PRAJYA

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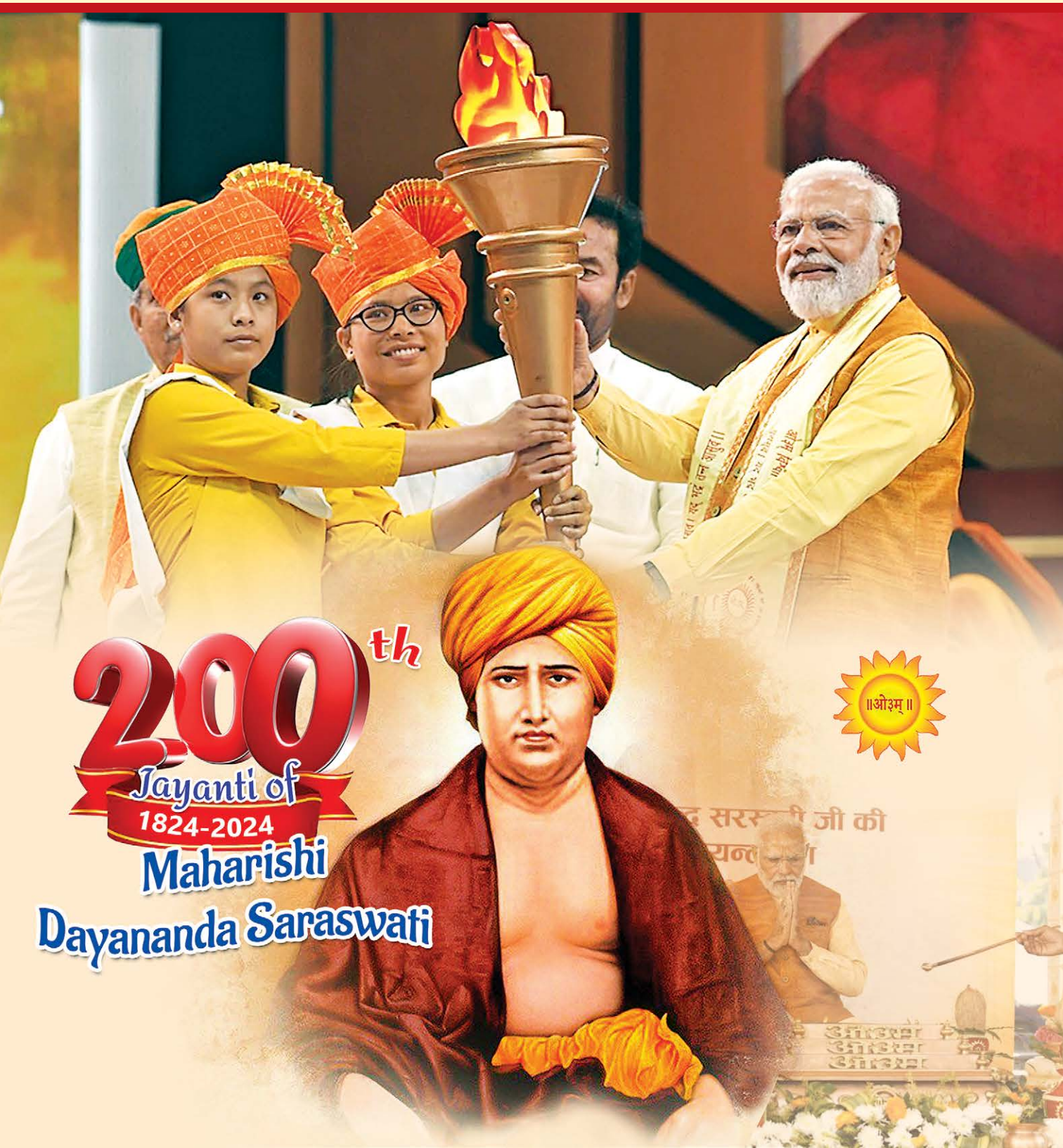
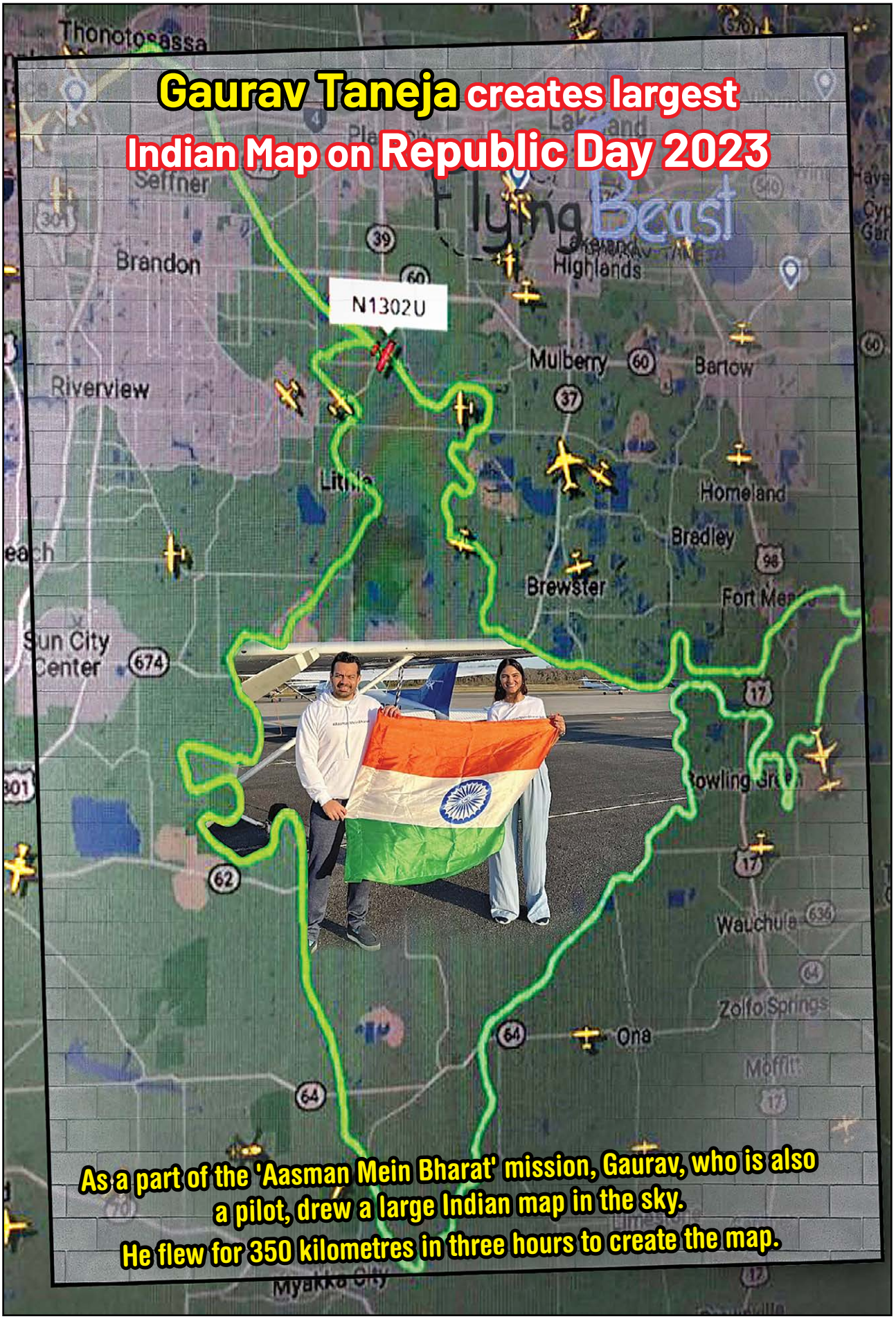


Gaurav Taneja creates largest Indian Map on Republic Day 2023



As a part of the 'Aasman Mein Bharat' mission, Gaurav, who is also a pilot, drew a large Indian map in the sky.

He flew for 350 kilometres in three hours to create the map.

THE PRAJYA TEAM

Published by:
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Educational Consultant

Shri Nandakumar V
Educational Consultant

Smt Nandhini S
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Technical Editor :
Shri Guhaprasath Subramanian

Creative Design & Printed by :
Shri Ram Manohar R
Sri Hari Digital Ventures P Ltd.
AVG Graphics

COMMENTS
&
SUGGESTIONS
prajya.magazine@davchennai.org

FROM THE EDITOR'S DESK

Someone said, "Don't tell people your dreams. Show them."

The India we live in is an aspirational India. It is no more a pushover 'third world' nation. It has the capability to build on its innate strength and confidently display its potential.

"This new height is the reality of New India. Today India is touching new heights and transcending them too," said our Prime Minister Modi.

From being a mere consumer and importer, India wants to be a manufacturer. Indian defence industry has been striving to offer new products and variants to make Indian armed forces truly *atmanirbhar*. AERO INDIA 23 brilliantly showcased India's indigenously produced equipment. Armed drones, combat aircraft and missiles of augmented potent were on display. DRDO's mission mode projects are ample evidence to make this dream a reality. Building Asia's largest helicopter manufacturing facility in Tumakuru is an attestation of a resolute India.

Veer Guardian 2023 the Indo - Japanese bilateral exercise will not only strengthen the ties between the two nations, but also send strong signals of quelling the predatory moves of China.

Air India's mega deal with Boeing and Airbus is another leap towards the sky. As an Asian pioneer with a proven capability in the past, it would certainly strive to regain its glory in the aviation sector and actualise India's ambitions.

Read, reflect and revert with your thoughts and feelings.

We look forward to your support and suggestions.

- Editorial Team

Dear Readers,

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

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

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

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

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

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

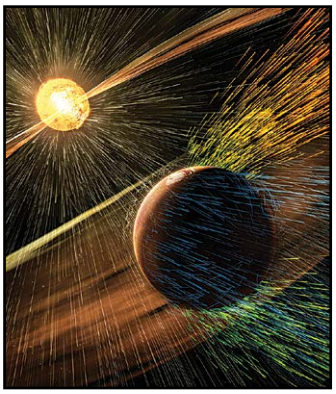
http://bit.ly/Prajya

Happy Reading !

Watch out for the Monthly Prajya Quiz online

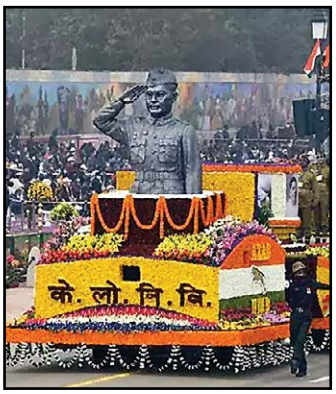
Visit https://davchennai.org/publications/prajya-news-magazine/

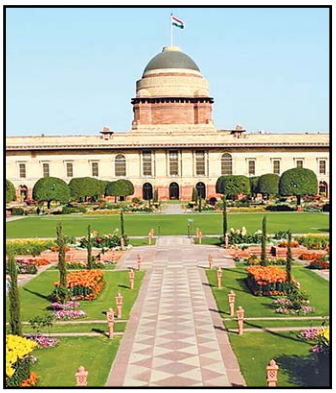
Content

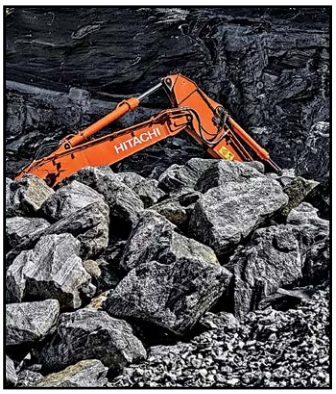


International Current Affairs

National Current Affairs







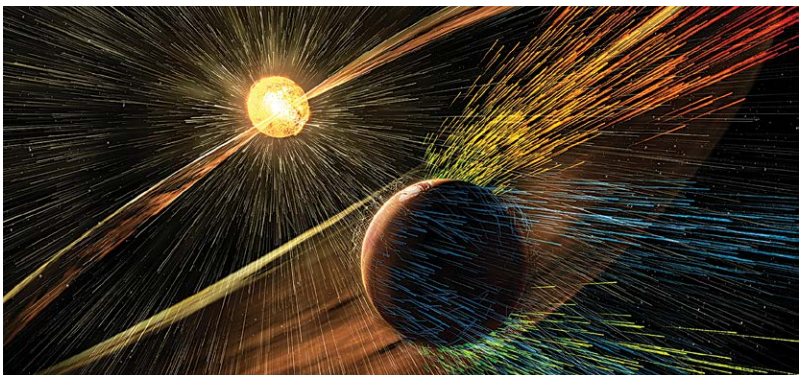
Defence Updates

General Knowledge

Kum Anu Narayan

New secrets of Martian magnetosphere unlocked

Researchers from the Indian Institute of Geomagnetism (IIG) have found the first evidence of solitary waves in the magnetosphere of Mars. This discovery is critical as solitary waves control particle energization, transport through wave-particle interactions and plasma loss.



- **Earth's magnetic field** protects us from high-speed charged particles continuously being emitted from the Sun in the form of solar wind.
- **Plasma** is one of four fundamental states of matter, with a significant portion of charged particles in any combination of ions or electrons. It is the most abundant form of ordinary matter in the universe, being mostly associated with stars, including the Sun.

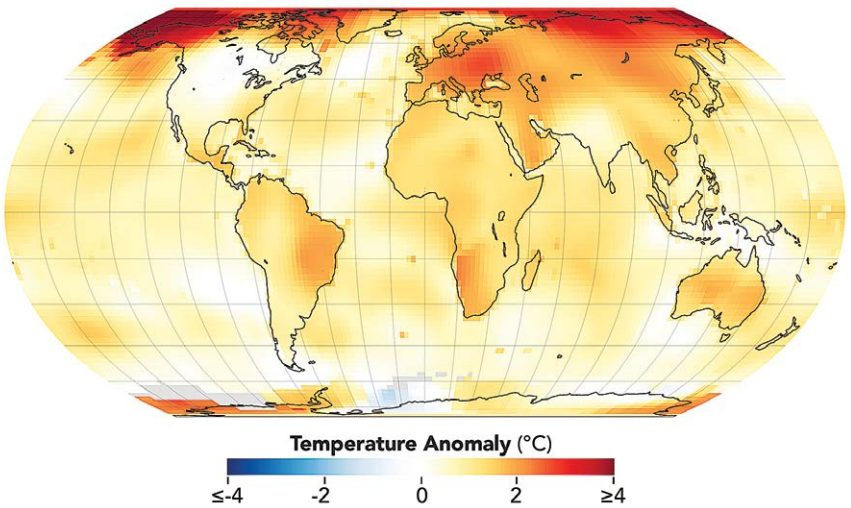
With the help of high-resolution electric field data recorded by the Langmuir Probe and Waves instrument on NASA's Mars Atmosphere and Volatile Evolution (MAVEN) Spacecraft, the scientists analyzed 450 solitary wave pulses observed by the spacecraft during its five passes around Mars in February 2015. The findings were published in the Astrophysical Journal.

Despite theories that even a weak magnetosphere such as Mars should have frequent occurrences of solitary waves, they have been hidden so far. Now, it is found that the magnetosphere is highly dynamic and formed due to the direct interaction of solar winds with the Martian atmosphere.

Since solitary waves are responsible for plasma energization and its transport in Earth's magnetosphere, the team is keen on further exploring their role in the particle dynamics in the Martian magnetosphere.

Solitary waves are distinct electric field fluctuations (bipolar or monopolar) that follow constant amplitude-phase relations. Their shape and size are less affected during their propagation. These pulses are dominantly seen in the dawn and afternoon-dusk sectors at an altitude of 1000–3500 km around Mars.

Shri Sampath D



Global Warming

2022-Fifth hottest year on record

We are witness to intense forest fires, strong hurricanes, rising sea levels and havoc wreaked by droughts.

A report by National Aeronautics and Space Administration (NASA) states that Earth's average surface temperature in 2022 tied with 2015 as the fifth warmest on record. It is seen, that on account of Earth's continuous warming trend, global temperatures in 2022 were 1.6 degrees Fahrenheit above the average for NASA's baseline period, from 1951-1980.

We are witness to intense forest fires, strong hurricanes, rising sea levels and havoc wreaked by droughts. The report by NASA makes a point to state that the past nine years have been the warmest ever since record keeping began in 1880.

