

PRAJYA

MONTHLY NEWS MAGAZINE FOR CHILDREN

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**INDIA TRANSFORMED IN LESS THAN
A DECADE: MORGAN STANLEY**

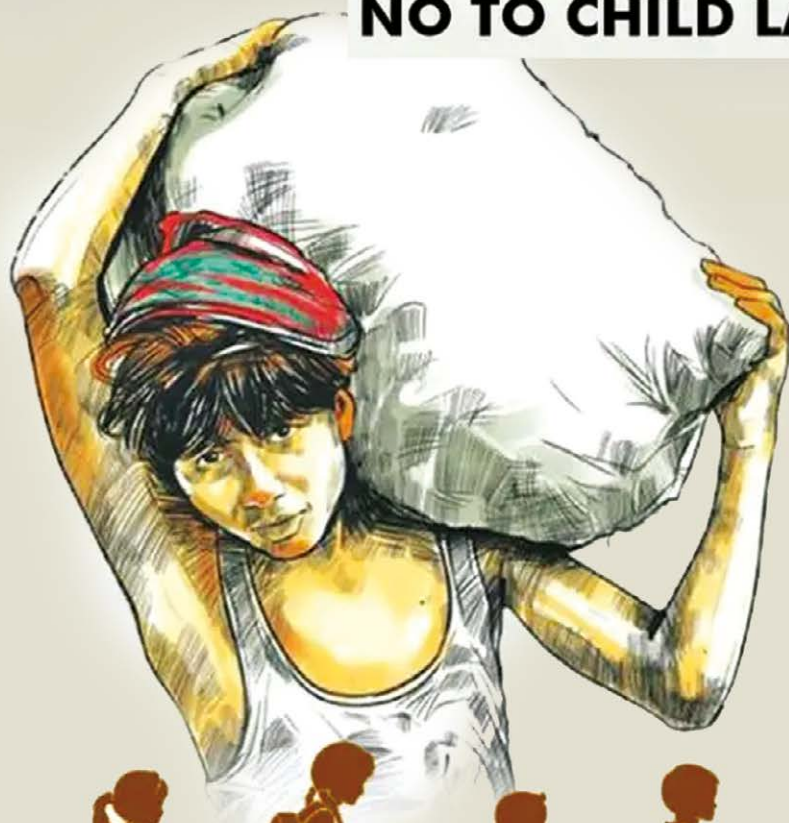
World Day Against

Child Labour

June 12th



**YES TO EDUCATION
NO TO CHILD LABOUR**





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"You have to know the past to understand the present."

- Carl Sagan

International Archives Day aims to raise awareness among the public of the importance of records and archives, and showcase the unique, extraordinary and rare documents preserved in archival institutions and also enhance the visibility of such archives across the globe.

National Archives of India, through the exhibition of Gilgit manuscripts belonging to the 5th and 6th centuries enabled a peek into India's past. The 72,000 manuscripts in birch bark folios should enthrall young readers like you to evince interest in our rich heritage and harvest the treasures that our forebears have left behind.

Recent excavation at Purana Qila has revealed evidence of the city's history dating back to pre- Mauryan era. The coins, seals, figurines, beads and so on are not mere ancient artefacts and curios. They hold within them secrets to be unravelled. They are a treasure trove of information to be studied, preserved and showcased.

Young readers like you must seek out such enriching intellectual pursuits and be prepared to dive into the fascinating depths of history.

"A generation which ignores history has no past and no future."

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:

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

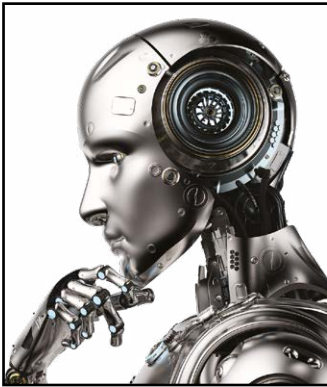
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Happy Reading !

Watch out for the Monthly Prajya Quiz online

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

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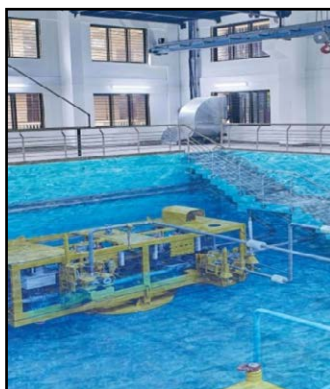
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India launches Operation Karuna

Indian Navy remains committed to ensuring security and growth for all in the region and being the first responders in providing support to neighbouring countries.

The Indian government launched **Operation Karuna** to provide humanitarian assistance to Myanmar, which was severely affected by the super cyclone Mocha. External Affairs Minister S. Jaishankar took to Twitter to announce that three Indian Navy ships containing relief material reached Yangon on Thursday, 18th May 2023. One more reached on the next day.

Super cyclone Mocha hit Bangladesh and Myanmar at Category 5-equivalent intensity on 14th May with winds blowing at a speed of 280 kph. In Myanmar, Rakhine state is the worst-hit, killing hundreds of people. In Bangladesh,

the cyclone destroyed shelters in the world's largest refugee camp at Cox's Bazar which houses a million Rohingya refugees from Myanmar. This is one of the strongest storms to hit the region this century and has affected more than 800,000 people.

Indian Ambassador in Myanmar, Vinay Kumar, handed over the first batch of Humanitarian Assistance and Disaster Relief (HADR) material to the Chief Minister of Yangon region. Indian Navy ships Shivalik, Kamorta, Savitri and Gharial took more than 40 tonnes of HADR materials including emergency food items, tents, portable generators, clothes, water pumps, medicines, tarpaulins, hygiene and sanitary items, wheel chairs, face masks etc.

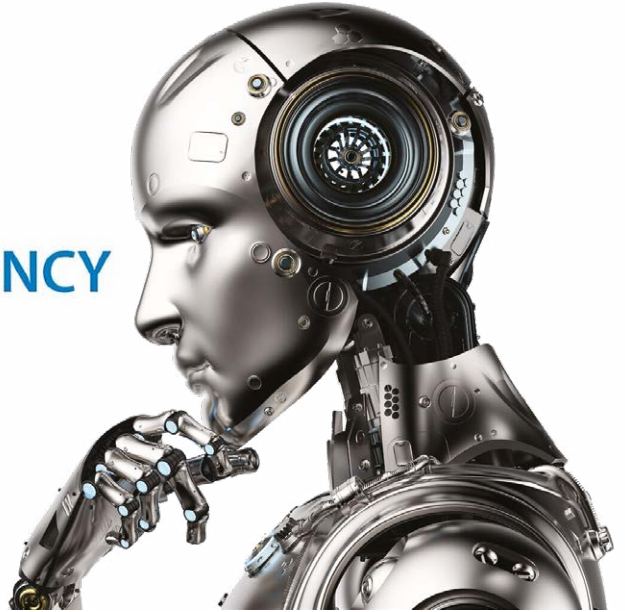
Indian Navy remains committed to ensuring security and growth for all in the region and being the first responders in providing support to neighbouring countries during such calamities.

India's immediate response is of much significance as Myanmar is the only ASEAN (Association of Southeast Asian Nations) country bordering India. And being a gateway to Southeast Asia, Myanmar holds a special significance in line with New Delhi's 'Act East' and 'Neighbourhood First' policies.





launches Generative AI



Tata Consultancy Services (TCS), India's largest information technology (IT) services firm by market cap, announced the launch of TCS Generative AI in partnership with Google. It will deploy its generative artificial intelligence (AI) services for clients and will put to use Google's generative AI tools alongside its own while offering the service.

operations data. Generative AI is used in any algorithm/model that utilizes AI. Right now one of the most prominent examples are ChatGPT and DALL-E. According to the statement, this new offering is powered by Google Cloud's Generative AI tools — Vertex AI, Generative AI Application Builder and Model Garden, and TCS' own solutions.

DO YOU KNOW ?

Generative AI is a type of artificial intelligence technology that can produce various types of content including text, imagery, audio and synthetic data (artificially created data).

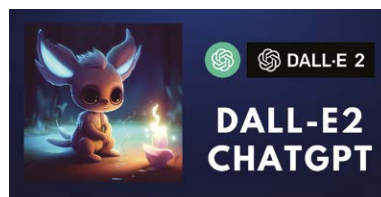
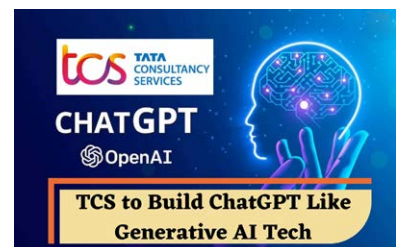
Generative AI vs. AI

Generative AI produces new content, chat responses, designs, synthetic data or deepfakes.

Traditional AI, on the other hand, focuses on detecting patterns, making decisions, honing analytics, classifying data and detecting fraud.

The company will also upskill its workforce to meet the demand for generative AI. The company presently has 50,000 employees who are skilled in AI use cases, and they will be offering 40,000 Google Cloud generative AI certifications to its employees, to build for its clients. The certifications will be offered to employees within the next year.

AIOps is the multi-layered application of big data analytics and machine learning to IT



Further, with the domain knowledge of TCS which is spread across various industry verticals and with investments in research and innovation, it has developed a large portfolio of AI powered solutions and intellectual property in various areas. The company is currently working with clients in various industries to explore how generative AI can be used to deliver value in their specific business contexts.





Generative AI is a type of artificial intelligence (AI) that uses machine learning algorithms to create new and original content like images, videos, text, and audio.

1 Forming a Database

A neural network, consisting of various information or media files like images, text, data, sounds, etc., forms the basis of artificial intelligence.



2 Inputting a Prompt

The user provides the AI with a description or sample of the desired content...



Prompts can be any user-submitted material, like words, numbers, or photos.



3 Generating Content

...and the AI uses its neural network to generate new examples that are similar to the ones it has trained from.



Examples of Generative AI Technology



ChatGPT
text generation AI



INPUT PROMPTS



"Write a limerick about data taking over the world. Include the word: egg"



OUTPUT

"Data taking over the world, it's true
It's growing like an egg that's due
It's everywhere we go
It's taking over slow
But it's the future, there's nothing we can do."

Real-Life Applications of this Platform
• communications, journalism, publishing, creative writing, writing assistance

TCS is dedicated to providing cloud-native services and solutions across new technologies such as generative AI, intelligent edge-to-core and blockchain.

TCS will use its client-specific understanding and knowledge, proven design thinking to ideate solutions with clients, develop and prototype the best ideas and build full-fledged solutions with enhanced time to value.

These collaborative exercises will utilize TCS Pace Port, the company's co-innovation hubs located in New York, Pittsburgh, Toronto, Amsterdam and Tokyo, where clients can also engage with academic researchers and start-up partners from TCS' extended innovation ecosystem.

TCS is dedicated to providing cloud-native services and solutions across new technologies such as generative AI, intelligent edge-to-core and blockchain.

The company has received recognition from Google Cloud, including awards for comprehensive solutions:

- **2021 Industry Solution Partner of the Year for Retail**
- **2021 Global Diversity & Inclusion Partner of the Year**
- **2020 Breakthrough Partner of the Year.**





Israel - IIT-M tie up for Water Technology Centre

There will be a mutual exchange of scientific information and technology literature between the two countries.

The Indian Institute of Technology, Madras has signed a Letter of Intent with the government of Israel to establish an 'India – Israel Center of Water Technology' (CoWT) in Water Technologies and Water Resources Management at the IIT Madras campus.

On 9th May, Prof. V. Kamakoti, Director, IIT Madras, Secretary Manoj Joshi, Ministry of Housing and Urban Affairs (MoHUA), Government of India, and Naor Gilon, Ambassador of Israel to India signed the letter in the presence of S. Jaishankar and Eli Cohen, Hon'ble External Affairs Ministers of India and Israel respectively and in the presence of Prof. T. Pradeep, Institute Professor, IIT Madras.

As per the agreement, this

new center, which will be located at the IIT Madras campus, will be a product of collaboration between the MoHUA and the MASHAV, Israel's Agency for International Development Cooperation.

There will be a mutual exchange of scientific information and technology literature between the two countries, which will also hold discussions and consultations with experts to develop new areas of intervention and address various issues in the area, such as problems in drinking water and sewage management.

This center aims to work on sustainable management solutions for the Indian water sector and ensure the contextual implementation of Israel's best technologies for Indian requirements.



PM Modi's three-nation-tour

The Summit of the G7 countries asked all developed economies, China and India to attain zero emissions status by 2050, at the latest.

Our PM Narendra Modi undertook a visit to Japan, Papua New Guinea (PNG) and Australia from 19th to 25th May.

In Hiroshima, Japan, PM attended **Summit of the G7 countries** with an expanded list of 16 countries including Ukraine and European Union.

The summit asked all developed economies, China and India to attain zero emissions status by 2050, at the latest.

Our PM also met separately, US President Joe Biden and the PM of UK, Rishi Sunak and they held important discussions. He also met Ukraine President Zelensky for the first time after Russian invasion.

Quad summit was also held on the sidelines of the G7 Summit.

20th May - PM unveiled a 42" bronze idol of Mahatma Gandhi at the Peace Memorial Park close to A-Bomb Dome.

