PRAJYA

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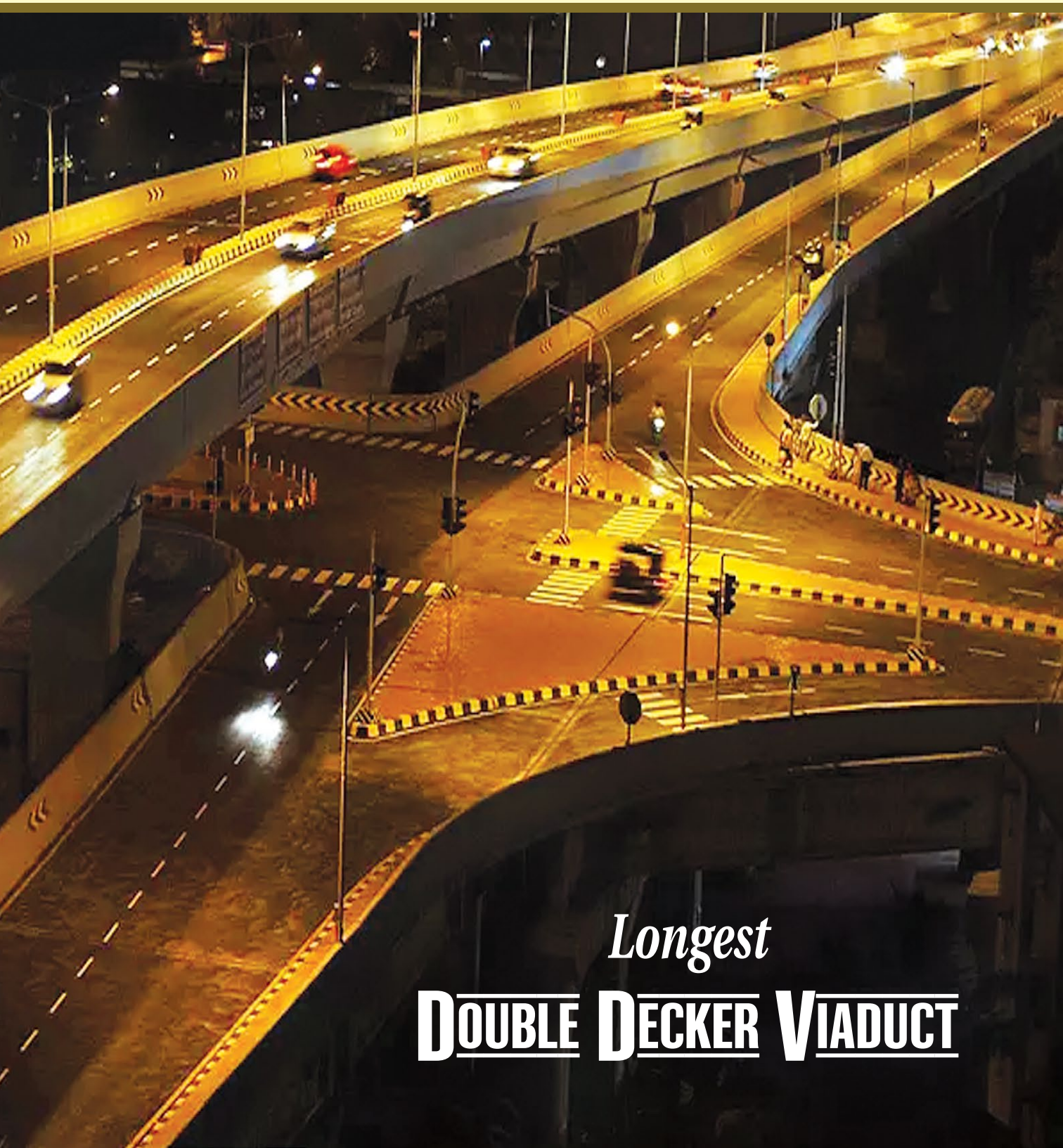

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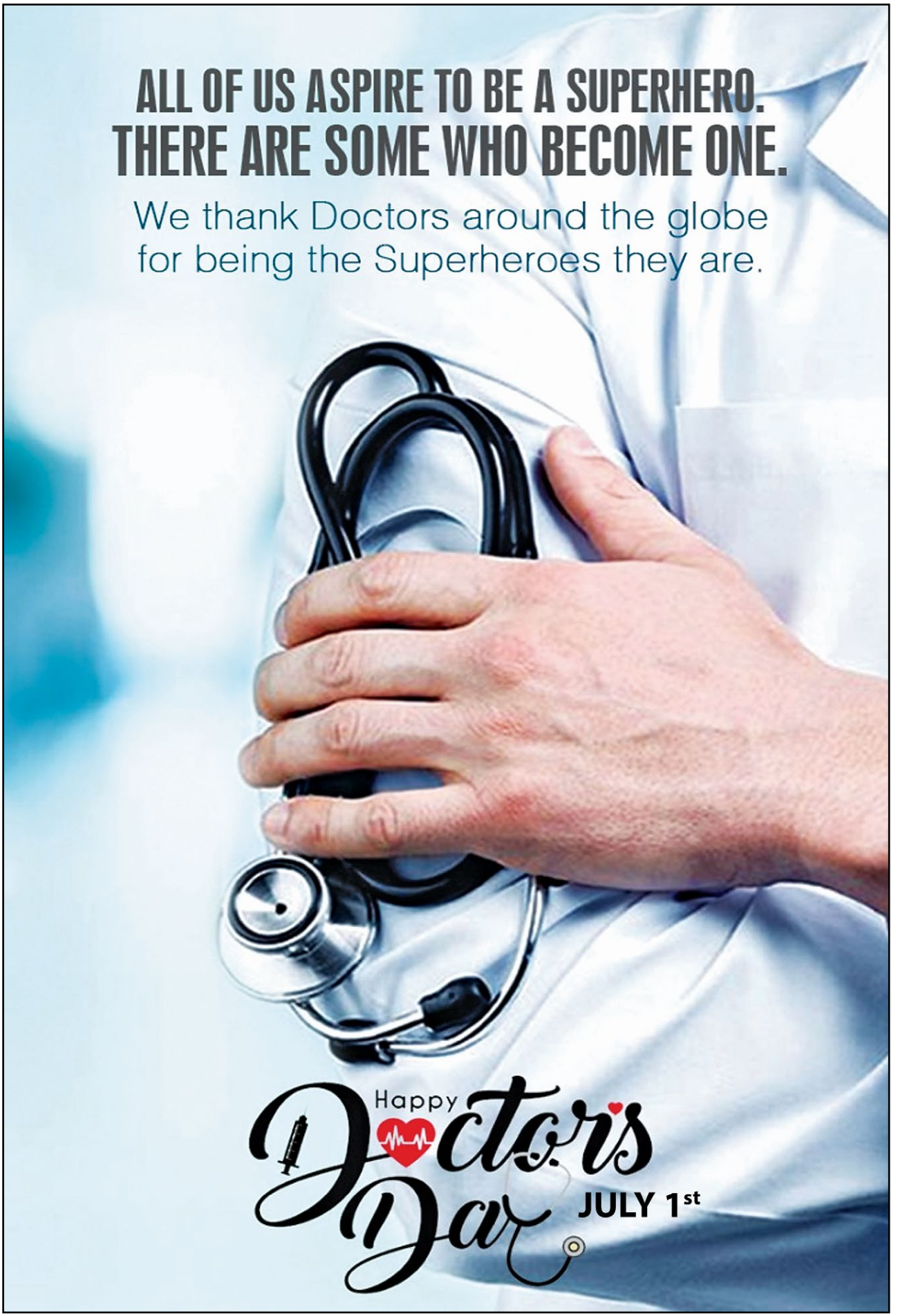
ALL OF US ASPIRE TO BE A SUPERHERO.
THERE ARE SOME WHO BECOME ONE.
We thank Doctors around the globe
for being the Superheroes they are.
Happy
Doctors
Day
JULY 1st

THE PRAJYA TEAM

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FROM THE EDITOR'S DESK

अनेकसंशयोच्छेदि, परोक्षार्थस्यदर्शकम्।
सर्वस्यलोचनंशास्त्रं, यस्यनास्त्यन्धएवसः॥

(Translation : It blasts many doubts, foresees what is not obvious |
Science is the eye of everyone, one who hasn't got it, is like a blind ||)

Enquiry, research and consequentially discovery are essential in life individually and collectively. Every new step forward is the result of all these elements. Every discovery not only shows a way forward but also deciphers a puzzle from the past.

Thiomargarita magnifica the largest bacterium discovered so far will reveal many more things in future. The well-preserved woolly mammoth found in Alaska will unlock unknown facts, enriching our ever-expanding body of knowledge. The finding of **single-crystalline scandium nitride (ScN)** that can convert infrared light into renewable energy will contribute to a sustainable future. The spotting of the rare carnivorous plant ***Utricularia Furcellatais*** a celebratory moment because it can provide insights into bio-mechanical processes. CERN stumbled upon new tetraquarks and pentaquarks. Measuring their properties will help theorists develop a unified model of exotic hadrons, and will also help understand conventional hadrons better. At the other end of the spectrum, JWST has caught sight of magnificent cosmic phenomena. This will help us know more about the s formation of galaxies.

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.

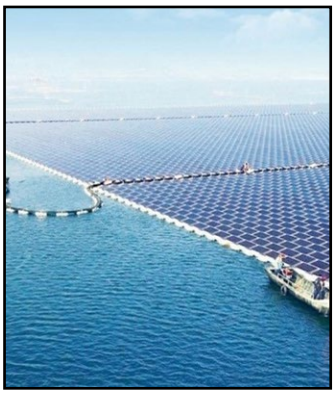
http://bit.ly/Prajya

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

General knowledge

Smt Sandhya Nair

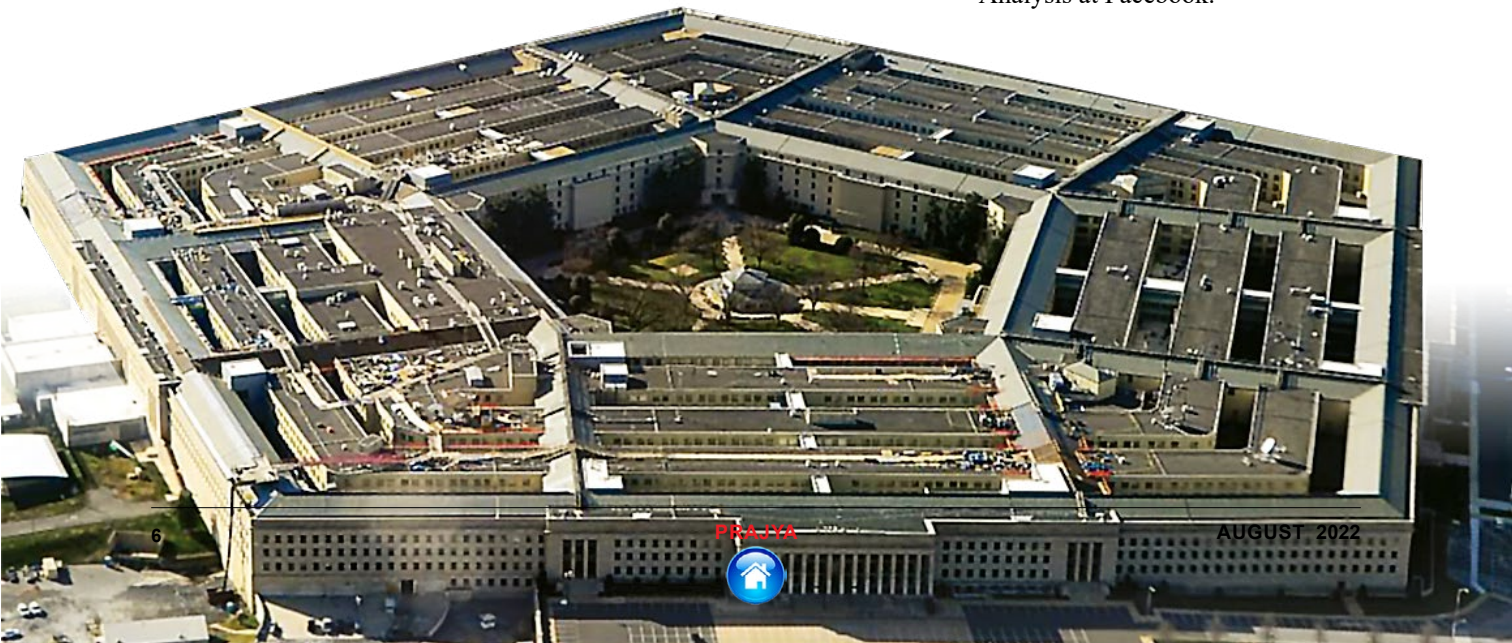
INDIAN IN A TOP POSITION IN PENTAGON

She has experience in policy research, econometrics, trust and safety issues and project management in the government, academia and industry.

Indian – American Radha Iyengar Plumb was nominated to a top Pentagon position – Deputy Under Secretary of Defense for Acquisition and Sustainment by the US President Joe Biden. She is currently serving as the Chief of Staff to the Deputy Secretary of Defense.

She started her career as an assistant professor at the London School of Economics and went on to do BS from MIT and MS and Ph.D from Princeton University.

She has experience in policy research, econometrics, trust and safety issues and project management in the government, academia and industry. Earlier she was Director of Research and Insights for Trust and Safety at Google and Global Head of Policy Analysis at Facebook.



Kum Silpa Nandakumar

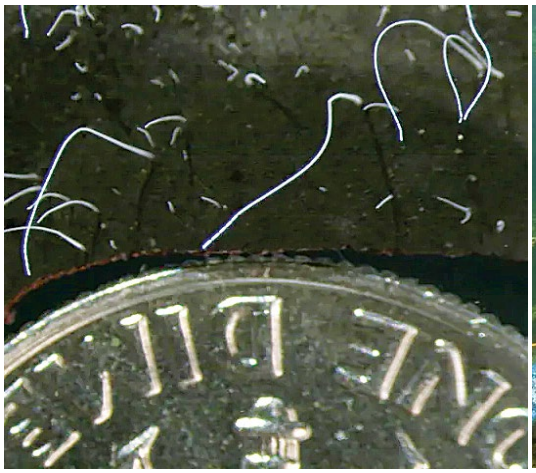
Indian-American as Top Science Advisor to US

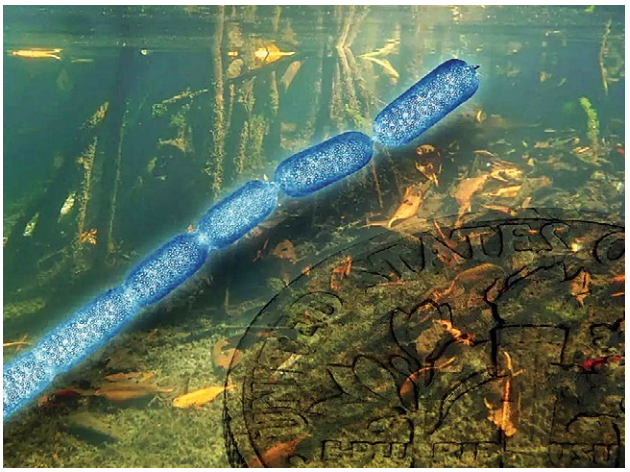
Born in New Delhi and raised in Lubboc, Texas, she is the first woman, immigrant and person of colour to lead OSTP.