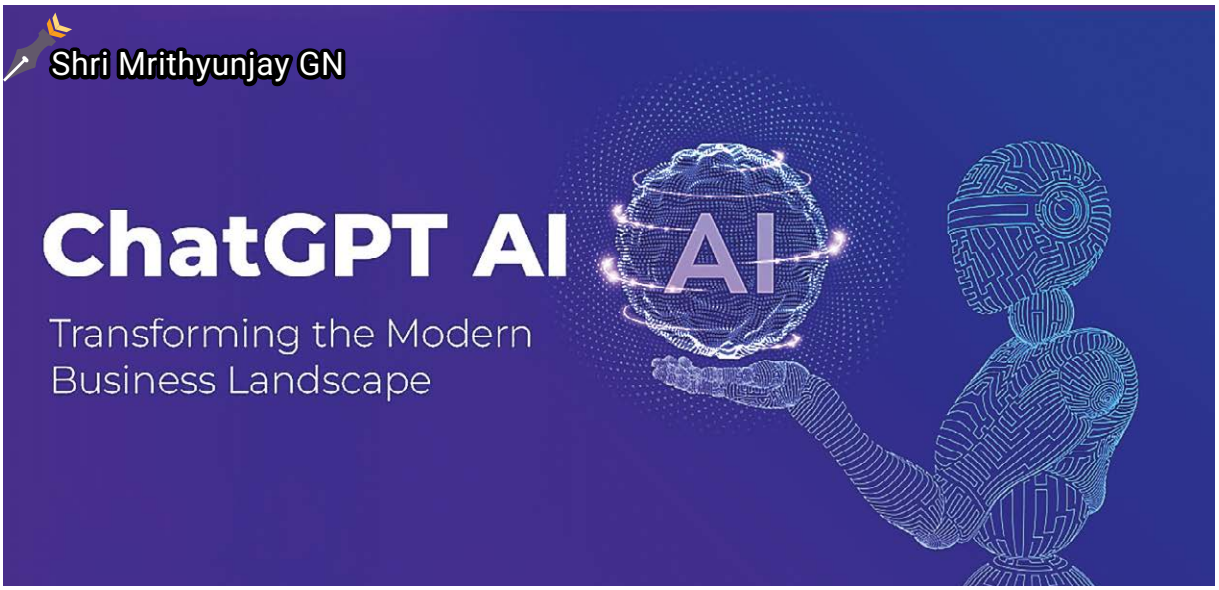
One of the main reasons behind the planet becoming warmer is that humans continue to pump huge amounts of greenhouse gases into the atmosphere. It was seen that the human involvement in greenhouse gases came down in 2020 due to Covid 19 but it recorded its highest for Carbon dioxide emissions in 2022. NASA also identified some super-emitters of methane – another powerful greenhouse gas.

Scientists say that the impact experienced by the communities around the world are connected to the warming of atmosphere and oceans.

Climate change has had its effect in intensified rainfall and tropical storms and severity of droughts. The torrential monsoon rains that devastated Pakistan, the persistent mega drought in the U.S. Southwest are all attributed to the global warming.

The study said that NASA's global temperature analysis was drawn from data collected by weather stations and Antarctic research stations, as well as instruments mounted on ships and ocean buoys. These measurements are analysed by scientists to account for uncertainties in the data and to consistently maintain methods for calculating global average surface temperature differences for every year.

Shri Mrithyunjay GN



Understanding AI and ChatGPT

In the 1950's American computer scientist John McCarthy coined the term "artificial intelligence" along with his colleagues.

ChatGPT has been the subject of great interest and debate for the past several months. This AI based chatbot has changed the world's perception of how advanced machines are interacting with humans. But what exactly is ChatGPT? How exactly does it work? How is it able to talk to us like any normal person?

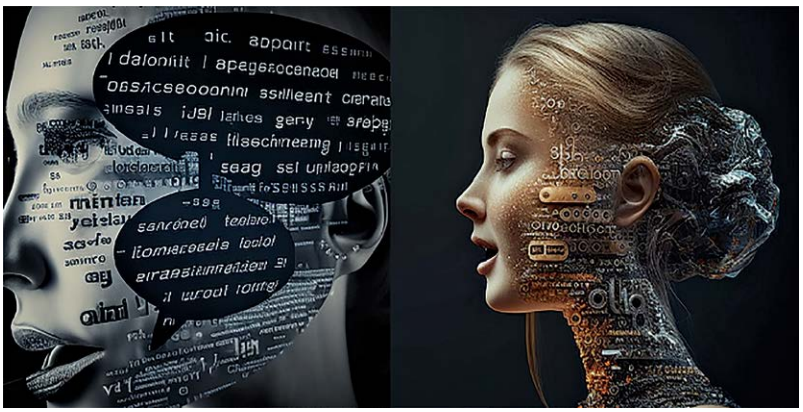
Before we begin to understand that we first need to know the history of what its two main components are – artificial intelligence and a chat bot.

Can machines think?

In the beginning of the 20th century, the world became fascinated by the concept of robots -the Tin-Man from **The Wizard of Oz,** the robots in Issac Asimov's stories and other machines that could look, talk and think like humans. This was where the fascination with an intelligent mind, that was not created naturally but through human ingenuity was born.

In the 1950's American computer scientist John McCarthy coined the term **"artificial intelligence"** along with his colleagues. At the Dartmouth Summer Research Project on Artificial Intelligence (DSRPAI) conference of 1956, researchers from various fields agreed that, not only was AI achievable but it was achievable within their lifetime. In the 30 years that followed, even the researchers at the conference could not have predicted how quickly the field would expand and grow.

We, as humans can take in our surroundings and make decisions based on our circumstances to



achieve the best possible outcome. For example, if we understand chess, we do not need someone else to tell us what move to make. We would just see what our opponent does and make a move that we think would be the best in that particular scenario.

If we were playing chess in a computer we would have to tell it to move a piece. If the computer had AI, it would not need us to tell it what to do, it would just do it. How do we teach a computer to do that? Simple. We teach it to look for patterns.

Instead of teaching the computer rules of chess we feed data from one million chess games into a database. This database will have every single move possible and also, its percentage of success against any given move of the opponent.

Once that is done, we let the computer play. Instead of playing by instinct, understanding and limitations, a computer would just beat the opponent by doing pure, brutal mathematics.

And no human can beat a computer on the number of calculations it can do in milliseconds. The first "Chess-bot" that could beat a human was "Deep Blue". Built by IBM in 1997, it beat the reigning world chess champion Garry Kasparov.

Instead of playing by instinct, understanding and limitations, a computer would just beat the opponent by doing pure, brutal mathematics.

Chess has 20 possible moves as an opening. A computer beating a human at chess was inevitable. Scientists thought, a computer beating the game of Go, which has 361 possible openings would take many decades. On 15th March 2016, "AlphaGo" beat Go champion Lee Sedol.

This is AI - a program with a database of multiple things that it can reference, depending on the situation, to come up with the best possible solution. A program that can generate something completely new by combining its repository of 'knowledge'

Modern AI like **Midjourney, DALL-E 2 and Jukebox** can be used to generate new music, art, websites, writing and so much more. This is possible because to the program, its database is the entire internet. As long as it has the power to look through the data to find the answer it will.

A friend to talk to

Humans are not computers. Computers prefer numbers, specifically 0's and 1's. We prefer to use words. Decades of research has shown that humans prefer to learn and interact with the world around them through the visuals and complex language over any other form. Would you rather read a manual on how to fix your broken laptop, refrigerator or a broken table lamp or would you prefer your friend to walk you through it?

Despite the information you obtain being the same, we would prefer the friend. That's because of the convenience of your being able to ask them something specific about your table lamp and also because the way they explain it seems more natural than reading a detailed manual with very complex language.

This is the hurdle that Chatbots were made to solve; to make a computer 'sound' more human. Since ELIZA, the first of its kind in 1966, chatbots have worked the same way. We type in something we want, and by looking through the words, and connecting them to scripted responses in the database, it would give us a pre-typed response.

This, however, was the limitation with most chatbots till the late 2000's. The responses they gave were very pre-planned. If we asked something that it did not have in its database, it would just say "I cannot help you with that right now." Little did we know that a paradigm shift was just around the corner.

Passing the Turing test

Alan Turing was a British mathematician and computer scientist who proposed the Turing Test in 1950. The test measures a machine's ability to exhibit human-like intelligence, specifically in natural conversations with a human. A machine passes the test if the person cannot distinguish it from a human.

With Siri, Alexa, Cortana and other voice assistants scientists have been able to understand in great detail how humans ask questions, interact and speak. They understand that **"Ok Google, I don't know why my table lamp is not working"** means that the device is expected to give a solution just as much as "Can you tell me how to fix my table lamp?"

We use our devices, post on social media, YouTube videos, interact with digital assistants and so on. Using this enormous database of human language built over years the language of AI Chatbots has now become more sophisticated.

Using the enormous database of human language built over years the language of AI Chatbots has now become more sophisticated.

Open AI & Chat GPT

We finally arrive at our destination. **OpenAI** is an American research laboratory that runs its systems on the world's fifth most powerful supercomputer. ChatGPT is a chatbot that uses any publicly available source on the internet as a database to talk to the user.

For example, if you ask a rudimentary chatbot to explain the plot of a complicated movie to a 10-year-old child, it would only be able to do so if someone else had taken the plot and explained it in a simpler fashion and put it in the database.

Whether we like it or not, AI is a definite part of the future. AI will affect every field that we participate in - movies, education, music, science and much more.

But, if you were to ask the same question to ChatGPT, it would go to the Wikipedia page of the movie and read the text. It would then reference the vocabulary and style of posts and videos that are aimed at 10-year-old children. Once it is done, it would be able to rephrase and simplify the explanation, check it for errors and give it to you.

With Microsoft partnering with OpenAI to integrate ChatGPT with its search engine Bing, Google announced that it will be introducing its in-house AI Bard. The objective behind both these search engine integrations is to make the way we interact with our devices easier and more natural.

It would not be awkward conversations with us trying to be as clear as possible but like talking to a person. A person with the entire internet in their mind, but a person nonetheless.

It is this ability to breakdown, understand, compare and generate specific information at incredible speeds that makes ChatGPT and Open AI so advanced.

The drawbacks and ethics

AI chatbots, however, are not infallible. They are dependent on the database they draw from. And the internet is essentially billions of people generating content. ChatGPT and other such chatbots just consolidate them.

If there were 10 articles on a particular incident and seven of them get key details wrong, a summary of the incident generated through ChatGPT would have some key details wrong. **It is only as reliable as the information it draws from, and the internet is never 100% reliable.**

AI-generated material also has an ethical debate surrounding it. Is an AI generated piece of art truly something original but an imitation of a style of a real artist made by combining multiple pieces of art made by real people?

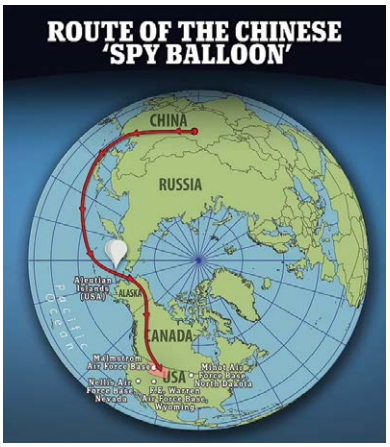
Should people reading a news article about an event be informed whether it was written by a person or whether key details of the event were input into a program and the rest of the material was generated by the AI?

Would readers even notice or care as long as the information was relevant? **Did you notice that the first paragraph under "Passing the Turing test" was AI generated?**

The uncertain future

These are just some of the questions that we have to grapple with when it comes to AI. The genie is out of the bottle. Whether we like it or not, AI is a definite part of the future. AI will affect every field that we participate in - movies, education, music, science and much more. **It all comes down to decide to engage with it and use it appropriately.**

SPY BALLOON over USA



The balloon's movement was tracked by US authorities, as it flew over sensitive locations over several States.

Balloons are generally used for meteorological observations, in medical treatment, defence and transport. The balloons filled with Helium can rise even above 50,000 ft.

On 30th January 2023, a balloon flying at very high altitude was found entering US airspace over the northern state of Montana. The 3-buses-sized balloon's movement was tracked by US authorities, as it flew over sensitive locations over several States, and as it exited into Atlantic Ocean off the coast of South Carolina. The balloon then was shot down on 4th February, taking care the falling debris will not pose any risk to people.

US President Biden said China was trying to gather information about sensitive installations inside USA and Secretary of State Blinken accused China of violating sovereignty of nations across continents.

China replied that the balloon was flown for weather monitoring only but had gone off-course. They also alleged that by shooting down the balloon, USA had violated international law.

As early as 2020, US Government has asked China to shut the latter's Embassy Office at Houston within 72 hours. USA then under President Donald Trump accused China of trying to steal USA's scientific research and intellectual property through the Chinese office in Houston. Media too were able to take photographs of staff burning down sensitive documents in the open but inside the Chinese Embassy office complex.

In December 2022, Chinese spy ship Yuan Wang 5 was spotted off Sri Lankan coast and also docked at their Hamban Thota Port.

The ship furtively tried to monitor India's testing of Inter-Continental Ballistic Missiles (ICBM) launched from a Submarine Ship Ballistic Nuclear (SSBN).

Countries like Taiwan, Japan and India facing Chinese military threat find that China's espionage against them has only increased of late.

Kum Anu Narayan

India in Human Exploration Rover Challenge 2023

Three teams from India have been awarded as a part of NASA's annual Human Exploration Rover Challenge. This competition invites high school and college students to build and test roving vehicles for future missions to the Moon, Mars and elsewhere.

Team Interstellars from the KIET Group of Institutions in Ghaziabad, UP, won the **"AIAA Neil Armstrong Best Design Award"**. They were recognised for systems best designed to meet the Rover Challenge performance requirements.

The team from Mukesh Patel School of Technology Management and Engineering, Mumbai, Maharashtra, were awarded the **"Frank Joe Sexton Memorial Pit Crew Award"** as well as the "System Safety Challenge Award" for their persistence and ingenuity in overcoming problems during the race.

A team from Lovely Professional University in Phagwara, Punjab, won the **"STEM Engagement Award"** for informing others about rocketry and other space-related topics.

The Rover Challenge provides learning opportunities to students who, some day, may be responsible for planning future space missions, including crewed missions to other worlds. After constructing their own rovers, teams attempt to traverse a nearly three-quarter-mile course reminiscent of terrain found on Mars, as well as other moons, asteroids and planets throughout the solar system. They also have to complete tasks, such as sample collection and instrument deployment, all in just six-minutes.

Nearly a 100 teams took part in the challenge, hailing from a record-breaking number of countries, such as the US, Bangladesh, Bolivia, Brazil, the Dominican Republic, Egypt, Ethiopia, Germany, Mexico, Morocco and Peru.

Shri Sivakumar R

Operation Dost

The Indian Army prepared its rescue teams with relief materials within 12 hours after disaster struck.

Operation Dost was a search and rescue operation initiated by the Government of India to aid Syria and Turkey, after the earthquake that devastated both the countries on 6th February 2023. Incidentally **"Dost"** means "**friend**" both in Hindi and Turkish.

India sent around ₹7 crore-worth of relief material to both Syria and Turkey. The Indian Army prepared its rescue teams with relief materials within 12 hours after disaster struck.

Turkey

India was among the first countries to help earthquake-hit Turkey. India immediately sent NDRF squads for rescue operations in affected areas of Turkey on the evening of 6th February. The Indian Air Force sent a C-17 to Adana with 47 personnel from the NDRF, 3 senior officers, and a specially trained dog squad. Accompanying personnel were necessary equipment, including medical supplies, drilling machines and other equipment required for the aid efforts.India provided Garuda Aerospace's Droni drones to the most affected areas to identify those trapped under rubble, along with modified Kisan drones carrying medications, food and supplies.

On 7th February, the Indian Air Force sent two more C-17 aircraft to Turkey. These two flights contained relief supplies, a mobile hospital and additional specialized search-and-rescue teams. Along with NDRF personnel, the Agra-based Army Field Hospital dispatched 89 medical staff. The medical team

included both critical care specialists and general physicians, with access to X-ray machines, ventilators, an oxygen generation plant, cardiac monitors and associated equipment to set up a 30-bed medical facility.

India sent a total of 7 flights to Turkey with men and materials for the rescue mission.

Syria

On 8th February, over 6 tons of emergency relief assistance was sent to Syria. This included 3 truck-loads of protective gear, emergency medications, ECG machines and other medical supplies.

A total of 7 flights were sent to Syria as well.

Operation Dost was full of emotional, professional and personal challenges, which were well met by both the operating personnel as well as the men working behind

the scenes. Examples include a paramedic leaving her 18-month twins behind to serve the call of duty, officials processing hundreds of documents to prepare more than 140 passports overnight to enable the rescuers to travel and rescuers not being able to take a bath for 10 days etc.

India's quick response during the earthquake has attracted the attention of the entire world. It was a reflection of the preparedness of our rescue and relief teams. It is also a demonstration of our culture and philosophy of *Vasudhaiva Kutumbakam* which means 'the world is one family'.

