School at Paris. Meanwhile, she studied the art of Cambodia at I'Cole du Louvre during 1962-1963. She was awarded **Dr. B.C law gold medal** by the Asiatic Society for her outstanding contribution in the field of architecture, art and iconography.

She spearheaded extensive archaeological explorations and excavations at various sites across India unearthing valuable insights into the country's rich historical past. Her leadership was instrumental in the conservation of significant historical sites, including Buddhist monuments in eastern India. Her research works in Buddhist art and iconography, particularly on the Buddhist monuments of Orissa, significantly helped the scholars across the globe advance their understanding of this field. Her works on ***Ratnagiri, Ajanta, Telkupi: A Submerged Temple-Site in West Bengal, Buddhist Monuments and Bronzes from Achutrajpur Orissa***, ***Indian Archaeology – A Review***, have become standard references. Her scholarly contributions are characterised by meticulous detail, insightful analysis and a deep understanding of Indian art and archaeology.

Dr.Debala Mitra lectured extensively on Indian art and culture both in India and abroad. She participated in many international conferences and seminars sharing her expertise and contributing to the global understanding of Indian art and archaeology.

With her vast knowledge on Buddhist iconography, she chaired the National Committee for Lumbini development project and ICOMOS (International Council on Monuments and Sites) and served on numerous other bodies including Sri Lanka's cultural triangle. She was also a member of the Central Advisory Board of Archaeology, Asiatic Society and National Council for Science Museums.

More than an archaeologist, Dr.Debala Mitra was a visionary who saw history as a dynamic entity that needed to be understood and preserved. **She helped us shun the colonial mindset in approaching our history and break their narratives, through her research**. Her works became a cornerstone for scholars interested in Indian art history. Through her expertise, she continuously played a crucial role in promoting archaeological research and documentation, creating strategies in combating art theft and illicit trafficking, ensuring the preservation of India's rich cultural heritage for future generations.

Rupankar Bhattacharjee and Aniket Dhar

The main aim of Kumbhi Kagaz apart from making chemical free paper, is to conserve the wetland and ecosystem by controlling the growth of water hyacinth in places like Deepor Beel.

Entrepreneurs Rupankar Bhattacharjee and Aniket Dhar have transformed the invasive water hyacinth into a sustainable resource through their startup, **Kumbhi Kagaz Pvt. Ltd (KKPL)**. The main aim of Kumbhi Kagaz apart from making chemical free paper, is to conserve the wetland and ecosystem by controlling the growth of water hyacinth in places like Deepor Beel. This is done through a model which also creates wealth and supports the livelihood of people dependent upon the wetland.

Found abundantly in Assam and considered as an aquatic weed that breeds quickly and adapts well to any environmental conditions, the water hyacinth locally known as *"pani meteka"*. It has garnered a bad reputation for itself as the invasive plant endangering the ecosystem because it is a fast growing weed that wreaks havoc on the water bodies and local biodiversity. It has roots, stems, leaves, flowers and fruits. Moreover, it can survive even in polluted reservoirs, lakes, ponds and rivers.

Assam's only Ramsar site, Deepor Beel is covered in vast swathes of the water hyacinth.

Water bodies usually have self-healing systems - where sun plays a vital role for the ecosystem, but when invasive species like the water hyacinth takes over, it blocks the sun's rays and oxygen necessary for the aquatic life to flourish.

Moreover, the rate of transpiration is higher in water hyacinth which is responsible for loss of water levels at alarming rates.

The infamous weed, however, turned out to be a sustainable element after it has been widely used as a raw material to weave a wide array of products from bags and mats to biodegradable paper.

Rupankar and Aniket through rigorous process of learning and unlearning embarked on an entrepreneurial journey with Kumbhi Kagaz which specialises in making 100% biodegradable, blot-free and chemical-free handmade paper from water hyacinth.

The duo, with their innovation had earlier won the **Zero Waste Cities Challenge** which was aimed at finding entrepreneurs with innovative business ideas that can help reduce or recycle waste and create green employment opportunities.

In short, the initiative was not just limited making recycled paper, It also focused on contributing towards waste management.