Dr. Arati Prabhakar, an engineer and applied physicist has been nominated as the next top science advisor to US. Once confirmed, Dr. Prabhakar will serve as the Director of the Office of Science and Technology Policy (OSTP) and Assistant to the President Joe Biden for Science and Technology. Born in New Delhi and raised in Lubboc, Texas, she is the first woman, immigrant and person of colour to lead OSTP.

Dr. Prabhakar previously led the National Institute of Standards and Technology and was the first woman to hold that position. She has also served as the Director of the Defence Advanced Research Project Agency - an entity that develops cutting-edge national security - under President Barack Obama. She was also the first woman to achieve a Ph.D. in Applied Physics from the California Institute of Technology (1984).

Smt Ghana Saraswathy M





WORLD'S LARGEST BACTERIUM

DO YOU KNOW ?

- **Bacteria come in four different shapes:**
  - **Cocci (spherical)**
  - **Vibrio (comma)**
  - **Spirilla (spiral) and**
  - **Bacilli (rod)**
- **Bacteria also communicate with each other by sending electrical signals.**

We know bacteria are microscopic organisms. But nature can throw surprises. A single cell, in the size of a human eyelash, nearly 1 cm, is now the world's largest known bacterium, ***Thiomargarita magnifica.***

Discovered by Prof. Olivier Gros, it is 5000 times larger than most bacteria. It comes in the form of white filaments in the size of human eyelashes.

The lab first performed micro scopic examinations to confirm that the strands were single cells. A closer look revealed an unusual internal structure. Most bacteria have free-floating DNA within their cells. *Thiomargarita magnifica's* DNA appears to be better organised within membrane-bound compartments throughout

the cell. It also contains three times as many genes as most bacteria and hundreds of thousands of genome copies spread throughout each cell, making it unusually complex.

Shri Sampath D

EU Leaders grant candidate status to Ukraine, Moldova

Russian President Vladimir Putin was recently quoted saying that he has "nothing against" Ukraine joining EU.

Ukraine and Moldova were granted candidate status for European membership during a European Council meeting in Brussels on 23rd June 2022. European Council President Charles Michel hailed the “historic moment” in a tweet congratulating Ukrainian President Volodymyr Zelenskyy and Moldova’s President Maia Sandu.

Although it could take Ukraine more than a decade to eventually join the bloc, the decision to officially accept it as a candidate is seen as a symbol of the EU's intention to reach deep into the former Soviet Union. The Western Balkan countries of Albania, North Macedonia, Montenegro and Serbia have been candidate countries for years or even decades. In fact, Bosnia and Herzegovina had applied for candidacy in 2016 but has still not officially joined the bloc.

Russian President Vladimir Putin was recently quoted saying that he has "nothing against" Ukraine joining EU.

How does a country join the European Union?

1. The first step is to get official candidate status for EU membership but this is no guarantee that the nation will join the EU.

2. Having obtained candidate status, the negotiation for formal membership will be set in motion. The process involves adopting established EU law and implementation of judicial, administrative, economic and various other reforms deemed necessary for the candidate country to meet the conditions. These are known as accession criteria.

3. Once the negotiations are complete and reforms are done to the satisfaction of both sides, the country is allowed to become an EU member.

Shri Krishnakumar C S

G7 SUMMIT- Emerging role of India in world affairs

India has 17 % of the world's population; its contribution to global carbon emissions is only 5 %.

The G7 is a group of the seven most advanced economies - Canada, USA, UK, France, Germany, Japan and Italy.

Germany hosted the G7 Summit held on 26th and 27th June 2022 at Schloss Elmau. Acknowledging the growing role of India in international affairs, German Chancellor Olaf Scholz invited PM Modi as a guest. Leaders discussed Russian invasion of Ukraine, food security, counter-terrorism, energy, environment and democracy. PM Modi spoke in two sessions.

Key points of PM's talks

- Ukraine - Russia conflict should be resolved peacefully through negotiations.
- India has emerged as a solution provider for the global food, health and energy crisis.
- Poor countries do not cause more damage to environment.
- India has 17 % of the world's population; its contribution to global carbon emissions is only 5 %.
- India has achieved the target of 40 % energy capacity from non-fossil sources nine years before time.
- Developed countries should come forward to invest in India for clean energy technologies.
- We must promote eco - friendly life style.

Kum Anu Narayan

30,000-year old Mummified Woolly Mammoth found

A rare discovery was made in the Klondike Gold Fields in Alaska, Canada, when a miner found the mummified body of a baby woolly mammoth, marking the best-preserved such remains found in North America.

Palaeontologists have confirmed that the creature has most of its skin and hair intact, along with attributes rarely found in nature such as the preservation of toe nails, intestines and the trunk. Dr Grant Zazula called the find 'beautiful and one of the most incredible mummified ice age animals ever discovered in the world'.

Miners stumbled upon the calf while excavating through permafrost south of Dawson City in Canada's Yukon Territory.

Members of the local First Nation band government, the Tr'ondekHwech'in, named the calf Nun choga, which means 'big baby animal'.

The creature is believed to be female, having died more than 30,000 years ago during the ice age, when woolly mammoths roamed the borders of modern-day Alaska alongside other creatures such as cave lions, wild horses and the giant steppe bison.

In 1948, a partial mammoth calf known as Effie was discovered at a gold mine in Alaska's interior, while another frozen woolly mammoth, named Lyuba, was discovered in Siberia in 2007. These discoveries make the species the best-studied of any prehistoric animal.

The woolly mammoth lived during the **Pleistocene epoch** (2,580,000 to 11,700 years ago), until it became extinct in the Holocene (1200 and 1700 CE).

Kum Anu Narayan

CERN Scientists Discover three new particles

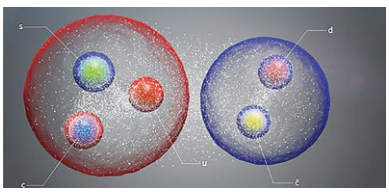
Three unprecedented subatomic particles were observed when the Large Hadron Collider (LHC) initiated its 3rd run of high-energy collisions since its debut in 2008.

Scientists at CERN observed the first-ever pair of four-quark combinations, called 'tetraquarks', as well as a five-quark unit, known as 'pentaquark', adding three exotic members to the list of new hadrons found at LHC. These particles - consistent with the standard model of atomic structure - will help physicists better understand how quarks bind together into hadrons.

Hadrons are composite particles usually made of combinations of elementary particles such as quarks. Examples of hadrons include the protons and neutrons that make up atomic nuclei. Rarely do the quarks combine into exotic particles such as tetraquarks or pentaquarks.

Examples of hadrons include the protons and neutrons that make up atomic nuclei.

This period of discovery is similar to the 1950s, when a 'particle



zoo' of hadrons was discovered, which led to the quark model of conventional hadrons in the 1960s. **"We're creating 'particle zoo 2.0,"** CERN physicist Niels Tuning added.

The LHC is a 27-km long atom-smasher at CERN, a European Nuclear Research Centre in Geneva, Switzerland. **It is most famous for finding the Higgs Boson, colloquially referred to as 'God Particle', believed to be vital to the formation of the universe after the Big Bang.** The 'Run 3' of collisions comes after a three-year pause for maintenance, and is operating at an unmatched energy level of 13.6 trillion electronvolts, which will offer the prospect of unlocking the building blocks of the universe.

Kum Priyadharsshini S

India elected to UNESCO's Committee for intangible cultural heritage

India has been elected in the 2022–2026 cycle of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, estalished in 2003.

The 9th General Assembly of the 2003 Convention recently held at the UNESCO headquarters in Paris included elections for the Inter-governmental Committee.

As of January 2022, there are 14 Indian elements on the List of Intangible Cultural Heritage.

INDIA as a Member

GOALS:

1. **Fostering community participation.**
2. **Strengthening international cooperation through intangible heritage.**
3. **Promoting academic research on intangible cultural heritage.**
4. **Aligning the work of convention with the UN Sustainable Development Goals.**

Cultural Heritage, the list has been classified into five broad domains in which intangible cultural heritage is manifested:

1. Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage.
2. Performing arts.
3. Social practices, rituals and festive events.
4. Knowledge and practices concerning nature and the universe.
5. Traditional craftsmanship.

Inclusion of an element on the UNESCO Representative List does not imply that it is special or superior or that it solely belongs to or exists only in that nation.

As of January 2022, there are 14 Indian elements on the List of Intangible Cultural Heritage.

S.No	ICH	Year of Inscription
1.	Tradition of Vedic chanting	2008
2.	Ramlila, the traditional performance of the Ramayana	2008
3.	Koodiyattam, Sanskrit theatre	2008
4.	Ramman, religious festival and ritual theatre of the Garhwal Himalayas, India	2009
5.	Mudiyettu, ritual theatre and dance drama of Kerala	2010
6.	Kalbelia folk songs and dances of Rajasthan	2010
7.	Chhau dance	2010

8.	Buddhist chanting of Ladakh: recitation of sacred Buddhist texts in the trans-Himalayan Ladakh region, Jammu and Kashmir, India	2012
9.	Sankirtana, ritual singing, drumming and dancing of Manipur	2013
10.	Traditional brass and copper craft of utensil making among the Thatheras of Jandiala Guru, Punjab, India	2014
11.	Yoga	2016
12.	Nawrouz, Novruz, Nauryz, Nooruz, Nowruz, Navruz & Nevruz	2016
13.	Kumbh Mela	2017
14.	Durga Puja in Kolkata	2017

After the inscription of Durga Puja in 2021, India submitted the nomination for Garba of Gujarat to be discussed in 2023.

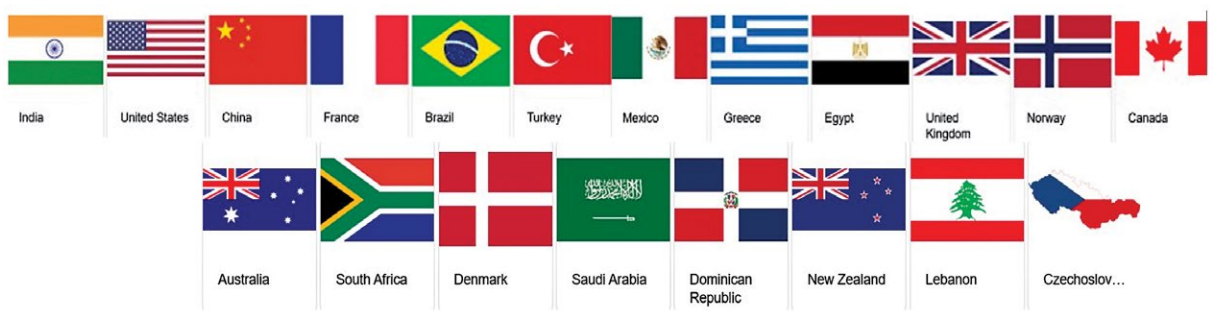
DO YOU KNOW ?

Formation : 16 November 1945

Headquarters : World Heritage Centre, France

Head : Audrey Azoulay

unesco
United Nations Educational, Scientific and Cultural Organization



Shri Sivakumar R

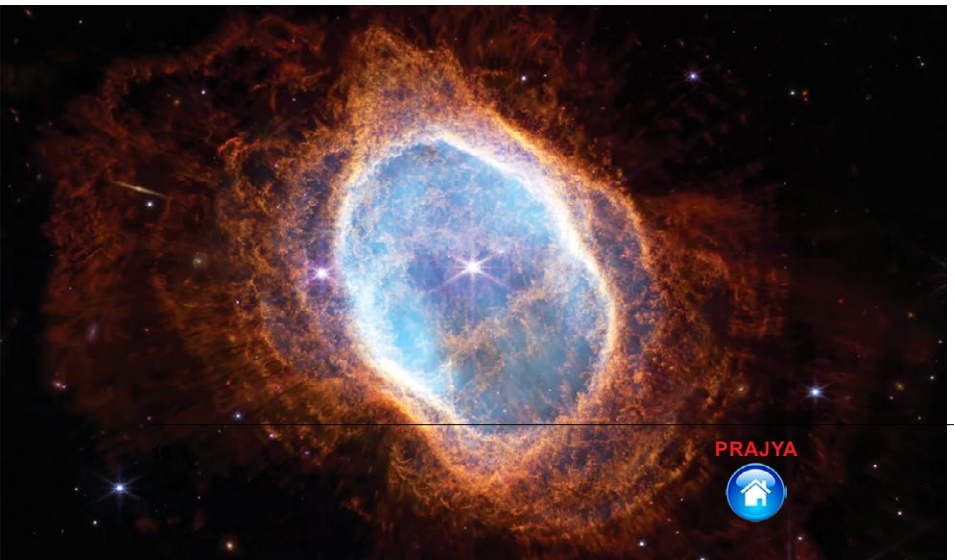
JWST captures fascinating images

The James Webb Space Telescope (JWST) is the latest in this series of space-based telescopes.

As a race we have always been curious about the world and the universe around us. In India, study of astronomy has been on since pre-historic times. Around 1500 BCE or earlier, it started developing as *"Vedanga"* an auxiliary discipline to the study of the Vedas.

Nowadays, we use telescopes to observe space. These then evolved into ground – based observatories housing radio telescopes generally located in highly elevated areas with minimal light pollution. Space-based telescopes can also detect frequencies and wavelengths across the entire electromagnetic spectrum.

The James Webb Space Telescope (JWST) is the latest in this series of space-based telescopes. It is also the largest and most powerful to date. It is a product of international collaboration among US, European and Canadian Space agencies. Launched in 2021, it arrived at its home at the Sun–Earth L2 Lagrange point - a spot in space near Earth that lies opposite from the sun; this orbit will allow the telescope to stay in line with Earth as it orbits the sun.



This astonishing image shows the edge of a giant cavity within a nebula called NGC 3324, (the Carina Nebula). It reveals emerging stellar nurseries, cosmic cliffs and individual stars. Until now, all those cosmic details were totally hidden from our view by the thick dust and gas surrounding them. But the JWST infrared cameras have literally pierced that veil of intergalactic secrets and provided amazing sights within.

JWST is an important step in our quest to understand space and origins of life better.