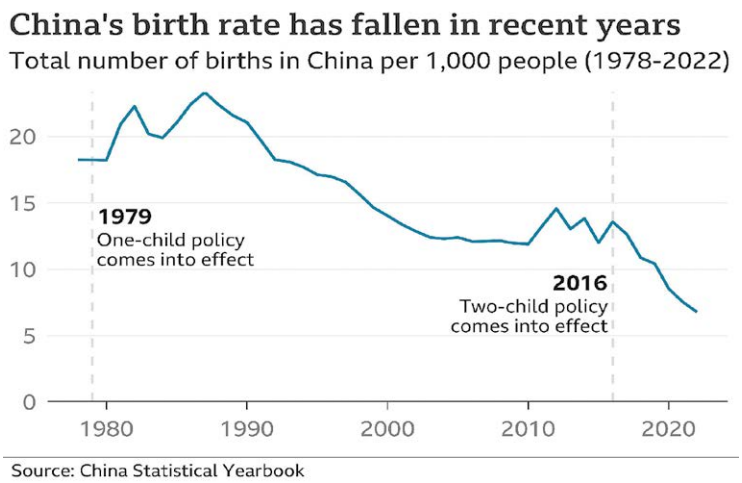
Shri Sampath D

China's shrinking population and economic growth are India's opportunity

In China, the share prices of companies that make diapers, incubators and milk formula took a hit when it was disclosed that its population fell last year for the first time since 1961. Further, shares in a Hong Kong-listed fertility company also took a knock.

It confirmed what many had long expected to happen. China's population at the end of 2022 was 850,000 fewer than the end of 2021, according to the National Bureau of Statistics. This in spite of Beijing's efforts to persuade families to have more children. The decades old one- child policy of was scrapped in 2016 and replaced with a two-child limit and it was further raised to three-child policy in 2021.

India may have already surpassed China as the world's most-populous nation. Its population stood at 1.417 billion at the end of 2022, (World Population Review), which is an independent organization focused on census and demographics. India's population was about 5 million more than the 1.412 billion reported by China.



It is clear now that India's youthful population will position the nation's economy as a credible rival to China.

It is to be noted that half of India's population is under the age of 30, which is indicative of the fact that it is a force to reckon with in terms of growth potential vis-a-vis China. On the contrary China faces the cost of caring the aged and workers becoming expensive resulting in higher cost of production.

India enjoying the advantage of having a youthful population needs to attract major investments which can help boost productivity. **Further attention needs to be paid to education and skill sets so that the younger generation can take up challenges.** There is a definitive need to put in place quality infrastructure to sustain growth.

Smt Meenakshi S

countries to collaborate on Energy Security

The G20 or Group of Twenty is an intergovernmental forum comprising 19 countries and the European Union. It works to address major issues related to the global economy, such as international financial stability, climate change mitigation and sustainable development. Presently India holds the Presidency of the G20.

The G20 member countries participated in the first Energy Transitions Working Group Meeting in Bengaluru and have agreed on collective efforts to achieve energy

security and diversified supply chains of new energy sources. The event focussed on universal access to clean and affordable energy. Events on Inclusive Energy Transition pathways, Energy Security and Diversified Supply Chains, Industrial Low Carbon Transitions, Responsible Consumption and Fuels for Future evoked good response from all the member countries.

Kum Kavya R

India, US and Brazil come together for Global Biofuel Alliance

As leading biofuel producers and consumers in the world, India, Brazil and the United States will work together to develop a Global Biofuel Alliance (GBA). Other interested countries can also join this alliance. GBA is being formed to facilitate cooperation and intensify the use of sustainable biofuels, including in the transportation sector.

GBA is one of the priorities under India's G20 Presidency and was announced by India's Petroleum and Natural Gas Minister Hardeep Sing Puri during India Energy Week 2023. This will place emphasis on strengthening markets, facilitating global biofuel trade, development of policies and provision of technical support for national biofuel programs around the world.

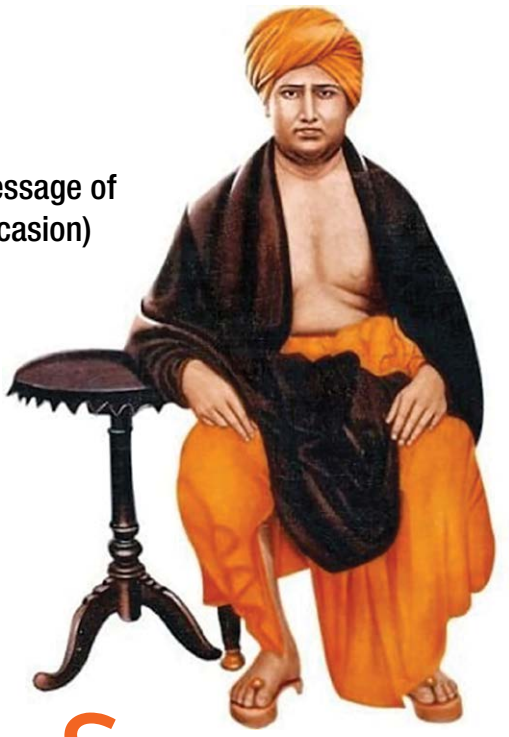
GBA will collaborate with and complement existing regional and international organisations as well as initiatives in the bioenergy, bioeconomy, and energy transition fields more broadly. This includes the Clean Energy Ministerial Biofuture Platform, the Mission Innovation Bioenergy initiatives, and the Global Bioenergy Partnership (GBEP).

DO YOU KNOW ?

- **Biofuel is derived from biomass such as plants, algae or animal waste.Due to the replenishable nature of this feedstock, this is considered to be a source of renewable energy.**
- **The Indian government foresees biofuel playing a significant role in reducing our dependence on import of fossil fuels and achieving energy security. Some of the resources that can be used for biofuel production include agriculture and forest residue, Municipal Solid Waste (MSW) and cow dung.**

Kum Vanshika Arya

(This translated article captures the core message of PM Modi's Hindi speech delivered on the occasion)



Bicentennial celebrations of Maharishi Dayananda Saraswati (Part-1)

"When the whole world is engulfed in many controversies, violence and instability, the path shown by Maharishi Dayananda instils hope in crores of people."

The occasion of Maharishi Dayananda Saraswati's 200th birth anniversary is historical as well as an opportunity to shape the future. This is a moment of inspiration for the whole world and for the future of humanity. Swami Dayananda ji's paradigm was "***Krinvanto Vishwamaaryam***" which means, "Let us make the whole world noble".

We should propagate the best thoughts, humane ideals in the whole world. So in the 21st century, when the whole world is engulfed in many controversies, violence and instability, the path shown by Maharishi Dayananda instils hope in crores of people.

In such an important period, Maharishi Dayananda's 200th birth anniversary is going to be celebrated for 2 years by Arya Samaj and I am glad that the Government of India has also decided to celebrate this festival. For the welfare of humanity, this continuous practice (Sadhana), this *yajna* is going on. A few moments back, even I had got the opportunity to offer *aahuti* in the *yajna*. I am fortunate to be born in the holy land on which Maharishi Dayananda ji was born.

The values and the inspiration I got from that soil continue to attract me towards the ideals of Maharishi. I respectfully bow down at his feet and wish you all from my heart.

When Maharishi was born, the country was losing its aura, its brightness, its self-confidence and everything was being weakened by centuries of slavery. Millions of attempts were made every moment to destroy our *sanskaars*, our ideals and our values.

When inferiority complex of slavery prevails in a society, it is natural for ostentatiousness to come in place of spirituality and faith. It is also seen in human life that the one who lacks self-confidence tries to live on the basis of ostentation.

"The evils that were blamed on Dharma, Swami ji removed them with the light of Dharma itself."

Ten Principles of Arya Samaj

1. God is the original source of all that is true knowledge and all that is known by physical sciences.
2. God is existent, conscious, all beatitude, formless, almighty, just, merciful, unbegotten, infinite, unchangeable, beginning less, Incomparable, the support of all, the lord or all, all-pervading, omniscient and controller of all from within, ever mature, imperishable, fearless, eternal, pure and creator of the universe. It alone must be worshipped.
3. The Vedas are the books of all true knowledge. It is the paramount duty of all Aryas to read them, to teach them to others, to listen to them and to recite them to others.
4. All persons should always be ready to accept the truth and renounce the untruth.
5. All acts ought to be performed in conformity with dharma (righteousness and duty) i.e. After due consideration of the truth and the untruth.
6. The primary object of the Arya Samaj is to do good to the whole world i.e. to promote physical, spiritual and social progress of all humans.
7. Your dealings with all should be regulated by love and due justice in accordance with the dictates of dharma (righteousness).
8. *Avidya* (illusion and ignorance) is to be dispelled, and *Vidya* (realisation and acquisition of knowledge) should be promoted.
9. None should remain satisfied with one's own elevation only, but should incessantly strive for the social upliftment of all, realise one's own elevation in the elevation of others.
10. All persons ought to dedicate themselves necessarily for the social good and the well-being of all, subordinating their personal interest, while the individual is free to enjoy freedom of action for the individual well-being.

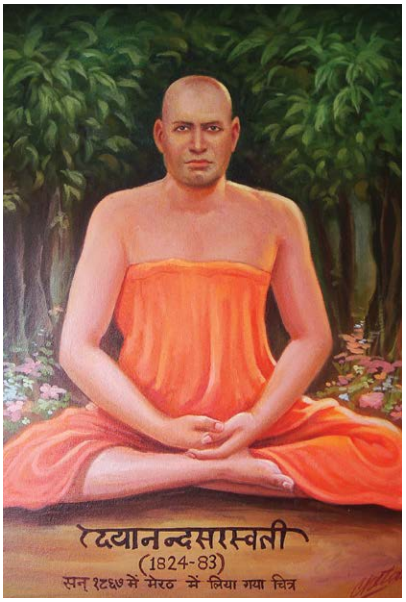
Scan to listen to PM's speech at 200th Jayanti Celebration of Maharishi Dayananda Saraswati

https://youtu.be/vZygAq2a1Yg
with ENGLISH Subtitles

https://youtu.be/wdw85Xtw0QU
with TAMIL Subtitles

In such a situation, Maharishi spearheaded and revived the essence of Vedas. **He gave direction to the society, proved it with his arguments and repeatedly told that the flaw is not in India's religion and traditions, but that we have forgotten their real nature and are filled with distortions.** When foreign commentaries of our own Vedas with fake interpretations were made to humiliate us, to question our history, our tradition, the efforts of Maharishi Dayananda was akin to *Sanjeevani booti revitalising* a decadent society.

Maharishi launched a strong campaign against social discrimination, untouchability, many perversions and evils in the society. Even today I have something to



"Maharishi denounced discrimination against women and campaigned for women's education 150-200 years ago."

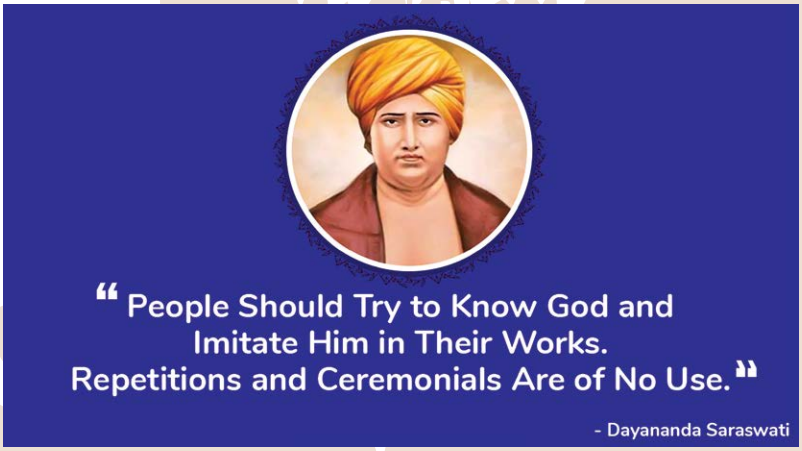
say against the evils of the society. When I say that one has to follow the path of duty, some people chide me – "You talk about duty, not about rights." If this is my condition in the 21st century, then 150-200 years ago, Maharishi must have faced very many difficulties in showing the right path to the society.

The evils that were blamed on Dharma, Swami ji removed them with the light of Dharma itself. And Mahatma Gandhi ji had told a very big thing and told it with great pride; he had said that our society owes a lot to Swami Dayananda but his declaration against untouchability is the biggest contribution.

Maharishi also emerged as a logical and effective voice for oppressed women. He denounced discrimination against women and campaigned for women's education 150-200 years ago.

Even today there are many societies where daughters are forced to be deprived of education and respect. Swami Dayananda had blown this bugle when even in western countries equal rights

"Maharishi had many dreams for the society. Today the country is moving forward with full faith in the mantras that he had given."



for women were a distant dream. Swami Dayananda's clarion call then was path breaking. That's why after 150 years of Arya Samaj and 200 years of Maharishi, this event still attracts such a huge crowd, not only here but all over the world.

When it is impossible to remain relevant even 2-10 years after death, if after 200 years Maharishi is among us today, what can be a greater glory than this? When India is celebrating Azadi ka Amrit Mahotsav, the bicentennial of Maharishi has brought virtuous inspiration.

Maharishi had many dreams for the society. Today the country is moving forward with full faith in the mantras that he had given. Swami ji had directed us saying "Go back to the Vedas". Today, the country is calling for pride in its heritage with utmost self-respect, while marching towards development in the modern world.

Generally, in the world, when we say Dharma, its scope is limited only to worship, its rituals and methods, but in the context of India, the meaning of Dharma is completely different.

The Vedas have defined Dharma as a complete way of life. Here, the first meaning of religion deals with duty - *Pitru Dharma, Matru Dharma, Putra Dharma, Rashtra Dharma, Kaala Dharma* and so on.

This is not our imagination; the role of our saints and sages was not limited to worship only. They took responsibility for every aspect of the nation and society, took a holistic, inclusive and integrated approach. Here the field of language and grammar was enriched by rishis like Panini; the field of Yoga was expanded by Maharishi Patanjali. if you go to Darshan then Acharyas like Kapila gave new inspiration to intellectuals; in policy and politics from Mahatma Vidura to many sages of India till Bhartruhari, and Acharya Chanakya kept defining ideas.

When we talk about mathematics, India was led by great mathematicians like Aryabhatta, Brahmagupta and Bhaskara, their reputation was no less than that of a sage. There are innumerable names in the field of science from Kanaada and Varamihira to Charaka and Sushruta. When we consider Swami Dayananda, we come to know what a big role he has played in reviving that ancient tradition and how supremely self-confident he must have been.

(To be continued)

Smt Meenakshi S

RAJASTHAN

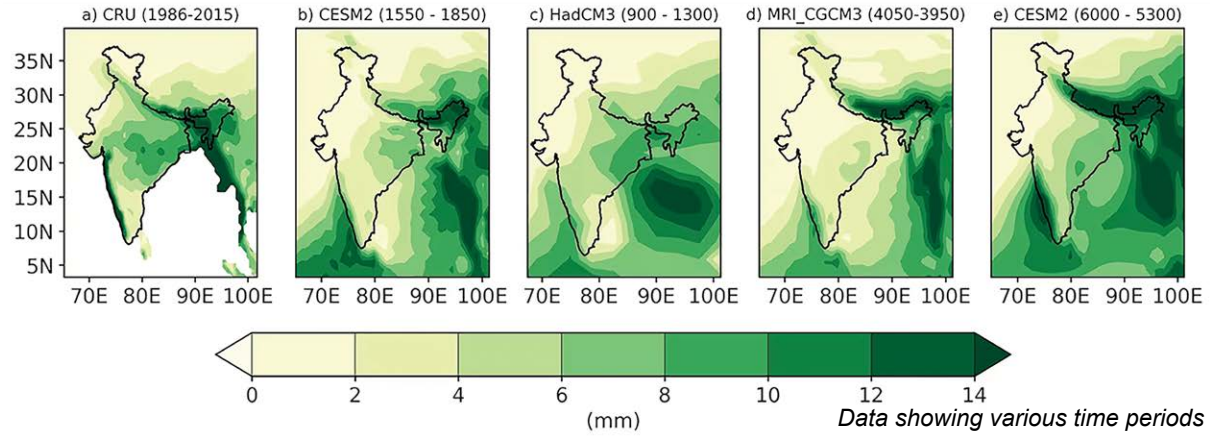
the first State to implement blindness control policy

A society becomes harmonious and developed only when every citizen is given a rightful place to live life with dignity. In this regard an earnest effort has been taken by the Chief Minister of Rajasthan to eliminate visual impairment.

The policy for Blindness Control with the objective of 'Right to Sight' under the campaign of Nirogi Rajasthan has been implemented. With this, Rajasthan has become the first state to have such a policy. When implemented, this will brighten the lives of more than 3 lakh people suffering from blindness in the State.