Japanese friends of India for decades and Padma Awardees, painter Hiroko Yokoyama and polyglot Tomio Mizokami, were also greeted by our PM.

Visit to Papua New Guinea (PNG)

21st May - PM Modi arrived in PNG, an island nation north east above Australia. In addition to ceremonial welcome, the host PM James Marape bent down to touch PM Modi's feet. James explained the same as part of their diverse culture which has over 800 different languages. He fondly referred to our PM as "Leader of Global South".

22nd May - Our PM hosted the **3rd Forum for India Pacific Islands Cooperation (FIPIC)**, with over 14 island nations participating in the summit. Here our PM assured all support and respect for the priorities of Pacific Island nations.





PM Modi not only promoted India's interests in geopolitics, but also used the three -nation-tour to showcase Indian culture.

An event in particular was the launch of a translation of **Thirukkural** into **Tok Pisin**, the main spoken language in PNG.

Later PM Modi left for what would be his 2nd visit to Australia since 2014. It was also the 6th occasion their PM Anthony Albanese met him since his taking over the post last year.

Highlights

- * Conducted several meetings with Australia business executives.
- * Signed migration and mobility partnership pact that opens up opportunities for students and business people.
- * Resolved to conclude

Comprehensive Economic Cooperation Agreement (CECA), by the end of 2023.

- * Further efforts regarding opening Indian Consulate in Brisbane and Australian Consulate in Bangalore.
- * Enhanced collaboration on mining and critical minerals.
- * Established green hydrogen taskforce.
- * Brought up matter of temple attacks and received assurance regarding devotees' safety.
- * Visited Sydney Harbour Bridge and Opera House along with Australian PM.
- * Addressed Indian diaspora and their local authorities naming Harris Park suburb of Western Sydney as "Little India".

Thus, our PM completed one more of his successful whirlwind diplomatic tours, meeting more than a dozen world leaders in over 50 engagements. He not only promoted India's interests in geopolitics, but also used the three -nation-tour to showcase Indian culture.



Chennai to



India's first International Cruise



The newly launched cruise is complete with all amenities pertaining to luxury, entertainment and magnificent views.

Here is good news for travel lovers! We no longer need to travel abroad to board a ship that takes you to exotic international locales. Now, India has an international cruise vessel to take passengers on a journey from Chennai to Sri Lanka. Shipping Minister Sarbananda Sonowal flagged off India's first international cruise vessel - from Chennai to Sri Lanka.

This marked the beginning of the international cruise tourism terminal at Chennai that was built at a cost of ₹17.21 crores. Spread over 2,880 square metres, it can host around 3,000 passengers.

The newly launched cruise is complete with all amenities pertaining to luxury, entertainment and magnificent views. The

MV **Empress** offers packages for two, three, four and five nights. It sails to the three ports Hambantota, Trincomalee and Kankasanturai in Sri Lanka, before returning to Chennai. The three new international cruise terminals are expected to become operational by 2024.

The cruise would not only facilitate greater movement between India and Sri Lanka, but is also expected to let more people experience sea-based tours in the near future.

The government expects that the volume of cruise ships would increase from 208 in 2023 to 1,000 by 2047. Plans are afoot to develop new cruise tourism terminals in Andamans, Puducherry and Lakshadweep circuits.



KILAUEA VOLCANO

erupts

A volcano is an opening on the surface of a planet or moon that allows material warmer than its surroundings to escape from its interior. When this material escapes, it causes an eruption. Among many volcanoes that keep erupting, Kilauea ranks among the world's most active volcanoes and may even top the list.

Kilauea is about 200 miles south of Honolulu, on the Big Island of Hawaii. It is one of the world's most active volcanoes, having

erupted 34 times since 1952. In Hawaiian tradition, Kilauea is home to the volcano goddess Pele. From 1983 to 2018, it erupted almost continuously, in some cases sending streams of lava that covered farms and homes. At the end of this decade long eruption, Kilauea spewed lava from vents in a residential neighbourhood on its eastern flank and destroyed more than 700 homes. In December, Kilauea erupted at the crater, creating a lake with enough lava to fill 10 Hoover dams. That

eruption ended in May.

After a brief period of lull, the Hawaiian Volcano Observatory reported that Hawaii's Kilauea volcano began erupting again. The eruption is currently confined within the Hawaii Volcanoes National Park and there was no indication that populated areas are threatened. The Hawaii Emergency Management Agency has warned residents to avoid exposure to volcanic particles that could waft some distance from the location of the eruption.





Most Powerful Hypersonic Wind Tunnel

Wind tunnels like the JF-22 provide a controlled laboratory experiment by helping to identify potential problems and design flaws before the construction of hypersonic vehicles.

In the mountainous Huairou district of northern Beijing, the construction of the most powerful wind tunnel has been completed recently. Called **JF-22**, the 4m diameter wind tunnel can simulate hypersonic flight conditions up to **Mach 30** by generating incredibly high airflow speeds of up to 10 kilometres per second.

According to the Institute of Mechanics, which owns the facility, the JF-22 wind tunnel will advance China's hypersonic ambitions to deploy a fleet of hypersonic aircraft by 2035, capable of reaching any point on Earth within an hour and even carrying passengers into space.

At hypersonic speeds, air molecules around an aircraft become highly compressed and heated, leading to molecular dissociation and reaction. This extreme heat and pressure might pose significant challenges to stable flight trajectories and passenger safety.

To study and understand this complex physics, wind tunnels like the JF-22 provide a controlled laboratory experiment by helping to identify potential problems and design flaws before the construction of hypersonic vehicles, thus reducing the risk of accidents and saving resources.





Moreover, scientists can study how hypersonic vehicles interact with their surroundings and develop new technologies to enhance performance and safety.

Instead of using traditional expansion methods to generate airflow, the lead scientist, Professor Jiang Zonglin, proposed an innovative generator called a ‘**reflected direct shockwave driver**,’ which utilizes a series of precisely timed explosions to create converging shockwaves that generate rapid airflow in the JF-22. Although this method has disadvantages such as air pollution, noise and safety concerns, it allows for intense energy bursts required for hypersonic testing.

Evaluated by a team of 16 independent experts, the JF-22 wind tunnel has been praised for its performance and labelled as ‘world-leading.’

© **Wind tunnels** are machines where an object is held stationary inside a tube, and air is blown around it to study the interaction between the object and the moving air. They are used to test the aerodynamic effects of aircraft, rockets, cars, and buildings. Different wind tunnels range in size from less than a foot across, to over 100 feet (30m), and can have air that moves at speeds from a light breeze to hypersonic (greater than the speed of sound) velocities.

© Mach 30 is equal to 30 times the speed of sound!



5,000-year-old 'Great Grandfather' tree

DO YOU KNOW ?

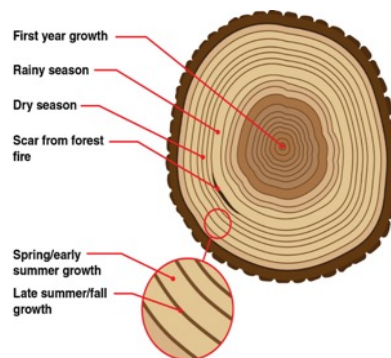
Xylem and phloem are the tissues that transport water and nutrients in a plant, thus generating rings that grow from the center outer in the stem or trunk. Rings are developed at the rate of one per year.

Dendrochronology (tree-ring dating) is a scientific method of dating tree rings to determine its age accurately and interpreting other past events or changes. Other methods include using a boring bar to extract sample of wood, measuring its diameter and counting branch whorls.

Have you ever wondered what living for 5000 years is like? It would be amazing to see how things change with time, significantly and substantially. Ancient trees always hold a special place in nature as they are symbols of resilience and adaptation. Found in the woods of Alerce Costero National Park, Chile, this 5,484-year-old, *Fitzroya cupressoides* (largest tree species in South America) is supposedly the oldest living individual on earth.

Also known as 'Great Grandfather' it beats the current record holder, **Methuselah**, a bristle cone pine in eastern California (4853 years) by about a century. At the Climate and Environmental Sciences Laboratory in Paris, scientist Dr. Jonathan Barichivich made a startling claim that this giant tree measures four meters in diameter and reaches a height of 28 meters and could be around 5,484 years old now (using boring technique, taking core sample). He also said, it was discovered in 1972 by his grandfather, and the family has worked to protect the tree from tourists for the last few years.

Researchers believe that within its massive trunk lies a wealth of data that can determine the planet's adaptability to climatic changes through a millennium, including periods of drought, rainfall, events like wildfires, earthquakes etc.





75th International Archives Day celebrated



Being one of the four most linguistically diverse countries in the world, India alone has 788 out of 7111 languages spoken world over.

On 9th June, 2023, the 75th International Archives Day was celebrated at the National Archives of India (NAI) with an exhibition titled *Hamari Bhasha, Hamari Virasat*.

The exhibition was inaugurated by the Minister of State for Culture, Meenakshi Lekhi under the *Azadi Ka Amrit Mahotsav* initiative.

Being one of the four most linguistically diverse countries in the world, India alone has 788 out of 7111 languages spoken world over, according to an estimate.

In an effort to commemorate

India's extraordinary language diversity, the National Archives of India has made available **Gilgit Manuscripts** written between the 5th and 6th centuries CE, which is the oldest surviving manuscript collection in India. It was discovered in three stages from Naupur village, a Gilgit region in Uttar Pradesh.

The manuscripts have been written in folios which are pieces of the inner layer of the bark of the birch trees found in Kashmir. They are Jain and Buddhist works that throw light on the evolution of religious and philosophical literature.

The other works displayed are - Tattvartha Sutra, Ramayana, Shrimad Bhagwat Gita, official files of the government, proscribed literature under the colonial regime, private manuscripts of eminent personalities and a rich collection of rare books from the National Archive of India library.

The International Archives Day is celebrated every year to raise awareness about the importance of archives and its significance to the economic, political, social and cultural development of mankind.





Pradhan Mantri Matru Vandana Yojana

PMMVY-CAS is a web-based software application that enables tracking the status of each beneficiary under the scheme.

Undernutrition continues to adversely affect the majority of women in India. In view of meeting the **nutritional needs** and partially **compensating for wage loss** to expected mothers, Pradhan Mantri Matru Vandana Yojana (PMMVY), a **maternity benefit programme**, is being implemented by the Ministry of Women and Child Development.

- ▶ excluding those who are in regular employment with the Central Government or the State Governments or those who are in receipt of similar benefits under any law.
- ▶ who have had their pregnancy on or after 1st January 2017 **for the first child** in the family.

Beneficiaries

All pregnant women and lactating mothers:

Benefits

Cash is deposited in the bank accounts of pregnant women.

Beneficiaries receive a cash benefit of **₹5,000 in three installments** on fulfilling the following conditions:

- ▶ Early registration of pregnancy
- ▶ Ante-natal check-up
- ▶ Registration of the birth of the child and completion of first cycle of vaccination for the first living child of the family.
- ▶ The eligible beneficiaries also receive **cash incentive under Janani Suraksha Yojana (JSY)**. Thus, on an average, a woman gets ₹6,000.

Distinctive Feature:

Implementation of the scheme is closely monitored by the central and state governments through the Pradhan Mantri Matru Vandana Yojana - **Common Application Software (PMMVY-CAS)**.

Facilitating Well-being of Expectant Mothers

Pradhan Mantri Matru Vandana Yojana (PMMVY)



Providing economic support to **pregnant women and lactating mothers**



Cash incentive **Rs 6000** to the pregnant/lactating women to help her recover



Ensuring timely **checkups**



More than **50 lakh women** expected to benefit every year





Asia's first subsea research lab

Hands-on academic experiments in this lab will provide students a taste of the latest technology in energy and subsea engineering.

Maharashtra Institute of Technology – World Peace University (MIT-WPU) launched a working prototype of the first-of-its-kind in Asia subsea laboratory. Named the **Centre for Subsea Engineering Research (CSER)**, the laboratory aims to proliferate research in the field of petroleum studies.

The CSER laboratory will promote research, training and education in the global oil, petroleum and gas industry. The laboratory will provide an opportunity to see and understand real-world experience in fossil fuel research. At the same time, multidisciplinary talent in these areas will be facilitated. The lab was built in collaboration with **Aker Solutions**, a leading provider of solutions in the field of engineering and energy.

The head of this subsea

laboratory, Dr. Samarth Patwardhan, is a Professor in Petroleum Engineering, and also the Director of Research and Development at MIT-WPU. He stated that this facility will signify the university's dedication to provide students with state-of-the-art technology, thereby fostering talents in research and innovation. Such steps will help in creating socially responsible individuals, who will be able to change the face of tomorrow's energy sector.

The Centre will also offer undergraduate and postgraduate courses and other training programs in partnership with other subsea industry experts and **Industrial Safety and Health Engineering (ISHE)**. Hands-on academic experiments in this lab will provide students a taste of the latest technology in energy and subsea engineering.

'Snow Leopard Project'

a success

The Indian subcontinent is unique being home to a wide range of biomes housing a rich variety of flora and fauna. This diversity is further bolstered by the concerted conservational efforts to protect the endangered.

