

# PRAJYA

MONTHLY NEWS MAGAZINE FOR CHILDREN

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## Launch Of PSLV-C52

इसरो ISRO  
SDSC SHAR

23<sup>rd</sup> JANUARY

# PARAKRAM DIWAS

125<sup>th</sup>

*Birth Anniversary*



*Tributes to*

**NETAJI SUBHAS  
CHANDRA BOSE**

“

**FREEDOM  
IS NOT GIVEN IT IS  
TAKEN”**



**JAI HIND**





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Survival and mere existence are for the mundane. The sublime 'live' their lives purposefully and leave a lasting positive impact on fellow human beings.

Bhagwat Sri Ramanujacharya was one *mahapurusha* whose life, mission and teachings transformed the world around him. Empathising with the marginalized, he established practices that were humane and inclusive, empowering them to strive towards salvation through *bhakti margam* (path of devotion) and *kainkaryam* (service) to the Almighty.

Dr Deendayal Upadhyay in a short but powerful tenure as a political leader infused lofty ideology and enlightened the path of party functionaries and followers.

Dr Nagaswamy went beyond history, archaeology and epigraphy. He not only unearthed the treasures of our rich heritage but also created a treasure trove of literature on a wide range of topics bringing them all within the reach of commoners and even children. His works are for posterity and will inspire generations to come.

Latha Mangeshkar, using her natural gift delighted millions in the course of an illustrious career. Her music will live on, bringing unadulterated joy to listeners.

**“A life is not important except in the impact it has on other lives.”**

Read, reflect and revert with your thoughts and feelings.

We look forward to your support and suggestions.



- Editor's 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.

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Happy Reading !

**Watch out for the Monthly Prajya Quiz online**

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# Joint working group on AFGHANISTAN

**The evolving situation in Afghanistan and its impact on security in the region was reviewed.**

India has deep historical, cultural and civilizational links with Central Asia. This year, India celebrates the 30th anniversary of diplomatic relations with the 5 Central Asian countries.

The first India-Central Asia Summit, hosted by PM Modi virtually, was attended by presidents of Kazakhstan, Uzbekistan, Tajikistan, Turkmenistan and Kyrgyz Republic.

PM suggested preparing a roadmap for the next 30 years to mainly overcome the lack of land connectivity between India and Central Asia's land-locked countries. This could be a force-multiplier for trade and economic cooperation between the countries.

The evolving situation in Afghanistan and its impact on security in the region was reviewed. The leaders pledged their strong support for a peaceful, secure and stable Afghanistan.

They reaffirmed the importance of UNSC Resolution 2593(2021),

which unequivocally demands that Afghan territory not be used for sheltering, training, planning or financing terrorist acts.

## Highlights

- Biennial summit-level meeting of leaders to be held.
- Two Joint Working Group (JWGs) on Afghanistan and Chabahar Port project at senior officials' level.
- Annual meetings of the Foreign, Trade & Culture Ministers and Secretaries of Security (NSA) of India and Central Asian countries.
- Continued immediate humanitarian assistance to the people of Afghanistan.
- Combating the menace of terrorism and drug trafficking and undertaking joint counter-terrorism exercises with interested countries.
- Plan to build a "Central Asia secretariat" in New Delhi.



# L2 - James Webb Space Telescope's Observational Post in Space

“Lagrange points were discovered in 1736 by Joseph-Louis Lagrange, an Italian mathematician who theorised that, when looking at three bodies orbiting each other (*here the sun, the earth and the moon*) there are five stable points where an object can be placed so that it will remain fixed relative to the other two. ”

In December 2021 the James Webb Space Telescope (JWST) was launched from Earth to help bring us closer to the stars. A successor to the Hubble Telescope, the JWST will be used to observe infrared radiation from stars at the edges of the universe.

Most satellites orbit the earth less than 20,000 km from its surface. Geostationary satellites operate at 35,000 km. But JWST, at more than a million km away, will find its home at “L2”, one of the five Lagrange points. Lagrange points are unique places in space where,

because of their distance from the earth, moon and the sun, the gravity from each of these bodies create a very stable position for a spacecraft to rest with minimal energy to make course corrections.

JWST will be adequately far away from the sun, creating the perfect environment for an infrared telescope as the colder the temperature, the better its detection capabilities. At L2, the JWST will also have the earth and the sun in the same part of its view. This will ensure that the telescope is never obscured by the earth or the sun while looking at distant galaxies, unlike the Hubble Space Telescope.

Astronomers hope that JWST will help them unlock the secrets of some of the universe’s furthest stars and galaxies.





# CANADIAN CRISIS

Canada is the second largest country in the world. With land area of 10 million sq.km. and population of 3.8 crores, it has abundant arable land, fresh water, oil and mineral resources.

The recent crisis in Canada is about their Truckers and cross-border drivers protesting Covid vaccine mandate. Early November 2021, Canada informed that from 15th January 2022, all essential workers including truck drivers will be required to produce vaccination proof to travel across the border. Those unvaccinated will undergo tests and two weeks of self-quarantine. USA too imposed similar requirements. Although

90% of those involved were already vaccinated, a minority group was driven by anti-sentiments towards vaccine, mask and lock down.

Around January, Freedom Convoy protests began and by 29th January trucks from as far as away as Vancouver in west coast, reached capital Ottawa to protest against Covid mandates. The Movement was supposedly funded 9.9 million CAD. Soon the protestors turned violent and some of them defiling even National War Memorial. Small businesses and city residents complained the protests amounted to harassment and occupation. For three weeks the protestors occupied downtown Ottawa and demanded



**Does the democratic right to protest mean the right to disrupt and destabilise?**







withdrawal of Covid mandates and resignation of PM Trudeau. To ensure the safety of PM and his family, they were shifted to an undisclosed location. Similar demonstrations and violence took place in the border transit points with USA in Alberta, British Columbia and Manitoba.