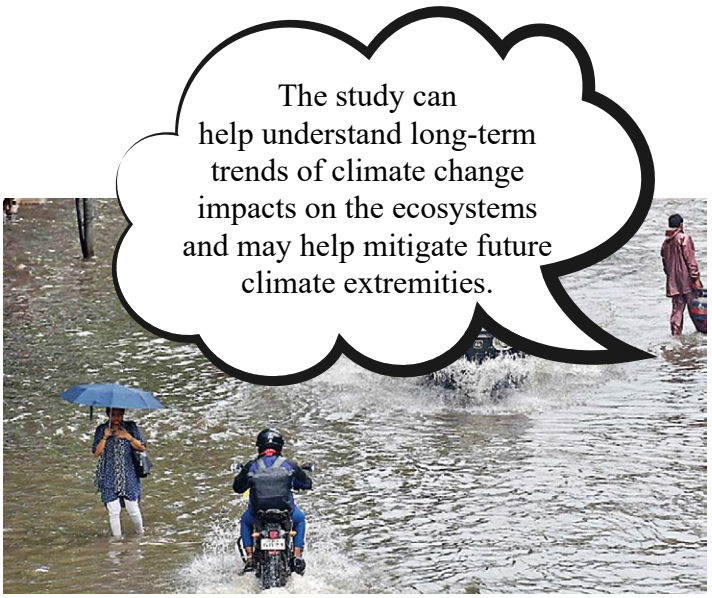
Under this policy, the state government will mandatorily run Keratoplasty Centre and Eye Bank in all the government medical colleges. The government funded private organizations and NGOs collecting cornea will have to provide the collected cornea to the government institutions on priority. The state government will carry out a campaign for eye donation extensively along with private institutions.

Smt Sumathi Ramakrishnan



Data showing various time periods

Northern Bay of Bengal India's rainiest



How was it done?

Scientists collected sediment samples from the bed of a dried lake from the northern part of the Bengal Basin and standard techniques were followed for building the age-depth model of sedimentary sequence and measuring different palaeo-climatological parameters.

Regions surrounding northern Bay of Bengal (BoB) received higher precipitation than the other parts of India for the last 10,200 years says a study.

Agriculture in India is heavily dependent on the Indian Summer Monsoon Rainfall (ISMR). The Bengal Basin or the 'Bengal region' being located at the trajectory of the BoB branch is very sensitive to changes in the ISM strength, where even a minor change may have adverse effects on the agrarian-based socioeconomic conditions of the region.

In the hydro-climatic history a team of scientists show that a heavy ISMR was witnessed during 10,200 - 5,600 years by this region and the ISMR decreased during 4,300 years, which was the most severe, and had adverse impact on the ecosystem. It increased again between 3,700 years - 2,100 years following which it switched to a drier mode for some time and regained momentum between 200-100 years.

They inferred that changes in Lake Ecosystem were strongly influenced by the ISMR.

Shri Nagarajan R

Issue of declaring Ram Setu as a National Heritage Monument

Ram Setu is a chain of natural limestone shoals, between Pamban Island, off the south-eastern coast of Tamil Nadu and Mannar Island, off the north-western coast of Sri Lanka. Geological evidence suggests that this bridge is a former land connection between India and Sri Lanka. The feature is 48 km long and separates the Gulf of Mannar from the Palk Strait. Some of the regions are dry and the sea in the area rarely exceeds one metre (3 ft) in depth which makes it difficult for a boat with a keel to pass over it.

The former Rajya Sabha lawmaker Subramanian Swamy had raised the issue of declaring the Ram Setu a national monument in his PIL against the controversial Sethusamudram Ship Channel project, initiated by the UPA-I government. He submitted that he had already won the first round of the litigation in which the Centre accepted the existence of Ram Setu. The apex court in 2007 stayed work for the project on the Ram Setu.

Under the project, an 83 km water channel was to be created, linking Mannar with Palk Strait, by extensive dredging and removal of limestone shoals. The project has been facing protests from some political parties, environmentalists and Hindu religious groups. The contention is that Ram Setu is identified popularly as the causeway described in the Ramayana. The political parties and organizations suggest alternate alignment for the channel that avoids damage to Ram Setu.

2023 Republic Day Parade
an overview

Our nation celebrated its 74th Republic Day with full enthusiasm on the Kartavya Path, New Delhi on 26th January 2023. The event began with PM Modi's visit to the National War Memorial with Defence Minister Rajnath Singh to pay homage to the fallen heroes and commemorate their sacrifice. After laying wreaths at the memorial, PM and his cavalcade arrived at the saluting dais where he was received by other dignitaries from the Indian Government.

The celebrations were led by President Droupadi Murmu, who unfurled the national flag followed by a 21 gun-salute. **Egypt's President Abdel Fattah al-Sisi was the chief guest**. This is the first time an Egyptian head of state has been invited and this invite marks 75 years of diplomatic ties between Cairo and New Delhi.

This year's parade had a total of 23 tableaus, of which 17 were from various states and union territories of India. They showcased our country's diverse and rich history, stunning landscapes, vibrant

Notably, this year the marching contingents of the Navy and the Air Force were led by women officers.

cultural heritage and religious depictions. **The theme of women empowerment, green energy and promoting sustainable living through tourism were some of the prominent ideas presented.**

The remaining tableaus were from various Indian Ministries whose themes resonated with the ideas of future India. **A highlight of this year's parade was the Veterans' Tableau.** It provided a glimpse of the veterans' contributions in the last 75 years and their initiatives in shaping India's future during 'Amrit Kaal'.

Six marching contingents of the Indian Army, including The Mechanised Infantry Regiment, The Punjab Regiment, The Maratha Light Infantry Regiment, The Dogra Regiment, The Bihar Regiment and The Gorkha Brigade marched past the saluting dais. A military contingent of the Egyptian Army with 144 personnel also participated.

Notably, this year the marching contingents of the Navy and the Air Force were led by women officers. 2023 also marked the very first participation of female camel riders. A team of **"Daredevils"** motorcycle riders from the Corps of Signals was co-led by a woman officer in the parade.

The grand finale, the fly-past, witnessed a breathtaking air show by 45 aircraft of the Indian Air Force, one from the Indian Navy and four helicopters from the Indian Army.

Chi Balamurali Nathan | Student

Pact with Siemens Healthineers

This will enable India's health mission towards deploying healthcare technologies for early diagnostics and treatment to save lives across the country.

Society for Applied Microwave Electronics Engineering and Research (SAMEER), India's premier R&D institute under the Ministry of Electronics and IT (MeitY), has signed a pact with Siemens Healthineers to contribute towards the development of technologies for advancing healthcare and diagnostic access in the country.

Minister of state for Electronics and IT, Rajeev Chandrashekar, stated that SAMEER will make available, low-cost MRIs, as part of the PM's vision of providing quality, affordable healthcare and diagnostic access for every Indian.

SAMEER has been pursuing R&D in the advanced Linear Accelerators (LINAC) for cancer therapy and MRI systems for diagnostics.

The partnership will help in creating local industry access for Siemens Healthineers. These initiatives will enable India's health mission towards deploying healthcare technologies for early diagnostics and treatment to save lives across the country.

Shri Ramaswamy R

India wins the inaugural U-19 Women's T20 Cricket World Cup

In Group I & II matches, India did suffer a setback losing to Australia. But this only made our girls more determined to do well.

Captained by Shefali Verma, enthusiastic and talented team of teenagers lifted the trophy by convincingly defeating England on 29th January.

The teams from 16 countries, were placed in 4 groups. Indians were placed in a tough draw along with South Africa, Scotland and UAE.

Indian girls' campaign began against South Africa. Though SA amassed 166 runs in 20 overs, India could overhaul the score with more than a few overs to spare. Shweta Sherawat was player of the match.

After the intra-group matches, 4 teams were eliminated and the remaining 12 were divided into two groups of 6 each.

In this Group I & II matches, India did suffer a setback losing to Australia. But this only made our girls more determined to do well. The top two teams from each group India, New Zealand, England and Australia set up the Semi Final clashes.

In India - NZ semi-final, the latter scored only 107 for the loss of 9 wickets in their allotted 20 overs, thanks to excellent bowling by our **Parshavi Chopra (player of the match)** who conceded only 20 runs in her 4 overs, but claimed 3 wickets. In reply, India scored these runs in 14.2 overs for the loss of just 2 wickets.

In the final between India and England our players reserved their best performance in the tournament of getting England all out for just 68 runs in 17.1 overs, again thanks to superb economic bowling by

player of the match Titus Sadhu who conceded just 6 runs off her 4 overs and took 2 wickets. Our team could mop up the score easily in 14 overs.

That our talented girls could maintain their fitness and hold their nerves in a two-week long tournament speaks highly of their calibre. Kudos to the coach Nooshin Al Khadeer, who herself represented India between 2002 and 2012. BCCI announced a cash award of ₹5 crores for the champions.

Smt Sumathi Ramakrishnan

Mughal Gardens renamed AMRIT UDYAN

DO YOU KNOW ?

Residents of the Rashtrapati Bhavan have all added their own personal touch to the garden.

- **C Rajagopalachari, the last Governor General of India, dedicated a section of the garden (now known as Dalikhana) to food grains.**
- **APJ Abdul Kalam added many theme - based gardens: from the musical garden to the spiritual garden.**

Mughal Gardens, the soul of the presidential palace, was renamed 'Amrit Udyan' recently by the central government in line with the theme of **'Azadi ka Amrit Mahotsav'.**

The gardens designed by Sir Edwin Lutyens, are known as the 'first garden of the Republic of India'. The collective identity of all the gardens at Rashtrapati Bhavan will now be 'Amrit Udyan', instead of descriptive identities to the gardens.

Amrit Udyan was inaugurated by President Droupadi Murmu on 29th January 2023 and will be open to the general public for two months from 31st January to 26th March.

Shri Sivakumar R

BUDGET 2023

Dekho Apna Desh

Ministry of Tourism
Government of India

The scheme will provide financial assistance to those travelling to less frequented or far off destinations.

Government of India under PM Modi has been implementing its economic agenda through its Annual Budget. One of the sectors which was hard hit by the two years of uncertainty and travel restrictions on account of the Covid pandemic has been the tourism sector. Tourism contributed to nearly 13% of the total employment of the country in 2019. Post Covid, the Government has been creating initiatives to rekindle the potential of the tourism sector. **Dekho Apna Desh** initiative presented in Union Budget 2023 is the most important of these.

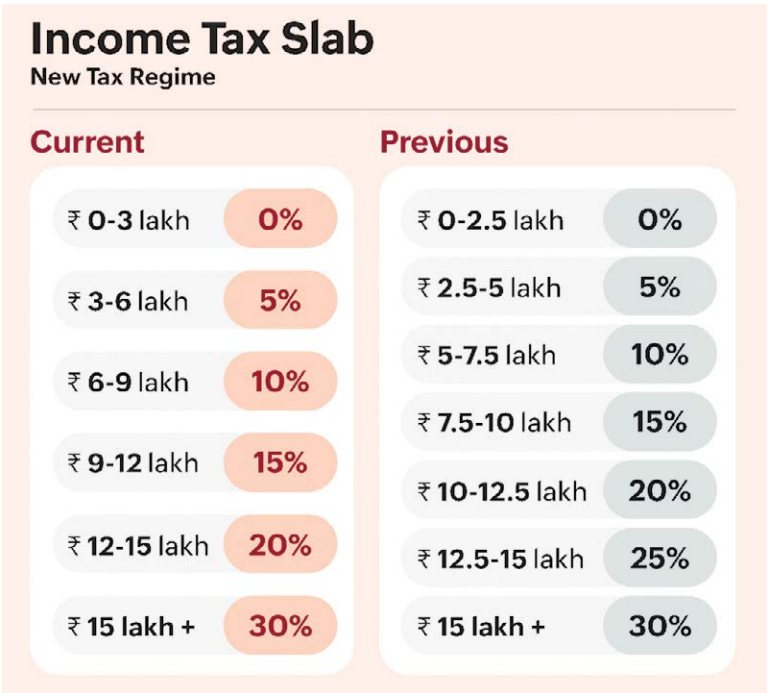
This initiative which is primarily aimed at domestic tourists wants to encourage people to explore the rich cultural heritage and diversity of India. **This scheme primarily targets the middle-class citizens of the country, encouraging them to travel within India rather than abroad.**

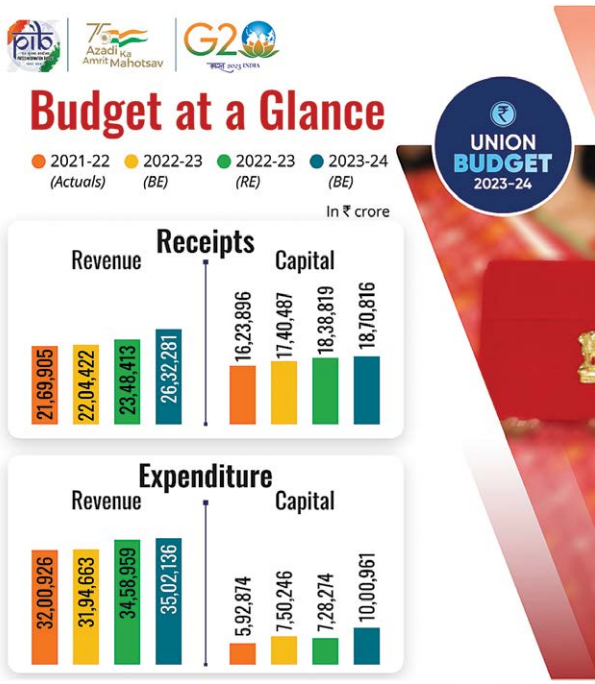
Under the scheme, travellers will get to enjoy several benefits in hotel rates, travel and entrance fees. The 'Dekho Apna Desh' scheme will provide financial assistance to those travelling to less frequented or far off destinations.

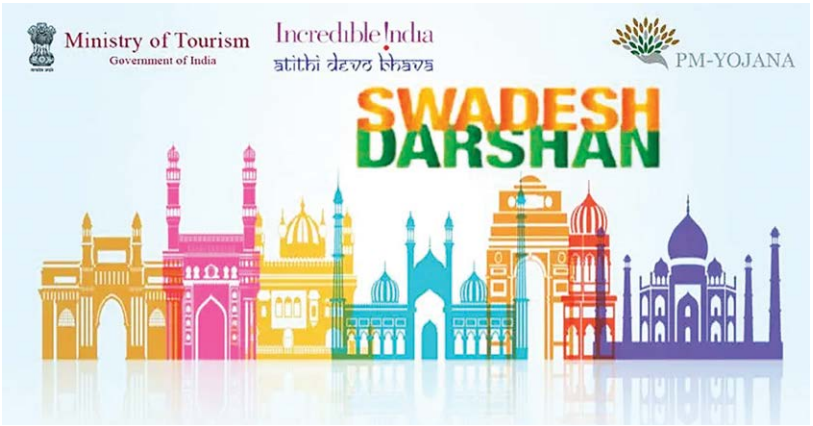
The scheme will promote 50 travel spots in India, which will be developed in partnership with state governments, private enterprises and will aim at convergence of all related government programmes.

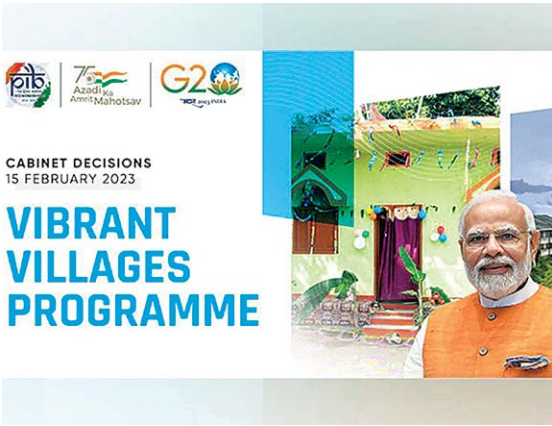
The Ministry of Tourism has also been organizing a series of webinars under the overall theme of Dekho Apna Desh for educating public about our various tourist spots.