Another feather was added to the cap of the Wildlife Protection Department when the Chief Wildlife Warden of Jammu and Kashmir (J&K) Suresh Kumar Gupta, confirmed Project Snow Leopard was a success.

First proposed in 2019, after Ladakh became a separate Union Territory, the project was launched to protect and research the rarely sighted snow leopard population. The snow leopard is classified as vulnerable by the **International Union for Conservation of Nature (IUCN)** and the chances of spotting one were considered very slim.

Through many collaborations with the Nature Conservation Foundation in Mussoorie, J&K's wildlife department conducted extended research studies that involved installing camera traps, checking droppings, collecting hair samples and information collection from the sherpas and nomads of the region.

Never before has such an elaborate effort been made to confirm the existence of snow leopards in the region. All doubts

vanished when two cameras deployed in two areas of the 2,195 sq km Kishtwar National Park captured the first few images of one.

were just a sign of things to come, for soon after, three more snow leopards were captured in other regions of the park. With over 90 cameras in the area,



It wasn't just one snow leopard however, but three that were spotted in Renai!

Suspected to be a mother and two cubs, the first images

there is hope that there are more waiting to be cataloged.

The success proves that endangered species can be protected and brought back from the brink of extinction.



Smt Ghana Saraswathy M



Skywalk Bridge in Chennai

DO YOU KNOW ?

- ✦ The first skywalk bridge in India was built in Pelling, Sikkim in 2018. It is 100 meters long and 3 meters wide, and it can accommodate up to 500 people.
- ✦ It is designed to provide passage for pedestrians between Pelling town and the Chenrezig statue, offering stunning views of the Himalayas.

One of Chennai's busiest retail destinations is T Nagar. When people in Chennai consider shopping, they immediately think of T Nagar. Consequently, there is heavy traffic, especially during festivals and holidays. The likelihood of accidents increases as more people choose to cross in front of oncoming traffic carrying big baggage.

A 570-meter long and 4.2-meter wide skywalk bridge connecting the Mambalam railway station and T Nagar bus terminus was officially opened by Tamil Nadu Chief Minister MK Stalin. The cost of ₹28.45 crores is being taken from the Smart City Funds.

The multi-modal project links the bus stop and train station. It is one of the longest skywalks in the nation, with escalator and elevator facilities, CCTV cameras installed, and a connection to the police control room to assure public safety. Additionally, it has restrooms and dustbins.

The entire bridge has been lit up with lights to facilitate the public. Chennai Corporation has carried out beautification works in the flyover. It is expected to be used by around 100,000 people every day. Officials said that they will provide wheelchair facilities to help disabled people.



Smt Manju Aildasani ✍️

India's first commercial flight using indigenous sustainable fuel

DO YOU KNOW ?

- ✦ **SAF - Sustainable Aviation Fuel** is blended with fossil-based kerosene into Jet A1 fuel.
- ✦ Common jet fuels are A and A1.
- ✦ **Jet A**, a kerosene type fuel with a maximum freeze point of -40 degrees C.
- ✦ **Jet A-1**, a kerosene type fuel is similar to Jet A but with a maximum freeze point of -47 degrees C.

History was created when Tata-owned Air Asia's I5-767 departed from Pune to New Delhi on 19th May 2023 using a blend of indigenous

sustainable aviation fuel supplied by Indian Oil Corporation Ltd (IOCL) in partnership with Praj Industries Ltd (Praj).

Union Petroleum Minister Hardeep Singh Puri who received the special flight at the airport stated, “Unlike traditional jet fuels, SAF is produced from renewable sources such as agricultural waste, municipal solid waste and forestry residues. This means that SAF has the potential to reduce greenhouse gas emissions by up to 80 % compared to conventional jet fuel.”

He referred to the *Aatmanirbhar Bharat Abhiyan* mission as another demonstration of the important role of the farming community, by way of *Annadata* to *Urjadata*, in India's journey towards energy independence and green growth.

The government is in the process of mandating the blending of a certain percentage of SAF with regular fuel for all carriers in the country.



Generative AI

Shaping the future of IT



AI, instead of replacing human workers, can be used to bolster, accelerate and support human innovation at large scales.

With over three lakh IT professionals across more than fifty countries, **Infosys** is one of the world's greatest leaders in providing businesses with digital services and consulting. On 23rd May, they launched '**Infosys Topaz**' - an AI-first set of services, solutions and platforms using generative AI technologies.

With such a large company adopting generative AI as part of their core philosophy and the services that they provide, we can see one way in which AI, instead of replacing human workers, can be used to bolster, accelerate and support human innovation at large scales.

Infosys has promised three key features as part of its new AI platform:

- Accelerated growth
- Building connected ecosystems
- Unlocking efficiencies at scale

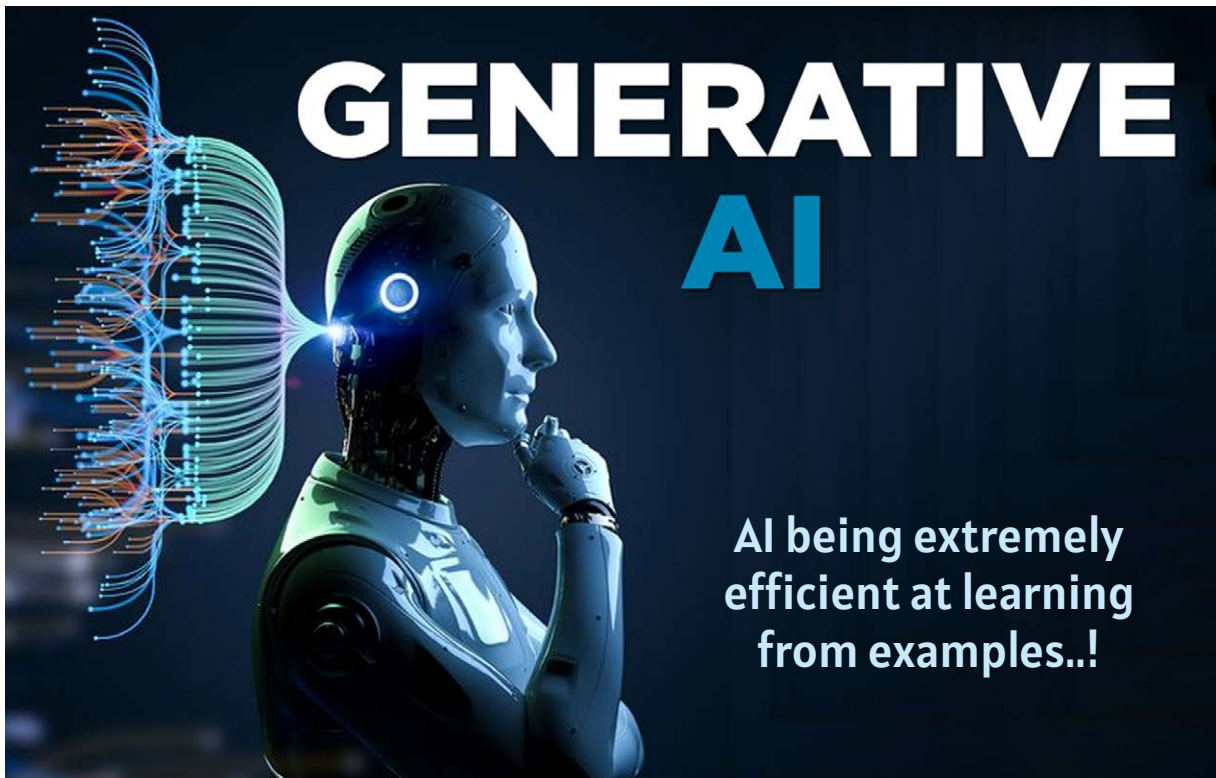
Understanding Generative AI

Generative AI is a type of artificial intelligence that creates new content resembling a specific data type. It learns from examples to create original content, like pictures, music or writing. Even though it can make impressive creations, it doesn't really understand or think like humans do. It just copies patterns from what it has seen before.

Accelerated Growth

Infosys has access to a vast repository of data as part of their cloud services called **Cobalt**. Topaz integrates Infosys Cobalt cloud, data





With AI being extremely efficient at learning from examples, it can be used to create connected ecosystems that are not restricted to specific industries.

analytics and AI to drive business growth. It has already helped in over 12,000, where human data processing would take too long, but Generative AI could do the process in a fraction of the time.

An example of this is a food and beverages chain utilizing Topaz to connect data from its many branches to create better online or out-of-store customer experiences. This was done based on extensive customer feedback data from the cloud.

Building connected ecosystems

With AI being extremely efficient at learning from examples, it can be used to create connected ecosystems that are not restricted to specific industries. A delivery hub can use data from railway companies to find more efficient ways to provide services to remote areas. This is possible because of

over 100 different industries that are part of the Infosys network.

Unlocking efficiencies at scale

Just by the two features mentioned above, we can see how organization in companies can be designed to become more efficient. Specialists can be assigned to solve specific issues. And once a specialist untangles a knot in the system, an understanding of this can be adapted rapidly to fit other areas which might be experiencing similar issues. This will reduce downtime and increase efficiency at large scales.

Salil Parekh, CEO and MD of Infosys stated, “Infosys Topaz is helping us amplify the potential of people – both our own and our clients.” **If successfully adopted over a long period of time, generative AI could be the future of, not only Infosys, but also the entire IT sector.**



ISRO successfully launches GSLV-F12 mission

On 29th May 2023 the Indian Space Research Organisation (ISRO)

successfully accomplished its mission GSLV-F12/NVS-01. The rocket was launched from the Satish Dhawan Space Centre - Sriharikota Range.

A **Geosynchronous Satellite Launch Vehicle (GSLV)** deployed the Navigational Satellite (NVS) and it was injected precisely into the geosynchronous transfer orbit after a 19-minute flight.

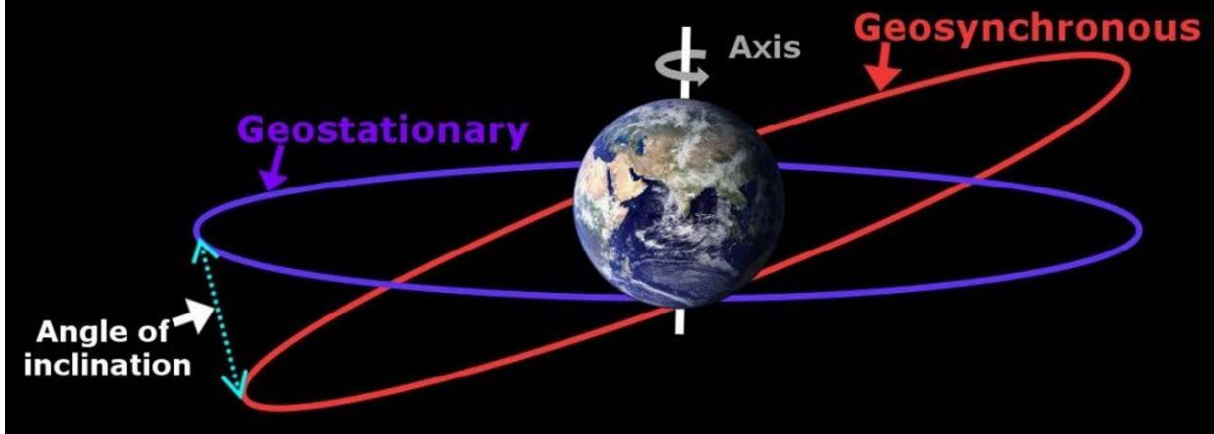
GSLV-F12 is India's 15th flight of GSLV (Geosynchronous Satellite Launch Vehicle) and the 9th flight with indigenous cryo stage. It is also the 6th operational flight of GSLV with indigenous cryogenic stage.

A geosynchronous satellite is a satellite placed on the geosynchronous orbit which has the same orbital period as the earth's rotation period. A geosynchronous orbit is a special position high above the earth that allows an object to keep pace with the rotation of our planet. NVS-01 is a first of the second-generation satellites of ISRO's NVS (Navigational Satellite) series of payloads L1, L5 and S bands. A payload constitutes the communication antennas, receivers and transmitters. L1, L5 and S are frequency signals used for navigational purposes.

The L1 frequency is among the most commonly used in the Global Positioning System (GPS), and will



What are Geosynchronous Satellites?



Rubidium is a rare soft silvery reactive metal of the alkali metal group.

increase the use of the regional navigation system in wearable devices and personal trackers that use low-power, single-frequency chips.

Weighing around 2,232 kg, the satellite is the heaviest in the constellation. Its purpose is to provide continuity for the NavIC (Navigation in Indian Constellation) services, which is an Indian Regional Navigation Satellite

System (similar to GPS) that offers accurate and real-time navigation within India and up to a 1,500 km region around the country.

The satellite also has a **Rubidium atomic clock on board which is a significant technology developed by India.** Atomic clocks provide precise time measurements to satellite-based positioning systems to determine object locations.





Telangana achieves 100 % coverage of PMJDY

The primary objective is to ensure that every adult in India has a bank account, facilitating their participation in the formal financial system.

The State of Telangana (earlier a part of Andhra Pradesh) has achieved a significant milestone in financial inclusion by attaining 100% coverage of the Pradhan Mantri Jan Dhan Yojana (PMJDY).