As 85% of Canada's trade is conducted with USA, the protests caused considerable disruption to Canada's economy. Perishables held up at transit points caused disruption of supply chain and loss of revenue. Manufacturers like Ford and GM had to suspend production for want of auto parts, leading to wage loss for workers.

**To end protests and violence,**

- The government withdrew the plan to tax the unvaccinated.
- On 14th February, PM Trudeau invoked Emergency Act powers.
- The government froze bank accounts which carried funds



in millions and which fuelled the protests.

- The Canadian Police in Alberta declared the blockade as unlawful.
- On 18th February, Police made more than 100 arrests and towed away vehicles causing blockade.

There were similarities between Canada's Freedom Convoy and Farm Law protests in India. GOI's response was not authoritarian. However, the coverage in international media showed obvious bias against India.

One needs to ask the question – Does the democratic right to protest mean the right to disrupt and destabilise?





# Nuclear Fusion

## – A New Hope

---

The dream of harnessing energy from the process that powers the sun had its believers since 1940.

Electricity is the prime mover of this huge industrial and services economy. The world today stands at the crossroad of increased energy demand and depleting or questionable sources of energy. Global warming is now a compelling phenomenon, hastening the quest for a reliable, sustainable, carbon neutral energy sources and technologies.

Nuclear fusion as an energy source now looks exciting following amazing data from scientific experiments underway in a nuclear fusion facility in England, which has led us to believe that its time has arrived.

### What is nuclear fusion?

It is a reaction in which two or more atomic nuclei fuse to form one or more different atomic nuclei,

releasing huge amounts of energy. It is the reaction responsible for the energy from sun which sustains life on earth. The dream of harnessing energy from the process that powers the sun had its believers since 1940. Now a coalition of 30 countries is backing a very ambitious quest that will test its true potential.

### What happens in the Sun?

Two atoms of hydrogen fuse to form one atom of helium, releasing vast amounts of energy. Sun's enormous gravity makes nuclear fusion possible. Here on earth, we don't have this enormous gravity. Hence pursuing nuclear fusion here is a challenge.

### JET

Joint European Torus (JET) is a nuclear facility in England



**The best part is that Deuterium and Tritium are found in sea water. Scientists believe that fusion will deliver vast amounts of energy by 2050.**

which was in the news recently for reaching a milestone in nuclear fusion research by producing 59 mega joules of energy... a record. The last such experiment produced just 29 mega joules of energy. In this facility Deuterium and Tritium-two isotopes of hydrogen are heated to 150 million degree centigrade in a reactor vessel called "Tokamak". That is 10 times the temperature found in sun's core. These superheated deuterium and tritium nuclei become plasma(carrying a charge). This superheated plasma will be kept confined in the Tokamak vessel by magnetic fields created by super conducting coils. Sometimes these particles collide, fuse under very high temperatures and speed to yield helium, neutrons and energy. Data from JET will be crucial in scaling up reactor design, inputs etc., for use in ITER.

#### **ITER**

International Thermonuclear Experimental Reactor (ITER), located in southern France, is a

collaborative effort by nearly 30 countries including EU member countries, India, USA, Russia, China, Japan, South Korea and UK. Much is expected out of experiments at ITER beginning 2025. ITER signifies a grand confluence of precision engineering, physics and chemistry. ITER is likely to yield 50 MW of electricity with an input of 10 MW.

#### **Why nuclear fusion is exciting**

Renewable sources of energy like wind and solar are good but are dilute and it is uncertain they can supply reliable electricity on a global scale Most importantly, unlike fission, nuclear fusion is safer with low levels of radioactive waste and near zero chances of meltdown.

The best part is that Deuterium and Tritium are found in sea water. Scientists believe that fusion will deliver vast amounts of energy by 2050. Till then scientific experiments at JET, ITER will keep producing crucial data for scaling up.



# Airtel's 21 MW Solar Power Plant in Maharashtra

## DO YOU KNOW

**Edge data centres** are smaller facilities located close to the populations they serve to deliver cloud computing resources and cached content.



The Government of India is working towards zero carbon emission to develop a clean and green India. Recently, to reduce carbon emissions and supply clean energy to their data centres and telecom network, Airtel has partnered with Avaada to commission a 21 Mega Watt (MW) solar power plant. Avaada is one of the leading green energy and renewable energy companies in India. The captive power unit in Buldhana, Maharashtra is spread over 80 acres to supply clean energy to large and edge data centres of 'Nxtra by Airtel'.

Nxtra has already commissioned two captive solar power units in Uttar Pradesh. It has the largest network of data centres in India with 11 large and 120 edge data centres across India and will invest over Rs.5000 crores over

the next four years to expand its capacity by 3 times.

### Highlights

- 65000 solar panels
- Reduction in CO<sub>2</sub> emission by 25517 tonnes annually.
- Productivity - 32 Meganewton (Mn) per year.

Rajesh Tapadia, CEO, Nxtra by Airtel said, "Sustainability is a priority area for Nxtra by Airtel. This is yet another step towards fulfilling our commitment to source more than 50% power requirements of our data centres through renewable energy sources in next 12 months and contribute to overall greenhouse gases emission reduction targets."

It is heartening that the corporates in India are committed to reducing carbon emissions.



# REPUBLIC DAY Celebrations 2022

Kum Poornima Warriar | Student



After decades of struggle under the British, India became free in 1947. To shake off the shackles of trauma and for a collective brighter future, we transitioned into a fully sovereign republic on 26th January 1950. On Republic Day, we celebrate with great fervour our constitution coming into force.