JWST can also observe nearby objects, including objects in the solar system.

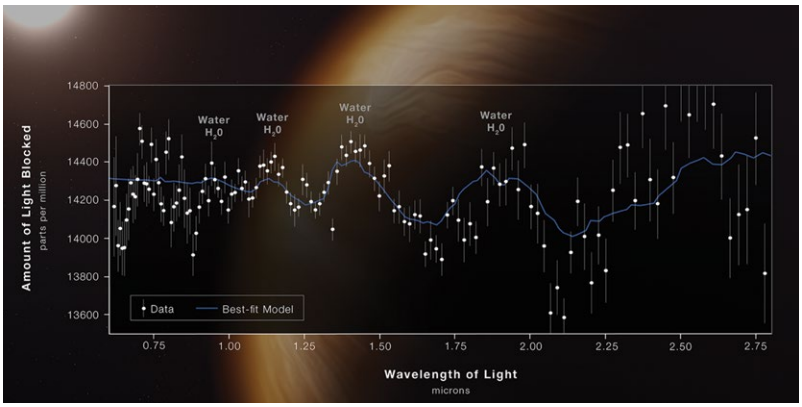
JWST is designed primarily for near-infrared astronomy, but can also see orange and red visible light, as well as the mid-infrared region, depending on the instrument.

It can detect objects up to 100 times fainter than its predecessors, and objects much earlier in the history of the universe back to red shift z≈20 (about 180 million years cosmic time after the Big Bang).

For comparison, the earliest stars are thought to have formed between z≈30 and z≈20 (100–180 million years cosmic time), and the first galaxies may have formed around red shift z≈15 (about 270 million years cosmic time).

JWST can also observe nearby objects, including objects in the solar system including all

JWST is an important step in our quest to understand space and origins of life better.



The spectral data of WASP-96 b - a really hot, giant, gassy exoplanet which reveals the composition of its atmosphere in unprecedented detail. It is a spectral dataset that helps us understand what it would be like to stand on it.

The Kuiper belt is a circumstellar disc in the outer Solar System, extending from the orbit of Neptune at 30 astronomical units to approximately 50 astronomical units from the Sun.

planets and satellites, comets, and asteroids beyond Earth's orbit, and "virtually all" known **Kuiper Belt** objects. In addition, it can observe opportunistic and unplanned targets within 48 hours of a decision to do so, such as supernovae and gamma ray bursts.

JWST focuses on four main areas: first light in the universe, assembly of galaxies in the early universe, birth of stars and protoplanetary systems, and planets (including the origins of life.)

A few major images captured by JWST recently are fascinating. Two focus on nebulas, huge clouds of dust and gas within which stars are sometimes born, another analyses a region known as Stephan's Quintet, a corner of the cosmos where five galaxies are locked in a deadly encounter.

Shri Sampath D

Decoding India's idea behind I2U2

The Russia-Ukraine war is continuing unabated and triggering a global food crisis disturbing food supply chains.

I2U2 refers to India, Israel, USA and UAE. USA held a virtual summit with India, Israel and United Arab Emirates in July during the visit of President Joe Biden to the Middle East. The leaders of the grouping (also nicknamed the West Asia Quad) discussed food security crisis and various other important areas of cooperation across hemispheres.

The focus of the summit was with regard to expanding economic and political cooperation in the Middle East and Asia, by means of trade, combating climate change, energy cooperation, and increasing maritime security.

While Israel, UAE and the US were the natural partners in the grouping, the inclusion of India came amid its strained relationship with China and a drive to broaden its global alliances.

The Russia-Ukraine war is continuing unabated and triggering a global food crisis disturbing food supply chains and disrupting wheat exports from both countries. Russia and Ukraine together account for around 20 % of global wheat exports. The summit comes in against this backdrop.

India has excellent relations with Israel, UAE and USA. Trade between India and Israel ballooned to more than USD 4 billion by the end of 2016, from USD 1 billion in 2000. The progress of Indo-Israeli relations has covered many areas

In April 2017, the Israeli and Indian governments signed the biggest deal in the history of the Israeli military industries, valued at USD 2 billion.

including research and development and joint manufacturing in the defence sector, science and technology, trade and innovation and many more. In April 2017, the Israeli and Indian governments signed the biggest deal in the history of the Israeli military industries, valued at two billion dollars.

India has set its sights on strengthening its relations with the Gulf states and building a strategic partnership with them to secure oil and gas needs for its continued economic growth. Although India's relations with all Gulf countries have seen phenomenal development, India and UAE are particularly close.

The trade exchange between the two countries amounted to USD 57 billion in 2019. In February 2022, the two countries signed a comprehensive economic partnership agreement to increase trade exchange from its current level of USD 60 billion to USD 115 billion within five years.

With all the above developments taking place, India stands to gain in many areas including defence to propel its economic growth making it an emerging super power in Asia.

Kum Anu Narayan

Ultrathin biodegradable Heteroprotein film

These films are much thinner than other protein or plastic films, with excellent mechanical, thermal and pH stability.

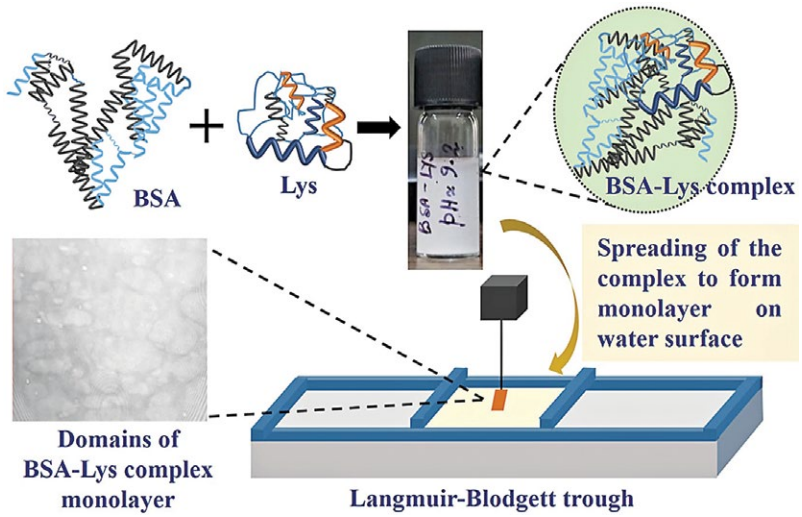
A research group has developed ultra-thin heteroprotein films which can expand the benefits of thin films in the food packaging and biomedical industry.

These films are much thinner than other protein or plastic films, with excellent mechanical, thermal and pH stability.

Recently, different research groups reported several modifications of these films with suitable heteroprotein complexes, which were usually developed from bulk solutions.

Scientists from the Physical Sciences division of Institute of Advanced Study in Science and Technology (IASST), Guwahati, have successfully developed monolayer protein films consisting of two globular proteins - lysozyme (Lys) and bovine serum albumin (BSA).

Led by Dr. Sarathi Kundu, Associate Professor, the group used a technique called **Langmuir-Blodgett technique** to develop this film, exploring its stability and



related properties by testing different structures and morphologies at variable pH conditions.

The complex formation occurred at a pH of 9.2 as a result of hydrophobic interactions along with an electrostatic attraction.

The mono layer was formed at the air-water interface, which held its intrinsic structure for a long time due to its high stability.

The research was published in the esteemed journal of *Food Hydrocolloids* under the reputed Elsevier publishers.

Plastic wraps are popular in the food packaging industry for its convenience and benefits, but it contributes to the plastic pollution crisis. Made from potentially harmful chemicals, it is hard to recycle. This development of biodegradable thin films can be useful to expand its applications in thin-film technology.

This development of biodegradable thin films can be useful to expand applications in thin-film technology.

Smt Ramamani N

India's first-ever STEEL ROAD

DO YOU KNOW ?

- **Steel slag is produced when molten steel is separated from impurities in steel-making furnaces.**
- **It occurs as a molten liquid and a solution of silicates and oxides that solidify upon cooling.**
- **About 150 to 200 kg per tonne of slag is generated per tonne of liquid steel.**
- **There are around 650 mini steel plants in India.**

Surat has become the first Indian city to get a road constructed from steel slag. The 1 km six-lane road to connect the port with the city, part of an R&D project sponsored by the Steel Ministry with other major steel players reminds us of the need to promote reusing/recycling of materials and resource efficiency by converting all waste into wealth.

Highlights

- 100% use of steel processed slag.
- Increased durability.
- Lower cost of construction as slag-based materials have better properties than natural aggregates.

The Ministry is exploring options to utilise such materials in road construction,agriculture as a replacement to soil nutrients and fertilisers, ballast for railways and making green cement.

Kum Kavya R

India's UPI, Rupay cards to be accepted in France

What is UPI?

Unified Payments Interface is an instant real-time payment system developed by NPCI. The interface facilitates inter-bank, peer-to-peer (P2P) and person-to-merchant (P2M) transactions. It is regulated by the Reserve Bank of India (RBI) and works by instantly transferring funds between two bank accounts on a mobile platform. It is part of the Green Initiative to decrease the usage of paper in the domestic payments market.

BHIM, Google Pay, PhonePe and Paytm are some of the famous UPI apps. UPI is currently accepted in Nepal, Singapore, Bhutan, Malaysia and UAE.

India's Unified Payments Interface (UPI) and Rupay cards will soon be accepted in France. India is doing 5.5 billion UPI transactions in a month.

India has started the process in France by signing an MoU between the National Payments Corporation of India (NPCI) International and Lyra Network of France. Consequently, Lyra Networks will allow Indians to pay using UPI and Rupay cards at its terminals and machines, making it easier especially for students and tourists from India to make payments.

"In France, there is very less use of digital payment. But it needs to be integrated and seamless. It lacks efficiency as we have in India," said Jawed Ashraf, Indian Ambassador in France.

When talking about the expansion of UPI to other countries in the European Union, he said "we will have to start with France first. Some banks like BNP Paribas and Societe Generale have a presence in India and they know the success story of UPI."

Smt Ramamani N

Six-lane Tunnel under Pragati Maidan

The tunnel provides hassle-free vehicular movement saving time and fuel cost.

Pragati Maidan in Delhi is being redeveloped into a world-class Integrated Exhibition-cum-Convention Centre (IECC). PM Modi inaugurated the main tunnel and 5 underpasses of the Pragati Maidan Integrated Transit Corridor Project. The tunnel provides access to the huge basement parking of Pragati Maidan and decongests traffic around it.

Features

- The cost of more than Rs. 920 crores is entirely funded by the Central Government.
- Hassle-free vehicular movement for common people, saving time and fuel cost.
- Main tunnel is 27 metres wide and connects Ring Road with India Gate via Purana Qila Road.
- Will serve as an alternative route to Bhairon Marg which is running beyond its carrying capacity.
- Expected to take more than half of the traffic load of Bhairon Marg.
- Has smart fire management, modern ventilation and automated drainage, digitally controlled CCTV and a Public Announcement system inside.

Smt Archana Sundar

Food Security is now fully portable across India

One Nation One Ration Card (ONORC) is one-of-its-kind citizen-centric initiative in India implemented in a short-span of time covering about **80 crore beneficiaries** since August 2019.Assam has become the 36th State/UT to implement this. ONORC is successfully implemented in all the 36 states/UTs, making food security portable throughout the country.

Objective

To enable family members to lift balance/required amount of foodgrains on the same ration card at their native/ any place from any Fair Price Shop of their choice across India.

ONORC implementation in figures

About **64 crore portable transactions** were recorded during COVID-19 period itself *(from April 2020 till date)* delivering food grains equivalent to about ₹36,000 crore in food subsidy through portability. Out of these, 27.8 crore transactions were recorded under PMGKAY (Pradhan Mantri Garib Kalyan Anna Yojana) announced in March 2020 for distribution of additional free-of-cost foodgrains (rice/ wheat) to NFSA beneficiaries to mitigate the Covid-induced hardships.

Additionally, **a monthly average of about 3 crore portable transactions** are being recorded.

Another dimension under ONORC plan is the **'MERA RATION'** mobile application which has been rolled out to take maximum advantage of the plan. It provides a host of useful real time information to the beneficiaries and is available in 13 languages. So far, it has been downloaded more than 20 lakh times from Google playstore.

J P GANGA PATH:
Patna's Own Marine Drive

Patna now has its own Marine Drive with the inauguration of the first phase of JP Ganga Path by Bihar Chief Minister Nitish Kumar. The first phase between Digha and PMCH stretches to 7.4 km. 6.5 km is semi-elevated by making 13 metre high bund along the bank of the river Ganga.

The second phase extends the road by 18 km to Fatuha. The total cost involved in this mega project is Rs. 5600 crores. The joint construction by the Housing and Urban Development Corporation (HUDCO) and the Government of Bihar is expected to be completed by the end of 2022.

The express-way is expected to smoothen the flow of traffic from East to West Patna and the congestion at Ashok Rajpath. Offering a beautiful river-front, the project will give a boost to the economic activities of the area. People now throng the driveway to enjoy the evenings with the picturesque background of Ganga.

Kum Priyadharsshini S

India's Largest 101.6 MWp floating Solar Power Project

MWp – Megawatt peak – a unit of measurement for the output of power from a source such as solar or wind where the output may vary according to the strength of sunlight or wind speed.

Tata Power Solar Systems Limited (TPS) has launched operation of the largest floating solar power facility in India on a 350-acre water body, the backwaters, in Kayamkulam, Kerala. Despite the problems of fluctuating water depths, high sea tides and water salinity concerns throughout the project's construction phase, this installation was finished within the stipulated time.

To make the solar plant float on water, TPS constructed a scaffolding platform on the water body. To sustain the Central Monitoring and Control Stations (CMCS) the entire project is anchored to the water bed to a depth of 20 metres. All of this was accomplished by underwater soil strata dredging.

The landmark accomplishment not only lowers carbon emissions but also creatively utilises the unused area atop a water body to produce energy. It is one of the first projects of TPS to have CCTVs monitored and tracked around-the-clock for increased security and malfunction detection.

Smt Sumathi Ramakrishnan

Rare Carnivorous plant species found

A very rare carnivorous plant species called ***Utricularia Furcellata*** has been found in the western Himalayan region for the first time by a research team of the Uttarakhand Forest Department in Mandal valley,Chamoli district.

The discovery has been the first to be published in the prestigious 'Journal of Japanese Botany', a 106-year-old journal on plant taxonomy and botany, considered to be one of the finest in the field.

The plant uses one of the most sophisticated and developed plant structures for trapping, and the targets range from protozoa to insects, mosquito larvae and even young tadpoles.

Its operation is based on a mechanical process by creating a vacuum or negative pressure area, to draw prey inside the trap door with a completely distinct manner of arranging food and nutrition through intelligent trap mechanisms.

Smt Meenakshi S

Indigenously developed Lithium-ion cell

DO YOU KNOW ?