What is PMJDY?

The primary objective is to ensure that every adult in India has a bank account, facilitating their participation in the formal financial system.

The scheme aims to provide

affordable access to financial services such as banking, savings and deposit accounts, remittance, credit, insurance and pension.

It serves as the foundation stone for people-centric economic initiatives, including Direct Benefit Transfer (DBT), COVID-19 financial assistance, PM-KISAN and increased wages under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA) among several other schemes.

How has the PMJDY made significant progress across the Nation?

The Digital banking approach

All accounts opened under PMJDY in Telangana are online accounts integrated into the core banking system of banks, promoting efficient and secure transactions.

Remarkably, the focus has shifted from targeting every household to ensuring that every unbanked adult in the state has access to financial services.

Fixed-point business correspondents have been

Telangana achieved 100% coverage of PMJDY



Since the launch of Prime Minister Jan Dhan Yojana, Telangana State has achieved 100 percent household coverage of banking services extending them to all sections of people.



Jan Dhan Darshak App, a mobile application, was launched to provide a citizen-centric platform for users seeking financial services.

An **overdraft** occurs when there is not enough money in an account to cover a transaction or withdrawal, but the bank allows the transaction anyway.

established to bring banking services to the doorstep of rural communities.

Simplified KYC and e-KYC

Cumbersome KYC (Know Your Customer) formalities have been replaced with simplified KYC and e-KYC processes, streamlining the account opening procedures and

making them more accessible to the masses.

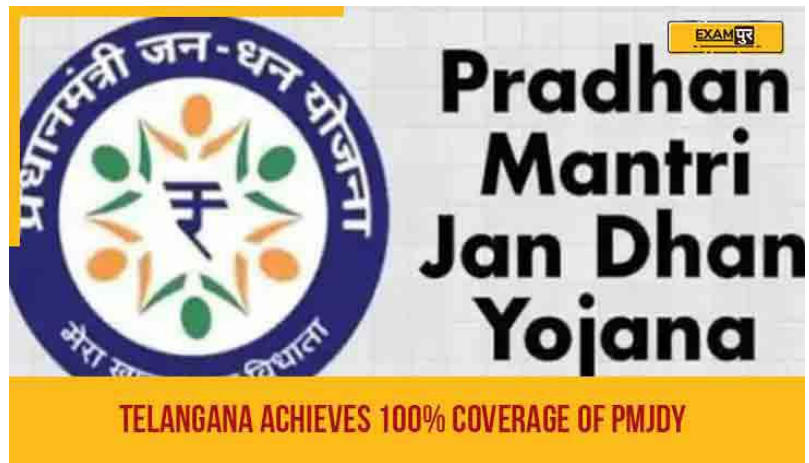
Extension of PMJDY with new features

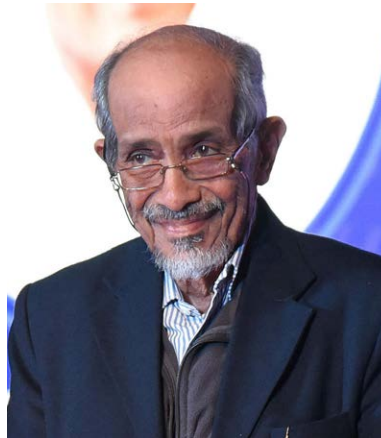
RuPay Card Insurance: Increase of accident coverage from Rs. 1 lakh to Rs. 2 lakhs.

Interoperability and enhanced overdraft facilities

(including increase in upper age limit for overdraft).

Jan Dhan Darshak App, a mobile application, was launched to provide a citizen-centric platform for locating banking touchpoints such as bank branches, ATMs, Bank Mitras and Post Offices across the country. This app promotes convenience and accessibility for users seeking financial services.





Hypersonic wind tunnel named after Late Prof Roddam Narasimha

Prof Narasimha was a pioneer of experimental hypersonics in India.

As a fitting tribute to late scientist and leader Professor Roddam Narasimha, the Aerospace Engineering Department of Indian Institute of Science (IISc), Bengaluru has named their 0.5-metre diameter enclosed free-jet hypersonic wind tunnel after him.

The dedication ceremony took place on 28th May 2023, in the presence of Dr Samir V Kamat, Secretary to the Department of Defence R&D and Chairman of the

Defence Research and Development Organisation (DRDO), and S Somanath, Secretary to the Department of Space and Chairman of ISRO.

A wind tunnel is an enclosed space where the effects of high-speed air going past a scaled-down model of an object are investigated. When a tunnel is said to be “hypersonic,” the air inside is zipping at a speed well over five times the speed of sound, which is estimated to be 343 metres per second and is called Mach 1. Thus, a hypersonic facility features speeds of over Mach 5 or 6.

Prof Narasimha was a pioneer of experimental hypersonics in India. It was his visionary work in the 1970s and 1980s that laid the foundation for the high-speed aerodynamics research work being carried out in the country today. He was honoured with the Padma Vibhushan, the second-highest civilian award in India, in 2013, for his outstanding work.





World's largest food grain storage plan in co-operative sector

During the last 70 years, India's food grains production has grown from 500 lakh tonnes to a massive 3,100 lakh tonnes per year.

On 3rd June 2023, Union Cabinet gave approval for the establishment of the world's largest food grain storage plan in co-operative sector.

During the last 70 years, India's food grains production has grown from 500 lakh tonnes to a massive 3100 lakh tonnes per year. Out of this, the post-harvest losses themselves account for over 120 lakh tonnes or ₹7000 crores per year. According to World Bank the wasted grains can feed one third of the country's poor.

The plan seeks to create godowns and other infrastructure at the level of Primary Agricultural Co-operative Society (PACS), of which there are over 65,000

units spread all over India with a membership base of 12 crore farmers.

The ambitious plan with an outlay of ₹ 1 lakh crore aims to curb damages, prevent distress sales by farmers and strengthen national food security.

An Inter-Ministerial Committee has been set up under the chairmanship of Amit Shah, Minister for Co-operatives, assisted by his Minister of State, B.L.Verma. The other members are:

- i) Minister for Agriculture & Farmer's Welfare,
- ii) Minister for Consumer Affairs, Food & Public Distribution and



The initiative would increase storage capacity from 1,450 lakh tonnes or existing 47% capacity to about 2,150 lakh tonnes, over the next 5 years.

iii) Minister for Food Processing Industries.

The member ministries plan convergence of their own schemes to build the necessary infrastructure. The Ministry for Co-operative will then implement pilot project in atleast 10 selected districts.

Eight Schemes from the 3 ministries identified for convergence are as follows:

Ministry for Agriculture & Farmer's Welfare

- 1) Agriculture Infrastructure Fund
- 2) Agricultural Marketing Infrastructure Scheme
- 3) Mission for Integrated Development of Horticulture
- 4) Sub-Mission on Agricultural Mechanisation

Ministry for Consumer Affairs, Food & Public Distribution

- 5) Allocation of food grains under the Food Security Act

- 6) Procurement at Minimum Support Price (MSP)

Ministry for Food Processing Industries

- 7) Pradhan Mantri Formalization of Food Processing Enterprises Scheme
- 8) Pradhan Mantri Kisan Sampada Yojana

The Ministry of Cooperative plans to leverage strength of cooperatives and transform them into successful enterprises.

The initiative would increase storage capacity from 1450 lakh tonnes or existing 47% capacity to about 2150 lakh tonnes, over the next 5 years.

Each PACS will have capacity of 2000 tonnes. The farmers would also become eligible for loans up to 70% of their produce.

Thus the world's largest food storage plan aligns itself with PM Modi's vision of "**Sahakar-se-Sammidhi**" (Co-operation for Prosperity).



Pre-Mauryan era settlement unearthed

More than 136 coins, 35 seals and sealings have been discovered from a small excavated area, indicating the site's pivotal role as a center for trading.

Beginning from January 2023 a fresh round of excavations took place for the third time at the site of Delhi's Purana Qila or Old Fort. It has uncovered evidence of the continuous history of the city since the pre-Mauryan era.

More than 136 coins, 35 seals and sealings have been discovered from a small excavated area, indicating the site's pivotal role as a center for trading. Currently, structures from the early Kushana level have been exposed, at a depth of 5.50 meters.

These efforts have revealed nine cultural levels, representing different historical periods, including pre-Mauryan, Mauryan, Sunga,

Kushana, Gupta, post-Gupta, Rajput, Sultanate and Mughal. As per the Archeological Survey of India the ongoing excavation aims to establish a complete chronology of the site.

Purana Qila, built by Sher Shah Suri and the Mughal emperor Humayun, is believed by many to be the site of Indraprastha city as mentioned in the Mahabharata. This further reinforces the cultural and historical value associated with the site.

This would soon be reopened as an Open-air Museum. The excavated remains are to be preserved, conserved and provided with a shed allowing visitors to

The excavated remains are to be preserved, conserved and provided with a shed allowing visitors to experience the rich historical legacy of Delhi.



experience the rich historical legacy of Delhi. It will also be displayed to the delegates of the G-20 summit including heads of States, scheduled to happen in September 2023.

Findings

- Fragments of Painted Gray Ware (PGW) pottery, which is typically dated between 1200 BCE and 600 BCE.
- Remains of
 - a 900 - year - old Vaikuntha Vishnu from the Rajput period.
 - a terracotta plaque of Goddess Gaja Lakshmi from the Gupta period.
 - a 2,500 - year - old terracotta ring well from the Mauryan period.
 - a well-defined four-room complex from the Sunga-Kushan period dating back to 2,300 years ago.
 - beads, seals, copper coins and a bone needle.





Jaiswal Bridge over River Chenab



This transformative development not only contributes to the region's economic growth but also enhances its allure as a prime tourist destination through ease of transportation.

In Jammu and Kashmir, the construction of a two-lane Jaiswal Bridge over River Chenab on the Udhampur-Ramban section of NH-44 has been completed. The balanced cantilever bridge spans 118 meters and has been built at a cost of ₹20 crore.

Earlier, the bridge missed two back-to-back deadlines between March and April but its completion came just a few weeks before the start of the two-month-long annual pilgrimage to the 3,880-meter-high holy cave shrine of Amarnath in south Kashmir Himalayas.

The establishment of this bridge serves a dual purpose. Firstly, it will alleviate congestion along the Chanderkot-Ramban section, ensuring smoother vehicular movement. Secondly, it will facilitate the seamless passage of

vehicles and pilgrim traffic during the Shri Amarnath Yatra on the Jammu-Srinagar National Highway 44.

The Yatra is scheduled to commence on 1st July from the twin tracks — traditional 48-km Nunwan-Pahalgam route in Anantnag district and 14-km shorter but steep Baltal route in Ganderbal district. The first batch of pilgrims will leave the Jammu base camp for the Valley on 30th June.

Road transport and Highway Minister Nitin Gadkari reiterated his commitment to provide exceptional highway infrastructure in the Union Territory. This transformative development not only contributes to the region's economic growth but also enhances its allure as a prime tourist destination through ease of transportation.



The image shows the Indian Women's Hockey Junior Asia Cup 2023 team celebrating their victory. The players are wearing blue jerseys with 'ODISHA' and 'INDIA' on them, and are holding trophies and bouquets. A sign in the foreground reads 'INDIA'. The background shows a stadium setting with a banner that says 'Women's Junior 2023 Asia Cup'.

India wins Women's Hockey Junior Asia Cup

"The coaches helped us analyse the shortcomings from the previous game we had drawn with South Korea after trailing 0-2."

The Indian Hockey Team created history by winning the maiden Women's Junior Asia Cup title on 11th June 2023. In the final match held in Kakamigahara, Japan, India defeated four-time champions South Korea 2-1 and secured their place in the FIH Women's Junior World Cup 2023.

In the exciting face-off between India and Korea, both teams played attacking hockey. India started the first quarter on a strong note with an early penalty corner, but failed to convert it into a goal. Korea then took control, launching counter-attacks. Despite the efforts, the first quarter ended goalless.

Korea continued their counter-attack approach in the second quarter as well, but India managed to take the lead through Annu's penalty stroke. However, Korea swiftly equalised it with a field goal from Seoyeon Park. The teams entered halftime tied at 1-1.

In the third quarter, India changed its approach to counter-attacks and regained the lead with

Neelam's successful penalty corner. In the final quarter, India focused on defending and maintaining possession, while Korea struggled with errors and misdirected passes in their quest for an equaliser. India remained resolute and executed their strategy, securing a 2-1 victory.

Speaking about the strategies for the finals, Captain Preeti said, "the coaches helped us analyse the shortcomings from the previous game we had drawn with South Korea after trailing 0-2."

"We were told to play person-to-person defence whenever the ball came in our half. The strikers and midfielders were tasked with pressuring the opposition into making a wrong pass and intercept them in the mid-field. Basically, just don't repeat the mistakes from that drawn game."

Celebrating this great milestone for our hockey team as well as the nation, Hockey India Executive Board announced a cash prize of ₹ 2 lakh for each player, and ₹ 1 lakh each for support staff as a token of appreciation.

ISSF World Junior Shooting Championship



Indian shooters left an indelible mark on the tournament, amassing an impressive medal tally.