Interesting facts

- The paper manufacturing also consumes very less water. Normal A4 size paper usually requires 20 litres of water for manufacturing one sheet. However, one A4 size paper at Kumbhi Kagaz is handmade, but only consumes 2 litres of water.
- It is interesting to note that the venture involves the process of making paper from organic fibre by using 90% of the pulp of water hyacinth and 10% of recycled paper which comprises an approximate 23% of the accumulated waste dumped in the landfills.
- The handcrafted rustic paper is moulded into a variety of products including calendars, notebooks, visiting cards, greetings cards and invitation cards.
- The glimpse of the notebook gives a look at the rich wildlife of Assam that portrays the rhino, tiger, elephant and *hargila* (adjutant stork) among others elements that celebrate Assam.
- The collection of raw materials is made by engaging local people at Deepor Beel, thereby fuelling employment and local livelihood source for the communities dependent on the wetlands.

Both Rupankar and Aniket believe that although the procedures like collection, treating, cleaning and drying of water hyacinth is time consuming, the result is worth it. They are hopeful that the business will thrive following which they will expand it and explore more possibilities. As of now they are focusing on the conservation of Deepor Beel by extracting the invasive weed and making sustainable and eco-friendly material that have minimal impact on the environment.

DO YOU KNOW ?

Water hyacinth was introduced to India by the British, specifically by Lady Hastings, the wife of the first British Governor-General. She brought it from South America as an ornamental aquatic plant. Such was the impact of this invasive species on the aquatic ecosystem that it caused fish scarcity in Bengal, following which it was termed as 'Terror of Bengal'.

Smt Ramamani N

Rifleman Sanjay Kumar

Rifleman Sanjay Kumar is one of the three living Param Veer awardees. He risked his life for the motherland during the 1999 Kargil War against Pakistan and is the twentieth recipient of the prestigious Param Vir Chakra, India's highest military honour for exceptional courage. On 4th July 1999, as the leading scout in a specialised team tasked with capturing the strategically vital Area Flat Top in the Kargil region, he faced an incredibly treacherous situation.

The team's advance was suddenly halted when they came under heavy machine gun fire from a well-fortified enemy bunker positioned approximately 150 metres away. Recognising the critical threat this bunker posed to both his comrades and the mission, Rifleman Kumar demonstrated extraordinary valour and quick thinking. Without a moment's hesitation, he crawled up the rocky ledge under the cover of darkness, determined to neutralise the enemy position.

As he charged towards the bunker, he was met with a relentless barrage of gunfire. Against all odds, Rifleman Kumar sustained two serious gunshot wounds—one to his chest and another to his forearm. Despite the excruciating pain and the life-threatening situation, he displayed remarkable fortitude and a will that defied the terrible circumstances.

Continuing to press forward despite profuse bleeding, he managed to seize control of the enemy machine gun, turning the tide of the encounter. With grit and tenacity, he advanced stealthily toward a second enemy bunker, catching three enemy soldiers completely off guard. His audacious surprise assault resulted in their swift elimination.

Rifleman Kumar's fearless actions served as a catalyst for his fellow soldiers. Inspired by his bravery, the rest of the platoon rallied around him, launching a coordinated and powerful assault that ultimately led to the successful capture of Area Flat Top. This crucial victory played a significant role in the overall success of the operation in the Kargil War.

For his unwavering bravery and valiant efforts in the face of overwhelming adversity, Rifleman Sanjay Kumar was awarded the Param Vir Chakra. He was only 23 when he received India's highest wartime gallantry award along with Capt. Vikram Batra (Posthumously) and Subedar Major Yogendra Singh Yadav.

He symbolises the highest ideals of courage and service for the country. **His heroism is an inspiration to generations of soldiers in the Indian Armed Forces.**

Chaitram Deochand Pawar

Chaitram Pawar has successfully built 700 check dams in just two decades, rejuvenating groundwater levels and revolutionising farming in local villages.