Lithium, an exceptionally light metal, gives lithium batteries the highest energy density of any battery cell. Thus, they can store more energy than alkaline batteries or any single-use battery of a comparable size and can perform in extreme temperatures.

Ola Electric has developed India's first indigenous lithium-ion cell. The Bengaluru-based two-wheeler maker said it will begin the mass production of the cell -- NMC 2170, from its Chennai-based Gigafactory by 2023.The use of specific chemistry and materials enables the cell to pack more energy in a given space and also improves the overall life cycle of the cell.

Ola Electric noted that it is committed to invest in core R&D to create indigenous advanced cell technologies, strengthen manufacturing capabilities and create an integrated Ola Electric vehicles hub.

Kum Kavya R

‘One Nation, One Dialysis’ programme to be launched

The central government will soon launch the ‘One Nation, One Dialysis’ programme under the Pradhan Mantri National Dialysis Programme. Through this scheme, any patient can get to use the dialysis facility from anywhere in the country.

What is dialysis?

The kidneys filter the blood by removing waste and excess fluid from the body. This waste is sent to the bladder to be eliminated as urine. Dialysis performs the function of the kidneys if they have failed.

What is ESRD?

End-stage renal disease (ESRD) or end-stage kidney failure occurs when the kidneys are performing at only 10 to 15 % of their normal function.

Every year about 2.2 lakh new patients with ESRD get added in India resulting in additional demand for 3.4 crore dialyses each year. With approximately 4950 dialysis centres, largely in the private sector, the existing infrastructure can only meet half of the current demand. Continued dialysis care comes with a very high cost which causes a financial catastrophe for almost all families.

The ‘One Nation, One Dialysis’ programme aims to make this life-saving procedure more accessible and reduce the financial burden of families.

Kum Anu Narayan

PSLV-C53 launched

with three Singapore satellites on board

The PSLV-C53 is the 55th mission of the Polar Satellite Launch Vehicle and 15th mission using PSLV-Core Alone variant.

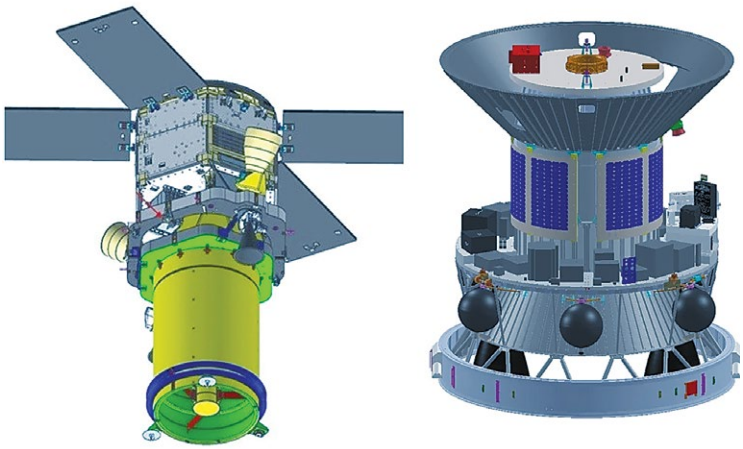
The PSLV-CA (Core Alone) variant is the lightest version that only uses the four core stages without the 6 strap-on boosters.

June 30th, 2022: In the second dedication mission for the New Space India Limited (NSIL) - the commercial arm of the Indian Space Research Organisation (ISRO) - the launch vehicle PSLV-C53 injected three Singaporean satellites into their intended orbits 19 minutes after lift-off.

In a manoeuvre described by the ISRO Chairman, S. Somnath, as a 'poem in orbit' - referring to the PSV Orbital Experimental Module (POEM) - the launch also served an additional purpose, with the fourth stage, the PS4, acting as a stationary platform in orbit to conduct scientific experiments.

Taking off from the second launchpad at the Satish Dhawan Space Centre, Sriharikota Range (SHAR), the PSLV-C53 placed the satellites: DS-EO (a 365 kg Singaporean Earth Observation Satellite) NeuSAR (a 155 kg commercial satellite with a Synthetic Aperture Radar (SAR) payload) and SCOOB-1 (a 2.8 kg satellite from the Nanyang Technological University (NTU)) into their orbit.

On 23rd June, NSIL had launched GSAT-24 and leased the entire capacity on board to Direct-To-Home (DTH) service provider Tata Play, in its first 'demand-driven' communication satellite mission post space-sector reforms.



DS-EO, a 365 kg and NeuSAR, a 155 kg satellite both belonging to Singapore and built by Starec Initiative, Republic of Korea.(Photo: Isro)

Smt Sumathi Ramakrishnan

Birth Anniversary of ALLURI SITARAMA RAJU

On 4th July 2022, PM Modi unveiled a 30-ft bronze statue of freedom fighter Alluri Sitarama Raju to mark his 125th birth anniversary as part of the **Azadi Ka Amrit Mahotsav** celebrations.

Sitarama Raju gained a mystical aura among the hill and the tribal people with his austerity, knowledge of astrology, medicine, and his ability to tame wild animals.

Key Facts

- Weighs 15-tonnes; costs ₹3 crore.
- Installed by Kshatriya Seva Samiti in Municipal Park at ASR Nagar in Bhimavaram.

Sitarama Raju was popularly known as **'Manyam Veerudu'** (Hero of the forest). Born at Pandrangi village, he was also referred as Alluri. He became sanyasi at the age of 18 and gained a mystical aura among the hill and the tribal people with his austerity, knowledge of astrology, medicine, and his ability to tame wild animals.

'Rampa Rebellion' or 'Manyam Uprising' was started by Alluri in the Rampachodavaram forest area of East Godavari district where they were using traditional weapons of Adivasis like bows and arrows and spears to fight the British. When Raju realised they were no match for the armed British forces, he planned to snatch their weapons and died after a brave fight.

Smt Sarada Devi Ravutu

Pradhanmantri Sangrahalaya

AVR-DRIVEN HELICOPTER TOUR of India's history and future

The Pradhan mantri Sangra halaya, a museum built at Delhi's Teen Murti Estate, is a tribute to every prime minister of India, and a narrative record of how each one has contributed to the development of our nation. It integrates technology with content.

Augmented reality presents us with virtual objects in our field of vision.

Virtual Reality creates a virtual environment that makes you feel like you are somewhere else. Special software produces images, sounds etc. People interact in those environments using VR goggles or other devices.

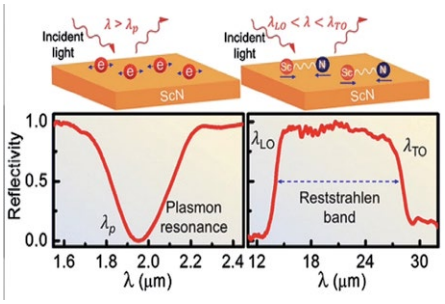
TOP ATTRACTIONS

- A 3D printed National Emblem rotating inthe air due to a magnetic field.
- Multiple kinetic LED lights suspended from the ceiling with patterns of our national flag.
- Can click a picture with PM in Augmented Reality.
- Handwriting Robot writes a quote of the PM with his signature.
- Stand shoulder to shoulder with fellow Indians at the Unity Wall.
- Archival newspapers are presented in digital as well as physical format.
- Uses only original pictures and videos.
- Personal memorabilia of prime ministers.

Kum Kavya R

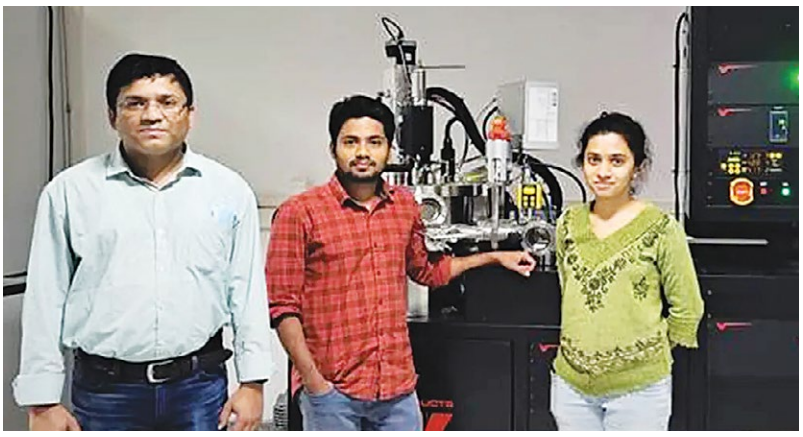
NEW MATERIAL that can convert Infrared Light into Renewable Energy

Researchers from Bengaluru's Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) have discovered a **new material called single-crystalline scandium nitride (ScN)** that can convert infrared light into renewable energy. This novel material can emit, detect, and modulate infrared light with high efficiency making it useful for solar and thermal energy harvesting and for optical communication devices.



Infrared light is an electromagnetic radiation with wavelengths longer than those of visible light, thus making it invisible to the human eye. Electromagnetic waves are a renewable energy source used for electricity generation, telecommunication, defence and security technologies, sensors, and healthcare services.

K. C. Maurya and co-workers have utilised a scientific phenomenon called polariton excitations to achieve strong light matter interactions in single-crystalline scandium nitride (ScN) using infrared light. "From electronics-to-healthcare, defence and security-to-energy technologies, there is a great demand for infrared sources, emitters and sensors. Our work on infrared polaritons in scandium nitride will enable its applications in many such devices," said Dr. Bivas Saha, Assistant Professor at JNCASR.



Researchers from the Centre for Nano Science and Engineering from the Indian Institute of Science (IISc) and the University of Sydney also participated in this study published recently in the scientific journal Nano Letters.

Polaritons

Solids are made of fundamental particles - electrons, protons and neutrons. **Quasiparticles** act like a fundamental particle, but are not independent structures floating in their own free space. They also have basic properties like charge, mass and spin, but the values can be different from the fundamental particle value due to quantum influence. **Polaritons** are quasiparticles resulting from strong coupling of electromagnetic waves with an electric or magnetic dipole-containing excitations. A **dipole** is the separation of opposite electrical charges.

The SUCCESS STORY of TOYS is no child's play

"I want to tell the people of the whole world: Come, make in India. Come and manufacture in India. Go and sell in any country of the world, but manufacture here. We have skill, talent, discipline and the desire to do something."

That was PM Modi while introducing the **Make in India** programme, in his maiden Independence Day speech from the ramparts of the Red Fort on 15th August 2014.

The Programme

Make In India was formally launched by the PM on 25th September 2014 on the birth anniversary of **Pandit Deendayal Upadhyaya, a strong advocate of Swadeshi.** This initiative by the GoIis to encourage companies to develop, manufacture and assemble products indigenously and facilitate investments into manufacturing. This is also aimed at enhancing skill development and building world-class manufacturing infrastructure in India, covering 25 sectors from aerospace and defence to food processing and footwear. This includes both the manufacturing and the service sectors.

Early success was witnessed in the mobile phone manufacturing sector wherein the import of completely built units was replaced by domestically manufactured and assembled units. The savings of the possible outflow of money on account of this was huge. The recent success that is worth celebrating is that of the ***Indian Toy Manufacturing Industry.***

Industry Landscape

The existence of toys in India dates back to the Indus valley civilization around five thousand years ago. The toys then were made out of natural material like clay,rock and sticks. The 2021 estimate of the size of the Indian Toy Manufacturing Industry was USD 1.35 billion and that of the global industry was USD 156 billion. The global industry is estimated to grow to USD 250 billion by 2027 at a CAGR of 7.50% while the Indian Toy manufacturing industry is estimated to double by 2027 from its current level, growing at a CAGR of 12.6%.

About 5-6 years ago the Indian toys market was dominated by Chinese toys. Most of us would have experienced that when we randomly pick up a water canon for Holi or a toy pistol for Deepavali, it would invariably be made in China. The toy manufacturing industry in India is heavily fragmented with 90% being unorganized and an overwhelming majority of the players belonging to the MSME sector. The toy manufacturers are mostly located in the NCR, Maharashtra, Karnataka, Tamil Nadu and clusters across central Indian states.

GOI Interventions and the results

During one of his ***Mann Ki Baat*** sessions in August 2020 the PM gave a clarion call for "Rebranding the Indian Toy story". Since then, the situation has changed dramatically. GOI made a series of significant interventions since 2019.

The increase in the basic customs duty on toys for imports from 20% to 60%, **making the sample testing of each consignment mandatory with no permission to sell if the goods fail the test and bringing toys under compulsory BIS certification with some exemptions for the toys made by artisans and micro scale units, are some, that have helped the industry scale up both on the business size and the quality ladder.**

The huge Indian market and the ease of finding a space for manufacturing under various special economic zones have been great drivers of this growth. India-made toys dominate the market today with more than 50% of the Indian market share.

From FY19 to FY 22 the imports of toys have decreased by 70% to USD 110 million and exports has increased by 61% to USD 326 million. Improving the ease of doing business further, preventing illegal imports, ensuring continuous supply of raw material and extension of the PLI scheme for the sector,could be the additional levers that could help Indian manufacturers to conquer the Southeast Asian market in addition to the domestic market.

Horizontal Deployment

For the success of the Make In India programme and to achieve the three stated objectives of the programme (viz) increase the manufacturing sector's growth rate to 12-14%, create 100 million additional jobs and to improve the manufacturing sector's contribution to the GDP to 25% the approach adopted by the GOI in the toy sector has to be horizontally deployed to all the other identified sectors.

Given the earnestness of the government as witnessed in the mobile phone and toy manufacturing sectors, India should be achieving these objectives sooner than later.

Shri Mrithyunjay GN

India's First Green Ammonia and Green Methanol Project

Such projects ensure the continued foray into the future of technology and sustainable economic growth.

In the pursuit of expanding the use of renewable energy, National Thermal Power Corporation Renewable Energy Limited (NTPC REL) signed a Memorandum of Understanding on 7th July 2022, with Gujarat Alkalies and Chemicals Limited (GACL) to synthesize 75 tonnes of Green Methanol and 35 tonnes of Green Ammonia per day for production of various chemicals.

This switch to renewable alternatives is done with a hope of exploring a production and supply of 100 Megawatts of round-the-clock renewable power. With India investing heavily in a renewable and sustainable future, this project will serve as the country's first commercial scale green ammonia and green methanol project.

NTPC REL is the country's leading developer of renewable energy and has been involved in multiple projects, including green hydrogen initiatives, lowering tariffs on solar energy and green energy storage projects.

NTPC is focused on power generation for various industries and has a total installed capacity of 69,000 MW across its various subsidiaries.

The MOU with GACL is expected to play an important role in pushing NTPC's capabilities in producing and storing renewable energy for chemical production. The green methanol and green ammonia produced as a result will be used for chemical production at GACL's Vadodara and Dahej complex in Gujarat.