The ISSF Shooting World Cup 2023 has enthralled shooting enthusiasts worldwide, featuring twelve stages across diverse venues, showcasing remarkable talents in rifle, pistol, and shotgun events.

Stage 1 in Rabat, Morocco, focused on Shotguns, while Stage 2 in Jakarta, Indonesia, mesmerized with Pistol and Rifle displays. Cairo, Egypt, hosted Stage 3, followed by Doha, Qatar, for Shotguns. Bhopal, India, showcased Pistol and Rifle skills in Stage 5, and Stage 6 in Larnaca, Cyprus, witnessed intense Shotgun battles. Lima, Peru, highlighted Rifle and Pistol events in Stage 7, and Cairo returned for gripping Shotgun showdowns in Stage 8. Almaty, Kazakhstan, saw focus on Shotguns, culminating with Rifle and Pistol events in Rio De Janeiro Brazil, in September.

The ISSF World Cup Shooting Championship 2023, held in Bhopal, Madhya Pradesh, marked a historic milestone outside New Delhi. With 200 shooters from 30 countries, the championship unfolded at the

Kushabhau Thackeray International Convention Centre, inaugurated by Chief Minister Shivraj Singh Chouhan. Among 37 Indian shooters participating in 10 events, 22 competed for medals, while others aimed for Minimum Qualification Scores. The traditional qualification format returned, with the top eight shooters advancing directly to the final. Notably, 19-year-old Rhythm secured her maiden medal with the second-best qualification score, while Esha Singh achieved a commendable sixth place. Sarabjot Singh topped the men's air pistol qualification but settled for fourth place in the final.

Indian shooters left an indelible mark on the tournament, amassing an impressive medal tally. Their triumphs continued in subsequent events, resulting in an overall medal count of 22 in the ISSF Shooting World Cup 2023. Notably, **India topped the medal table for the Rifle/Pistol event in Cairo, finished second in Bhopal and Baku, and currently stands fourth in the overall standings.**





Inspired by Nature, scientists combined molecules of an organic, naturally occurring fluorescent material with a biopolymer, a substance made of protein that is both biodegradable and organic.

Harvesting light using NANOTUBES

Photosynthesis has been studied and researched about for long. Scientists have been able to replicate almost all the steps with relatively the same level of efficiency in a lab.

One aspect that has always been a challenge is sunlight. Despite coming up with artificial lighting that can lead to plant growth, nothing has proven as effective as keeping plants in an open field and letting Mother Nature take care of the sunlight problem.

This might be changing however, thanks to Supratim Banerjee from the **Indian Institute of Science Education and Research (IISER)**, Kolkata, and Suman Chakrabarty from the SN Bose National Center for Basic Sciences, Kolkata.

Inspired by Nature, they combined molecules of an organic, naturally occurring fluorescent material with a biopolymer, a substance made of protein that is both biodegradable and organic. This produced nanotubes' microscopic, repeating tube like structures, that allowed for the "harvesting" of sunlight and artificial light. This could then be stored and

used for a variety of different applications.

The fluorescent material used is called **Cyano Stilbenes**. A variation of a chemical found commonly in grape skins, this can basically emit light after absorption at a highly efficient rate.

The biopolymer is called **Herapin**, often used during surgeries because of its ability to thin the blood and help with easier flow of blood when the heart is weak under anaesthesia.

Under specific conditions, these two substances were combined to form organic nanotubes. The process of energy transfer from the artificial light to the organic nanotubes is known as **FRET (Forster Resonance Energy Transfer)**. This also has an application in the study of DNA structure and mapping microscopic biological structures.

The future of these studies, published in the flagship journal of the Royal Society of Chemistry, are more efficient solar cells, optical sensors, colour emitting materials, and conversion of solar energy for long term storage as chemical or electrical energy.





RBI withdraws ₹2000 notes

"People who change after a change will survive. People who change with the change will succeed. People who cause change will lead."

- Narendra Modi

RBI has advised people to deposit ₹2,000 currency notes with the banks or exchange them with notes of other denominations before 30th September 2023.

As a part of the ongoing financial reforms, the Reserve Bank of India announced its decision to withdraw ₹2000 denomination currency notes from circulation. However, the existing notes will continue to be legal tender. RBI has advised people to deposit ₹2000 currency notes with the banks or exchange them with notes of other denominations before 30th September 2023.

₹2000 note was introduced in November 2016 under Section 24(1) of The RBI Act, 1934, with the motive of meeting the currency requirement after the demonetization of ₹500 and ₹1000 rupee notes. The printing of ₹2000 notes was stopped in 2018–2019. So, these notes have

completed their estimated life span of 4 to 5 years.

RBI follows the 'Clean Notes Policy' aimed at providing good-quality notes with updated security features. Moreover, ₹2000-rupee notes are not much in circulation. Hence, their withdrawal is justified.

Demonetization has benefited India in several ways. It has curbed the accumulation of black money and increased the government's tax revenue. It has also put a stop to the circulation of counterfeit notes and thus dealt a big blow to terrorist activities and smuggling.

Our country is emerging as a major economic power in the world. Let us support the efforts of our government to take the nation forward.





SANSHODHAK

India's 4th warship launched

‘**S**anshodhak’, the fourth of four ships of Survey Vessels (Large) Project, being built by L&T/ GRSE for Indian Navy was launched on 13th June 2023 at Kattupalli, Chennai. The ship was launched to the chanting of invocation from

Atharva Veda and the chief guest was Vice Admiral Adhir Arora, Chief Hydrographer to Government of India.

four Survey Motor Boats and an integral helicopter, the primary role of the ships would be to undertake full scale coastal and deep-water

DO YOU KNOW ?

Hydrographers are specialists who measure water depth and search for shoals, rocks and wrecks that could be hazards to navigation. They also collect information on water level, tides and currents.

Ship's displacement refers to the volume of water it displaces when it is floating.

DMR 249-A steel: A low carbon alloyed steel developed indigenously for strategic applications in Indian Navy (like building ships).



Specifications

- 110m long, 16 m wide; displacement of 3,400 tons.
- over 80% indigenous content.
- Hull is made from indigenously developed DMR 249-A steel manufactured by Steel Authority of India Limited.

The first three ships of the project:

- Sandhayak (Dec 2021)
- Nirdeshak (May 2022)
- Ikshak (Nov 2022)

With a capability to carry

hydrographic surveys of ports and navigational channels.

It would also be deployed for collecting oceanographic and geophysical data for defence and civil applications. In their secondary role, the ships are capable of providing limited defence, **HADR (High Availability Disaster Recovery)** and serve as Hospital ship during emergencies.

This launch yet again reinforces our resolve in indigenous shipbuilding, as part of Government's vision of **Make in India** and **Aatma Nirbhar Bharath**.





Satellite Swarm Intelligence

A new era in Indian space technology



With the advancing technology, warfare has become multi-dimensional, advanced and complex.

Rewind

Remember the opening ceremony of the Winter Olympics at Pyeongchang in 2018 wherein a spectacular display by a quadcopter drone swarm comprising 1218 drones had left spectators spellbound?

Fast Forward

With the advancing technology, warfare has become multi-dimensional, advanced and complex. The discerning use of technology with its changing face like Artificial Intelligence (AI), Machine Learning (ML), blockchain, Virtual Reality (VR), Augmented Reality (AR) and computer vision have all shown innovation and intelligent execution of tasks.

Successful integration of these technologies has thrown up a plethora of applications including Autonomous Vehicles (AV) which can perform intelligent execution

of tasks with self-regulation and without any form of human intervention. AVs can be further classified into **Unmanned Ground Vehicles (UGVs)** both remotely operated and autonomous besides **Unmanned Under Water Vehicles (UUVs)** and **Unmanned Aerial Vehicles (UAVs)**.

Swarm Satellites Intelligence (SSI)

Upgrading military capabilities along with a robust intelligence system is essential to win wars and border conflicts. In a fast-changing world, the one getting information first is at a greater advantage to work out a winning strategy. Hence a strong satellite intelligence becomes a must.

Incidentally, the US Army has been carrying out drone swarming trials since August 2015. Both China and Russia demonstrated a similar capability in the succeeding years.





The development of swarm satellites is a noteworthy step towards a robust intelligence system. Once the swarm satellites are employed, the intelligence capabilities of India will match the best in the world.

Way ahead

Indian enterprises particularly their modern R&D both in public and private sectors are exploring the possibility of collaborating on the creation of a new generation of mission specific swarm satellites in low-earth orbit (LEO) and to communicate with each other by collecting a variety of data on visuals and radars ranging from weather forecasting to augmenting the overall security architecture.

The development of swarm satellites is a noteworthy step towards a robust intelligence system. Once the swarm satellites are employed the intelligence capabilities of India will match the best in the world.

Towards this the Army had showcased the use of swarm technology during Army Day 2021 wherein 75 drones with offensive capability identified and destroyed mock targets with a strong impetus from GOI through its Atma Nirbhar Bharat projects. Few areas of advancement in recent years include:

- ✦ Medium /High Altitude and Long- Range Intelligence and Surveillance (MALE/HALE) and Logistics UAVs.
- ✦ Nano/ Mini Drones and Counter Drone Technology.
- ✦ Runway Independent UAVs.
- ✦ Loitering Munitions.
- ✦ Long Endurance Aerial Surveillance Platforms - near stratospheric UAVs capable of long endurance (solar powered) for swath/ wide area surveillance.
- ✦ 'Minefield Detection' UAVs.

Benefits

- ✦ Drones swarming the battlefield or an airfield in

thousands would be very difficult to counter by any stretch of imagination. Hundreds of drones over a battlefield or an airfield would saturate the airspace. Counter swarm resources invariably run short.

- ✦ Provide complete analysis in a short span of time with multiple angle images and real-time information for assigned mission and target locations.
- ✦ Swarms could also be integrated with fighter aircraft or attack helicopter missions to increase their safety during missions.
- ✦ Swarms would also make it easy to execute surgical strikes by replacing personnel with drones, particularly **Humanitarian Assistance and disaster Relief (HADR)** missions.
- ✦ Swarms will save time and resources by discerning changes in target locations at ground level where intrusions and infrastructural developments were often largely going unnoticed.

Navy's acquisition of shipborne MALE/HALE unmanned aerial systems for intelligence, surveillance, target acquisition and reconnaissance capabilities equipped with maritime radar, satellite communication (SATCOM) and other onboard surveillance and electronic/communication intelligence payloads will result in it becoming the principal influencer and force multiplier in the immediate and foreseeable operational battlespaces.





ShriSampath D

First batch of Agniveers

There will be a financial package of around ₹11.71 lakhs to be given to each of the recruits at the end of the four-year tenure.

The Union Cabinet approved one of the attractive schemes for Indian youth through which they could join Indian armed forces. The name of this scheme was Agnipath and selected candidates under this scheme known as Agniveer. It was proposed to create more than 46,000 jobs under this scheme.

One of the worrisome challenges was the rising age factor in the armed forces. 17,600 personnel (approximately) take premature retirement annually, hence there is an imperative need to keep the army strength going without any slackening.

The Agniveers were to be given an attractive customized monthly package along with risk and hardship allowances as applicable in the three services. On completion of the engagement period of four

years, Agniveers were to be paid one time 'Seva Nidhi' package which shall comprise their contribution including accumulated interest and matching contribution from the Government, equivalent to the accumulated amount of their contribution including interest. There will be a financial package of around ₹11.71 lakhs to be given to each of the recruits at the end of the four-year tenure which will provide financial independence to them.

Under the new scheme the youth were to be inducted into the Armed Forces initially for four years. Once the four-year service gets over, all of them were to leave and a re-induction process to be held to take in 25% of them to serve as permanent cadre in the armed forces. Pertaining to this scheme, the aim of the government was to make the military youthful.





The Indian Navy has allowed women to join training and out of a total of 3,000 Agniveers, 341 are women.

At present the soldiers join for a minimum of 15 years and get pension while leaving.

In a significant move, the Ministry of Home Affairs announced an important decision to reserve 10% vacancies in Central Armed Police which will include the seven different security forces comprising Assam Rifles (AR), Border Security Forces (BSF), Central Industrial Security Forces (CISF), Central Reserve Police Forces (CRPF), Indo Tibetan Border Police (ITBP), National Security Guard (NSG) and Sashastra Seema Bal (SSB). There will be 10% reservation for the Agniveers to join the Indian Coast Guards, Central Armed Police Forces, Defence Public Centre Undertakings and defence civilian posts.

The youth selected for the Indian Army and Air Force under the new recruitment scheme Agnipath have reached their respective training centres and the training for those to join the Indian Air Force have already begun. “Training of

the first batch of ‘Agniveer Vayu’ commenced at Airmen Training School (ATS) Belagavi” said Air Marshal Manavendra Singh, Air Officer Commanding in Chief, Training Command, who visited the school and addressed the newly recruited batch.

The Army in a statement had confirmed that youth recruited from across the country to join the Army as soldiers after their training is completed have reported to various training centres.

The Indian Navy has allowed women to join training and out of a total of 3,000 Agniveers 341 are women. They commenced their training in November at the Sailor Training Establishment at INS Chilka in Odisha.