When the wells dried up and farming collapsed in Bharipada, a small tribal village in Maharashtra's Dhule district, Chaitram Pawar recognised not just a crisis, but a profound calling. As a member of the Konkani tribe and a commerce postgraduate, Pawar exchanged a career in the private sector for a life dedicated to service, launching a grassroots movement that would transform an entire region.

From crisis to conservation: The rise of a movement

In the 1990s, Bharipada faced severe water shortages, harming agriculture and livelihoods. Pawar saw nature as the solution; he started by building a check dam and mobilising villagers. Collaborating with forest officials, **he launched a water and forest conservation programme, resulting in over 700 check dams which improved groundwater levels and irrigation**.

This ongoing commitment to soil and water conservation, afforestation and sustainable land use transformed a seasonal initiative into a year-round model for rural development. Pawar's team successfully restored over 500 hectares of degraded forest land, resulting in the revival of biodiversity and an increase in local green cover.

Inspired by this model, the United Nations Development Programme (UNDP) launched an eco-friendly scheme based on Pawar's conservation blueprint.

The ripple effect: Inspiring change through education, agriculture and recognition

Chaitram Pawar didn't limit his efforts to environmental reform; he recognised that genuine change required a strong focus on education. **He worked tirelessly to ensure that the schools in the village operated regularly, emphasising the importance of quality education for both boys and girls.** His dedication led to a generation of tribal youth pursuing higher education—an achievement once considered unimaginable in the region.

Agriculture also experienced a revival under his guidance. With improved irrigation methods, farmers began to shift towards more diversified and profitable crops, even adopting polyhouse farming and floriculture. Polyhouse farming, also known as greenhouse farming, involves cultivating crops inside a structure covered with transparent or semi-transparent material like plastic.

Additionally, **Pawar initiated the Ran Bhaji Mahotsav, a festival that celebrates locally sourced monsoon vegetables, blending cultural pride with ecological awareness.**

In 2024, Chaitram Pawar became the **first recipient of Maharashtra's Van Bhushan Puraskar**. He was honoured with the Padma Shri India's fourth-highest civilian award, for his groundbreaking work in environmental and social reform.

From a village once plagued by drought and despair, Bharipada now stands as a symbol of rural resilience and environmental revival. **Through grassroots cooperation and visionary leadership, Chaitram Pawar demonstrated that the protection of nature is essential for the protection of life itself.**

Smt Vaishnavi V

CURIOSITY CORNER

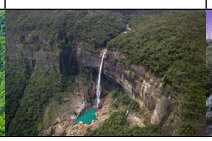
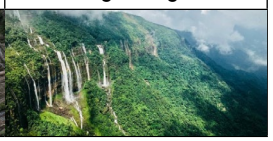
Waterfalls of India

Now that monsoon is here in India, let's cascade into the coolest waterfalls of India, where rivers plunge and take a dive in style.

I Quick Five! Choose one or more options as appropriate.

India has a diverse range of waterfalls, which can be classified based on their shape and flow patterns. Here's a breakdown of the different types.

1. Tiered waterfalls - Descend down creating a stair like effect.
2. Plunge waterfalls - The water descends vertically, losing contact with the bedrock.
3. Segmented waterfalls - The water descends down in separate streams or segments.
4. Horsetail waterfalls - The descending water maintains some contact with the bedrock throughout its descent.
5. Fan waterfalls - Spread horizontally as they descend, resembling a fan shape.

A. Kunchikal falls	B. Thalaiyar falls	C. Nokhalikai falls	D. Kiliyur falls	E. Nohsngithiang falls
				

II Match each waterfall in Column A with its corresponding river in Column B and the State in Column C.

No	Waterfall Name	Match with River (B)	Match with State (C)
1	Jog Falls		
2	Dudhsagar Falls		
3	Athirapally Falls		
4	Chitrakote Falls		
5	Kutralam Falls		

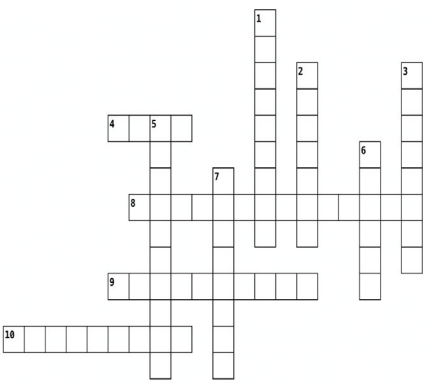
Options for Column B – Rivers

a. Mandovi	b. Sharavathi	c. Indravati	d. Chalakudy	e. Chittar

Options for Column C – States

i. Kerala	ii. Tamil Nadu	iii. Chhattisgarh	iv. Goa	v. Karnataka

III Crossword - More waterfalls ahead!