Such projects ensure not only the continued foray into the future of technology and economic growth but also ensures that it is sustainable.

Kum Kavya R

Longest DOUBLE DECKER VIADUCT

Maharashtra Metro and National Highways Authority of India (NHAI) have recently set a new record for building the longest double-decker viaduct (3.14 km) with an elevated highway, and Metro Rail supported on a single-column pier. The double decker viaduct carries the highway flyover at the first level and Metro Rail at second level making it a three-tier transportation system with the existing Wardha road highway at ground level. **This infrastructural marvel has secured a place in the prestigious Asia Book of Records and India Book of Records.**

The three metro stations to feature in the twin records are Chhatrapati Square, Jai Prakash Nagar and Ujwal Nagar. Union Minister Nitin Gadkari presented the certificates for both records to team Maharashtra metro and team NHAI.

Initially, the alignment of highway flyover and Metro Rail were on the same existing highway on Wardha road with independent piers at alternating locations at the media point. But the Maharashtra metro and National Highway Authority of India (NHAI) worked to revise this and the integrated project is the double decker viaduct. **This helped to avoid additional land acquisition thus saving land cost, and reduced overall construction time and project cost.**

Gadkari thanked the engineers, officers and workers who persevered day and night to make this happen. He said that such development is part of the effort to build world class infrastructure in India.

Shri Nagarajan R

National Emblem on new Parliament building unveiled

PM Modi unveiled on 11th July the national emblem placed atop the central foyer of the new Parliament building in a special ceremony.

The 16,000 kg, 6.5-m-high metal sculpture was built in Aurangabad, Jaipur and Delhi by artists Sunil Deore and Lakshman Vyas.The concept sketch and process of casting of the national emblem went through eight different stages of preparation from clay modelling and computer graphics to bronze casting and polishing.

All official documents issued by GoI, Indian currency notes, coins and passports bear the national emblem.

The National Emblem is adapted from the Lion Capital of Ashoka Pillar (based in Sarnath, UP.) came into force on 26th January 1950.

The four lions signify power, courage, confidence and pride. The lions looking in four different directions also symbolizes the constant vigilance in all direction. The wheel appears in centre with a bull on the right and horse on the left. The 24 spokes on the wheel represents 24 hours of a day, signifying that passage of time is inevitable and time can't be bound. It gives a lesson of constantly moving ahead in life. The four animals separated by wheel at the bottom also has significance. The lion is a symbol of majesty and disciplined strength, bull of steadfastness and hard work, horse is a symbol of energy, loyalty and speed while elephant depicts strength and power.

DO YOU KNOW ?

It was a student named Dinanath Bhargava from Shanthi Niketan who designed the state emblem of India.

Shri Mrithyunjay GN

Uttarakhand
-first to implement National Education Policy at pre-primary level

The NEP focuses on providing culture-based education with opportunities for vocational courses - all accessible to students in the language of their choice.

Uttarakhand became the first state in India to implement the new national education policy (NEP). Chief Minister Pushkar Singh Dhami inaugurated Bal Vatikas which will function across the state's 4,457 anganwadi kendras, serving as the nursery class equivalent in private schools.

"The NEP will lay the foundation of a strong and bright future of youngsters," said Dhami who added that this marks the beginning of culture-based education that will focus on overall personality development of the students.

Uttarakhand will now serve as a testing ground for the potential of NEP as a replacement for the country's long unchanged system. With a 5 + 3 + 3 + 4 design and specific focus on pre-primary education, NEP aims at increasing student choice at a higher level while maintaining a strong base of fundamental knowledge.

The NEP focuses on providing culture-based education with opportunities for vocational courses all of which will be accessible to students in the language of their choice. He assured that by 2030, NEP will be fully implemented across all grades in Uttarakhand.

As more states adopt NEP, it is expected to become a more refined and efficient framework for designing the future of Indian education.

Shri Mrithyunjay GN

DELHIVERY wins two USA patents in two months

This innovative ID system was designed as a response to the varying structures and spellings that Delhivery receives from its customers for the same address.

Delhivery, an Indian logistics provider, has been awarded a US patent for its unique address identification (UAID) system. Since its inception Delhivery has fulfilled over 1 billion orders across India with its state-of-the-art delivery centres and technologies.

The patent for 'System and method for assigning a unique identification for an address' was awarded to the company for its ability to identify different forms of the same address.

This innovative ID system was designed as a response to the varying structures and spellings that Delhivery receives from its customers for the same address.

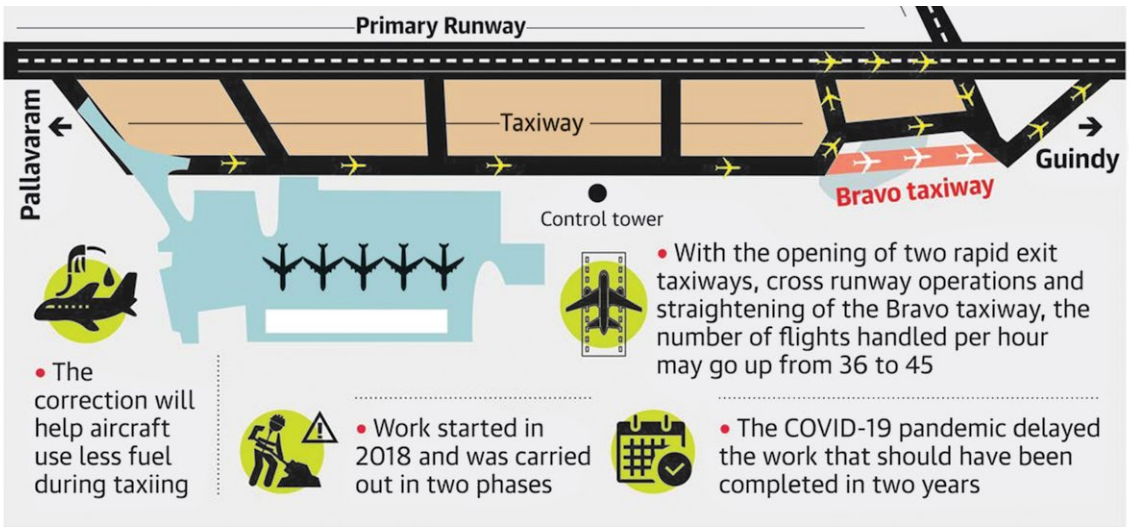
The system breaks down and compares each address part with previously delivered locations, making it easier to sort and deliver packages with the same address with greater efficiency.

"Serving over 23000 clients, we encounter unstructured data on a day-to-day basis. The two patents help us to improve the legibility of locations and addresses and reiterates our commitment to invest in proprietary AI/ML capabilities that can drive high precision logistics operations in any geography," said Delhivery's Chief Technology officer and executive director Kapil Bharati.

The other patent was for innovation in address verification and 'geographically accurate' location mapping system.

This streamlining will lead to extreme savings in terms of delivery time, manpower and revenue, and will also result in greater efficiency not just for Delhivery but also the businesses that partner with them for logistics and shipping.

Smt Shubha T.R



Chennai Airport reopens Bravo Taxiway

More flights, reduced delays and less congestion became a reality at The Chennai International Airport on 14th July 2022, with the operation of primary taxiway 'Bravo'.

"Bravo" (B-TWY) runs parallel to the Primary Runway of Chennai Airport catering to 90 % of the domestic, international and cargo movements. Earlier, the B-TWY had a curve at the Guindy end (Runway 25) which resulted in certain restrictions leading to aircraft holding, consuming more time and fuel for departing flights.

The straightened portion of B-TWY will ease the situation by ensuring safe and faster movement of flights, significantly increasing the handling capacity of the primary runway.

With the ongoing Rapid Exit Taxiway 1 & 2 progressing towards completion, the peak-hour handling capacity of Chennai Airport is expected to increase to 45-50 movements per hour from current level of 36.

Chennai Airport

- 4th busiest airport in the country after Delhi, Mumbai, Bangalore; handled 23 million passengers in the year 2020.
- Has been ranked 8th for on time performance for the year 2021 as per CIRIUM report.
- 29 airlines operate passenger flights to major international destinations.
- By 2022, passenger traffic is expected to increase to 33 million.

DO YOU KNOW ?

PAPI (Precision Approach Path Indicator) lights are a set of lights positioned beside the runway which provide pilots with a visual indicator of their aircraft's position relative to the correct glide path of the runway.

Shri Nagarajan R

WORLD'S GREATEST PLACES 2022

TIME magazine solicited nominations of places from their international network of correspondents and contributors, with an eye toward those offering new and exciting experiences. Featured in that list are Ahmedabad and Kerala.

As India's first UNESCO World Heritage City, Ahmedabad boasts both ancient landmarks and contemporary innovations that make it a mecca for cultural tourism, from the serene Gandhi Ashram that sits on 36 acres on the banks of the Sabarmati River to Navratri, a vibrant nine-day celebration billed as the longest dance festival in the world.

Ahmedabad's Gujarat Science City, a sprawling entertainment centre and theme park, unveiled three major attractions last year, including a 20-acre nature park to educate the public on local flora as well as provide new spaces for playing chess and practicing yoga.

The new interactive robot gallery celebrates innovation in robotics, and features a towering replica of a Transformer. Science City's new aquarium, showcasing species from around the globe, is now India's largest.

Kerala is one of India's most beautiful states. With spectacular beaches and lush backwaters, temples and palaces, it's known as "God's own country" for good reason.

It is also known for its tranquil ayurvedic retreat that offers various yogic practices and ayurvedic treatments. This year, Kerala is boosting motor-home tourism to inspire exploration and accommodation. Its first caravan park, Karavan Meadows, opened in Vagamon, a scenic hill station. Following the success with houseboat cruising, caravans are expected to follow suit with a similar promise of sustainable tourism.

Smt Mrithyunjay GN

Age cannot wither these Master Athletes

94-year-old Bhagwani Devi Dagar created a national record by completing the 100-metre race in 24.74 seconds.

World Masters Athletics (WMA) regulates and administers athletics for masters - women and men of not less than thirty-five years of age, across the world. Much like the Olympics, events for the WMA are conducted across the globe.

Athletes participating in the WMA consistently outnumber those at the Olympics, making the WAM the world's largest track meet. This year's championship held at Finland saw over 2000 athletes of various ages participate for medals across multiple disciplines. Affectionately called 'Delhi's Dadi', 94-year-old Bhagwani Devi Dagar created a national record by completing the 100-metre race in 24.74 seconds.

She began her career just 6 months earlier and won three medals, one gold and two bronze proving that age is no bar for the spirit of sportsmanship.

Devi won the gold medal in 100m race and also bagged a bronze medal in the shot put. Despite being a bypass patient, Devi was encouraged by her family to pick up athletics to stay fit.

Former Kerala MLA M J Jacob (82) also won bronze medals in 200 m and 80 m hurdles bringing India's medal count at the games to a total of 6. In the post games interview he remarked that his thirst for victory had not been quenched and that he is currently developing a training regimen which will help him earn a gold medal at the next WMA tournament.

The grit and determination shown by these athletes at such an age shows that with practice and consistency nothing is impossible.

Col Shashidhar M V (Retd)

VL- SRSAM test off ODISHA COAST successful

The missiles were launched with the help of static vertical launcher with a view to neutralize various aerial threats including the sea-skimming targets.

Early in February 2021, India had successfully launched two indigenously designed and developed Vertical Launch Short Range Surface to Air Missile (VL-SRSAM) from Integrated Test Range, Chandipur off the Odisha Coast for the Indian Navy.

The missiles were launched with the help of static vertical launcher with a view to neutralize various aerial threats including the sea-skimming targets. Both the missiles intercepted the simulated targets with pinpoint accuracy. The missiles featured the mid-course inertial guidance along with the terminal active radar homing and a 360° interception capability.

Successful Launch of VL-SRSAM

Scripting yet another success story in our path towards self- reliance in defence technology, on 24th June 2022, VL-SRSAM, a ship - borne weapon system was successfully launched from an Indian Naval Ship (INS) off the coast in Odisha. The launch of the system was conducted against a high-speed airborne target mimicking aircraft.

Features

VL-SRSAM is a quick reaction surface-to-air-missile. It has been developed to neutralise aerial threats at close ranges, including the sea-skimming targets.

It has been designed for striking at high-speed airborne targets at 40 km to 50 km range and at an altitude of 15 km and features mid-course inertial guidance through active radar and fibre optic gyroscope. Its launch was conducted to validate integrated operation of all the components of the system.

WHAT ARE SEA-SKIMMING TARGETS?

- Sea-skimming anti-ship missiles try to fly as low as is practically achievable, which is almost always below 50 meters (150 ft) and is often down towards 2 meters (6 ft).
- When under attack, a warship can detect sea-skimming missiles only once they appear over the horizon (about 28 to 46 km from the ship), allowing about 25 to 60 seconds of warning.

Col Shashidhar M V (Retd)

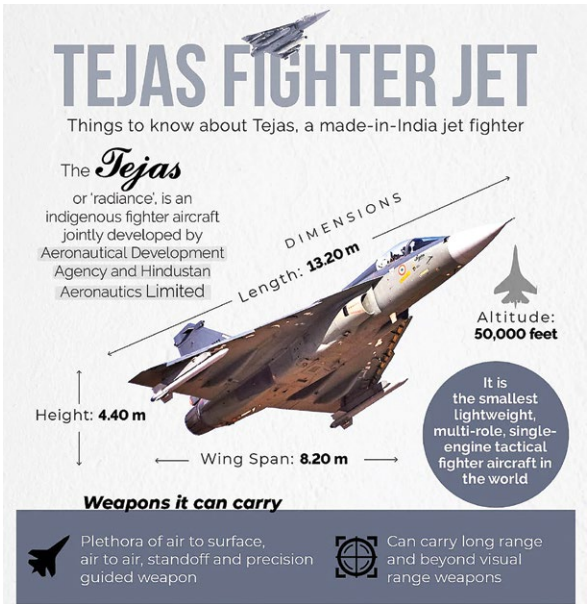
TEJAS emerges as Malaysia's top choice

Tejas is an agile single-engine multi-role supersonic fighter aircraft capable of operating in high-threat air environments.

Overview

In February a 44-member contingent of Indian Air Force participated in the 'Singapore Air Show-2022'. The Air Show (a biennial event) for the Global Aviation Industry is a platform to showcase their products.

The indigenously developed Tejas MK-I Light Combat Aircraft (LCA) enthralled the audience with its display of low- level aerobatics displaying its superior handling characteristics and manoeuvrability.



The Winning Bid

As Malaysia was looking to replace its ageing fighter jet inventor of MiG-29 fighter jets, India's Tejas emerged as the winner despite fierce competition from China's JF-17 jet, South Korea's FA-50, Russia's Mig-35, and the Yak-130 plane.