The beginning of this recruitment is significant for the Armed Forces as no recruitment had happened for three years on account of pandemic. Further this is the first-time trainees have been recruited under the new Human Resource scheme through



The first batch of Naval Agniveers comprised 272 females out of 2,585 participants. All of them developed a strong foundation and willingness to excel in their career.



a rigorous four-stage examination and filtering process as Agniveers will be undergoing a training for around six months in the Army.

Agnipath Scheme announced in June 2022 to recruit the Other Ranks (Soldiers, Sailors and Airmen) initially created controversy with regard to the future of the youth once they leave the armed forces after their four-year service. Government not only announced the package but also announced reservation for the Agniveers in jobs.

The IAF recently successfully completed the selection process for the first batch of Agniveer Vayu Intake in 2022, where Agniveers were recruited for 4 years. The first batch of Naval Agniveers comprised 272 females out of 2585 participants. All of them developed a strong foundation and willingness to excel in their career. The Passing Out Parade Agniveers was held at the INS Chilka in Odisha, and which proved to be a joyous occasion for everyone involved.

The image shows two Agni Prime missiles. The one on the left is in the middle of a launch, with a large plume of white smoke and fire at its base. The one on the right is standing vertically on the ground. Both missiles are white with black and orange accents and have the word 'INDIA' written vertically on their sides. A small graphic of a pen nib with a yellow flame is positioned above the text 'Col Shashidhar M V (Retd)'.

Col Shashidhar M V (Retd)

Agni Prime Missile's successful test

Overview

On 7th June 2023 at about 7.30 pm, the Agni-P (initially named as Agni-1P) weighing about 50% less than Agni 3 was successfully flight-tested by the Defence Research and Development Organisation (DRDO) from Dr APJ Abdul Kalam Island off the coast of Odisha. This was the first pre-induction night launch conducted by DRDO and Strategic Forces Command after three successful developmental trials of the same missile to validate its accuracy and reliability with a strike range of 1000 to 2000 km.

Various range instrumentation like radar and telemetry, electro-optical tracking systems were deployed at different locations

including two down-range ships and at the terminal point to capture flight data covering the entire trajectory of the missile. **Agni Prime can be manoeuvred at the point of entry into the earth's atmosphere, a feature that is usually not available in a ballistic missile vehicle.** At 2000km range, the Agni Prime covers all critical cities in Pakistan and is soon to be inducted for operational deployment.

Run -up to the night launch

- ✦ December 2022 - Agni-V missile that can strike targets at ranges up to 5,000 km was successfully test fired.
- ✦ The Agni 1 to 4 missiles (all deployed) have target ranges from 700 km to 3,500 km.

- ✦ April 2023- Maiden flight trial of an endo-atmospheric interceptor missile from a ship off the coast of Odisha carried out as part of BMDP (Ballistic Missile Defence Programme). The purpose of the trial was to demonstrate and neutralize a hostile ballistic missile.
- ✦ Agni-V can bring almost the entire Asia including the northernmost part of China as well as some regions in Europe under its striking range.
- ✦ Capability building to intercept hostile ballistic missiles both inside and outside the earth's atmospheric limits as part of the ambitious BMDP).





The deployment of Agni-Prime missile (the smallest and lightest within the Agni series) will enhance India's strategic deterrence capabilities manifold.

Features

- ◆ Agni-P is a new generation advanced variant of the Agni class of missiles and will soon replace the Agni-1 missile.
- ◆ Houses many advanced technologies including composites, propulsion systems, innovative guidance and control mechanisms, latest state-of-the-art navigation systems have been introduced.
- ◆ Improved parameters for manoeuvring it at point of entry in atmosphere, accuracy thus making it difficult to detect.
- ◆ The canisterised system reduces launch time while significantly improving its storage and mobility. It can be launched from rail or road and can be transported to various parts of the country easily.

Implications

The deployment of Agni-Prime missile (the smallest and lightest within the Agni series) will enhance India's strategic deterrence capabilities manifold. Its successful deployment will have significant geopolitical consequences as it will showcase India's growing military might for maintaining a credible deterrent posture leading to shift in regional power dynamics.

Conclusion

Induction of Agni Prime missile with Strategic Forces Command will be a noteworthy milestone as it will not only demonstrate the indigenous defence manufacturing capability but also our own self-reliance in advanced missile technology thus establishing India as a sophisticated military power in the Asia-Pacific region.



ECONOMY



India's remarkable economic development Is India the China of tomorrow?

The report has highlighted 10 major changes or Growth Drivers that have been brought about by the Modi government since it assumed power in 2014.

“This India is different from what it was in 2013,” says the Morgan Stanley report titled “India Equity Strategy and Economics: How India Has Transformed in Less than a Decade” that was released towards the end of May 2023.

For those of you not familiar with Morgan Stanley, it is an American multinational investment bank and financial services company, head quartered at Manhattan, New York City. It provides a wide range of investment banking, securities, wealth management and investment management services to individuals, institutions, corporations and governments.

This report is certainly a shot in the arm for the Indian government while the opposition is squirming

in discomfiture. The government understandably has gone on a campaign mode. Be that as it may, let us set aside the politics and look at the substantive contents of the report.

The report has highlighted 10 major changes or Growth Drivers that have been brought about by the Modi government since it assumed power in 2014.

Growth Drivers

a) **Supply Side Policy Reforms:** The two major areas are





The Real Estate (Regulation and Development) Act has brought in a lot of discipline among the builders and provides significant protection to the buyers.

the reduction of corporate tax and the acceleration of infrastructure investment. India has reduced corporate tax from 23% to 15% and this is the lowest among competing economies.

On infrastructure, the report has come out with a comparison between two periods – between 2006 and 2014 and between 2015 and 2023. The comparative numbers are 25,700 kms and 53,700 kms for national highway network, 25.7GW and 95.7 GW for renewable energy capacity increase, 58.9 Mn and 771.3 Mn for Broad Band subscriber base and 6% and 42.3% of total for railway route electrification. The comparative numbers speak volumes about the commitment and efficiency of this government in the infrastructure development segment.

b) Formalisation of the economy: Two metrics that bring out this aspect are the Goods and services Tax (GST) collection and the extent digital transactions as a percentage of the GDP. The

GST collections have grown from ₹11.77 lakh crores in FY 19 to ₹18.10 lakh crores in FY 23 while the digital transactions catapulted from a paltry 4.4% in FY 16 to a staggering 76.1% in FY 23.

c) The Insolvency and Bankruptcy code (IBC) introduced in 2016 is a consolidated framework that governs insolvency and bankruptcy proceedings for individuals, partnership firms and companies. **On account of this the impaired loan ratio (amount outstanding of impaired loans/ total outstanding loans) came down to a twelve year low in FY 23.** Corporate debt as a percentage of GDP is also steadily dropping from 62% in FY 15 and is expected to be at 50% in FY 23.

d) The Real Estate (Regulation and Development) Act has brought in a lot of discipline among the builders and provides significant protection to the buyers. The new launches and housing sales have been steadily increasing from mid 2015.



“Payments, receipts, accounting and much more for government”

Facilitates transfer of funds directly to the account of beneficiaries



It provides Effective Decision Support System, Tracking of funds etc.



Real time information on resource availability and utilisation across schemes



Integration with application of Government Departments/ Ministries for online collection of their receipts



The introduction of Direct Benefit Transfers of social welfare schemes has revolutionalised the social welfare benefit delivery model.

e) Digitalizing Social Transfers : The introduction of Direct Benefit Transfers of social welfare schemes has revolutionalised the social welfare benefit delivery model. This has not only eliminated the middle men but has also eliminated the fake beneficiaries. This has resulted in huge savings to the government apart from the benefits reaching the targeted beneficiaries without any spillage.

f) Focus on Foreign Direct Investmet (FDI): India has maintained the focus on FDI since 2015 and the Gross FDI has been steadily increasing.



g) Flexible Inflation Targeting: This is a monetary policy that aims at stabilizing inflation and the real economy allowing for some deviation in the inflation targets in the short term to

accommodate growth. The report projects a retail inflation rate of 5.2% for FY 24 as against 6.7% for FY23.

h) Government Support for Corporate Profits: All the factors have ably supported corporate profits and there has been a profit boom for corporate and stock market investors.

i) Multiyear High Sentiment among MNCs: The multinational corporations' sentiment has been on a multiyear high and India has outperformed China on this front.

j) India's 401(K) Moment: This refers to the increase in household savings and investments in financial assets like mutual



funds, insurance and pension schemes. There has been some shift in preference from physical assets to equities and bonds. The allusion

With serious efforts like Make in India and Atmanirbhar Bharat and with schemes like PLI the country is already experiencing growth in the manufacturing sector.

Beta is a measure of market risk that quantifies the sensitivity of stocks' returns to changes in the broader market. A beta of 1 indicates that the stock moves in line with the market. A beta of greater than 1 suggests that the stock is more volatile than the market and a beta of less than 1 indicates that the stock is less volatile than the market.



is to the retirement savings plan that is referred to as 401(k) in the US.

Future macroeconomic outlook

The effects of this transformation on the macroeconomic indicators are clearly visible. The manufacturing output has grown from USD 74 Bn in FY12 to USD 447 Bn in FY 22 and is expected to further increase to USD 2000 Bn by 2032.

The share of Manufacturing in the GDP shall move up from the current 15.6% to 21% during the same period. The capex is also expected to rise steadily. The global market share of India's exports is estimated to double by 2031 to reach 4.5% with gains across services and goods segments.

With serious efforts like Make in India and Atmanirbhar Bharat and with schemes like PLI the country is already experiencing growth in the manufacturing sector. **The China + 1 strategy that global companies are now adopting, to de risk themselves from China is also proving to be beneficial to India.**

The Indian per capita income is expected to jump from the current USD 2200 (FY 23) to USD 5500 by FY 32 which will result in a significant expansion of the

consumption basket. Inflation is expected to be moderate. Current account deficit (balance of trade between imports and exports) shall be narrow and profits in GDP will double resulting in strong earnings. As a result of macro stability and reduced dependence on global capital market inflows, India's beta to emerging markets has dropped to 0.6.

India will emerge as a key driver to Asia and Global growth.

Anticipated risks

The report has also identified some risks like global recession, fragmented general election outcome in 2024, rise in commodity prices due to supply outages and shortage of skilled labour as potential risks. There are also critics who criticize this report for "cherry picking" (choosing and taking only the most beneficial or favourable items) .

Nevertheless, with a strong transformation that has happened in the past decade, India is well set to grow at a faster pace in the ensuing decade. India shall be the fastest growing economy and as another report of Morgan and Stanley indicates, India shall emerge as the third largest economy by 2027 surpassing Germany and Japan.





LAW OF CONTRACT - II

Some categories of agreements under the Contract Act

The Indian Contract Act contains provisions which deal with some specific categories of agreements. Some of these are:

- (i) **Contract of indemnity:** A contract under which one party promises to save another from loss caused by the conduct of the promisor or any other person.
- (ii) **Contract of guarantee:** A contract to perform the promise or discharge the liability of a third party in case of his default. The parties concerned are the surety (person giving the guarantee), principal debtor (person pertaining to whose default the guarantee is given) and the creditor (person to whom the guarantee is given).

- (iii) **Bailment:** Delivery of goods for some purpose upon a contract that they shall be returned or disposed of when the purpose is accomplished, according to the directions of the person delivering them. The parties are the **bailor** (person delivering the goods) and **bailee** (person to whom they are delivered).

- (iv) **Agency:** A contract whereby a person employed to do any act for another, or to represent another in dealings with third persons. The person for whom the agent is appointed to act is the principal.

Remedies for breach of contract

- 1) **Rescission of contract:** When a party does not fulfil their obligations, then the other party can rescind the contract and refuse to perform of their





breach will have to carry out their duties according to the contract. In certain cases, the courts may insist that the party in default carry out the agreement. For example, if A agreed to buy land from B and B then refuses to sell, the court can order B to sell the land to A.

- 2) **Damages:** A party who has suffered due to non-performance of obligations by the other party can claim compensation for the loss or

- 4) **Injunction:** An injunction is a court order restraining a person from doing a particular act. The court may grant an injunction to stop a party from doing something that they have promised not to do.

DO YOU KNOW ?

The doctrine of 'privity of contract' implies that only the parties to a contract can sue. A stranger to the contract with no interest cannot enforce it for their benefit.

A landmark case on this doctrine is *Dunlop Pneumatic Tyre Co. v. Selfridge Ltd.*, wherein D supplied tyres to a wholesaler X on a condition that any person to whom X re-supplied the tyres should promise X not to sell them below a certain price. X supplied tyres to S upon this condition, but S sold the tyres below the price. The court held that since there was no contract between D and S, D could not claim damages from S.



damages caused to them in the normal course of business. Damages according to the Act include liquidated damages which is agreed upon by the parties and unliquidated damages which is usually assessed by the courts or any appropriate authorities.

- 3) **Specific Performance:** As per this remedy, the party in

- 5) **Quantum meruit:** *Quantum meruit* translates to 'as much as is earned.' If a party is prevented from finishing his performance of the contract by the other party, such party can claim *quantum meruit*. In that case, he must be paid a reasonable remuneration for the part of the contract that he has already performed.