This year, the 73rd Republic Day, was no exception. Due to the prevailing pandemic, the guest list was shortened. Adhering to Covid protocols, only double vaccinated adults and single-dose vaccinated children above 15 years, were allowed to participate. 10 large LED screens were installed along the Rajpath.

The celebrations began at 10.30 am. The Tricolour was hoisted by President Ram Nath Kovind at India Gate, followed by a booming 21-gun salute and the National Anthem. As a tribute to the honourable Indians who sacrificed their lives for India's independence, PM Modi placed

a wreath at Amar Jawan Jyoti at India Gate. This was followed by awarding the brave Indian soldiers with Paramvir Chakra, Ashok Chakra and Vir Chakra. March-past by the armed forces, police and National Cadet Corps took place as a display of military power, with the President of India receiving the salute from six regiments. The theme of the marching contingents was the evolution of the uniform and the weapons of the Indian Army over the last 75 years. The tableaux presented by 12 states and UTs, 9 ministries and departments were all centered around 'Azadi ka Amrit Mahotsav' theme.

A 122-member strong contingent and band of Bangladesh Army participated in the parade for the first time. The Indian Air Force showing a grand fly-past of 75 air crafts formed a fitting finale.

The grand ceremony reaffirmed that we are well-equipped with a reliable defence system and an enriching diversity of cultures.





# INDIA'S FARM EXPORTS to hit **US \$ 50 BILLION** in FY 2022

*“The future belongs to nations with grains and not guns.”*

*- Dr M. S. Swaminathan,  
Padma Vibhushan Awardee and  
Indian agricultural scientist*

**This growth has been driven by India's policy level interventions as well as introduction of our products to new markets.**

**H**ello, Members of the pandemic. This growth has been driven by Government of India's policy level interventions as well as introduction of our products to new markets.

Generation Next!!!  
If someone were to tell you that during the 1960s, there were regular famines and food shortages in India, many of you might not even believe it. Thanks to the Green Revolution in the country, we have not only become self-sufficient but are currently among the Top Ten Food Exporting Countries of the world.

In FY 2021, our agricultural exports jumped by an unprecedented 17.34% to US\$ 41.25 billion despite

of the pandemic. This growth has been driven by Government of India's policy level interventions as well as introduction of our products to new markets.  
In FY 2021, 21% of the exports consisted of Rice, 14% Marine Products, 11% Spices, 10% oil seeds, 7% Sugar and so on. Within the Rice category, Non-Basmati rice exports grew by 136%, other cereals like millets, maize etc., by 238%, Sugar by 42%, Raw Cotton by 79% compared to the previous year.



**In FY22, India is likely to become the world's largest rice exporter, with exports touching US \$9.5 billion, amounting for about 50% of the global rice market.**

The largest markets for our agricultural exports are the USA, China, Bangladesh, UAE, Vietnam, Saudi Arabia, Indonesia, Nepal, Iran and Malaysia.

Exports to most of these markets have seen high growth in FY 21, with the highest growth being recorded by Indonesia, (102%) and Bangladesh (95%). We have at the same time opened up new markets as well. For instance, rice has been exported for the first time to Puerto-Rico and Brazil and wheat for the first time to Yemen, Indonesia and Bhutan.

Exports have taken place for the first time ever from several farming clusters like Varanasi (fresh Vegetables & Mangoes) and Chandauli (Black Rice).

Our farmers have continued where they left during the previous year. Between April and November 2021, exports of farm products rose up to US\$31 billion from US\$25 billion during the corresponding period last year, showing a 40% increase.

In FY 22, India is likely to become the world's largest rice exporter, with exports touching US \$9.5 billion amounting for about 50% of the global rice market. During this period our wheat exports have gone up by 421%, Sugar by 62% and other cereals by 79%.

With this kind of rapid growth already clocked in, we will surely top the US \$ 50 billion mark in farm exports during this Financial Year i.e. FY 2022.

Jai Kisan !





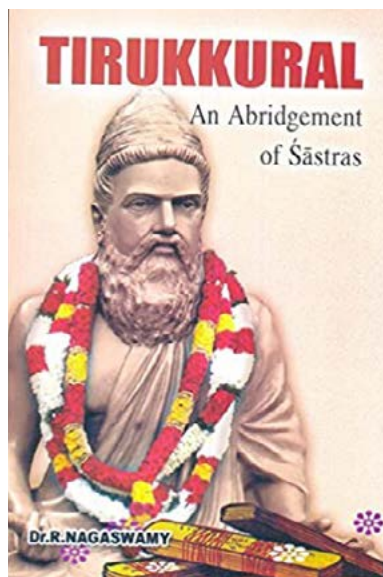
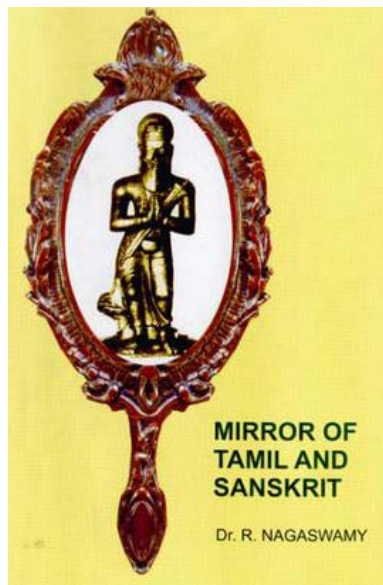
# Dr Nagaswamy

## THE LEGEND

**D**r. Nagaswamy (10.8.1930 – 23.1.2022) was an Indian historian, archaeologist and epigraphist known for his work on temple inscriptions and art history of Tamilnadu. He was an authority on Chola Bronzes. (This article is a personal account of R Gopu on his association with the legendary epigraphist.)