As negotiations to firm up the procurement process are being worked out reportedly what clinched the deal in favour of Hindustan Aeronautics Limited (HAL) was the superior technical parameters of the Tejas Mk-1A which coupled with the offer to service Malaysia's existing Russian-made fleet.

Further, India has proposed to establish an MRO (maintenance-repair-overhaul) facility in Malaysia for its fleet of Russian-made Su-30 fighters as part of the deal because it has trouble obtaining spare parts from Russia due to Western sanctions against Moscow.

In February 2021, the MoD sealed a ₹48,000 crore deal with HAL for the procurement of 83 Tejas fighter aircrafts for IAF.

Work on the MK 2 version of the LCA as well as on an ambitious USD 5 billion project to develop a fifth-generation Advanced Medium Combat Aircraft (AMCA) have commenced and which would both be made available to Malaysia later.

Shri Subramanian S

Platinum Series

INDIAN RAILWAYS

On 16th April 1853, the first passenger train ran between Bori Bunder (Bombay) and Thane, a distance of 34 km.

Railways are the principal mode of transportation for freight and passengers in India. Additionally, Railways facilitates many activities like business, sightseeing and pilgrimage. It has been a great integrating force.

Its history dates back to over **160 years ago**. On 16th April 1853, the first passenger train ran between Bori Bunder (Bombay) and Thane, a distance of 34 km. It was operated by three locomotives named Sahib, Sultan and Sindh, and had thirteen carriages. Nationalised in 1951, Indian Railways (IR) is today the largest rail network in Asia and the world's second largest operated under a single management.

Organisational structure

India's rail system is managed at a regional level as eighteen zonal railways. Each zone, headed by a General Manager (GM), is semi-autonomous and this creates a matrix organisation where the functional branches are under dual control, namely Operational Control at Zonal level, Functional Policy & Guidance from the Railway Board.

At the apex is the Railway Board, a part of the Ministry of Railways, headed by a Chairman who directly reports to the Railway Minister. It has five other members. The GMs of the zonal railways and the production units report to the Board.

The railway has 16 PSUs that are involved in construction, financing, logistics support and services, consultancy, catering and hospitality, among others.

IRCTC

Indian Railway Catering and Tourism Corporation (IRCTC) established on 27th September 1999 is a public sector undertaking (PSU). IRCTC launched its initial public offering (IPO) in September 2019. However, GoI continues to be majority shareowner. IRCTC provides services such as online ticketing, catering and tourism.

Operations

Today, IR consists of a total track length of 126,366 km over a 67,956 km of route along with

India has the fourth largest railway network with over 22,593 operating trains with a daily passenger count of 24 million passengers and 203.88 million tonnes of freight.

7,335 stations. It operates 13,523 passenger trains and 9,146 freight trains daily.

India has the fourth largest railway network with over 22,593 operating trains with a daily passenger count of 24 million passengers and 203.88 million tonnes of freight. India's railway network is recognised as one of the largest railway systems in the world under single management.

India's export of railways has grown at a CAGR of 31.51% during 2010-2018 to USD 507.90 million. Exports of railways in 2019 stood at USD 635 million.Under the Union Budget 2022-23, the government allocated / 1,40,367.13 crore (USD 18.40 billion) to the Ministry of Railways.

Gauge conversion

Project Uni gauge, since 1992, is an ongoing effort by IR to convert and unify all rail gauges in India to 1,676 mm (5 ft 6 in) broad gauge. The current status is as below:

Gauge	2021 (Mar) Route km	2021 (Mar) Route share
Broad gauge (1,676 mm (5 ft 6 in))	64,403	94.57%
Metre gauge (MG) (1,000 mm (3 ft 3+3⁄8 in))	2112	3.10%
Narrow gauges (NG) (762 mm (2 ft 6 in) and 610 mm (2 ft))	1,588	2.33%
Total	68,103	100%

Modernisation

- IR aims to electrify the entire network by 2023 which will lead to annual energy savings of USD 1.55 bn. To achieve this, IR has solarised more than 1,000 stations. It has electrified 80% of its network. Electrification had increased nearly 10 times since 2014.
- IR is now embarking on a fresh journey — to quickly build 75 indigenously designed, semi-high speed Vande Bharat trains by August

IR aims to electrify the entire network by 2023 which will lead to annual energy savings of USD 1.55 bn.

2023, a deadline publicly set by PM Modi.

- Vande Bharat is a 16-coach, stylish train set with no separate locomotive. Designed and developed in the government-owned Integral Coach Factory (ICF), Chennai, its first prototype was ready by the end of 2018. Two such trains have so far been manufactured — one is currently running between Delhi and Varanasi and the other between Delhi and Katra (J&K). Its operational speed is 160 kph although it recorded 180 kmph during its trial in 2019.
- Union Cabinet sanctioned the merger of IR's eight existing services into a single entity, the ministry issued an official notification on 9th February announcing the creation of the Indian Railways Management Service (IRMS) to remove silos within the management structure and improve efficiency.

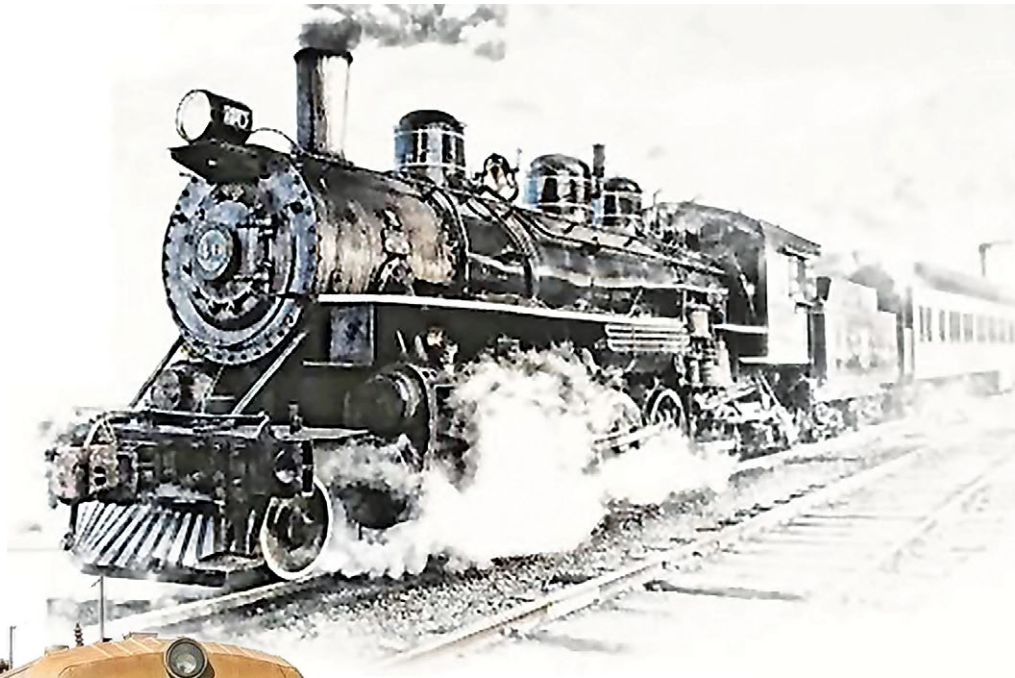
Freight

IR is the backbone of India's logistics sector, carrying more than 1.4 billon tonnes of freight traffic annually over a network of 68,000 kms.It runs more than 7,421 freight trains carrying 3 million tonnes (MT) of freight every day. It has entered a select club of railways that includes China, Russia and USA in carrying more than one billion tons of freight annually. **It has over 239,281 freight wagons, 59,713 passenger coaches and 9,549 locomotives.**

With railways network touching almost every nook and corner of the country, IR plays a crucial role in facilitating a balanced and inclusive socio-economic development of the country. It carries almost all commodities including bulk commodities like coal, iron ore, iron & steel, food grains, cement, petroleum products, fertilizer and other commodities carried in containers, serving more than 9,000 customers. Railways are the most environment friendly mode of land transportation.

The Freight Operations Information System (FOIS) was the first project in the mid-eighties to track and monitor the movement of wagons, locomotives and unit trains. Now it is a complete management module for freight trains handling the billing and revenue collections as well. It has played a major role in the improved wagon productivity and the objective is to use the information to further improve productivity, customer service and thus meet the needs of a rapidly growing economy.

IR has prepared a National Rail Plan (NRP) for India – 2030 to create a 'future ready' railway system by 2030.



Interesting Facts

- Gorakhpur has the longest platform in the world - 1366.42 m.
- In April 2021, Indian Railways completed the arch closure of the under-construction Chenab Bridge which is the world's highest railway bridge. Chenab Bridge is 1315 m long and will be 35 meters higher than Eiffel Tower in Paris. Estimated cost - ₹1,486 crore; design life of the bridge is said to be 120 years.
- Indian Railways is the world's 8th largest employer. That is incredible!
- Four sites of IR are declared "World Heritage sites" by the UNESCO: **Darjeeling, Himalayan Railway (1999), Mumbai CST Building (2004), Nilgiris Mountain Railways (2005) and Kalka-Shimla Railways (2008).**
- 8th March 2021 – The first woman driver of IR, Surekha Yadav drove all women-staffed Mumbai-Lucknow Special train on International Women's Day.
- The busiest junction- Howrah in Kolkata; 974 trains stop there daily.
- Zero passenger fatalities since April 2019.
- Howrah-Amritsar Express has the maximum number of halts (115 halts).

Support to the nation during COVID Pandemic

- During COVID wave 2, IR ran Oxygen Express at the shortest possible time ramping up the delivery and installed 78 oxygen generating plants in Railway hospitals.
- Converted in shortest possible time, 4,176 coaches to serve as quarantine/isolation facilities.
- Has deployed more than 2,500 doctors and 35,000 paramedic staff to meet the COVID-19 challenge in a phased manner. Around 5,000 beds in 17 dedicated hospitals and 33 hospital blocks in Railway Hospitals have been identified for treatment of COVID-19 patients.

Future Plans

IR has prepared a National Rail Plan (NRP) for India – 2030 to create a 'future ready' railway system by 2030 formulating strategies based on both operational capacities and commercial policy initiatives to increase modal share of the Railways in freight to 45%.

PAYMENT SYSTEMS in banking PART II

DIGITAL BANKING

"This is called QR code. When we scan the QR code, the merchant's name and UPI id is recognised.

Shravan and Gita had selected two books each at the book fair. Grandpa looked at the books and nodded his approval. They proceeded and stood in the queue at the billing counter.

A lady ahead of them with a little girl took out her card from her bag.

"Sorry mam, our card machine is not working," the salesperson said politely.

The woman got agitated. "Don't you have another machine. Who carries cash nowadays?"

"Mam, we accept G Pay." The salesperson smiled.

"I don't have G Pay. You keep the books. Come, let's go," She pulled the girl's hand.

The girl looked at her mom, teary-eyed, her hand still holding the books.

"Maya!!" Gita and Shravan cried out. "Grandpa, they live in our apartment. They came in last month."

Grandpa offered, "I'll pay for you. We live in the same building. You can pay me later."

Maya looked hopefully at her mother. The woman shook her head "No, no. I don't want to trouble you."

Grandpa smiled. "There's no trouble. We're neighbours. Let me pay."

The woman stepped aside. Grandpa took out his mobile.

The salesperson placed a placard on the table.

Grandpa scanned the pattern on the placard and paid both the bills.

"Grandpa, how did you pay without entering his phone number?" Shravan asked.

"This is called QR code. When we scan the QR code, the merchant's name and UPI id is recognised. We then have to enter the amount and pay. I'll tell you more about this at home."

Embarrassed, the lady said,"I didn't expect that they won't accept cards. I don't like to use my mobile for financial transactions. It is so risky."

She gave her business card to grandpa. "I am Priya. This is my mobile number. If you can come

Bharat Interface for Money (BHIM) is an app that lets you make simple, easy and quick payment transactions using Unified Payments Interface (UPI).

with me, I'll withdraw cash from the ATM and pay you."

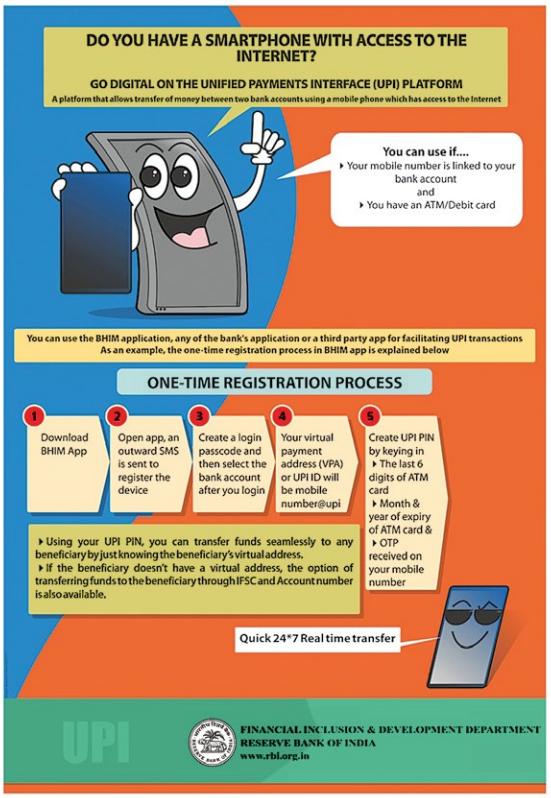
Grandpa: "No hurry. No need to draw cash from the ATM. You come home when you're free. I'll show you how to use mobile banking to transfer money. There are safeguards. Digital banking is very convenient."

Shravan and Gita were showing their books to their mom, when the bell rang. Mrs. Priya walked in with a fruit basket.

"Thanks so much. Maya is happily reading now. She was very upset when we almost left without the books. Can you please tell me how to pay through my mobile? I don't want to use Google pay." Priya sighed.

Grandpa showed a seat to Priya. "Don't worry. You can pay through BHIM UPI. It is safe and through your bank."

Shravan asked **"What is BHIM UPI grandpa?"**



Courtesy: https://www.rbi.org.in/commonperson/English/Scripts/UPI.aspx

Bharat Interface for Money (BHIM) is an app that lets you make simple, easy and quick payment transactions using Unified Payments Interface (UPI). You can make instant bank-to-bank payments and pay and collect money using just Mobile number or Virtual Payment Address (UPI ID).

Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank).

- A government initiative enabled by National Payment Corporation of India.
- Safe because you don't have to give your bank account number or IFSC code or even mobile number.
- Can send and receive money with your Virtual Payment address.
- Can also scan and pay at shops through your BHIM app.
- Many banks have integrated the BHIM app into their mobile banking app.

"Shravan, it is through BHIM UPI that I scanned the QR code at the Book Shop and paid the bill."

Shravan: "Oh, now I understand."

Priya (curiously):"What should I do? How does it work?".