Across

4. Scenic waterfall near Lonavala in Maharashtra is popular during the monsoon.
8. Located near Mysuru, the twin waterfalls on River Kaveri are a major tourist attraction.
9. This waterfall located in Chhattisgarh is often called the "Niagara Falls of India".
10. The tallest waterfall in India (approx. 455 m)

Down

1. Seasonal waterfall near Pune known for its serene location; attracts nature lovers.
2. Located in Rajasthan, this massive 150 ft. waterfall traces its source to the period of Mahabharata.
3. A trip to Meghalaya is incomplete without visiting this 3 step picturesque waterfall.
5. This high-altitude waterfall in Meghalaya is the tallest plunge waterfall in India (340 m)
6. This waterfall in Odisha is formed by River Machkund and is located near the Andhra Pradesh border.
7. This tiered waterfall in Mizoram is surrounded by dense forest and is a popular local attraction.

Answers on page 66

Smt Ghana Saraswathy M

The Golden Mahseer

The Golden Mahseer (*Tor putitora*) is one of the most iconic freshwater fishes in South Asia, admired for its shimmering golden scales, immense strength and impressive size. Belonging to the *Cyprinidae* family—the same group as carps and minnows—the Golden Mahseer is often hailed as the "Tiger of the river" due to its fighting spirit and agility, making it a prized catch among anglers.

This majestic fish is primarily found in the fast-flowing rivers and streams of the Himalayan region, especially in India, Nepal, Bhutan and Pakistan. Rivers such as the Ganges, Yamuna and Brahmaputra are home to this species, where it thrives in cold, oxygen-rich waters with rocky beds.

Unfortunately, the Golden Mahseer is now listed as endangered. Rampant overfishing, dam construction, pollution and habitat destruction have all contributed to the sharp decline of its population. The fragmentation of river systems by dams prevents the Mahseer from undertaking its annual migrations for spawning, which is essential for its survival.

Conservation efforts are underway to protect this magnificent fish. Measures include creating Mahseer sanctuaries, regulating fishing practices, restoring natural river habitats and raising public awareness. **Breeding programmes and community-based conservation, where local villagers are educated and involved in protecting the species, have shown promising results.**

The Golden Mahseer is not just a fish—it is a symbol of the ecological richness of Himalayan rivers. Protecting it ensures the survival of an entire aquatic ecosystem.

Taxonomy	
Kingdom	Animalia
Phylum	Chordata
Class	Actinopterygii
Order	Cypriniformes
Family	*Cyprinidae*
Genus	*Tor*
Species	*Putitora*

DO YOU KNOW ?

- **The Golden Mahseer can grow up to 2.75 feet in length and weigh more than 50 kg making it one of the largest freshwater fishes in the world.**
- **It is an indicator species, meaning its presence reflects the health of a river ecosystem.**
- **Once common and abundant, the fish has now disappeared from some rivers.**
- **The word "Mahseer" is derived from the Sanskrit words "*Maha*" (great) and "*seer*" (head), referring to its large, powerful appearance.**

Tanguturi Prakasam, also known as Andhra Kesari, which means "Lion of Andhra", was one of the greatest freedom fighters and leaders. Born on 23rd August 1872 in a small village called Vinodarayunipalem, near Ongole, Andhra Pradesh. He lost his father at a young age and had to struggle a lot to study and build his career. He went to Chennai to study law and later became a successful lawyer. But he was not just interested in earning money. He wanted to fight against injustice and help the people of India.