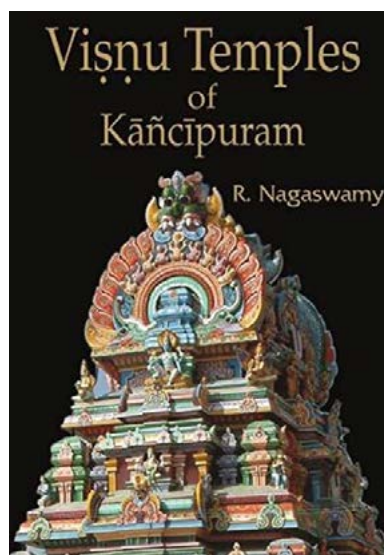
First came to know of Dr. R. Nagaswamy through newspaper articles on archaeological or historical discoveries. In 2009, I read his path-breaking 1962 thesis on Mamallapuram (popularly Mahabalipuram, near Chennai). In this, he proposed that Rajasimha Pallava was the creator of all the monuments of Mamallapuram. Until then, the consensus among historians was the one proposed by Jouveau Doubreil in 1915, that three Pallava kings, Narasimha



Pallava I, his grandson Parameshvara and the latter's son Rajasimha were each author/patron of different monuments in Mamallapuram, over a century. It was as thrilling as a Sherlock Holmes or Agatha Christie murder mystery.

The various aspects of architecture, epigraphy, aesthetic sensibility, poetic skill and other historical evidences he marshalled in his arguments were brilliant.

We mostly remember Nagaswamy as a grand old man, the Bhisma Pitamaha of archaeology in Tamil Nadu. That is a disservice to brilliant archaeologists who



preceded him for 150 years, some of whom like T.N. Ramachandran, Sivaramamurthi etc., Nagaswamy himself worked with, and held in high regard. We also forget that his accomplishments came when quite young.

The Rajasimha thesis was written when he was only 32! K.A. Nilakantha Sastry, in his preface to his magnum opus, *History of South India*, thanked the young Nagaswamy for his invaluable advice.

Nagaswamy enriched several fields: history, dance, music, literature, and religion, not just archaeology and epigraphy. He was a torch bearer of a brilliant tradition of academic scholarship launched by stalwarts such as William Jones and Alexander Cunningham, but also had the broad and deep learning in both Tamil and Sanskrit literature.

Always seen wearing a three-striped *vibhuti* across his forehead, he was as proud of his bhakti, as he was respectful of scientific research.

Sittannavasal in Tamilnadu has ancient Jain paintings, a Pandya Tamil inscription in *vattezhuthu* script and a Sangam era inscription in Tamil Brahmi script. During a

**Aware of the average person's ignorance of Sanskrit literature and words, he described even popular sculptures using beautiful Tamil phrases from Devaram and Divya Prabhandam.**



visit, Nagaswamy enthusiastically grabbed a sheet of paper and began demonstrating these scripts to a teenage goatherd standing nearby!

Did the nonplussed goatherd realize that a scholar of international repute was teaching him epigraphy?

But this spirit, of wanting every citizen to learn about and be proud of his or her heritage characterised Nagaswamy. He didn't want archaeology or epigraphy to be confined to academic seminars and museums. In these times, when historical monuments face exploitation as granite quarries, thousand-year-old paintings are whitewashed into oblivion, bronzes are smuggled and sold, and monuments ravaged in the name of restoration and renovation, what could be more compelling?

In 1966, Nagaswamy became Director of the Tamil Nadu Archaeological Department, the first in any state of India. He published several pamphlets priced at a few paise, when books were expensive and libraries rare.

He persuaded the government to build museums at twelve district headquarters. Earlier, only Madras and Pudukottai had museums. Archaeologists from other states marvelled that his proteges could read Tamil inscriptions off the walls of temples, when elsewhere

it involved a laborious process of taking estampages (inscription made on inked paper) and weeks of decipherment.

He faced his quota of setbacks and controversies, and political and ideological clashes. He was suspended at one time. While he awaited an enquiry, he did not sit idle and morose. Like India's freedom fighters who wrote books in prison, Nagaswamy put his literary and artistic talents to full use, and composed several dance dramas on historical and religious figures such as Rajaraja Chola, Rajendra Chola, Manimekalai, Appar, etc. With Kapila Vatsyayan, he cofounded *Natyanjali*, a dance festival in Chidambaram. Several of his dance dramas were performed by artistes of repute, from India, Germany, Sweden, USA, Canada, etc.

He wrote Tamil books for the general public on Sangam literature (*YaavarumkeLir*), and Tamil Nadu's painting and sculptures (*OviyaPaavai*). He wrote scholarly tomes in English (*Sahrdaya*; Vishnu temples in Kanchipura; Studies in Ancient Tamil Law and Society). He compiled books on bronzes (*Chola Art*), Mamallapuram. Gangaikonda Cholapuram in both English and Tamil. His website (<https://tamilartsacademy.com>) is a veritable university, listing his books and articles.



# DO YOU KNOW ?

Chola bronzes, large statues of Hindu deities ubiquitous in the temples of south India, are perhaps the best-known images of that country's religious art. These are carried bedecked in festivals. These are built using lost-wax technique. Hence the shape, contours, facial and hand expressions of these idols are unparalleled among any other Indian and foreign idols.

## EPIGRAPHY

Any descriptive and analytical study of the inscriptions. The word 'inscription' is synonymous to epigraph.