"You can download the BHIM UPI app or use BHIM UPI through the mobile banking app of your bank. Here are the steps to download and use BHIM UPI app." Grandpa showed her the UPI poster on RBI website.

Priya followed the steps and transferred money to Grandpa's UPI id.

"Done." She smiled.

Grandpa: "You see that it has two-level authentication. One is the password to unlock the app and second is the UPI pin to authorise payment. You can also set limits for all your digital banking transactions."

"Thanks Grandpa. I was always worried about security of mobile banking. I've learnt that it is so convenient."

"Do check the RBI website/ NPCI website for more information and clarification". Grandpa showed her the websites.

https://www.npci.org.in/

https://www.rbi.org.in/commonperson/English/Scripts/Home.aspx

Shravan and Gita clicked on the RBI site, browsed and found a poster on digital banking.

Shravan: "Grandpa look at this poster. You told us about NEFT last week and today we learnt about UPI. Can you tell us about RTGS and IMPS?

Priya was curious. "Yes, I'd also like to know more."

Grandpa: "Both NEFT and RTGS facilities are offered by RBI for transferring funds from one bank account to another. The funds transfer can be done online or you can visit your bank branch and give instructions for NEFT or RTGS transfer."

For online transfer, just like NEFT, in RTGS also you need to register the beneficiary as a payee in your bank account by submitting the following details:

- Beneficiary name
- Beneficiary bank account number
- Beneficiary bank name and address
- IFSC code.

"What is IFSC code?" Priya asked.

IFS Code - 11-digit alphanumeric number that is unique for each bank branch. It is available in the user's cheque book.

Once you've registered the beneficiary as a payee, you can transfer funds through internet banking to the beneficiary's bank account.

"What is the difference between NEFT and RTGS"? Gita asked.

NEFT – National Electronic Funds Transfer is done in batches at RBI. It would take around two hours for the amount to be credited to the beneficiary's account.

RTGS – Real Time Gross Settlement – In this, each transaction is settled separately and immediately by RBI so the funds are credited to the beneficiary immediately.

The second important difference is that RTGS is mainly for high value transactions. The minimum transaction value is ₹ 2 lakhs whereas in NEFT, the minimum transaction value is ₹ 1.

IMPS is Immediate Payment Service offered by NPCI. This is ideal for small value transactions. You can do it through your mobile banking app of your bank.

There are two ways you can do IMPS

1. Using mobile number and MMID (Mobile money identifier)

2. Account number and IFSC code

The second option is similar to NEFT and RTGS. For small value transactions, banks allow you to do a quick transfer without even registering the beneficiary.

Shravan asked:

"What is MMID?"

It is a seven-digit identification number that you have to get from your bank. Generation of MMID is a one-time process.

- Sender and Receiver have to register for Mobile Banking and get a unique ID called "MMID."
- Remitter (sender) can transfer funds to beneficiary (receiver) using Mobile no. and 7digit MMID of beneficiary.

Priya nodded. "IMPS is a safe way to remit money because you're sending it to the bank account of the beneficiary."

Grandpa: "Yes. It's your responsibility to ensure that you enter the correct bank account number. Funds will be transferred instantly through IMPS. The beneficiary will also get an SMS alert on his mobile."

"Here is a quick snapshot of the three methods of funds transfer, " Grandpa explained.

Priya thanked Grandpa. "I've learnt so much today. I'll start using digital banking and will also teach others."

Difference between NEFT, RTGS and IMPS

	NEFT	RTGS	IMPS
Managed by	RBI	RBI	NPCI
Transfer speed	2 hours	instant	instant
Transaction mode	Online and offline through bank branch.	Online and offline through bank branch.	Online
Service availability	24X7	24X7	24X7
Charges	As per bank policy	As per bank policy	As per bank policy

INTERNATIONAL ENVIRONMENTAL CONVENTIONS – II

The Convention asks countries to adopt policies and measures on mitigation and to report regarding the same periodically.

THE EARTH SUMMIT – RIO CONFERENCE 1992

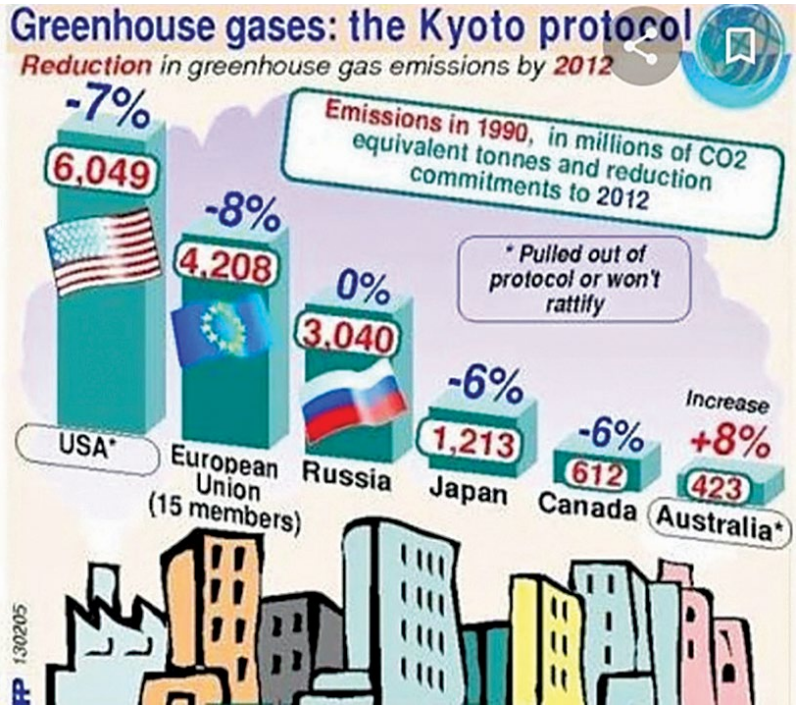
The Rio Earth Summit, in addition to the principles and plans which we saw in the previous issue, also produced two international environmental treaties:

- The Convention on Biological Diversity - the first international treaty to address preservation of biological diversity. Over 180 countries have signed the convention.
- The United Nations Framework Convention on Climate Change (UNFCCC)- which impacted international environmental law in several big ways. The Kyoto Protocol is possibly the most well-known and far-reaching action taken under this.

THE KYOTO PROTOCOL

The Kyoto Protocol operationalises the UNFCCC by committing industrialised countries and economies to limit and reduce greenhouse gases (GHG) emissions in accordance with agreed targets. The Convention asks countries to adopt policies and measures on mitigation and to report regarding the same periodically. It sets binding emission reduction targets for 37 industrialised countries and economies in transition and the European Union.

It intends to place a heavier burden on them under the principle of 'common but differentiated responsibility and respective capabilities.' This is because it recognises that they are largely responsible for the current high



levels of GHG emissions in the atmosphere. Adopted on 11th December 1997, after a complex ratification process, it came into force on 16th February 2005. Currently, there are 192 parties to it.

The goal is to limit global warming preferably to 1.5°C, compared to pre-industrial levels.

WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT, 2002

This followed the Stockholm conference and attracted the world's attention towards issues like conservation of natural resources, food and water and health services. It was decided that the UN Commission on Sustainable Development would play an active role in implementing the resolutions made in this summit and help the states in accomplishing the objectives.

It adopted a Political Declaration and Implementation Plan, which included provisions covering a set of activities and measures to be taken in order to achieve development that takes into account respect for the environment.

The text included provisions on the Kyoto Protocol on the reduction of greenhouse gases for those states which had ratified it. Additionally, those countries which had not yet done so were urged to ratify it without delay.

THE PARIS CONVENTION

The Paris Agreement is a legally binding international treaty on climate change. Adopted by 196 Parties at COP (Conference of the Parties) 21 in Paris, on 12th December 2015, it came into effect on 4th November 2016.

Its goal is to limit global warming preferably to 1.5° C, compared to pre-industrial levels. To achieve this, countries aim to reach global peaking of greenhouse gas emissions and achieve a climate neutral world by mid-century.

These international conventions and treaties reflect the evolution of environmental protection jurisprudence and provide some principles based on which environmental law is being interpreted in India.

Smt Vaishnavi V

Azadi Ka Amrit Mahotsav

CURIOSITY CORNER

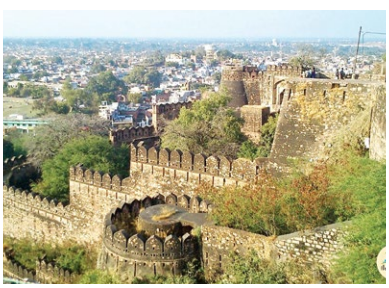
A. Name the Freedom Fighters

1. Father of Indian freedom struggle.
2. A naga spiritual and political leader also known as the daughter of the hills.
3. Known as the Kerala Gandhi who led the Payyannur and Calicut Salt Satyagrahas.
4. Known as KappalotiyaThamizhan who founded the indigenous Indian shipping service Swadeshi Steam Navigation Company.
5. "If the deaf are to hear, the sound has to be very loud", one among the iconic duo who said this is Bhagat Singh. Who is the other?

B. Forts of our nation

1. On 16th August, 1947, Nehru hoisted the national flag here and marked the birth of a new nation.

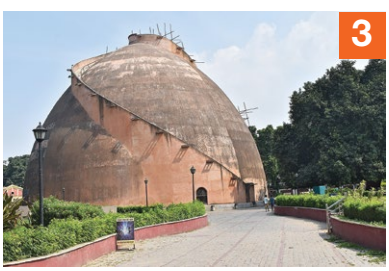
2. This fort is symbolic of Rani Laxmi Bai's courage and India's fight against the British rule.

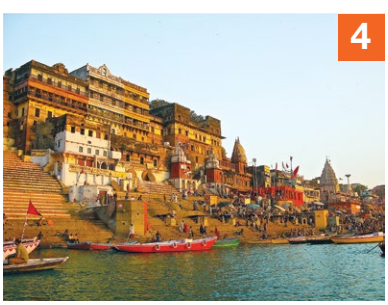


3. This fort preserves and celebrates the memory of Veerapandiya Kattaboman's rebellion and acts a source of inspiration and nationalistic pride for the Tamil people.

4. This fort in Tamil Nadu hosted one of the first battles - the 1806 revolt involving 800 revolutionaries, which shook the British authority.

C. Picture quiz





Answers on page 60

Smt Sandhya Nair

Visually-impaired school teacher cracks UPSC

The Civil Services Examination is a national competitive examination in India conducted by the Union Public Service Commission for recruitment to higher Civil Services of GoI, including the Indian Administrative Service (IAS), Indian Foreign Service (IFS) and Indian Police Service (IPS).

"Be confident and positive, don't allow negative ideas into your life and mind. Don't underestimate yourself," says Ayushi, a history teacher at a Delhi government school after achieving the 48th rank in the UPSC examination. The 29-year-old who has been visually challenged since birth, has not let her impairment hold her back. She passed the exam in her fifth attempt.

Ayushi began her career as a contractual primary school teacher. After passing the Delhi Subordinate Services Selection Board test in 2019,she now teaches children in grades 11 and 12 at a Government School. She graduated from Delhi University's Shyama Prasad Mukherji College. She later went on to pursue her Master's degree in history from Indira Gandhi National Open University.

Ayushi credits her mother and other family members for her accomplishment. "They used to record the content of books for me so that I could study from my notes," Ayushi recounted.

Ayushi plans to join the Indian Administrative Services in the DANICS (Delhi, Andaman & Nicobar, Lakshadweep, Daman and Diu and Dadra and Nagar Haveli (Civil) Services) or Haryana cadres. She intends to work in education, particularly for girls and people with disabilities.

Smt Vaishnavi V

Gondya Ala Re Ala
- the war cry that avenged Pune's honour

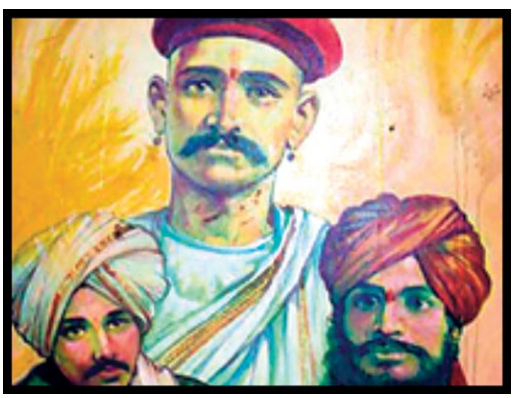
The Assassination

It was 22nd June 1897, when W.C. Rand and his escort lieutenant Ayerst were travelling back home in their respective carriages after the Diamond jubilee celebrations of Queen Victoria. There was suddenly a loud cry ***'Gondya Ala Re Ala'***. It was Damodar. On hearing this, Balkrishna rushed to the carriage and shot Ayerst who was not their target. However, they remained composed. Vasudev who was running behind the other coach, entered and shot their intended target W.C. Rand - their mission accomplished.

The History

It all started when Pune was severely affected by a plague. The British Government formed a Special Plague Committee led by Walter Charles Rand to curb the spread. Rand had initially provided some relief, however it soon paved way for more brutal steps.

The commission appointed more than 800 officers and soldiers who entered the houses forcefully, vandalised properties including religious symbols and holy places. They ripped the dignity of the women and children in public in the name of check-up and sent them to segregation camps. People who questioned were subjected to criminal activity.



The Chapekar brothers - Damodar, Balkrishna and Vasudev

Damodar Chapekar had a lot of influence on his younger brothers and nurtured a strong hatred for the British. Damodar had undergone military training for the army but was not selected.

He decided that revolution was the only method to overcome the British and formed the Rashtra Hitechhu Mandali - a group of around hundred boys devoted to armed revolution. The plague and the atrocities meted out by W. C. Rand enraged him. Along with his brothers and Mahadev Vinayak Ranade, he designed a very systematic plan to get rid of Rand.

After Rand's assassination, Damodar was arrested, betrayed by the Dravid brothers who were a part of the Chapekar club. He was tried and hanged on 18th April 1898. In a year, the other two brothers and Vinayak Ranade were also arrested, tried and hanged.

The supreme sacrifice made by the three brothers was unique and evoked respect in the hearts of the people. Bal Gangadhar Tilak arranged for the last rites of the three brothers and Ranade, who had laid down their lives for the honour of their motherland.

This was the first case of militant nationalism in India after the 1857 Revolt. Though it was a short lived one, the Chapekar brothers continue to live in the hearts of the people of Maharashtra even today.