(18.6.1911 - 28.6.1998)

Dr. Kamala Sohonie

First Indian woman to get
Ph.D. in Biochemistry

Having
come from a
background
dedicated
towards
uplifting
people,
subjects of
Kamala's
research
were of great
relevance to
Indian societal
needs.

Recently, many of you would have seen a Google doodle on one of the greatest women scientists of our country- Dr.Kamala Bhagvat Sohonie. Her father and uncle were graduates of Tata Institute of Science funded by Jamshedji Tata, inspired by Swami Vivekananda.

Her house was filled with chemicals, scents, beakers and bottles as they both were involved in setting small scale industries to manufacture soaps, shampoos and other consumables, as a part of Swadeshi movement. Watching these trials while growing up, probably helped her later to champion consumer rights.

Having come from a background dedicated towards uplifting people, subjects of her research were of great relevance to Indian societal needs. Later, Kamala

Sohonie received the President's Award for her pioneering work on the nutritional value of *neera* and *gur*. Based on her suggestions, these were introduced in the diet of malnourished adolescent tribal children and pregnant women, that helped significant improvement in their overall health.

Kamala Bhagvat was born in Indore, Madhya Pradesh, at a time when our society was gearing up to send their daughters to colleges. She was fortunate to have parents who encouraged their daughter to pursue higher education. With her passion to serve our country through scientific research, Kamala dreamt of going abroad for doing research.

We should also remember that educational institutions in the colonial period were still hesitant to open their doors to girls. Growing up



We all owe Kamala for uplifting our people's health through her research on providing proper nutrition, especially in the post-independence era.



Indian Institute of Science

in a household filled with chemicals, it was very natural to take science during her graduation. Soon after graduation in 1933 from Bombay University, Kamala knocked the doors of Tata Institute, where her father was an alumnus. But it was not considered immediately, despite her accolades. For that matter, doors of Tata Institute were not fully open to women, though men of great accomplishments had led that institute for more than two decades.

Probably those Englishmen at the helm of affairs might not have thought of Indian women entering this citadel of research and hence never built even a small women's hostel during those years. Sir C.V. Raman had just then moved from Calcutta to Tata Institute in 1933 to start the Physics department and soon assumed position as its first Indian director.

With already well established Chemistry research there, Kamala's passion was strong enough to knock the doors again and again, till it opened. She started her research in the field of biochemistry under her guru Sreenivasayya. He was a strict teacher and generous in imparting knowledge to those with thirst. Under his guidance, strong-willed Kamala proved her mettle pursuing

her research on proteins in milk, pulses, legumes of our country.

Kamala's first paper, published in 1935 involved characterization of non-protein nitrogen content of nine well-known Indian pulses. She found them to contain simpler, easily digestible peptides, important for boosting the nutrition of children and invalids.

The next year, Kamala presented a more detailed analysis of their amino acid content and had further characterized nutrients of milk. She was awarded M.Sc. Degree by University of Bombay, her parent institute for this work (Tata Institute was not allowed to award any degree). We all owe her for uplifting our people's health through her research on providing proper nutrition, especially in the post-independence era.

Recipient of Springer Research Scholarship and Sir Mangaldas Nathubhai Scholarship from University of Bombay, Kamala started working in the lab of Prof. Derek Richter at Cambridge. Later she joined legendary scientist Robert Hill, which could be considered as a golden phase.

Her original discovery on cytochrome C in plant cells (Nature,





Nutrition Research Laboratory (NRL) at Coonoor

Kamala significantly contributed towards testing of various food products in the market, as well as testing the quality of weights and measures used.

1939) gained her fellowship to work with Nobel Laureate Fredrick.G. Hopkins. She submitted a remarkably short thesis of only 40 pages, for which she was awarded a Ph.D. degree. Kamala was the first Indian woman to receive doctorate from the acclaimed Cambridge University.

Soon she returned to serve her Motherland in 1939. As Kamala's passion and expertise on nutrients was certainly in sync with the focus of Nutrition Research Laboratory (NRL) at Coonoor, she joined this institute.

With her experience at Hopkins lab, she did research on the biochemistry of vitamin C, B1 and B complex. She also investigated the toxic effects of *Lathyrus sativus* (Kesari dal) on guinea pigs. She developed chemical and microbiological methods for the accurate estimation of various vitamins present in different sources of Indian food.

Around 1947, she married Madhav Sohonie, left NRL to join the newly established Biochemistry Department of the Royal Institute of Science, Bombay. Here, Kamala Sohonie's group was quantifying

the nutrient content of several regularly consumed Indian foods, particularly 'Bombay fish' and 'double beans' and on the protein content of green vegetables. She suggested that *neera* and *gur* would be rich sources of supplements. She also became an advisor to Aarey Milk Project Factory, Bombay and developed a protocol that prevented curdling of milk. She was appointed as the Director of Royal Institute of Science, Bombay.

After retirement in 1969, she continued her work with Consumer guidance society of India. She significantly contributed towards testing of various food products in the market, as well as testing the quality of weights and measures used. She designed a kit which could be used by housewives to test the purity of food ingredients and wrote in Marathi to create awareness.

She lived a simple life avoiding jewellery and wore khadi sarees. In 1997, she received the National Award for Excellence and Contribution to Science. Kamala lived life to the fullest. It is Kamala Bhagvat Sohonie, we have to thank every day for helping us understand the nutrient values of Indian food!





Cool ways to handle the summer heat

Consume
tender
coconut
water,
lemon juice,
melon juice,
mint juice,
cucumber
juice, amla
juice etc.

The summer is still on in many parts of the country. We feel dehydrated, thirsty and tired soon. It may be easy to quickly switch on and stay inside an air-conditioned room, drink cold water straight out of the refrigerator, have cold drinks or ice-cream which may give a better feeling instantly.

However, these instant solutions are not really advisable for a healthy lifestyle. Following are alternative, simple and healthier suggestions to stay hydrated and beat the heat, feel comfortable and yet be in sync with nature:

☉ Wear loose cotton clothes which will be more ventilated due to soft finer threads that let air to pass through and also will absorb sweat.

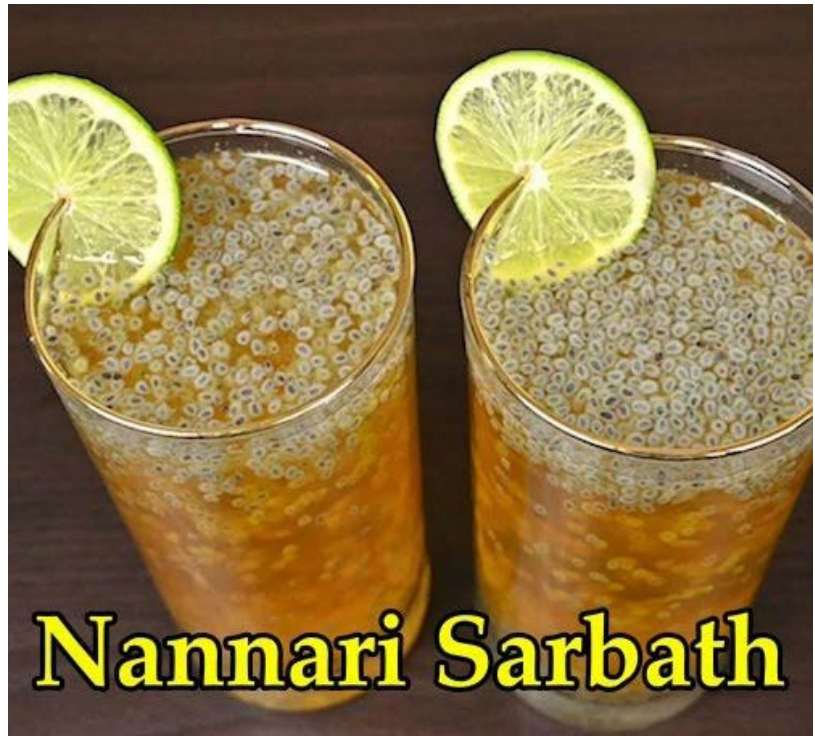
- ☉ Keep sipping water in small quantities at regular intervals to stay hydrated without getting the frequent urge to urinate.
- ☉ Store water in earthenware/clay pots for natural cooling apart from getting mineralized water than refrigerating.
- ☉ Consume tender coconut water, lemon juice, melon juice, mint juice, cucumber juice, amla juice etc. (preferably without added sweeteners/white sugar; or using jaggery or palm sugar instead) will help stay hydrated.
- ☉ Add the herb '*Sarasaparilla*' better known as '*Nannari*' in water as it has cooling

Consume at least one or two fruits per day, especially those with high water content like watermelon, muskmelon, orange or pomegranate in solid or juice form.



Tender coconut and iced apple (Nungu/Tadgola) juice

- ✦ Blend tender coconut water and pulp to a fine purée.
- ✦ Peel the ice apple and cut into small pieces. To the soft coconut juice, add the chopped ice apple chunks and serve.



medicinal property much needed during summer.

- ⊙ Consume at least one or two fruits per day, especially those with high water content like watermelon, muskmelon, orange or pomegranate in solid or juice form.
- ⊙ Ice apple and tender coconut are summertime favourites that keep the body cool and hydrated.
- ⊙ Among the dhal varieties, moong dhal has better cooling property and can be used more often in cooking.
- ⊙ Generally appetite tends to be low for solid foods in summer and thus force feeding children or self can be avoided.
- ⊙ Avoid travelling outdoor for long hours especially between 9 am and 12 noon.
- ⊙ It is absolutely healthy to sweat for a while by doing physical activity. Staying indoor completely without physical activity is not recommended.





Shalini Singh

First female NCC cadet to complete mountaineering course

DO YOU KNOW ?

- ✦ Thirty of the world's highest mountains are in the Himalayas.
- ✦ The summit of Mount Everest, at 29,035 feet (8,850 meters), is the highest point on Earth.
- ✦ **Kangchenjunga** is the highest peak in India and the third highest summit in the world.

With a dream to climb Mount Everest, Under Officer Shalini Singh of 67 UP Battalion NCC, Lucknow Cantonment became the only girl NCC cadet to have completed the Advance Mountaineering Course. Shalini Singh, a resident of Lucknow, is a BA student of BSNB PG College. This advance mountaineering course was organized from 26th April to 23rd May 2023 in the Himalayan region of Uttarkashi in Uttarakhand.

It may be noted that only those NCC cadets who have completed the Basic Mountaineering Course get the opportunity to join the Advanced Mountaineering Course, which Shalini Singh successfully completed in 2022 at Pahalgam in Jammu and Kashmir.

Shalini Singh, a 20-year-old, was the only girl cadet included in

the 45-member contingent selected at All India level for Advance Mountaineering Course-173. Under this course, Shalini Singh, who was part of the team, successfully completed the summit **Hurra Top** in the Himalayas in Uttarkashi region on 18th May 23. Located in the Dring Valley (Dokrani Bamak Glacier area), this peak of 15,400 feet height is extremely inaccessible and covered with snow, which was difficult to climb. Earlier, Shalini Singh along with a trainee mountaineering team had reached the base camp at 12,300 feet on 9th May for mountaineering. The trainee team was given special training from 26th April 2023 to 6th May 2023 at Tekla, Uttarkashi at an altitude of 4,200 feet by the instructors of the army.

This achievement is a matter of pride not only for the NCC battalion but also for the Uttar Pradesh NCC Directorate. After achieving this success, Shalini Singh said in her message that she completed this course with her tireless efforts and passion and this achievement would prove to be an inspiration for the girls of the country. Shalini further said that she completed this course of one month in extremely inhospitable conditions where the temperature was less than minus 14 degrees.





Paresh Rathwa is a renowned Pithora artist from Kawant, Chhota Udepur district of Gujarat.



Paresh Rathwa

Pithora Artist

Pithora (old tribal folk art)

Pithora paintings are made on walls by the Rathwas of Panchmahal and Vadodara, districts of Gujarat to honour their god, Baba Pithora (God of the village) during the spring season. With a decorative and bright colour scheme, Pithora paintings are an integral part of the rituals performed to thank Baba Pithora for their wish fulfilment.

It is considered auspicious to paint the house walls with the images of a deity during occasions of the birth of a child, good harvest, marriage etc., as they bring peace, prosperity and happiness. The wall surfaces are the canvases for painting the sacred Pithoras replete with images of horses and their riders. Pithora paintings are also made on cloth, paper and cardboard with natural and synthetic colours in recent times.

Paresh Rathwa is a renowned Pithora artist from Kawant, Chhota Udepur district of Gujarat. Born on 17th August 1968, Rathwa studied up to 10th standard and started accompanying Pithora (Lakhara in the local language) from his village. Since 1990 in his early 20's, he has been painting Pithora from village to village and participated in various international, national and state

exhibitions and tribal festivals to preserve and promote the traditional tribal art.

Rathwa visited the Adivasi Museum of Tribal Research Institute, Gujarat in 1995. Then the museum curator Ghosalkar expressed his feelings about the necessity of preserving this endangered art form and that is how the journey of preserving Pithora started. Rathwa participated in more than 30 events/exhibitions in India and abroad including International Painting Exhibition held at Fuzita Vinte Museum, Japan (1995) and Roberto Sioline, Milio, Italy (2000).