Aware of the average person's ignorance of Sanskrit literature and words, he described even popular sculptures using beautiful Tamil phrases from *Devaram* and *Divya Prabhandam*. He used the phrase *maa-mayidan-serukku-aRutta-kolattaaL* for Mahishasuramardhini, and Tirumangai Alwar's phrase *kadal-mallai-kidantha-karumbu* for Anantashayana Vishnu in Mamallapuram. An inscription in Valampuram refers to a king's donation of "*vattaNaigaL pada-nadantanaayanar*". Nobody knew what it meant, but Nagaswamy recalled a poem by Appar that refers to Bhikshaatana as "*vattaNaikaL pada-nadantumaayam-pesivalam purattepukkangemanninaare*" and connected this to a Chola bronze of Bhikshatana.

That was his unique ability. His vast mastery of three languages, his knowledge of the Vedas, smritis, agamas, Bharata's *Natyashastra*, and epics in Sanskrit, his equally broad knowledge of *Tolkappiyam*, *Silappadikaaram* and other Tamil epics, Sangam literature, Bhakti literature, in Tamil, and his expertise in inscriptions, history, and three centuries of academic scholarship in English, made him that rarest of rare scholars. Barely a handful of people with this knowledge base, can speak or write with such felicity. For this, he often earned the vituperative derision of one-book pundits and mono-lingual scholars.

I struggled to understand the Kanchi Kailasanatha temple. He mentioned that its patron Rajasimha used the words *Atimaanam Ati-adbhutam* ("a perfectly measured marvel") to describe it. That opened my eyes: approach the temple with Rajasimha's own words. I was given the honour of discussing Nagaswamy's international papers at a conference honouring Nagaswamy.

We presented him a kurta, embroidered with the words *Atyantakaama* (Man of Endless Desires) and *Kalasangudra* (Ocean of Arts), titles of Rajasimha Pallava inscribed in the calligraphic Nagari at the Kailasanatha temple. He delightedly wore it the very next day.

When I stumbled upon a long forgotten 1830 transcript of a Pallava inscription, he was delighted and arranged a meeting at his house, to explain it. What an honour, to share the stage with him!

At a recent seminar, for a lecture about Uthiramerur, he brought a pot, put in chits of paper with names written, and asked youngsters to pick the chits. Thus, he practically demonstrated the *kuda-olai* system mentioned in the tenth century Uthiramerur inscription, which explained procedures to select administrators without fear or favour.

A few years back tragedy struck him. His grandson, not yet thirty years old, unexpectedly passed away from a medical emergency. When he returned from the funeral in the USA, he learnt that a young and brilliant scholar, a masterful orator, had announced that he would no more speak in public, because of mental turmoil caused by relentless abuse by critics on social media.

Nagaswamy called him up, and casually mentioned his personal bereavement. The youngster took the hint – if even such a terrible personal loss could not dissuade a man in his late eighties from continuing his scholarly research, after brickbats from both learned and powerful rivals, should someone half his age be so easily dissuaded?

To meet Nagaswamy was a privilege, to hear him was an education, to share his company was an unforgettable pleasure.



# Can



## Ground Planes?



**T**he US Federal Aviation Administration is concerned about setting up 5G towers near airports.

The fifth generation of cell phone technology, 5G can offer wide coverage and high network speeds. However, their assigned frequency range, the C-band (3.70-3.98 GHz) is close to frequencies of radio altimeters aboard aircraft (4.20-4.4 GHz).

Altimeters measure altitude by calculating the time taken for a signal to bounce back from the ground. They assist pilots to land safely during poor visibility.

The narrow gap might corrupt the altimeter's signal, resulting in incomprehensible noise. The equipment might even mistake a phone carrier signal for a rebounded one, thus calculating the ground as closer than it is.



# Yaazh

## A story of organic Yoga mats

The healing, cleansing and calming properties of the fibres used in weaving these mats have garnered global attention.

Organic yoga mats have become increasingly popular in the last few years. The healing, cleansing and calming properties of the fibres used in weaving these mats have garnered global attention. They are also eco-friendly, biodegradable and free of harmful chemicals. Yaazh is an organic yoga mat producer in Namakkal, Tamilnadu.

Yaazh might look like any other organic yoga mat producer at first. But there is a story of fierce determination and hard work of two young engineering graduates here: Ashok Jegadeesan and Prem Selvaraj. Hailing from a family of weavers, the power loom industry's phasing out handlooms was a great concern to them. They used their engineering knowledge to protect the



heritage profession by setting up a large handloom production unit.

And thus, Yaazh was born in 2015. "We noticed that the last decade had a boom in yoga awareness worldwide, so after our study, we thought the time was perfect to invest in weaving yoga mats with organic material. Soon, we built a team for taking care of all aspects of weaving, starting with the people to collect river grass," said Prem.

They produce organic yoga and meditation mats and herbal-dyed towels.

They have brought together 200 artisans in the region, who will benefit from the steady income while keeping their weaving legacy alive.

This story should be our motivation to know our roots, support local artisans and to always make eco-friendly choices. Because every single step matters!





# HIGHLIGHTS OF UNION BUDGET 2022

**Rs 2.37 lakh crore direct payments proposed to 1.63 crore farmers for procurement of wheat and paddy.**

**L**et's capture in a nutshell the Union Budget 2022, presented by Union Finance Minister Nirmala Sitharaman, including the proposed issue of **Sovereign Green Bonds**.