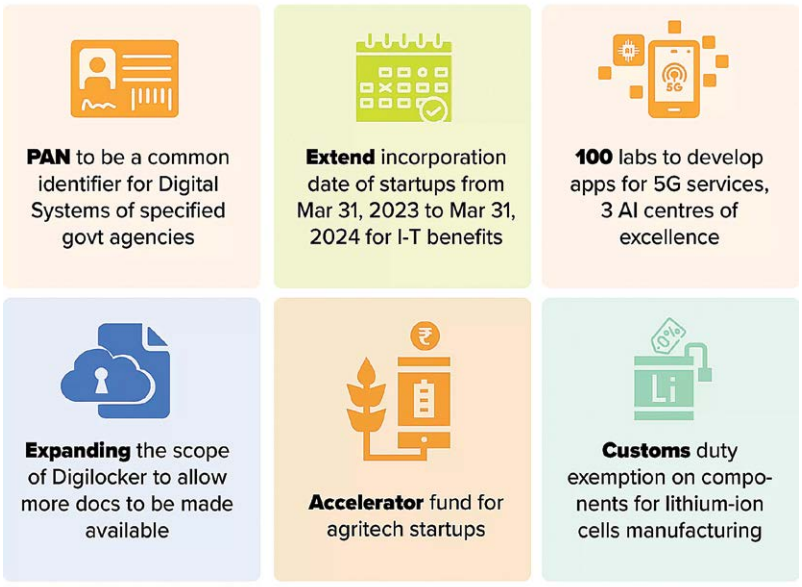
For integrated development of theme-based tourist circuits,











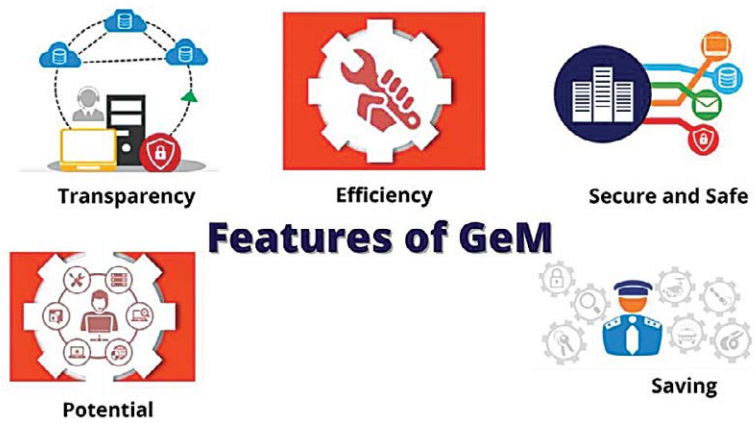
the **'Swadesh Darshan Scheme'** has also been launched. Under the **Vibrant Villages Programme**, tourism infrastructure and amenities will also be facilitated in border villages.

States are also being encouraged to set up a Unity Mall in their state capital or most prominent tourism centre or the financial capital for promotion and sale of their own ODOPs (one district, one product), GI products and other handicraft products and for providing space for such products of all other states.

Smt Shubha T R

A new milestone for Government e-Marketplace

The Government e-Marketplace (GeM) launched in 2016, is a one-stop online platform for public procurement by all government buyers, including Central/State Ministries, PSUs and departments.



DO YOU KNOW ?

The minimum savings on the platform is about 10%, which translates into a savings of over ₹ 30,000 crore worth of public money.

This bold step of the government is to offer an inclusive, efficient and transparent platform for carrying out public procurement in a fair and competitive manner.

The GeM platform enables multiple procurement modes, authentication of users using application, includes policies for automated market adjustments as well as end-to-end digital processes, range of products and service categories that support a thriving buyer-seller ecosystem.

It has achieved a new milestone with **Gross Merchandise Value (GMV) of Rs 1.5 lakh crore till 1st February in the financial year 2023** and is on track to surpass its annual target of Rs 1.75 lakh crore.

GeM has been effectively contributing to the government's commitment of **"Minimum Government, Maximum Governance".**

Smt Ghana Saraswathy M

India's first CINEMA MULTIPLEX within Chennai Airport

DO YOU KNOW ?

- The first movie theatre in India was Chaplin Cinema in Kolkata, also known as Elphinstone Picture palace. It was built by Jamshedji Framji Madan.
- The first movie theatre in Tamil Nadu was Majestic Theatre, Chennai. It was built by Murugesa Mudaliar.

Cinema has grown to be a significant part of the entertainment industry. It is a popular source of entertainment for people all over the world, as well as a prominent medium for publicity, education and culture.

PVR Cinemas launched its new Aero hub multiplex in Chennai on 1st February 2023, India's first multiplex in an airport complex. Situated within the Chennai International Airport, it has a seating capacity of 1,155 and is equipped with cutting-edge cinematic technologies, including 2K RGB+ Laser projectors, RealD 3D digital stereoscopic projection for crystal clear, razor-sharp, ultra-bright pictures and advanced Dolby Atmos high-definition immersive audio.

Kum Silpa Nandakumar

Asia's largest helicopter manufacturing unit in Tumakuru

Asia's largest helicopter manufacturing facility was inaugurated by PM Modi in Karnataka's Tumakuru.

This unit will enhance India's capacity and ecosystem to build helicopters. It will initially produce the Light Utility Helicopter (LUH), which is an indigenously designed and developed 3-tonnes class, multi-purpose utility helicopter. It is meant as a replacement for Cheetah and Chetak helicopters currently operated by Indian Armed Forces.

The new generation helicopter with state-of-the-art technology is capable of flying at 220 kmph with a service ceiling of 6.5 km and a range of 350 km with 500g payload.

In the near future, the factory will be expanded to manufacturing other helicopters such as Light Combat Helicopter (LCH) and Indian Multi Role Helicopter (IMRH).

Hindustan Aeronautics Limited (HAL) is planning to produce more than 1000 helicopters of 3-15 tonnes from Tumakuru. This will also lead to the employment of around 6000 people in the region.

Kum Silpa Nandakumar

PLI Scheme attracted over ₹45,000 crore investment

Over ₹45,000 crore worth of investment and 3 lakhs jobs have been created through India's Production Linked Incentive (PLI) scheme, as reported by NITI Aayog CEO Parameswaran Iyer. **The PLI Scheme launched in 2020 aims to make domestic manufacturing globally competitive.**

It was rolled out by the Indian government with an outlay of about ₹2 lakh crores for as many as 14 sectors. The sectors include automobile and auto components, white goods, pharma, textiles, food products, high efficiency solar PV modules, advanced chemistry cell and specialty steel.

The PLI Scheme offers a cash incentive for 3 to 5 years on the incremental sale of goods manufactured in India on pre-determined base-year sales. **The beneficiaries of the scheme are also required to commit to a certain minimum investment in India.**

According to the official statement, the programme has already started to show results. ₹800 crores have been already paid by way of incentives. Further, incentives are expected to go closer to ₹3000 crores to ₹4000 crores before March.

Shri Krishnakumar C S

Average power availability goes up in India

Per capita power availability is considered as one of the indicators of economic growth. Adequate power availability will boost production activities in all the three sectors of the economy. Realizing this fact, our government has invested heavily in power generation and distribution.

According to the power ministry, the per capita power availability in the country has gone up to 22.5 hours in rural areas and 23.5 hours in urban areas. We succeeded in meeting our power demand of 211.6 GW. Our government spent ₹2.02 crores on improving the distribution system. We also allowed 100% Foreign Direct Investment (FDI) in the power sector. **We have promoted solar energy and nuclear energy.**

Mini-hydel plants are developed in remote areas. These measures resulted in adding 175GW to our generation capacity.

Power is precious and important to make our lives comfortable. Let us not waste power resources. Let us also join in the 'Nation Building' by conserving power and energy resources.

Smt Gaayathiri G

E20 Petrol

DO YOU KNOW ?

- **Flex-fuel vehicles (FFV)** have engines that can run on flexible fuel — a combination of petrol and ethanol, which can include up to 100% ethanol.
- There's no feasible way to separate ethanol from the gasoline, once blended.

The Indian government has introduced E20 Petrol, a blend of 20% ethanol and 80% petrol, in 11 states and Union Territories. The launch was ahead of schedule and was held at the India Energy Week 2023 by PM Modi.

E20 programme is to increase use of biofuels to cut emissions as well as dependence on foreign exchange-draining imports. At present, 10% ethanol is blended in petrol and the government is looking to double this quantity by 2025.

In the first phase, 15 cities will be covered and in the next two years, it will be expanded throughout the country. E-20 (petrol with 20% ethanol) will be available at 84 petrol pumps of three state-owned fuel retailers in 11 States/UTs.

Ethanol blended fuel is less expensive than petrol and has lower carbon emissions, reducing the impact of vehicular pollution. Besides, by introducing ethanol-blended fuel, GoI wants to reduce its heavy dependency on crude oil imports, the rate of which is highly volatile. India currently imports 85% of its total fuel.

Use of E20 leads to an estimated reduction of carbon monoxide emissions by about 50% in two-wheelers and about 30% in four-wheelers compared to E0 (neat petrol). Hydrocarbon emissions are estimated to reduce by 20% in both two-wheelers and passenger cars.

Produced using sugarcane and grains such as corn, surplus rice, damaged food grains, bajra, jowar, and sweet sorghum, ethanol is considered to be one of most suitable alternative transportation fuel due to its better quality and environmental benefits. **The programme gives sugarcane farmers an additional source of income.**

Along with the launch of E20, Green Mobility Rally was also part of the IEW-23 to create public awareness for the green fuels in the country such as E20, flex fuels, hydrogen and CNG etc.

Shri Sridhar P

Large reserves of Lithium found in Jammu and Kashmir

There are more than billion automobiles in the world today consuming 100 million barrels of oil per day.

The Indian mines ministry announced the discovery 5.9 million tonnes of Lithium reserves in the Salai-Haimana area of Reasi district of Jammu and Kashmir. With this momentous discovery India perhaps joins the league of nations which will power road transportation in future as much as the OPEC countries do today.

World Economy and the automobile revolution: The world GDP in 1910 was 3.42 trillion dollars. Today it stands at 96 trillion dollars, that is, it has grown nearly 30 times. This growth in world economy was paralleled by growth in automobiles and a penchant for private transportation especially in America, followed by many countries. There are more than billion automobiles in the world today consuming 100 million barrels of oil per day.

Concentration of world crude oil and global warming issues: Much of the proven reserves of world crude oil deposits are concentrated in the Middle East and Venezuela. There are issues with respect to supply crunch and wide fluctuation in prices. With the threat of global warming, portents of extreme weather events and the arrival of electric vehicles (EV's), the world is likely to witness a revolution in the transportation sector.

The discovery of huge reserves of Lithium will be a game changer for India.

Lithium and battery technology: Lithium is an integral part of Lithium-ion batteries which enables electric vehicle technology possible. Lithium-ion batteries and EV's are likely to lead the next phase of transportation. India now has the 6th largest proven reserves of lithium at 5.9 million tonnes.

Electric vehicles technology is in its nascent stage and is expected to grow rapidly. With the growing volumes the price will come down, ushering EV adoption worldwide. India is expected to be a major "Energy player" in the coming years.

The plan: Bids for mining are to be invited in the first quarter of this year. Refining capacity for lithium extraction is also underway. 30% of India's private automobiles, 70% of its commercial vehicles, 80% of its 2 and 3 wheelers are expected to be EV's by 2030. That should be a huge reduction in precious foreign exchange outgo which is 500 billion dollars and more for crude at current prices. This huge discovery will be a game changer for India.

Smt Sandhya Nair

India's first GLASS IGLOO in Gulmarg

GULMARG means 'the valley of flowers.'

Crowned 'Heaven on Earth', Kashmir has many picturesque sites. While visiting Gulmarg, one more site to visit is the country's first glass igloo restaurant. Built in the midst of snow, the three cute eateries are the talk of the nation. These glass igloos make a perfect tourist spot to experience snow and the ethereal scenic beauty around

Inspired from the glass dome stays in Finland, the cozy see-through glass balls appear as normal mirror glass. The material used to construct these glass balls is actually fabricated glass imported from Austria. Moreover, the glass chamber is properly insulated to ensure that visitors can enjoy everything but not the chill outside. This restaurant can accommodate eight people at once.

The MAHARAJA of deals

"This purchase will support over one million American jobs across 44 states, and many will not require a four-year college degree."

–President Joe Biden

"With wings from Broughton and engines from Derby, this deal will support jobs around the country and help deliver one of our five priorities – growing the economy."

– British PM Rishi Sunak:

The wide-body planes will be used for flying ultra long distances across the globe.

Boeing Order (220)	
190	737 Max jets (single aisle planes)
20	787 Dreamliners
10	Wide body 777X planes

These were not about an order by an economically evolved China or Germany. These comments were in the context of Air India's order for aircraft announced on 14th February 2023. Air India placed an order for 470 aircraft - 220 on the American manufacturer Boeing and 250 on the European Air Bus.

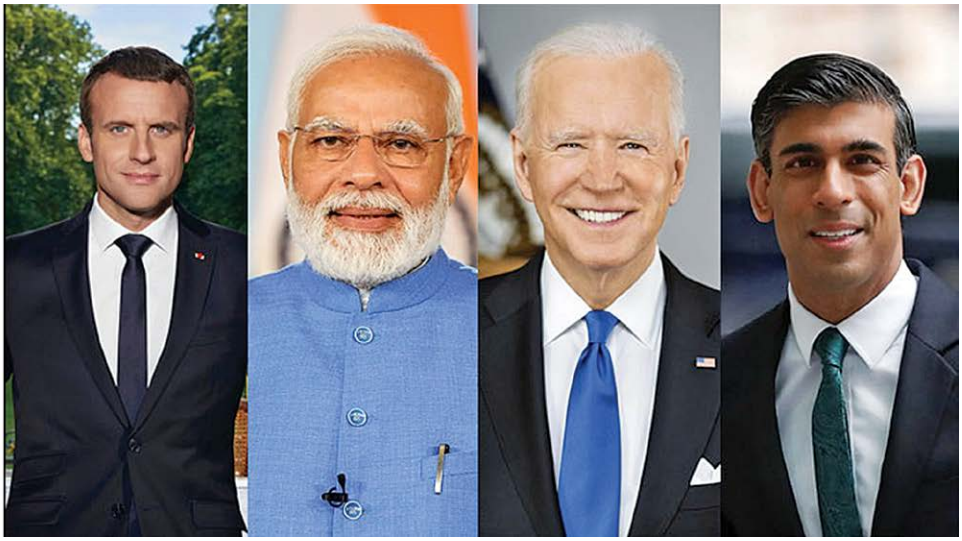
The deal also includes an option for an additional 70 planes from Boeing apart from the lease agreement that Air India has entered into with Airbus for 25 planes. The wide-body planes will be used for flying ultra long distance across the globe while the A 320 will be used for domestic and international short haul flights.

French President Emmanuel Macron said, "The contract that Airbus and Tata Sons signed this morning marks a new stage in India and France's strategic partnership. Thank you @NarendraModi, for your confidence in France and our industry."

This is said to be the largest deal ever, in the global aviation industry, for commercial aircraft. The total size of the deal is estimated to be approximately $ 80 Bn (₹6.4 lakh crores).

Some interesting details

The order includes 800 engines from CFM – a 50/50 Franco-American JV (GE and Safran).



AIR INDIA'S MEGA $100 BILLION DEALS

AIRBUS

250 PLANES FOR $66 BN

40 A350 wide-body long-range planes, 210 narrow-body aircraft

BOEING

220 PLANES FOR $34 BN

190 B737 MAX, 20 B787, 10 B777X planes

UK-MADE ENGINES

Rolls Royce engines made in the UK will power the Airbus planes

Airbus Order (250)	
140	A320 Neo-narrow body planes
70	A 321 neo single – aisle planes
34	A350-1000 wide-body airplanes
6	A 350-900 wide body planes

The Max jets have the option of CFM Leap 1B engine.

A 320 neo has two options – CFM Leap 1A or Pratt and Whitney Geared Turbo Fan (GTF) engines. However due to the problems encountered in the recent past with the Pratt and Whitney engines no order has been given to them.

A 350 is powered by the Rolls Royce engine. The deal has been signed for 68 Trent XWB-97 engines that power the A 350-1000 and 12 Trent XWB-84 engines that power the A 350-900.

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The aviation sector

Air India was started by the legendary Jamshedji Tata in 1932. Ever since it was nationalised in 1953, its performance declined. Since the merger of Indian Airlines and Air India in 2007 it has not made profits. At the time of takeover by the TATA group it was making a loss of ₹20 crores per day and the amount of money pumped in by the Government since 2009-10 stood at a staggering ₹1.10 trillion. In 2022 as part of the divestment it returned to the hands of the TATA conglomerate. The TATA group is now determined to turnaround the sick entity.

India is going to be the third largest in the global aviation sector and would need an additional 2200 aircraft in the next 15-20 years. Orders for these are likely to be placed in the next couple of years.

Air India is the largest international carrier in India and this fleet expansion will give it the necessary leg up to expand its market to US and European destinations, Middle East,South Asia, South East Asia and South Africa. It will be better poised to compete with the likes of Emirates, Etihad and Qatar Airways.

The Indian domestic air space is dominated by Indigo with a market share of 54.9% followed by Air India with a market share 26%. There is a lot of headroom for Air India in the domestic c market.

The TATA group is also integrating the three entities- Air India, Air Asia and Vistara soon that will bring in synergies.

The geo-political dimension

The optics clearly indicate that it is much beyond a business deal. This has enormous geo-political implications. India's soft power was in full flow when PM Modi and French President Macron participated in a virtual meeting to announce the deal. Modi and Biden spoke over the phone and Rishi Sunak released a statement. Similar deals of significant scale,in the past, were treated only as deals between corporates. It is only this time the Government of India leveraged on the deal to demonstrate its soft power and also send a signal to the world. **Three of the most powerful leaders of the world acknowledging the power of India and the benefits to their countries out of this deal indicates that India is an economic power of significance ready to take on the world.** India and the western powers have given a message to the world.