When Mahatma Gandhi started the Non-Cooperation Movement, Prakasam left his successful legal practice and joined the freedom struggle. During the Salt Satyagraha, Prakasam led large groups of protestors in Andhra to break the British salt laws. The British warned people not to participate. Prakasam led marches, gave fiery speeches and inspired thousands to join the movement. His bold leadership brought hope to people under colonial rule.

At one point, the British government banned public meetings of the Indian National Congress. Prakasam openly defied this order. He organised public gatherings, spoke against the injustice, and encouraged people to unite. **He was arrested several times, but he never stopped fighting or speaking out. His courage inspired many young freedom fighters in Andhra**.

The most famous incidents in his life happened during the Simon Commission protests in 1928. The British had sent the Simon Commission to India without including any Indians. People all over the country protested against it.

At Parry's Corner (near Madras High Court), police fired on the crowd, killing a young protestor named Parthasarathi. **They warned that anyone approaching the body would be shot. Unfazed, Prakasam barged forward, tore open his shirt, and bared his chest, challenging: "Shoot me! Cowards, if you have any guts!" The standoff left the police stunned—they lowered their guns and retreated.** That moment immortalised him as the "Andhra Kesari", the Lion of Andhra.

As the first Chief Minister of Andhra State in 1953, he chose to live very simply. He wore khadi clothes, refused luxury and travelled in second-class train compartments. **He believed a leader should live like the people he serves.**

Next time you feel afraid to speak the truth or do the right thing, remember Andhra Kesari – the brave lion who stood in front of bullets for the freedom of his people. He is the lion who roared against injustice, fearlessly faced danger and lived for the people. **His life is a lesson in bravery, simplicity and patriotism.**

Answers

Answers of page 63

I Types of Waterfalls

1. A (Kunchikal Falls)
2. C (Nokhalikai Falls)
3. E (Nohsngithiang Falls)
4. B (Thalaiyar Falls)
5. D (Kiliyur falls)

II Waterfalls and their origin

No	Waterfall Name	River	State
1	Jog Falls	b. Sharavathi	v. Karnataka
2	Dudhsagar Falls	a. Mandovi	iv. Goa
3	Athirapally Falls	d. Chalakudy	i. Kerala
4	Chitrakote Falls	c. Indravati	iii. Chhattisgarh
5	Kutralam Falls	e. Chittar	ii. Tamil nadu