- GDP has expanded by 9.2% in FY 22. This is the fastest pace of economic growth among larger nation post-covid. Projected growth for FY 23 is 8 to 8.5%.
- Forex reserves touched US \$ 633.6 billion (Dec 2021).
- Fiscal deficit (money shortfall) estimated to be 6.9% in FY 22 (9.3% in FY 21).
- Merchandise exports increased by 49.7% to US \$ 301.4 billion in April – December 2021, exceeding pre-pandemic levels.
- Outlay for capital expenditure (money spent on fixed assets like land, buildings) raised sharply by 35.4% to Rs 7.50 lakh crore in 2022-23.
- 60 lakh new jobs to be created under the productivity linked incentive scheme in 14 sectors.
- Expansion of roadways by 25,000 km and inclusion of 2,000 km of rail network. 100 cargo terminals will be developed in the next 3 years.
- Rs 2.37 lakh crore direct payments proposed to 1.63 crore farmers for procurement of wheat and paddy.
- Chemical free natural farming to be promoted throughout India.
- “Kisan Drones” for crop assessment, digitization of land records, spraying of insecticides and nutrients will be launched.



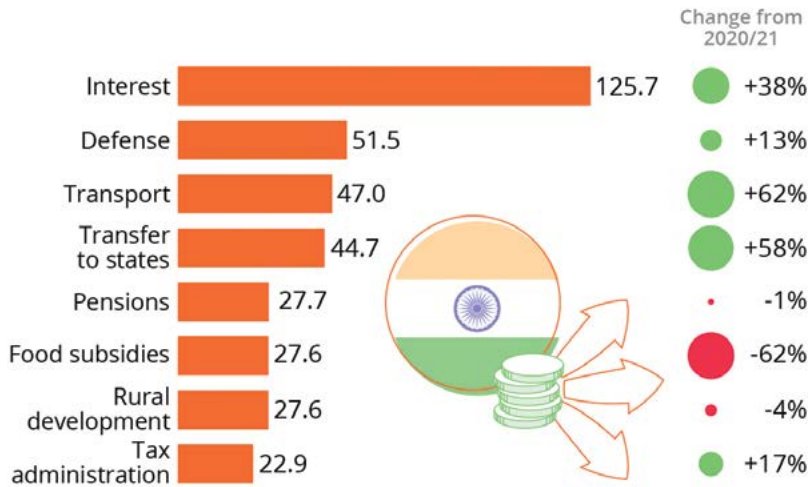
**130 lakh MSMEs provided additional credit (loan facility) under Emergency Credit Linked Guarantee Scheme (ECLGS) which will be extended till 31st March 2023.**

- Rs 1400 crore for implementation of **Ken-Betwa** link project (connecting India's rivers). 9.08 lakh hectares of farmers lands to get irrigation benefits.
- 130 lakh MSMEs provided additional credit (loan facility) under Emergency Credit Linked Guarantee Scheme (ECLGS) which will be extended till 31st March 2023.
- Digital Ecosystem for Skilling and Livelihood (DESH –Stack e portal) will be launched to empower citizens to skill, reskill or up skill through on-line training.
- One class – One TV channel programme of PM eVidya to be expanded to 200 TV channels.
- An open platform for National Digital Health Ecosystem will be launched.
- National Tele Mental Health Programme for quality mental health counseling and care services to be rolled out.
- Rs 48,000 crores for completion of 80 lakh affordable houses in 2022-23 under **PM Awas Yojana**.
- Amendments proposed to the Insolvency & Bankruptcy Code, to enhance the resolution process including for cross – border insolvency. International Arbitration Centre to be set up.
- Launch of digital rupee using blockchain and other technologies in FY 2022-23.
- Scheduled Commercial Banks to set up 75 digital banking units in 75 districts.
- 100% of the 1.50 lakh post offices to come under Core Banking System.



# The Indian Budget 2022/23

Largest expenditure items in the Indian national budget for 2022/23 (in billion U.S. dollars)



Budget estimates  
Source: Indian Ministry of Finance

**Gains from trading in Virtual Digital Assets (Crypto Currencies) will be taxed at 30%.**

- E-Passports with embedded chip and futuristic technology to be introduced.
- Modernization of Building Byelaws and Town Planning schemes.
- An Animation, Visual Effects, Gaming and Comic (AVGC) promotion task force will be set up to realize the potential of this sector.
- Regulatory framework governing Venture Capital and Private Equity investments (for financing startups) will be reviewed.
- 5G spectrum auction proposed in FY 2022 along with the launch of a design-led manufacturing scheme.
- No change in Corporate or Personal Income Tax rates.
- Tax holiday (no tax) extended for start-ups incorporated up to 31st March 2023 and for new manufacturing companies commencing operations by 31st March 2024.
- Gains from trading in Virtual Digital Assets (Crypto Currencies) will be taxed at 30%.
- Sovereign Green Bonds to be issued.

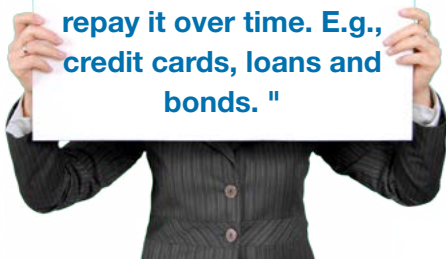
## What are Sovereign Green Bonds?

Green Bonds (aka Climate Bonds) are debt instruments issued by corporates, financial institutions and governments to raise money for eco-friendly projects. Green bonds issued by governments are called Sovereign Green Bonds.

Green Bonds have been gaining global popularity. Their market has grown from US \$ 104 billion (2015) to US \$ 517 billion (2021). Now is definitely the time for GOI to tap this source as India has committed to achieving net-zero emissions by 2070.

Union Budget 2022 is one step towards achieving Atmanirbharta and making Hamara Bharath Mahaan !!!!!