While calling this "historic", Joe Biden said that with Modi he is looking at deepening the Indo-US partnership further. Macron said that this is "one of the milestones of the in-depth strategic and friendly partnership we have between India and France." He also indicated that this will have spin offs in areas from space to cyber, defence to culture and health to energy transition. Macron also acknowledged the rising global stature of India and said he is "working with PM Modi to ensure the success of India's G20 presidency in the backdrop of the Russian invasion of Ukraine."

India and Air India have arrived

N. Chandrasekaran, Chair person, Tata Sons Ltd., said, "Air India is not just another project. It is a national project. There are huge expectations. We are going through a major transformation because we are committed to building a world-class airline known for safety, on-time performance, the best of Indian hospitality and modern fleet and a wholesome experience for every passenger, whether they are in the first row or the last row." This deal reinforces the fact that the commitment of the TATA group to turn around Air India is strong and credible. **This announcement clearly indicates that both India and Air India have ARRIVED!**

Smt Ramamani N

2023

AERO INDIA

The Runway to a Billion Opportunities

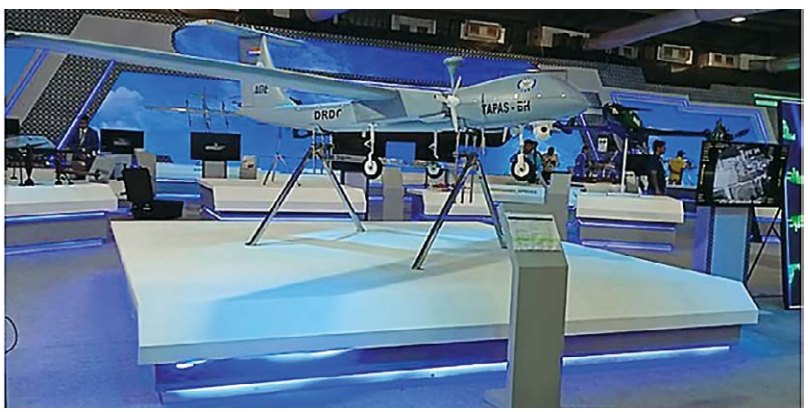
About 800 exhibitors participated compared to 540 at the previous event, with around 110 foreign exhibitors.

Aero India 2023, the 14th edition of Asia's Largest Aerospace and Defence Exhibition, inaugurated by PM Modi on 13th February was conducted till 17th at Air Force Station, Yelahanka, Bengaluru.

The theme "The Runway to a billion opportunities", highlighted the importance of India's growing capabilities and the "Atma Nirbhar Bharat", " Make-In-India", Make-For-The World" campaigns.

Features

- The exhibition had 35,000 square meters of display space.
- Defence Ministers' Conclave and CEO Round table were organised to ensure active participation in the sector and to enhance the potential of Aero India.
- The CEO Round Table had participation from officials, delegates and global CEOs from 26 countries including global investors such as Boeing, Lockheed, Israel Aerospace Industries, General Atomics, Liebherr Group, Raytheon Technologies, Safran, and General Authority of Military Industries (GAMI).
- About 800 exhibitors participated compared to 540 at the previous event, with around 110 foreign exhibitors.



Highlights

- First public display of DRDO's **TAPAS-BH** (Tactical Aerial Platform For Advanced Surveillance — Beyond Horizon), and

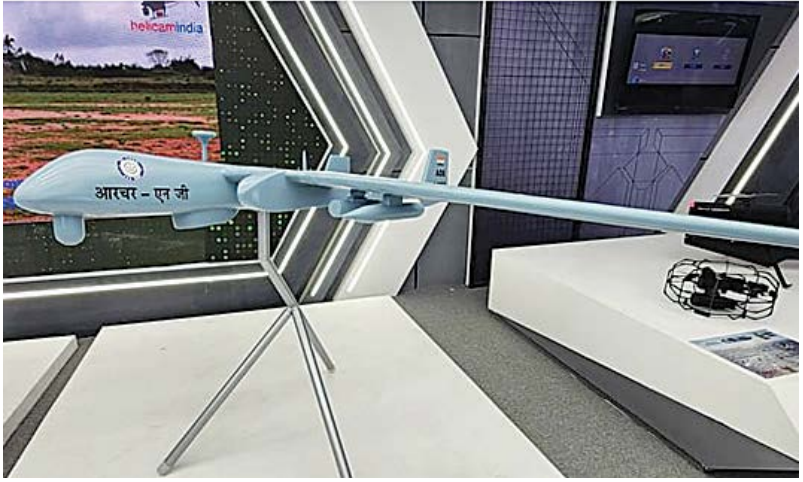
Medium Altitude Long Endurance (MALE) UAV (Unmanned Aerial Vehicle).

- **Tapas UAV-** the main reconnaissance and surveillance platform with a payload of 350 kg with an ability to fly at an altitude of 28,000 feet for 18 hours.
- DRDO showcased front line combat aircraft like India's first Fifth Generation aircraft AMCA (Advanced Medium Combat Aircraft), **LCA Tejas, Tejas Mk-2, TEDBF and Autonomous Stealth Flying Wing Testbed**.

DO YOU KNOW ?

- **SRUAV,** also called Short Range UAV, is a weaponised drone capable of operating at an altitude of up to 22,000 feet; it has a short range of around 250 kilometres and can remain in the air for up to 12 hours.
- **Indigenous Archer-NG,** an armed UAV is expected to make its first flight in July this year; capable of operating up to an altitude of 30,000 feet with an endurance of upto 18 hours.
- An upgraded version of the **Rustoum-1** drone designed and developed by the DRDO is capable of carrying 300 kilograms of weaponry.
- **Tapas** has already completed more than 170 flights with different payload combinations and mission profiles.
- DRDO's new **'Tricycle Nose Wheel Type Retractable Landing Gear System'** for Unmanned Aerial Vehicles, which can withstand high touchdown speeds and rapid descents during landings.

For the first time, Hindustan Aeronautics Limited(HAL) displayed HLFT-42 (Hindustan Lead-In Fighter Trainer) to the public.



- The DRDO pavilion showcased over 330 products categorized into 12 zones including Combat Aircraft & UAVs, missiles & strategic systems, engine & propulsion systems, airborne surveillance systems and sensors for electronic warfare & communication systems.
- Missiles like **Astra, Akash, QRSAM, NAG, HELINA and Pralay** were also displayed.
- For the first time, Hindustan Aeronautics Limited (HAL) displayed **HLFT-42** (Hindustan Lead-In Fighter Trainer) to the public. It is a single-engine supersonic fighter trainer which will be able to train fighter pilots in highly complex air warfare techniques while saving precious airframe life on advanced platforms like Su-30 MKI and Dassault Rafale.
- HAL also showcased posters of **Kiran Optionally Manned Combat Aircraft** (OMCA), which will be used to lure out enemy air defences.
- Various other Defence Public Sector Undertakings like BEL and BHEL also presented their products to the public; India's private defence and aerospace manufacturing companies like Larsen & Toubro (L&T), Bharat Forge and Adani Defence also participated.
- Boeing, Lockheed Martin, Dassault, General Atomics and other international manufacturers exhibited their fighter jets in hopes of securing orders from the Indian Ministry of Defence.

Col Shashidhar M V (Retd)

Increased Outlay in Defence Production & DRDO's 55 Mission Mode Projects

Indian Air Force gets 57.13K crores; Army gets 37.24K crores and Navy 52.80K crores.

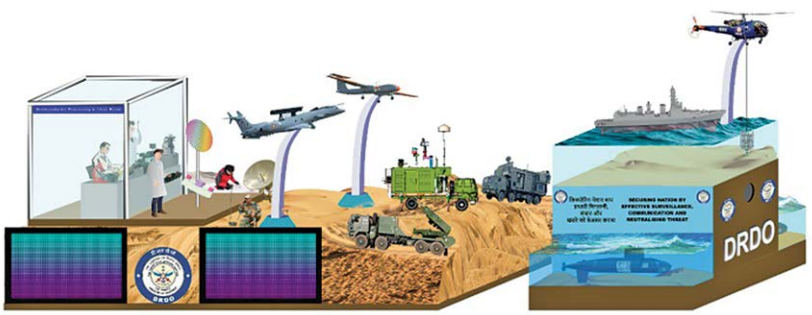
Finance Minister Nirmala Sitharaman announced revised capital outlay for procurement of new equipment by the Defence Ministry to ₹1.52 lakh crore from the previous estimate of ₹1.38 lakh crore thus signalling the intent of GOI to the defence sector.

A massive push for domestic defence equipment manufacturers has been made by earmarking 68% of the capital budget for them while reserving 25% towards research and development funds for private companies, start-ups and academia to promote "Atmanirbhar Bharat" thus encouraging private industry to come up with design and development of military platforms and equipment in collaboration with DRDO and other organisations.

The total allocation under capital outlay of the defence services has seen an enhancement of 76% over a period of nine years- up from ₹86,740 crore (2013-14) to 1.52 lakh crore (2022-23).

Salient Features

- Total: 5.94 lakh crore (5.25 crores in 2022). Approx 13% hike over the previous year.
- For Capital outlay (modernisation): 1.62 lakh crore (1.50 crores in 2022)
- Air Force gets 57.13K crores; Army gets 37.24K crores and Navy 52.80K crores.
- Budget of the Border Roads Organisation (BRO) has been enhanced by 43% to ₹5,000 crore in FY 2023-24 as against ₹3,500 crore (2022-23)



Allocation to DRDO has been enhanced by 9% with a total allocation of ₹23,264 crore.

DO YOU KNOW ?

- **DRDO is empowered to select a Development cum Production Partner for its projects right from inception.**
- **Multiple products are being co-developed with the private industry.**
- **Technology Development Fund (TDF) gives financial support to the Indian industries for the design and development of innovative defence products.**
- **Indian industries to get free access to use DRDO patents thus further boosting their R&D and developing new technology.**

in order to boost the Border infrastructure thereby creating strategically important assets like Sela Tunnel, Nechipu Tunnel & Sela-Chhabrela Tunnel and also to enhance border connectivity particularly in the northern borders.

- Allocation to DRDO has been enhanced by 9% with a total allocation of ₹23,264 crore.
- To further foster innovation, encourage technology development and strengthen the Defence Industrial ecosystem in the country, IdEX (Innovation for Defence Excellence) and DTIS (Defence Testing Infrastructure Scheme) have been allocated ₹116 crore and ₹45 crore respectively an increase of 93% to leverage bright young minds in defence manufacturing.
- Defence manufacturing ecosystem in the country has been given a major fillip with the establishment of two defence industrial corridors (DICs) one each in UP and Tamil Nadu.

Higher R&D spend will no doubt harbinger cutting-edge products not only for our own Armed Forces but also in turn open up export markets for the defence industry.

DRDO's 55 Mission Mode Projects

A total cost of ₹73,942.82 crore has been sanctioned for the 55 mission mode projects by GOI and a higher R&D spend will no doubt harbinger cutting-edge products not only for our own Armed Forces but also in turn open up export markets for the defence industry.

Project areas identified are Decoys, Nuclear Defence Technologies, Air Independent Propulsion (AIP), Combat Suite, Propulsion System, Air Droppable Container, Torpedo, Fighter Aircraft, Cruise Missile, Unmanned Aerial Vehicle, AEW&C Aircraft System, Gas Turbine Engine, Assault Rifle, Warhead, Light Machine Gun, Rocket, Advanced Towed Artillery Gun System (ATAGS), Infantry Combat Vehicle Command, Ordnance Disposal System, Tactical Radios, EW Systems, Radars, Life Support System, Geographical Information System, Surface to Air Missile, Anti-ship Missile, anti-Airfield Weapon, Glide Bomb, Simulator etc.

Out of these, 23 projects are delayed and 12 other projects are facing likely cost escalation due to change of scope or enhancement.

Successfully completed projects between 2018 and 2023 are in the areas of radios, ESM LRUDs, software, landing gear, CBRN recce vehicle, full mission simulator, bomb, radar, surface to air missile, navigation systems, airborne early warning and control (AEW&C) system, air to air missile and Light Combat Aircraft (LCA).

In order to overcome delays, GOI has taken steps such as increased frequency of project reviews, increased involvement of services and production partners during development process and reviews and revision in delegation of financial powers

Col Shashidhar M V (Retd)

Veer Guardian 2023

First ever Indo -Japanese bilateral air exercise

The maiden joint air exercise between India and Japan which concluded recently at Hyakuri Base in Japan is a strategically crucial development in defence cooperation between both the nations against the expansionist designs of China. The 11-day exercise included training of various "air combat missions in a complex environment,"

Japan significantly lags behind China in military spending as the former has increased its defence expenditure by only 2.4 % from 2011 to 2020 while China increased it by 76 % during the same period. It is therefore imperative for Japan to cooperate with other countries so as to try and disperse China's military power in different ways.

The Indian contingent included four Su-30MKI multirole fighters, two C-17 Globe master transport planes, one IL-78 aerial tanker and about 150 personnel, while the Japanese Air Self Defence Force (JASDF) fielded four F-2s and an equal number of F-15 multirole fighters. India became the fifth security partner to send fighter jets to Japan for joint drills following the US, Australia, Britain and Germany.

Veer Guardian is the first step to higher levels of drills and exercises between both the air forces in the coming years and this, though largely symbolic in nature, does carry a message of deterrence to China's ambitions in the Indo-Pacific in the form of new military alliances that Beijing will have to factor in its regional strategy.

Both IAF and JASDF engaged in air combat manoeuvring, interception and air defence missions as aircrew of both the nations flew each other's fighter aircraft to gain a deeper understanding and operating philosophy.

With this, Japan intends to increase its defence cooperation with nations that have common strategic interest to cope with the revisionist powers and deter the growing capabilities and ambitions of China and Russia.

Kum Deepasri

Intellectual Property Rights Law

Part II

The Trade Marks Act, 1999

A "Trade Mark" (TM) means a mark capable of being represented graphically and capable of distinguishing goods or services of one person from those of others. TMs may include the name, shape of goods, their packaging and combination of colours.

TM rights in India are protected by the Trade Marks Act, 1999 and also under the common law remedy of "passing off." The Act deals with the protection, registration and prevention of fraudulent use of TMs. A TM is valid for ten years and can be renewed from time to time.

A TM is said to be infringed when there is an unauthorised use of a TM or a substantially similar mark on goods or services of a similar nature. In such a case, the court will look at whether such use of the TM will cause any confusion to the consumer as to the actual brand they are purchasing. In case of infringement of a registered TM, the person may file a suit for damages.

The Geographical Indications Act, 1999

A geographical indication (GI) is an indication in the form of a name or sign, on goods that have a specific geographical origin. GI reflects that a product possesses certain qualities as a result of its place of origin. GIs are valuable rights, which if not adequately protected, may be misused to the detriment of consumers and legitimate users.

GI tags are used on products like handicrafts, agricultural products, food items, etc. There are many laws and treaties enacted by the World Intellectual Property Organisation and the World Trade Organisation (WTO) for the protection of GIs.

The "Trade Related Aspects of Intellectual Property Rights" (or "TRIPs") which we looked into in the previous edition, is the major framework under the WTO. It prescribes standards of protection of GIs. India, in compliance with its obligation under TRIPS, has taken measures by enacting the Geographical Indications of Goods (Registration and Protection) Act, 1999 and the Geographical Indications of Goods (Registration and Protection) Rules, 2002.

By registering a GI in India, the holder of the right can prevent its unauthorised use by others by initiating a civil suit or criminal complaint. Registration of GIs in India is not mandatory, as an unregistered GI can also be enforced by initiating an action of 'passing off' against the infringer. **A GI is registered for a period of 10 years and the registration may be renewed from time to time for a period of ten years at a time.**

The remedies relating to the infringement of GIs are similar to the remedies relating to the infringement of TM. Also, under the Act, falsification of a GI will carry a penalty with imprisonment and a fine.

DO YOU KNOW ?

Common law:
An unwritten body of laws based on judicial precedents. For unusual cases where the result cannot be decided on the basis of written laws, common law guides the decision-making process.

Passing off:
When someone deliberately or unintentionally passes off their goods or services as those belonging to another party.