He painted Pithora on the walls of many iconic buildings and government offices in New Delhi and Gujarat. Rathwa has imparted online training of the art to several art lovers from various countries like England, Italy, France, Japan etc.

Other accolades

- **2018** - State award by Cottage and Rural Industries Department.
- **2019** - Best Pithora Artist
- **2020** - Best Artist by Government of Gujarat
- **2021** - Gujarat Travel and Tourism Excellency Award



BAL PURASKAR AWARDS

Adithya Suresh



Though Adithya is confined to his wheelchair with limited movement, he made his voice travel everywhere by continuously pursuing his passion.

Adithya Suresh, a 16-year-old boy hailing from Ezhaam Mile in the Kollam district of Kerala has won the Pradhan Mantri Rashtriya Bal Puraskar award under the category Art and Culture. Adithya proved that if one's mental strength is good, then the sky is the limit for success. Even after being diagnosed with a bone disorder (*Osteogenesis imperfecta*) at birth, he transformed himself into a great singer. *Osteogenesis imperfecta* means imperfect bone formation. People with this condition have bones that break (fracture) easily.

Adithya has suffered 20 fractures since birth. Though he is confined to his wheelchair with limited movement, he made his voice travel everywhere by continuously pursuing his passion. Adithya started singing at the age of 3. However, he started undergoing formal training from gurus at the age of 10.

Adithya has performed in more than 500 events. He has also performed in many TV shows. He has many fan followers as his singing reminds them of the original track.

He won 'A' grade in the Malayalam poem recital at Kerala State School Youth Festival in Kozhikode. He has also been honoured at the Bala Kalotsavams held in Trichur, Kozhikode and Kollam.

The 2008 commemoration function of poet and lyricist Valayar Ramavarma in Pathanamthitta was a milestone in his life, where he recited a poem by Valayar, which became viral in social media. Subsequently offers from many Malayalam channels followed. People started recognising him as a singer and not as a disabled person anymore. Presently, he is pursuing Class XI Humanities along with music as a passion.





Depleting ground water reserves

Assessment of ground water levels is an elaborate task and needs to be done over a large land area across several years.

India is one of the top five agricultural producers in the world. The advent of green revolution heralded self-sufficiency in food in India. Obviously to keep this momentum going, to feed 1.4 billion mouths, water availability is extremely important. It is common knowledge that less than 1% of all fresh water resources is available to us in lakes, rivers and subterranean aquifers.

What is happening to India's ground water? Assessment of ground water levels is an elaborate task and needs to be done over a large land area across several years. A two member team from IIT Gandhinagar used observational ground water data and satellite

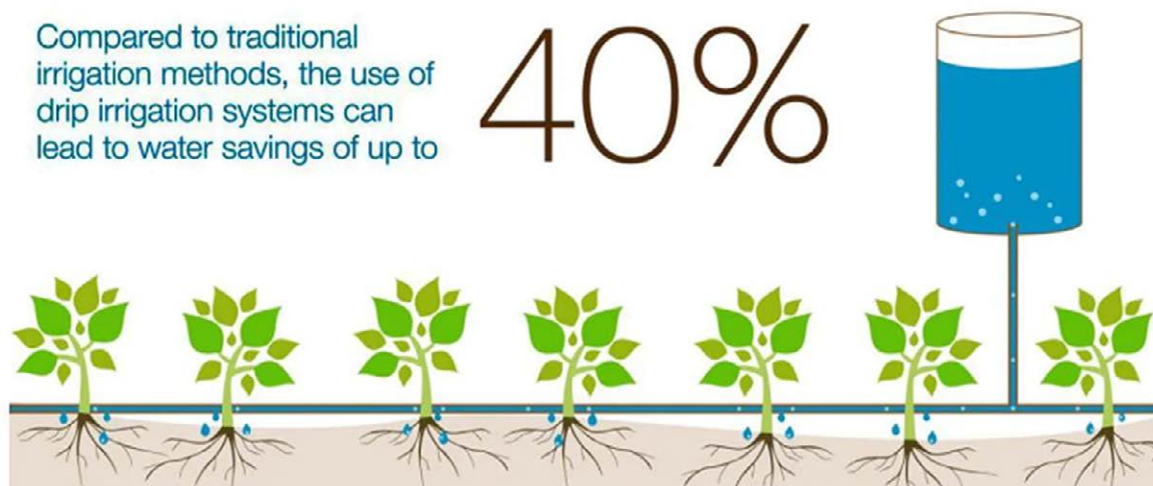
observations from gravity recovery experiments (GRACE). Their observations are too uncomfortable. Between 2002 and 2022 close to 95% of India's ground water depletion occurred in the aquifers of north India.

Climate change and altered rainfall pattern: Anthropogenic (human induced) global warming and ensuing climate change can result in extreme weather. It could be prolonged drought or very heavy episodic rainfall and the likelihood of increased precipitation in the tropics.

The two main drivers of ground water storage in India are agriculture and summer rainfall. The team from IIT Gandhinagar, using hydrological

Compared to traditional irrigation methods, the use of drip irrigation systems can lead to water savings of up to

40%



Consumers at all levels should be sensitized about food wastage, and educated on how to minimize it.

model stimulation under future emissions scenario have opined that the increased rainfall of 6% to 8% due to global warming may not be sufficient for full recovery of the depleting aquifers in north India. At best 50% recovery is possible of this two- decade-old phenomenon.

How crucial is ground water to Indian agriculture? 65% of irrigation in India based on ground water withdrawal - world's largest ground water equipped irrigation system. Agriculture is vital to the Indian economy, considering the fact that it employs 152 million Indians and contributes to 20% of its GDP.

Ecological truth behind economic success: Very often the ecological damage gets swept under the carpet in the face of economic success of a country. Falling water tables is a sign of environmental stress. Record food output is good but very often it masks environmental stress like falling water tables or the abuse agricultural lands encounter by way of soil erosion and gradually eroding soil fertility.

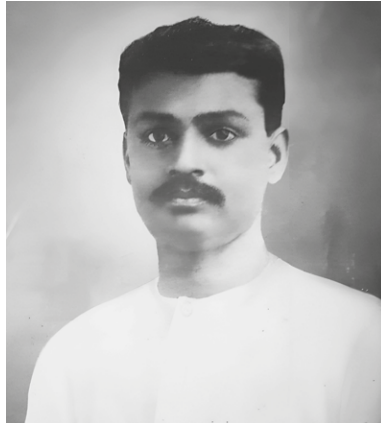
What can be done? Water conservation techniques like drip irrigation, timing of water use etc., alongside different methods of rainwater harvesting have produced spectacular results. Agricultural research institutes keep working on developing drought resistant varieties.

The biggest challenge is food waste. 68 million tonnes of food is wasted in India. That is close to 25% of food production. Food waste can be controlled at various levels like in harvesting stage, storage, in house holds and at retail level.

Consumers at all levels should be sensitized about food wastage and educated on how to minimize it. Very few realize the hidden connection between water use and food waste.

Rice and wheat are important cereals cultivated in India, which require enormous amounts of water. Hence the waste of these cereals all long its supply chain should be seriously investigated. **Prevention of wastage must happen at all levels.**





Sachindranath Sanyal

Sanyal was briefly released from prison, but he continued to take part in movements against the British. He along with Ram Prasad Bismil founded the Hindustan Republican Association (HRA).

The moment we hear the name HSRA (**Hindustan Republican Socialist Association**), what pops in our mind immediately is Bhagat Singh or Chandrashekhhar Azad. Little do we know about one of its founders, a high-ranking leader of India's revolutionary movement and a two times prisoner of the infamous Cellular jail in Andaman and Nicobar Islands - Sachindranath Sanyal.

Anushilan Samiti was an Indian fitness club, which was actually used as an underground society for anti-British revolutionaries. In the first quarter of the 20th century, it supported revolutionary violence as the means for ending British rule in India.

Born on 3rd April 1893 in a Bengali family in Varanasi, Sanyal, from a very young age was known for his revolutionary ideas. He married Pratibha Sanyal who stood by his side in the fight against British rule. He moved to Calcutta in 1907 and worked in the **Anushilan Samiti**, later took charge of its unit in Varanasi. Sanyal soon became the central force in awakening revolutionary ideas. In 1913 he established another unit in Patna.

Sanyal was a close associate of Rash Behari Bose. After Bose's departure to Japan, Sanyal involved in the Ghadar conspiracy which was secretly bringing in large scale arms and ammunition to initiate Anti-British uprising across the nation. Unfortunately, this plan was shattered by the British.

Sanyal was given a lifetime imprisonment in the cellular jail where he penned a book titled



Sanyal's selfless contribution to the country's freedom movement was legendary and served as the driving force behind the Indian revolutionary movement.



Bandi Jeevan (meaning - A life of captivity) in 1922.

Sanyal was briefly released from prison, but he continued to

take part in movements against the British. He along with Ram Prasad Bismil founded the Hindustan Republican Association (HRA).

The Kakori train incident infuriated the British officials and they imprisoned him once again confiscating his ancestral property in Varanasi. Unfortunately, he was down with tuberculosis and was moved to the Gorakhpur Jail during the last days of his life. He passed away on 7th February 1942.

Sanyal's selfless contribution to the country's freedom movement was legendary and served as the driving force behind the Indian revolutionary movement. **Sachindra Nath Sanyal, the great revolutionist is truly one among the hundreds of unsung heroes of our nation.**



Smt Archana Sundar

CURIOSITY CORNER

GUESS THE BOOK AND ITS AUTHOR



1. "It is a far, far better thing that I do, than I have ever done; it is a far, far better rest I go to than I have ever known."
2. "You have brains in your head. You have feet in your shoes. You can steer yourself in any direction you choose. You're on your own. And you know what you know. And YOU are the one who'll decide where to go..."
3. "It matters not what someone is born, but what they grow to be."
4. "Whenever you feel like criticizing anyone ... just remember that all the people in this world haven't had the advantages that you've had."
5. "Real courage is when you know you're licked before you begin, but you begin anyway and see it through no matter what."
6. "I never could have done what I have done, without the habits of punctuality, order, and diligence, without the determination to concentrate myself on one object at a time."
7. "We must take the good wherever we find it and try to remove the bad wherever it may be."
8. "If you can concentrate always on the present, you'll be a happy man. Life is the moment we are living now."
9. "Who really said that India is a country? It is a continent – culturally vibrant, diverse in food and yet, distinctly Indian at heart."
10. "The same question arose in every soul: "For what, for whom, must I kill and be killed?"

Answers on page 66





Lady's Slipper Orchid

Scientific name:
Cypripedioideae

Higher classification:
Orchids

Kingdom: *Plantae*

Order: *Asparagales*

Family: *Orchidaceae*

Subfamily: *Cypripedioideae;*
Kostel

Lady's slipper orchids are in the genus *Cypripedium* in the *Orchidaceae* family. The genus name *Cypripedium* is derived from the Greek word "Cypris" an early reference in Greek myth to Aphrodite and "pedilon" for sandal. This is because the fused petals that form the orchid's pouch or modified lip (labellum) resemble a slipper or shoe.



There are about 50 species that are widespread throughout boreal, temperate and tropical regions of the European, Asian and North American continents.

Lady's slipper is often placed in a family of its own because it lacks the long, specialized pollinia that are typical of orchids. Instead, it has a mass of sticky pollen on the end of two stamens. People regard it as the finest orchid.

Factfile

- Mostly associated with woodland and fen habitats.
- Relatively slow-growing.
- Do not like to be disturbed often.
- In the wild, the seeds and seedlings form a symbiotic relationship with specialized



Arunachal Pradesh



United Kingdom



Lady's slipper orchids are usually terrestrial, though some are epiphytic or grow on rocks. Most species have rhizomes and fibrous roots. Unlike most other orchids, the flowers characteristically feature two fertile anthers (male, pollen-producing structures) instead of just one. The slipper-shaped lip of the flower serves as a trap for pollinating insects, forcing insect visitors to climb past the reproductive structures and deposit or receive pollinia (pollen masses) to fertilize the flower.



fungi to help them germinate and grow.

- Wild plants typically do not transplant well and should be left alone.
- Can live for up to 50 years and grow four feet tall.

The lady's slippers are protected because a picked lady slipper will not rejuvenate itself, and the plant has a less than 5% transplant success rate. Lady's Slipper Orchid is considered to be the rarest wildflower in the United Kingdom. A single lady's slipper orchid, *Cypripedium calceolus* is the last wild plant of its kind left. This spectacular orchid is also found in Arunachal Pradesh in India .

ANSWERS of page 64

1. A Tale of Two Cities; Charles Dickens
2. Oh, the Places You'll Go! ; Dr Seuss
3. Harry Potter and the Goblet of Fire; J.K. Rowling
4. The Great Gatsby; F. Scott Fitzgerald
5. To Kill a Mockingbird; Harper Lee
6. David Copperfield; Charles Dickens
7. Letters from a father to his daughter – Jawaharlal Nehru
8. The Alchemist; Paulo Coelho
9. Three Thousand Stitches; Sudha Murthy
10. War and Peace; Leo Tolstoy



WORLD ELDER ABUSE AWARENESS DAY

15th JUNE



My community,
Your community,
OUR community –
free of elder abuse!



14th JUNE

World **Blood**
Donor Day



Donate Blood

&

Save Lives