**" Debt instruments provide capital to an entity that promises to repay it over time. E.g., credit cards, loans and bonds. "**





# Radio Frequency Identification (RFID) of **AMMUNITION STOCK IN INDIAN ARMY**

## DO YOU KNOW

**Munitions India Limited (MIL)** an Indian state-owned defence company, head quartered in Pune manufactures ammunition, explosives, rockets and bombs for the use of the Indian Armed Forces, foreign militaries and domestic civilian use.

The Indian Army commenced implementation of RFID tagging of its ammunition inventory from February 2022. The first consignment of RFID tagged ammunition, comprising three lots of 5.56 mm ammunition was despatched from Ammunition Factory Khadki (Pune) to Central Ammunition Depot (CAD) Pulgaon in central India. The RFID tagging is in conformity with global standards.

RFID refers to technologies that use wireless communication between an object (tag) and an interrogating device (reader) to automatically identify and track the physical location of each object. A tag's transmission range is limited to several meters from the reader and a clear line of sight between the tag and reader is not necessary.

For armies worldwide, managing a large inventory of equipment right from arms

and ammunition to armoured vehicles could be a tedious manual process which can be significantly transformed into a more efficient and time-saving exercise by adopting RFID technology. It has also been successfully utilised in labour



intensive areas such as mining, environment, transportation and warehousing.

The implementation will transform management of ammunition and tracking capability. This will lead to increased efficiency in all technical activities carried out in Ammunition Depots and reduce inventory carrying costs.



# SIMPLIFIED PROCEDURE FOR DOMESTIC SOLAR PLANTS

**U**nder the **Rooftop Solar (RTS) Programme**, a simplified procedure has been issued that allows residents to install a rooftop solar plant either by themselves or via a vendor. According to the Ministry of New and Renewable Energy (MNRE), a national portal is being developed for registering beneficiary applications, tracking progress, and approval thereof. It will be linked to a similar

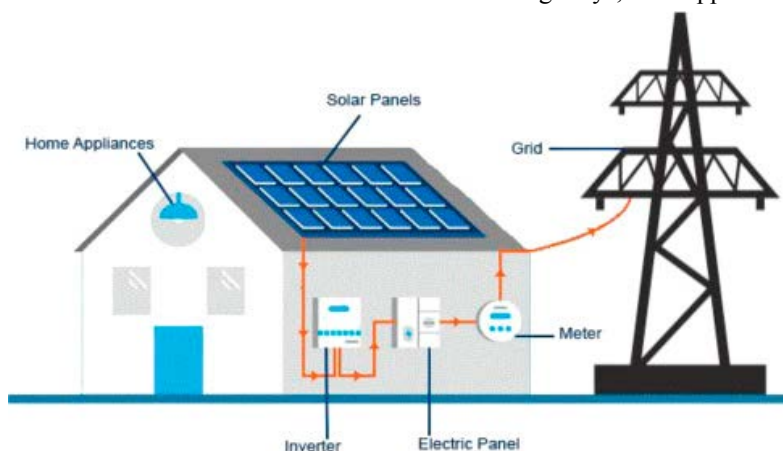
portal at the level of the DISCOMs (distribution companies).

At the time of application, the beneficiary will be informed of the complete process and the RTS subsidy that can be availed for installation. They will be required to submit necessary information including details of the bank account where the subsidy amount will be transferred. Within the next 15 working days, the application

will be forwarded online to the DISCOM concerned with issuing technical feasibility approvals. Subsequently it will be displayed on the DISCOM portal.

After obtaining technical feasibility, the beneficiary can choose from a list of empanelled vendors provided on the portal for installation of the plant. A format of agreement between the two parties issued by the MNRE will ensure that the plant meets safety and performance standards. A clause for post-installation services will also guarantee that the vendor maintains the plant for the next five years, or higher, as per terms of the agreement.

If the beneficiary doesn't install the RTS plant within a specified period, their application will be cancelled and they will have to re-apply on the portal.





# Self-Disinfecting, Biodegradable Face Masks to Combat COVID-19

A team of Indian researchers has developed a self-disinfecting, antiviral mask to reduce the spread of the Covid-19 pandemic. Coated with copper-based nanoparticles, these masks exhibit high performance against several viral and bacterial infections and are also highly breathable, washable and biodegradable.



To combat the problem of present-day masks being prone to transmission of retained viruses if not worn properly or disposed of, scientists developed the face mask under the Nano-Mission Project sponsored by the DST. This was a collaboration between the International Advanced Research Centre for Powder Metallurgy and New Materials (ACRI), Centre for Cellular & Molecular Biology (CSIR-CCMB) based in Bengaluru, and Resil Chemicals.

Using Flame Spray Pyrolysis (FSP) processing, solution precursors were subjected to high temperatures and decomposed into nanopowders of around 20 nm. By optimising pH, a stable nanoparticle suspension was obtained, which was then layered uniformly on cotton fabric with a suitable adhesive. Upon testing this fabric against SARS-CoV-2 and several bacteria, CSIR-CCMB reported a disinfection rate of more than 99.9%.

Demonstrations also included prototype masks having a triple-layer, with nanoparticle-coated fabric as the outer layer. Even a single layer mask would be useful as a protective antiviral outer mask over a regular mask.



## DO YOU KNOW

- **pH** demonstrates how acidic or alkaline a solution is, on a scale of 0 to 14.
- Pure water has 7 pH.
- Acidic solutions have a pH < 7 ; alkaline solutions have a pH > 7.
- **Suspensions** are cloudy mixtures of substances.