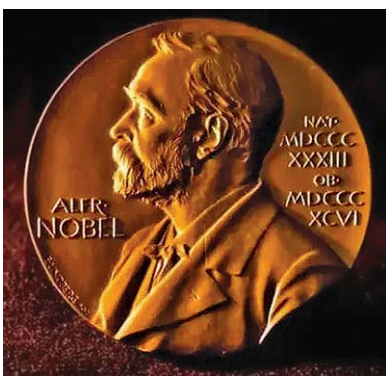
Shri Sridhar P

Nobel Prize for Economics –2022

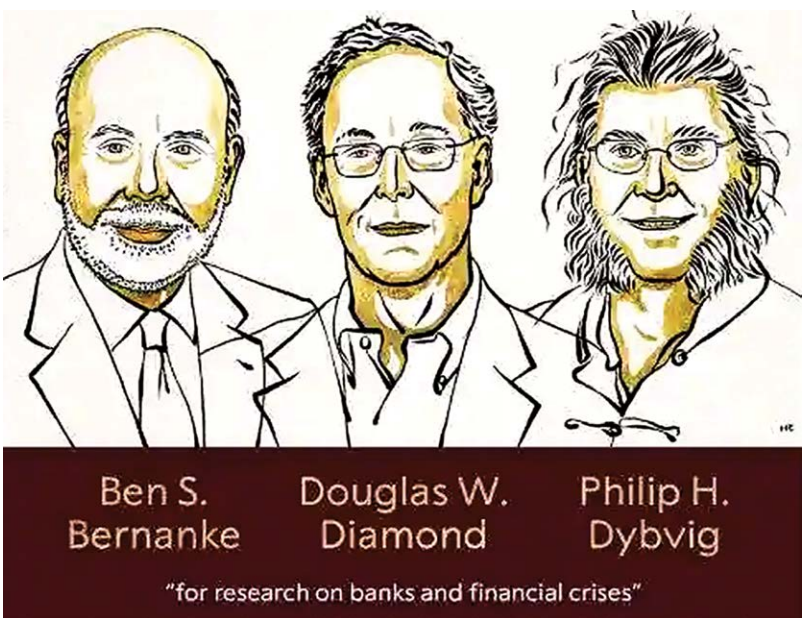
The role of banks in economy

Depositors need a safe banking system to park their money while expecting a decent interest.

The Nobel Prize for Economics for 2022 has been awarded to Ben. S Bernanke of Massachusetts Institute of Technology, Cambridge USA, Douglas Diamond of Yale University and Philips H.Dybvig, also from Yale University, for their discoveries which has helped improve our understanding of the role of banks in the economy, particularly during an economic crisis. An important finding in their research demonstrates the importance of avoiding a banking collapse. Our modern industrial and services economy depends on

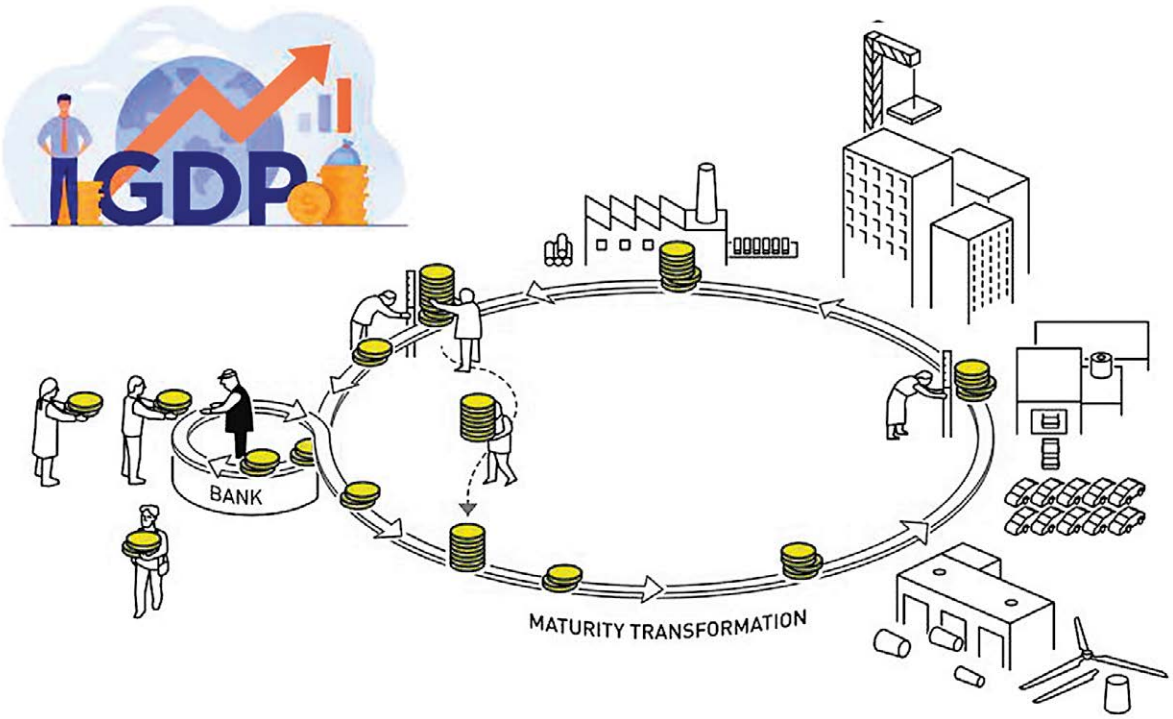


seamless functioning of the financial sector which provides the financial oil that powers it. Depositors need a safe banking system to park their money while expecting a decent interest. Borrowers need banks to keep their businesses going.



Modern banking research clarifies the crucial need to make banks less vulnerable in crisis and how bank collapses exacerbate financial crises. The foundations for this research was laid by Ben Bernanke, Douglas Diamond and Philip Dybvig in the early 1980's. Their analysis have been of great practical importance in regulating financial markets and dealing with financial crises.

For the economy to function, savings need to be channelled to proper investments. However, there is a conflict here. Savers want instant access to their money



in cases of unexpected outlays, while borrowers need to be sure that their loans will not be called in prematurely. In their theory both Diamond and Dybvig show how banks offer an optimised solution to this problem.

By acting as intermediaries that accept deposits from customers and facilitating customers to access their money when they wish, banks also offer long term loans to borrowers.

The analysis also showed how the combination of the two activities make banks vulnerable to rumours about their imminent collapse.

If a large number of savers simultaneously withdraw their savings, a run on the banks occurs, which when not attended to by the regulatory agencies, may trigger financial collapse.

The rumour becomes a self-fulfilling prophecy which eventually leads to the bank's collapse. These dangerous dynamics can be prevented through the government providing deposit insurance and acting as lender of last resort to the banks.

Douglas Diamond demonstrated how banks perform other societally important functions, acting as intermediaries, make them better suited to assess borrower's creditworthiness and ensuring that loans are used for productive investments.

Ben Bernanke analysed the causative factors behind the great depression of the 1930's, the worst economic crisis yet. Amongst other things he showed how bank runs were a decisive factor in the financial crisis becoming deeper and prolonged.

When the banks collapsed valuable information about borrowers are lost. Society's ability to channel savings to productive investments is severely diminished.

"The Nobel laureates' insights have improved our ability to avoid both serious crisis and expensive bailouts," says Tory Ellingsen, chair of the committee for the prize in economic sciences.

Role of Commercial Banks

1. Capital Formation
2. Creation of Credit
3. Channelizing the funds
4. Encouraging Right Type of Industries
5. Banks Monetize Debt
6. Finance to Government
7. Employment Generation
8. Bank Promote Entrepreneurship

PRANJAL PATIL

Country's first visually challenged woman IAS officer

Cracking one of the toughest exams of the country - the Union Public Service Commission (UPSC) exam or more commonly called the Civil Services exam - takes years of hard work and diligence. Apart from these, perseverance and patience coupled with doses of positivity and a never-say-die attitude result in success.

Pranjal, hailing from Ulhasnagar in Maharashtra, was born with weak eyesight and lost her vision when she was only six. She did her schooling from Mumbai's Kamala Mehta Dadar School for the blind and pursued graduation in Political Science from St. Xavier's College. She completed post-graduation in International Relations from Delhi's Jawaharlal Nehru University and then went for an integrated MPhil and PhD program.

Pranjal was deemed unfit for the Indian Railway Accounts Service (IRAS) job. It was a huge setback for her. However, she did not let this pull her down. She decided to appear for the Civil Services Exam.

Interestingly, Pranjal had chosen not to take any coaching for the Civil Services Examination. She used a special software that dictated the books out loud to her, solved mock test papers and attended discussions as part of her preparation. Even though her eye sight was deficient, she used the advantage of her hearing ability.

Pranjal appeared for the UPSC exams in 2016 and secured 744th rank. She doubled her efforts and her hard work paid off by all-India ranking 124 in the second attempt in 2017. She got accepted into the Indian Administrative Service (IAS). The 2017-batch Kerala cadre IAS officer served as an Assistant Collector in Kerala's Ernakulam for a year before taking charge as the Sub-Collector of Thiruvananthapuram. Her success story is inspirational and demonstrates the power of human capability against all odds.

Dr Krupa M and
Dr Preethy SP

HOME REMEDIES FOR COUGH

Cough has been a common ailment for the past few weeks affecting young to old and there seems to be no specific treatment that works, including medicines. However, here are a few remedies available at home to soothe your throat and reduce the cough until your body builds its immune system to fight the microorganism causing the infection.

Steam inhalation helps in keeping the throat hydrated and gives comfort. Water needs to be boiled without adding anything to it. Steam inhalation with mouth wide open through this boiled water helps reduce cough, conserve voice quality and better recovery. Steam inhalation through nose can also be done by adding turmeric, lemon and ginger to the boiling water. Herbal leaves such as *nochi / nirgundi* to the boiling water augments the healing process. Adding a few drops of eucalyptus oil or leaves to boiling water, followed by inhalation of the resulting steam will be highly effective for cough.

Warm salt water gargling will help alleviate the discomfort and irritation caused by a dry cough. Additionally, salt water kills bacteria in the mouth and throat. Dissolve a pinch of salt in warm water. Gargle 3-4 times per day.

Honey along with turmeric or powdered or paste form of lesser *galangal / sitharathai /* cardamom powder helps recover from cough sooner. Can be taken by anyone above 1 year of age. Honey's antibacterial properties and ability to coat the throat can alleviate irritation. Honey can also be consumed separately or can be added to tea or warm water. Chewing small pieces of *sitharathai* along with raisins gives instant relief from cough.

Curcumin, which is present in turmeric, possess anti-inflammatory, antiviral and antibacterial properties. Additionally, it may be beneficial for a number of conditions, including dry cough. When curcumin is taken with black pepper, it is absorbed into the bloodstream more efficiently. One teaspoon of turmeric and one-eighth teaspoon of black pepper can be added to a beverage, such as juice, for consumption. It can also be prepared as a warm tea.

Tulsi-Ginger-Lemon decoction: A ginger and tulsi infusion with lemon and honey is a soothing beverage. This is an effective home remedy for treating colds and coughs. This also aids digestion and preserves health.

Other home remedies such as *adimadhuram* powder with honey, turmeric pepper milk at bed time, keeping cardamom on the sides of mouth letting the juice reach the throat provides better relief from cough.

Smt Archana Sundar

CURIOSITY CORNER

Music Quiz

"Music is life. That's why our hearts have beats."

1. Which Indian stringed instrument has the most strings?
2. An excessive fondness for music is called _____.
3. What year did music begin in India?
4. How many different instruments are used in Indian culture?
5. What is the instrument used in snake charming called?

6. What is the most complex element of Indian music?
7. What is considered sacred in India?
   a) Instruments b) Music c) The human voice
8. How many notes are in an octave?
9. What are the thin pieces of wood used to play an oboe called?
   a) double reeds b) mouth pieces c) bells

10. Dr. A.P.J. Abdul Kalam used to play _____.

11. Bobbili veena, also known as Saraswathi Veena or the Ekanda Veena, is a large plucked string instrument used in Carnatic classical music. It is made from which tree?

12. What is the tune of the song called?

13. Ustad Bismillah Khan was the master of this instrument.

14. It consists of a set of bowls filled with water.

15. It is a pair of woodwind instructments and also called Mattiyan.

16. It is supposedly an ancestor of the violin.

17. A string instrument from Punjab.

18. In ancient Hindu mythology it is often depicted as the instrument used to declare war.

19. Who is considered as the father of Carnatic music?

20. Which of the following musical instruments is not of Indian origin?

Answers on page 63

Kum Sunita D Behera

Yelavarthy Nayudamma

His research on the "shrinkage phenomenon" was also critical in maintaining the dimensional stability of skin and leather.

In the 1960s, when India had newly gained independence and was walking towards an industrial revolution, the country remained a source of raw hides, skins and semi-processed leather. India exported ₹9 crores worth of raw hide only for it to be returned as manufactured articles. Meanwhile, a scientist was awaiting his chance to take India's leather industry to newer heights.

Born in 1922 to a family of farmers in Andhra Pradesh, Yelavarthy Nayudamma was a scientist known for his immeasurable contributions towards shaping and building the leather industry towards what it is today.

He graduated in Industrial Chemistry from Banaras Hindu University and later worked at the Institute of Leather Technology, Madras from 1943 to 1945. The Government of Madras sent him to the UK and the US to pursue advanced training in leather technology.

He wrote his dissertation at Lehigh University in the US and upon his return in 1951, Prof Nayudamma joined the Central Leather Research Institute (CLRI). In only a few years, he assumed the position of Director and in his 13 years of service, he played a vital role in helping it earn international recognition and appreciation.

He contributed towards building a solid mechanism for tanning and materials in relation to skin protein which helped preserve raw hide to produce durable leather products. His research on the **"shrinkage phenomenon"** was also critical in maintaining the dimensional stability of skin and leather. Prof Nayudamma also worked on combination tanning techniques that helped in manufacturing waterproof sole leather.

During his extensive promotion of leather products, he also steered the industry to be more inclusive and gender-neutral, thus opening a wide range of jobs and opportunities to more women and weaker sections of society. Today, more than 30% of the total people employed in the leather industry are women.

Today, all his contribution and research has led the leather industry of India to account for 13% of the world's leather production and is among the top ten foreign exchange earners for the country.

He was also the founding president of the Committee for Science and Technology for Developing Countries (COSTED) and a member on the Board of Governors of the International Development and Research Council (IDRC).

Smt Ramamani N

BAL PURASKAR AWARDS

In the last edition, we read about the Bal Puraskar awards and the selection and nomination procedure. The awards have been conferred on 11 children for their exceptional achievement in six categories; Art, Culture, Bravery, Innovation, Social Service, and Sports. The 11 awardees (five girls and six boys) were given a medal, a cash prize of one lakh rupees, and a certificate from the President. The Women and Child Development minister, Smriti Irani and the Prime Minister interacted with them to encourage them to continue their exemplary work.

Let us know about two awardees in this issue.

Bravery

It is not common even for adults to be as brave as Rohan Ramchandra Bahir, to dive into a river and save someone's life. However, the 15-year-old boy jumped into the Domri river in Rajouri to save a 43-year-old woman who fell into the river while washing clothes.

Social Service

The award under this category was conferred on a class VIII student Anoshka Jolly who appeared on a reality show to pitch her anti-bullying app called 'Kavach'.

Features of the Kavach app:

- Allows students and parents to report incidents of bullying anonymously.
- Develops opportunities for schools and counsellors to intervene and take action against bullying.
- Builds a strong network of anti-bullying ambassadors to track the progress of those who are impacted.
- Holds webinars and one-on-one conversations among concerned persons across the country.
- Helped over 2000 students, over 100 schools so far.

Smt Vaishnavi V

CHERUVAYAL K RAMAN
The protector of paddy

DO YOU KNOW ?

- **PK Kalan Prize** (comprising a cash award of ₹1 lakh, a certificate and a statuette) is given every year for remarkable contributions to folk art form.

- **Plant Genome Saviour Award** (comprising a cash prize of ₹10 lakh each, a citation and a memento) is given annually to 5 nominees with a long track record of conserving plant agro biodiversity.

Nestled among the Western Ghats, Wayanad is famous for its scenic beauty, trekking, bird watching sites etc. The name is a derivative of Vayal Nadu meaning the 'land of paddy fields'. Hailing from this land, Cheruvayal K Raman, a 72-year-old tribal farmer received the Padma Shri award for guarding 56 varieties of indigenous paddy.

He has already been honoured with awards like the Kerala's prestigious P K Kalan Prize and the coveted National Genome Saviour Award. He was also invited to the International Symposium in Brazil to discuss the challenges faced by the indigenous people and the sustainable use of biodiversity.

From the Kurichiya tribe, living in a 150-year-old mud house, Raman also known as Ramettan or Vithachan (Father of seeds) is a class 5 drop out and a custodian of 40 acres of land received from his uncle.

He divided the rice fields among his sons and daughters to cultivate and preserve the different rice varieties. But Raman is worried as the Kurichiya tribes practise matriarchy and after his death, his wife nor his children will inherit the property and the question of preserving these seeds will be at stake.

Hence, he will be handing over the preserved seeds to an appropriate research centre or organisation or any interested individual. Raman's cultivation is purely organic and devoid of any chemical fertilisers. The interesting part here is, every year farmers across the country come to Ramettan for the seed varieties.

He never sells it but gives on one condition where the farmers will have to return the same quantity of seeds after the harvest.

What is so special about Ramettan's seeds?

They are indigenous, organic, require minimum work; highly resistant to diseases and unfavourable climatic conditions and less prone to damage even if not sown.

Smt Shyamala Viswanathan

The Mahabali Frog

The name "Mahabali" is a reference to the benevolent mythological King Mahabali who comes to meet his subjects on Thiruvonam day annually.