III Crossword

							[1]T									
							h									
							o		[2]B						[3]E	
							s		h						l	
			[4]K	u	[5]N	e	e		i						e	
					o		g		m			[6]D			p	
					k		h	[7]V	l			u			h	
		[8]S	h	i	v	a	n	a	s	a	m	u	d	r	a	
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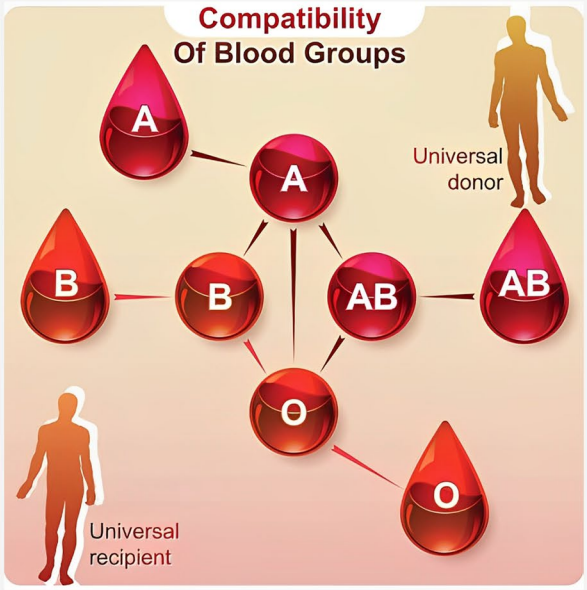
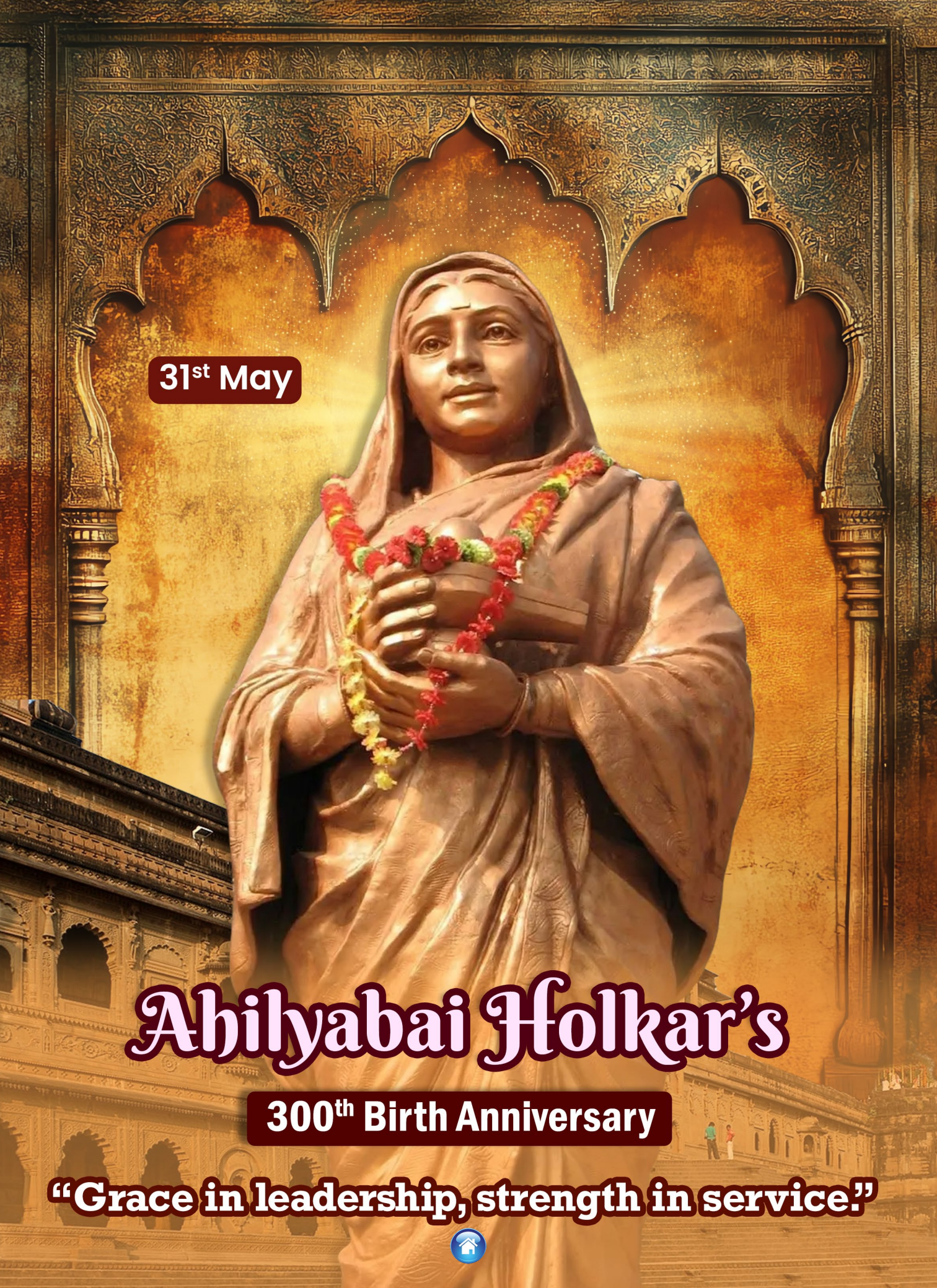
14th JUNE

world BLOOD DONOR DAY



What to Know About Blood Types

- Blood typing is essential if you need to receive a blood transfusion.
- Some types of blood are more common than others, and they vary in compatibility.
- You can have your blood tested for your blood type.
- There are 8 main blood types:
  A+, A-, B+, B-, AB+, AB-, O+, O-
- O+ and A+ are the most common.


31st May
Ahilyabai Holkar's
300th Birth Anniversary
"Grace in leadership, strength in service."