The Tunnel man of Karnataka

Answers of page 53

A. Name the freedom fighters

1. Lokmanya Bala Gangadhar Tilak
2. Rani Gaidinliu
3. K. Kelappan
4. V. O. Chidambaram Pillai
5. BatukeshwarDutt

B. Forts of our Nation

1. Red Fort
2. Jhansi Fort
3. Panchalankurichi Fort
4. Vellore Fort

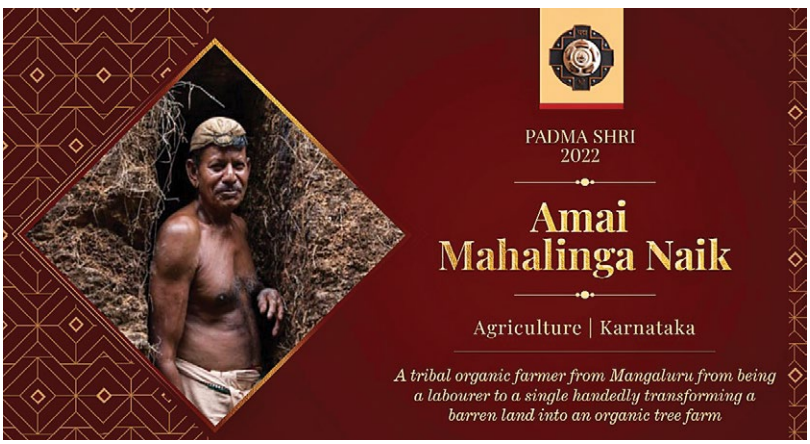
C. Iconic Cities

1. Puri (Wheel of the Konark Sun Temple)
2. Thanjavur (Brihadeeswara Temple)
3. Patna (Golghar Granary)
4. Varanasi (Ahilya Ghat)

Padma Shri Amai Mahalinga Naik of Karnataka has proven that overcoming challenges while not giving up is the way to achieve a goal.

Naik (77), an innovative farmer from Adyanadka village of Coastal Dakshina Kannada District single handily dug 6 tunnels (surangas) of 315 ft length to bring water to his farm. He also constructed 300 percolation trenches alone in the hills surrounding the farm with around 5,000 large late rite stones that he carried himself to his farm. He also built two revetments (15-ft long, 30-ft wide and 5-ft high) and a tank of 12,000 litres capacity to fill-up the revetments. He turned a deserted and barren plot of land into a lush oasis comprising of 300 areca nut palms, 75 coconut trees, 150 cashew trees, 200 banana saplings and pepper vines.

His determination and perseverance not only helped him find water but ensured sufficient supply after he completed digging all the tunnels. The 40-year-old model farm has yielded rich results in the form of Naik's self-sustaining life. In addition to this, he also keeps bees and produces Azolla (mosquito fern) for his cows as a dietary supplement. For all his efforts, he is also known as "One-Man Army" and "Tunnel Man" in his surrounding areas. Naik's farm has become a model farmland and has over 1,000 visitors a year including foreigners. Mahalinga Naik's farm is the living proof of a man's incredible optimism and has established him as a role model for small farmers. Naik and his farm were the subject of a documentary telecast on the History channel in April 2018.

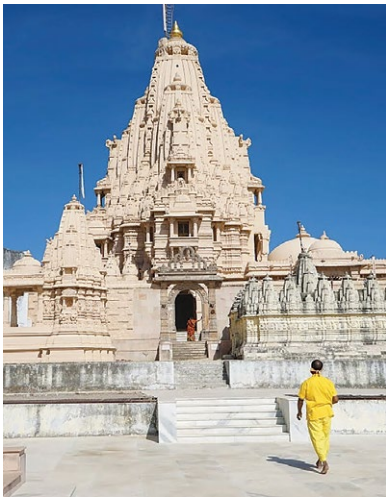


Shri Nagarajan R

Architectural Wonder

Palitana

the holy place of Jain pilgrimage



This is the most sacred place of worship for the Jain community. Located on the Shatrunjaya Hills, the Palitana cluster comprises 863 temples. This place of worship is immaculate and opulent. The top can be reached after walking up around 3,000 steps from the foothills.

The main temple is dedicated to the Tirthankara. The construction date of these sacred portals of religion can be dated back to 10th century and is believed to have been completed over about 900 years. The currently standing structures have been renovated several times but the authenticity and spirituality here remain untouched.

The temple architecture is unique in that the sunlight transforms the marble structures into an ivory shield.The holiest temple is of Adishwar. This Tirth Sthalis primarily made out of marbles with tall and heavy pillars with a number of openings, like a Hindu temple. The interiors are very intricately and finely carved - complete with geometric lace designs, elaborately ornate ceilings and clustered forms of canopies.

The places are sacred because as per Shatrunjaya Mahatmya – the holy Jain texts – the 1st Tirthankara called Rishabh had delivered his very first pravachan here and sanctified the hills.

It is important for the Jains to undertake this pilgrimage at least once in a lifetime. Pilgrims circumambulate all 21.6 kms on foot. The place is well connected by air, train and by road. The best time to visit is between October and February.

Shri Vikas Arya

India-China Border Dispute - Part 2

Doklam & Galwan

Undaunted by the violent and aggressive action by the overwhelming strength of enemy soldiers, Col Santosh Babu continued to resist the enemy's attempt to push back Indian troops.

Unfazed by the Chinese aggression across the border, India has been building roads and other infrastructure well within its own undisputed territory. The Chinese objected to India building this infrastructure in Galwan.

This led to many rounds of talks between senior military officials from both sides to diffuse the tensions. However, suddenly on the night of 15th June 2020, hectic Chinese activities were noticed across the bridge in Galwan valley;

and the Indian Army decided to take up the matter with Chinese forces to ask them to respect the LAC and adhere to the position as agreed earlier during the talks. Considering the gravity of the situation, Col Santosh Babu, who was commanding the 16 Bihar battalion, himself decided to lead the negotiations. However, an altercation during the discussion raised the tempers leading to a scuffle. Soon the scuffle turned into a violent clash with the Chinese soldiers attacking Col Santosh Babu and his men with deadly clubs and rods.

The Indian soldiers were greatly outnumbered and the Chinese soldiers seemed to have come well prepared. The clashes went on for many hours during which many Indian soldiers got seriously injured. Undaunted by the violent and aggressive action by the overwhelming strength of enemy soldiers, Col Santosh Babu continued to resist the enemy's attempt to push back Indian troops.

Remembering
THE GALWAN HEROES

Col Bikumalla Santosh Babu
Maha Vir Chakra (P)
16 Bihar

Naib Subedar
Nuduram Soren
Vir Chakra (P)
16 Bihar

Havildar K Palani
Vir Chakra (P)
81 Field Regt

Nk Deepak Kumar
Vir Chakra (P)
AMC (16 Bihar)

Sep Gurtej Singh
Vir Chakra (P)
3 Punjab

Nb Sub Mandip Singh
Sena Medal

Nb Sub Satnam Singh
Sena Medal

Hav Sunil Kumar
Sena Medal

Hav Bipul Roy
Sena Medal

Sep Rajesh Orang
Sena Medal

Sep Kundan Kumar Ojha
Sena Medal

Sep Ganesh Ram
Sena Medal

Sep Chandrakanta Pradhan
Sena Medal

Sep Ankush
Sena Medal

Sep Gurbinder
Sena Medal

Sep Chandan Kumar
Sena Medal

Sep Kundan Kumar
Sena Medal

Sep Aman Kumar
Sena Medal

Sep Jai Kishore Singh
Sena Medal

Sep Ganesh Hansda
Sena Medal

15 JUNE 2020

The Moral Compass

From a philosophical perspective, it is interesting to realize that God, the Supreme Force, did not create any of these boundaries that separates countries.

It is all drawn by us humans. The Vedas[1] strongly propagate the concept of Vasudhaiva Kutumbakam (वसुधैवकुटुम्बकम्) – the entire world is one large family.

With developments across thousands of years, the Mother Earth is today divided into 195 countries with certain defined boundaries, administered and governed largely by the local population. It is best for us humans to now co-exist peacefully, being satisfied with what each country has and work hard internally to keep improving ourselves.

However, plagued by various types of desires, many of us continue to tread the path of 'Adharma'. Materialistic success especially tends to breed a sense of arrogance. China is a classic case – over the last few decades it has greatly progressed on economic parameters, but has developed huge arrogance and an inflated ego. True success should indeed lead to humility.

Hope the world leaders realize the concept of Vasudhaiva Kutumbakam (वसुधैवकुटुम्बकम्) and learn to co-exist peacefully. Violence is senseless and a zero-sum game. But when absolutely unavoidable, one should fight ferociously to protect the dharma – the way Shri Krishna advised Arjuna to fight the Mahabharata war.

DO YOU KNOW?

The Indian Armed Forces do not use the term 'martyr' for personnel who sacrifice their lives in the line of duty. The word 'martyr', which originated from the Greek word 'martur', has religious connotations and has been used in history to refer to the sacrifices made by people for their religious beliefs.

The Indian Army instead advises use of phrases such as 'laid down their lives', 'killed in action', 'supreme sacrifice for the nation', 'fallen heroes', 'Indian Army braves and fallen soldiers', 'battle casualty', 'brave hearts', 'braves whom we lost', and 'veer' 'veergati', 'veergati prapt' etc.

Despite being grievously injured, he led from the front like a true military leader to deter the vicious enemy attack. Till his last breath, he kept inspiring troops to hold ground.

Col Santosh Babu and 19 other soldiers succumbed to their injuries and laid down their lives in the line of duty following the highest traditions of the Indian Army. **Col Santosh Babu was honoured with the nation's second highest gallantry award, "Maha Vir Chakra"** on 26th January 2021 for his extraordinary courage, leadership and supreme sacrifice. **Also, five others were awarded the 'Vir Chakra', four of them posthumously - Naib Subedar Nuduram Soren, Havildar K Palani, Naik Deepak Singh, and Sepoy Gurtej Singh. The fifth one was Havildar Tejinder Singh** who was grievously injured but managed to survive the brutal attack. Fifteen others were awarded the 'Sena Medal' posthumously.

China also suffered a large number of casualties, estimated at about 38-40, surprisingly much higher than India. The Galwan clash indeed turned out to be a major embarrassment for China as they just did not expect the Indian soldiers to fight back so valiantly. Even though Indian soldiers were both outnumbered and taken by surprise, they had the grit, valour and presence of mind to fight ferociously. China initially denied having any casualties, but later reluctantly announced having had a few.

Even today, the two armies continue to remain locked in a tense military standoff. Multiple rounds of military talks and diplomatic discussions have taken place. While these have led to troops pulling back from Galwan, Pangong Tso, and Hot Springs, agreement on disengagement from other friction points remains elusive. Our brave soldiers continue to protect us day and night. Each one of us also has to do our bit for nation-building across various other dimensions.

"Our flag does not fly because the wind moves it, it flies with the last breath of each soldier who died protecting it."

[1] *Vedas divide all our desires into three – (i) Desire for Wealth; (ii) Desire for fame & power; (iii) Desire for relationships*

Smt Shubha T.R

MAGENTA GHOST FLOWER

The flower looks incredibly enchanting with a deep magenta colour on the edges and a yellow patch in the middle.

Not to lie, this flower is as scary as its name suggests. Magenta Ghost Flower, is a unique flower that belongs to the family of ghost flowers, also known as "Pipe flowers". It is parasitic (takes food and nutrition from other plants) and are native (endemic) to Southern Western Ghats.

First sighted by Robert Wright in 1835, it was rediscovered in 2003, after 90 years, in Indira Gandhi Wildlife Sanctuary in Anamalai Hills near Pollachi, Tamilnadu. It is known for the waxy, translucent stems and flowers.

The stem at the top of each plant where a single blossom appears points downwards, giving the appearance of a pipe. The downward shape of the flower prevents rainwater from diluting its nectar which attracts pollinators.

The flower looks incredibly enchanting with a deep magenta colour on the edges and a yellow patch in the middle. The plant grows as a root parasite and completely lacks leaves and chlorophyll and steals nutrition from other plants. Unlike most plants, it lacks colour.

How does the plant survive without chlorophyll?

Ghost pipe saps nutrients and carbohydrates through myccorhizal fungi present in tree roots. Also, abundant amount of forest humus around the plant and appropriate fungi are essential for its survival.

Taxonomy

Botanical Name	: *Christisonia tubulosa*
Kingdom	: Plantae
Division	: Angiosperms
Class	: Asterids
Order	: Lamiales
Family	: Orobanchaceae
Genus	: Christisonia
Species	: C.tubulosa
Altitude	: 900- 1200 metres

Dr Krupa M

FENUGREEK

the magical solution for diabetes and stomach problems

Fenugreek seeds are effective in providing relief against dandruff and itching, when soaked and used for hair wash.

Fenugreek (*Methi* in Hindi & *Vendhayam* in Tamil) seeds are obtained from fenugreek plants which are 2-3 feet tall and produce white flowers. The pods contain the golden brown fenugreek seeds easily available in every kitchen in Indian home. Fenugreek has been part of naturopathic medicine for several centuries. Fenugreek's medicinal property is mainly related to stomach related issues and diabetes.

Fenugreek is most effective in relieving stomach problems including stomach gas, aches, lower back pain and hip pain.

Fenugreek's effectiveness for relieving stomach problems is because of its high fibre content. It also contains minerals, iron and magnesium.

Soaking fenugreek overnight and eating on empty stomach lowers blood sugar levels in individuals with diabetes. Fenugreek seeds normalise blood sugar levels by reducing the appetite and lowering cholesterol levels.

Fenugreek seeds are effective in providing relief against dandruff and itching, when soaked and used for hair wash. Also, the leaves of fenugreek plant are used in rotis, famously known as methi rotis.

Fenugreek tea can be prepared using the following method and consumed thrice a week.

- Beat 1 teaspoon methi seeds into grainy, powder form.
- Boil 1 cup water and pour it in a bowl.
- Add the methi seeds and 1 teaspoon of honey to sweeten it. Other herbs like basil or regular tea leaves can be added if required.
- Cover and let the ingredients steep for 2-3 minutes.
- Sift the tea through a sieve and drink.

National Statistics Day

29th June

Honour the work and contribution of late Professor and Scientist

Prasanta Chandra Mahalanobis

in the field of Statistics and economic planning.

Scientist & applied statistician Prasanta Chandra Mahalanobis was born on this day, in 1893

FATHER OF INDIAN STATISTICS

Established the **Indian Statistical Institute** in Kolkata and **Central Statistical Organization** to coordinate statistical activities in the country

Devised Mahalanobis Distance — a very useful statistical measure of comparison between two data sets

In 1949, was appointed as **honorary statistical advisor** to the Government of India

Was instrumental in formulating **India's strategy for industrialisation** in the Second Five-Year Plan (1956–61)

His birthday is celebrated as **National Statistics Day**

Notable awards include **Padma Vibhushan** (1968), **Officer of the Order of the British Empire** (1942), **Fellow of the Royal Society**

75 Azadi Ka Amrit Mahotsav

Join us in celebrating 75 glorious years of India's Independence

HAPPY

Independence Day

15TH OF AUGUST