Mahabali frog, also known as the purple frog or pignose frog is a unique amphibian endemic to the Western Ghats (mostly the Kerala part). It is acknowledged by bio-geographers all over the world as one of the rarest kinds of frog species and a "once in a century find".

Physical Appearance

- Bloated body with short stout limbs; very short hind legs. Short and muscular forelimbs with hard palms help it to burrow underground.
- Dark purple to greyish in colour.
- About 7 centimetres in length.
- Small head in comparison to the body length ; unusually pointed snout.

Interesting facts

- Scientifically called *Nasikabatrachus sahyadrensis,* it was discovered for the first time in 2003 in the jungles of Kerala. It emerges from under the ground for only one day. The name "Mahabali" is a reference to the benevolent mythological King Mahabali who comes to meet his subjects on Thiruvonam day annually.
- It lives almost its entire life in underground tunnels, coming out to the surface for a single day in a year to breed and lays its eggs.
- The purple frog is listed as "endangered" in the IUCN Red List of Threatened

Species, as its "Extent of Occurrence" is less than 5,000 km. All individuals are in fewer than five locations, and there is continuing decline in the extent and quality of its habitat.

Endemic species are those found in a particular geographical region and nowhere else in the world.

Herpetologists study reptiles and amphibians.

Herpetologist worldwide believe that

- the species should be rightly called a 'living fossil' as its evolutionary roots suggest it could have shared space with dinosaurs going back almost 70 million years ago.
- Its ability to survive so long could help scientists understand how its population may have evolved to overcome the challenges of shifting land masses.

ANSWERS of page 57 - 58

1. Sitar
2. Melomania
3. Over 500
4. 3000 BC
5. Pungi
6. Rhythms
7. The human voice
8. 8
9. Double reeds
10. Veena
11. Jackfruit wood
12. Ragam
13. Shehnai
14. Jal Tarang
15. Alghoza
16. Ravanahatha
17. Bulbul Tarang
18. Chande
19. Purandara Dasa
20. Guitar

Shri Sridhar P

INDIA'S ENERGY TRANSITION

Electricity changed the world and has shaped our modern economy ever since. Electricity is synonymous with energy.

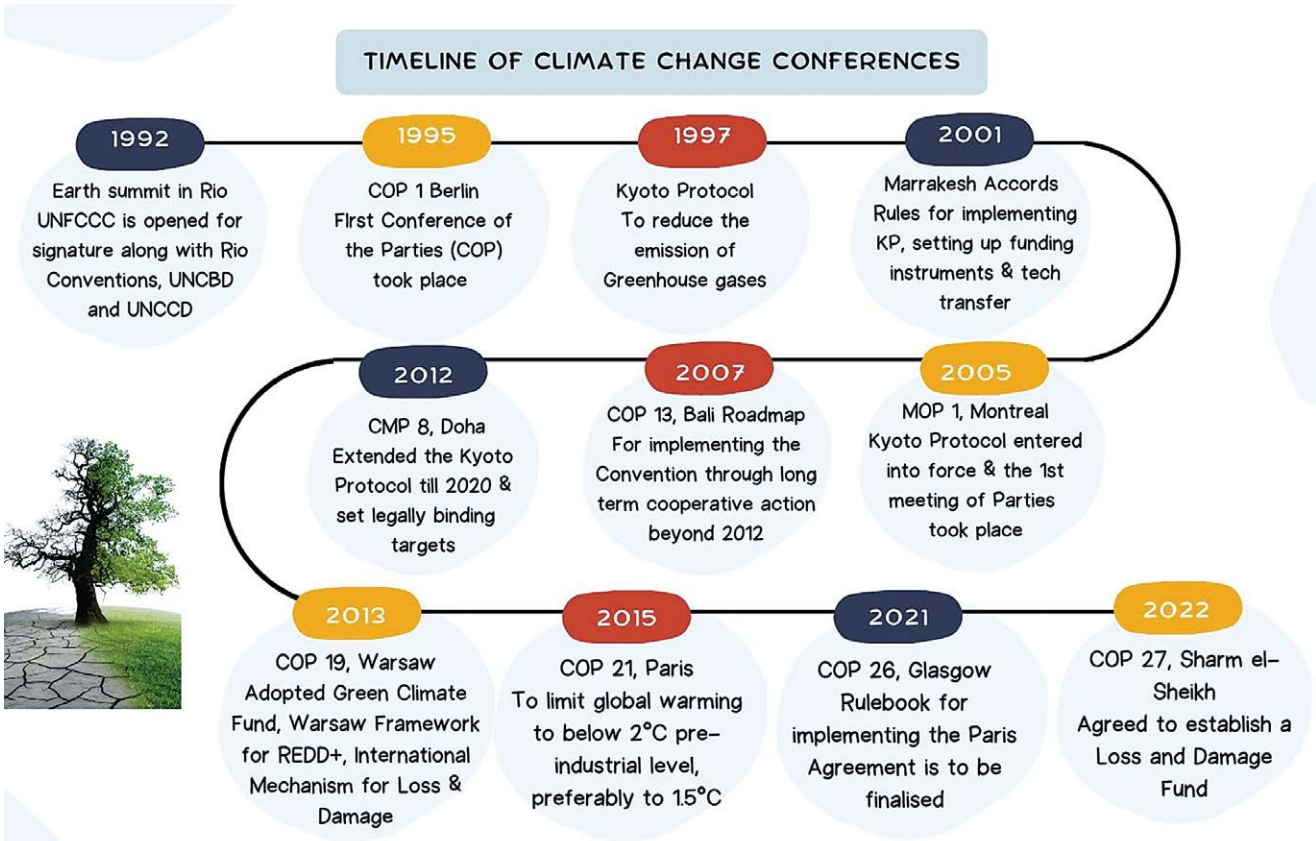
The world has witnessed several energy transitions, from biomass to draught power to coal, oil, nuclear gas to many possible renewables. Today the world stands at the cross roads of a new energy transition driven largely by renewables. Global warming, climate change, extreme weather events are powerful events that need to be factored in while formulating energy strategies and its transition.

The invention of electricity marks a seminal moment in world history. Electricity changed the world and has shaped our modern economy ever since. Electricity is synonymous with energy.

How is India placed?

India is now the world's 4th largest economy and has arrived as a world economic power at the most challenging of times, demanding compelling action with scalable ideas on the energy front. Impending climate change, supply bottle necks, new technology, demographics and demand makes the planning for a successful energy transition a daunting task.

Though 70% of its population still lives in its villages the contribution of industrial and services sector to its GDP is significant and rising that warrants careful planning on the energy front. The International energy



India has ambitious plans to tap its diverse sources of energy.

agency IEA estimates that 80% of all additional electricity capacity will be in developing countries.

Diverse sources of energy

It is quite obvious that a vast country like India needs to source its energy from diverse sources of energy. There are scores of examples of how small countries get all there energy from one major source. Norway and Brazil get most of their electricity from their vast hydro reserves.

Iceland has successfully tapped its geothermal source. India has ambitious plans to tap its diverse sources of energy.

The investment and efforts to organize this grand plan seems to be in place. Before we embark on the likely elements of India's energy mix it is worthwhile to having a look at the international scene and binding commitments by major economies

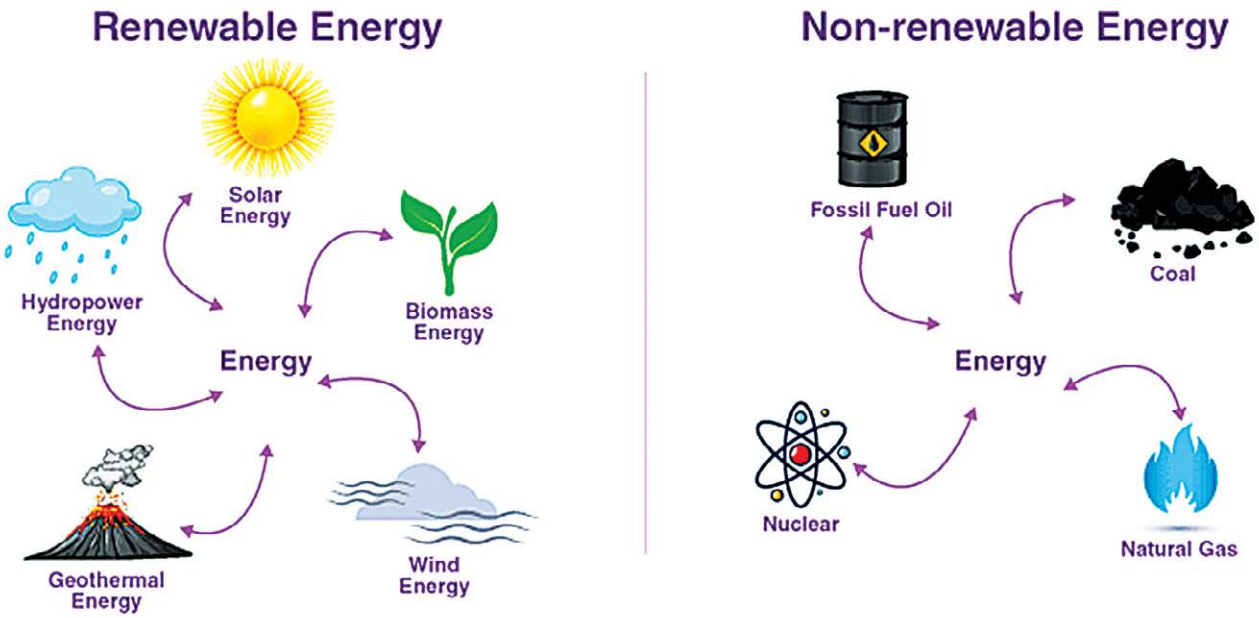
Conference of Parties (COP) meetings on climate change

After a rather uneventful 30 years of international meetings on climate change, bogged down in statistics, technical jargons and promises that can never fructify, COP 26 at Glasgow saw India bargain hard for some semblance of rationality.

India has committed to achieve Net Zero carbon emissions by 2070. Perhaps the most forceful intervention by India at the meet was making a change in the draft to "phase down" coal rather than "phase out" coal…something very sincere and practical. India is to cut emissions by 45% by 2030, compared to its 2010 levels.

India's energy mix as of 2022 and plan

As of now fossil fuels like coal, and natural gas account for 75% of India's energy mix. This must come



down to less than 50% by 2030 …a mere 7 years from now.

The total installed capacity of renewables capacity as of now is nearly 122 Giga watts (GW) amounting to 42% of total installed power capacity. Solar, wind and hydro make up the bulk of it. The nuclear energy potential in India is vastly underutilized. Nuclear energy contributes just 3% of India's energy needs now and is to be scaled up 3 times by 2030. With the largest reserves of thorium, nuclear energy can reach great heights with investment.

What is the Plan? The plan is comprehensive. Planning for 50% electricity generation from non-fossil sources by the year 2030 is an arduous task for Indian planners, considering the fact that 75% of our energy comes from coal, oil or natural gas as of now.

India is to produce 500 GW of electricity from renewable sources by 2030. A major portion of this will come from photovoltaics, wind, nuclear, large and small hydro plants. Polysilicon wafers are to be produced locally, which are now imported from China. ₹34,412 crores is to be spent on farmers to install 10,000 MW of solar photovoltaics, which will help them go off the grid. Smart grids are to be in place to evacuate electricity from wind mills and solar farms for that is a serious issue. India is to scale up production of **"Green hydrogen"** (hydrogen produced using renewables).

Hydrogen is an excellent substitute for oil in the transportation sector especially for long range trucks, buses, trains etc.

Hydrogen is an excellent substitute for oil in the transportation sector especially for long range trucks, buses, trains etc. The cost and logistics of production and distribution of hydrogen depend on how and where it is produced.

Onsite is the best, using renewables like wind and solar photovoltaics. India is betting high on solar photovoltaics and wind power. Planning, investment, installation etc., can be done by the government. **Any initiative can fructify only with the active participation of citizens and that, in unambiguous terms, means CONSERVATION.**

WORLD LEPROSY DAY

29th Jan, 2023

World Leprosy Day is a global health care event to raise awareness of leprosy, which has been recognised on the last Sunday of January for the past 69 years.

"On the great occasion of WORLD LEPROSY DAY, let us join hands and raise awareness to fight this disease"

- World leprosy day focuses on the target of zero cases of leprosy-related disabilities
- Early detection Is Important to treat leprosy and prevent its transmission
- WHO developed a multi drug therapy in 1995 to cure all types of leprosy which is available free of charge worldwide

LEPROSY, Also Known as Hansen's Disease (HD), is a Long-Term Infection by the Bacteria **Mycobacterium Leprae** or **Mycobacterium Lepromatosis**

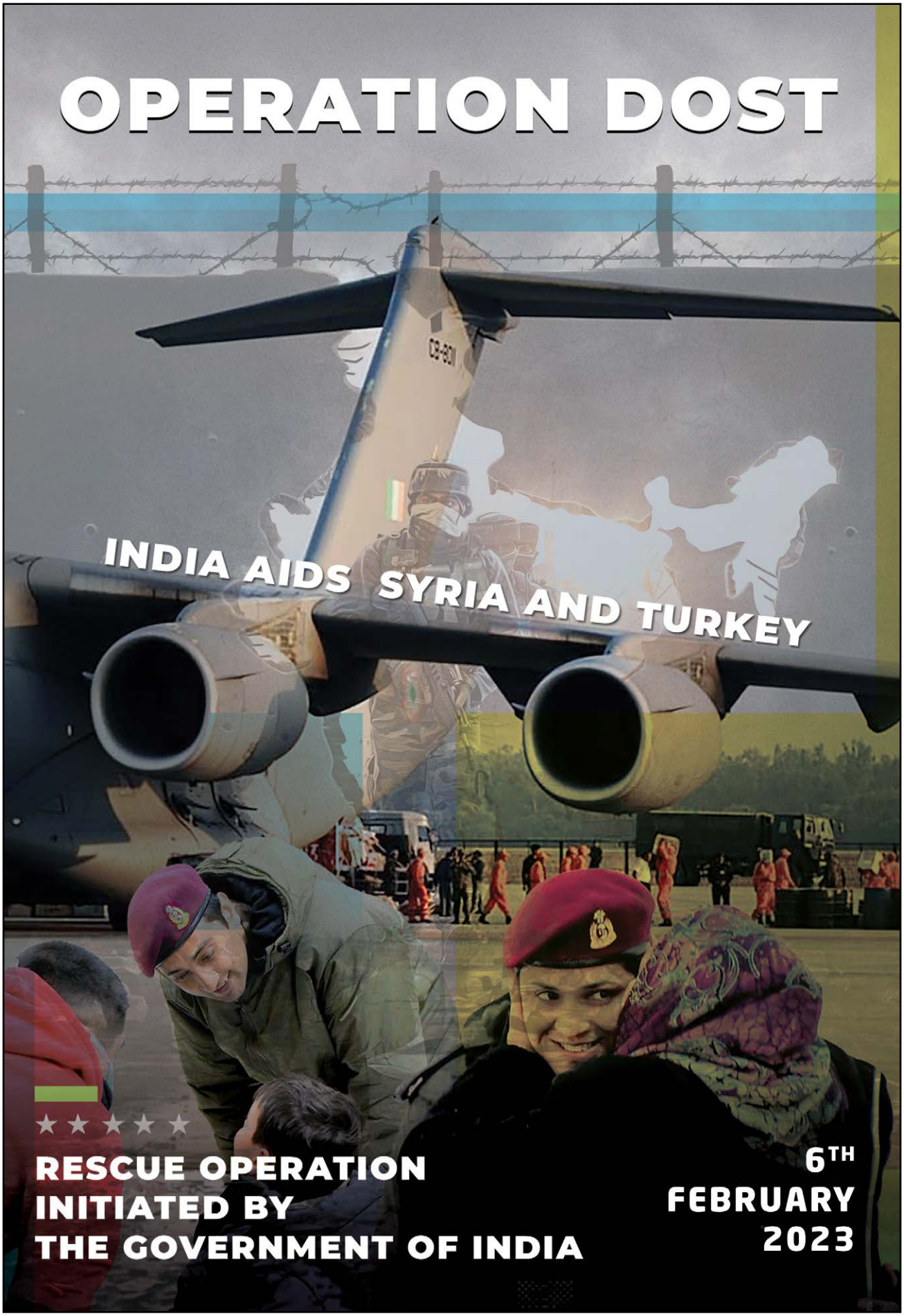
Symptoms

- Discoloured patches of skin, usually flat, that may be numb and look faded
- Painless swelling or lumps on the face or earlobes
- Loss of eyebrows or eyelashes

If Left Untreated

- Paralysis and crippling of hands and feet
- Chronic non-healing ulcers on the bottoms of the feet
- Blindness
- Muscle weakness and loss of hair
- Kidney failure
- Nose disfigurement

OPERATION DOST



INDIA AIDS SYRIA AND TURKEY

RESCUE OPERATION INITIATED BY THE GOVERNMENT OF INDIA

6TH FEBRUARY 2023