## ECONOMIC SURVEY 2021 – 2022

# MONEY SPENT ON AGRICULTURE R & D YIELDS BETTER RETURNS

## DO YOU KNOW

- India's first Economic Survey was presented in 1950-51. Up to 1964, it was presented along with the Union Budget. From 1964, it has been delinked from the Budget.
- ES is prepared by the Economic Division of the Department of Economic Affairs in the Finance Ministry under the guidance of the Chief Economic Adviser. The final version is scrutinized by the Finance Secretary and finally approved by the Union Finance Minister.

Smt. Nirmala Sitharaman, the Union minister for Finance and Corporate Affairs, presented the Economic Survey 2021-22 in Parliament.

The Economic Survey (ES) provides a detailed account of the country's overall economic scenario in recent years, as well as an outline for the coming year. It brings citizens closer to economic policy making by providing comprehensible data and analysis.

GOI is likely to set aside approximately Rs 3 lakh crore in food and fertiliser subsidies in the 2022-23 budget. It also makes a case for increasing research and development spending. According to ES, "every rupee spent on agricultural research and development yields much better returns (11.2) than fertilizer subsidies (0.88), power subsidies (0.79), education (0.97) or roads (1.10)".



### HIGHLIGHTS

- Agriculture sector has grown rapidly in the last two years, accounting for a sizable 18.8% (2021-22) of the country's Gross Value Added (GVA), with growth of 3.6 % (2020-21) and 3.9 % (2021-22).
- India has one of the largest food management programmes. This includes infrastructure development, subsidised transportation and support for formalisation of micro food enterprises through schemes such as the PM Gareeb Kalyan Yojana (PMGKY).

#### Economic Cost Per Quintal

	2013-14	2021-22
Wheat Rs.	1908.32	Rs 2993.80
Rice Rs.	2615.51	Rs 4293.79



# SAMATHA Purush

The entire project was executed through public donations, by H.H. Sri. Tridandi Chinna Sriman Narayana Ramanuja Jeeyar Swami.

**P**M Modi unveiled the statue of Bhagavat Ramanuja on 5th February 2022 at Sriramnagaram, Shamsabad near Hyderabad. He participated in the Vedic rituals in traditional attire and offered prayers ahead of unveiling the statue.

## The Project

The 216-foot, 54-ton statue is made of *Panchaloha* – a combination of five metals gold, silver, copper, brass and zinc. It is among the tallest metallic statues in the sitting position, in the world.

It is mounted on a 54-foot base pedestal called *Bhadra Vedi*. The complex also houses a Vedic digital library and a research centre, a theatre, ancient Indian texts and an educational gallery detailing the works of Sri Ramanuja. There are 5 lotus petals, 27 ft *padma peetham* and 36 elephants. The *Tridandam* of

Sri Ramanuja is 144 ft long. There are 108 steps to reach the top of the statue.

Replicas of the 108 Divya Desams with the Moolavar and the Utsavar deities are also part of complex. Chief architect Sriman Prasadji and his team did extensive research to gather authentic information.

The Divya Desa Mandapam has been done in the Hoysala architectural style. It also has 12 exquisitely carved pillars adding to the beauty of the Mandapam. Another significant aspect is that the construction is based on nine '*vikaras*', sort of theory of causation.

The entire project was executed through public donations, by H.H. Sri. Tridandi Chinna Sriman Narayana Ramanuja Jeeyar Swami. Called the Statue of Equality (Samatha Murthi) was conceived as part of the 1000th year celebrations of Sri Ramanuja in 2017.



It was his complete understanding of the Vedic tradition and the shastras that motivated him to reform the society. He was responsible for facilitating the entry of Dalits in the temples.

### Sri Ramanuja – The Philosopher

Sri Ramanuja was a philosopher saint born in 1017 CE to Kesava Somayaji and Kanthimathi, in Sriperumbudur, Tamil Nadu. At a young age he started studying under the Advaita scholar Yadava Prakasar.

Due to serious differences with him on interpretation of Vedic verses, he withdrew himself from him. Later he went on to make his own treatise (*Bhashyam*) on the Brahma Sutras and was hence called the *Bashyakarar*. Tradition records that Goddess Saraswathi was charmed by this work and blessed it with the prefix 'SRI'. It is therefore called as Sri Bashyam and is the preeminent work on *Vishistadvaitam* or Qualified Monism.

He was married at a young age and later adopted sanyasa. He traversed the length and breadth of Bharath propagating the *Visishtadvaita* philosophy and the Bakthi tradition and also revived and reformed temples by

establishing the Vedic practices. He installed the Murthi at Melkote and established the temple. He travelled to Kashmir Sharadapeeth to learn the *Bodhayana Vritti* (commentary of Maharishi Bodhayana on the *Purvamimamsa*) which he felt was very much needed to write his commentary on the Brahma Sutras.

He did not stop at that. In fact he immersed himself in the Vedic literature of all hues that was available during his time and understood them before shaping his own vision of Vedanta. Apart from the Sri Bashyam, his other works are *Vedanta Saram*, *Vedanta Sangraham*, *Vedanta Deepam*, *Gita Bashyam*, *Saranagathi Gadyam*, *Sri Ranga Gadyam*, *Sri Vaikunta Gadyam* and *Nithya Grantham*.

### The path-breaking social reformer and administrator

Sri Ramanuja was an embodiment of intellect, extreme compassion, persuasive advocacy and peerless organizing and administrative skills. He advocated social equality and justice.

He embraced the socially marginalized sections with compassion. Contrary to the widely prevalent misguided perception, he never went against the Vedas and the Shastras. It was his complete understanding of the Vedic tradition and the shastras that motivated him to reform the society. Sri Ramanuja's inclusive social reform model is in total contrast to some of the modern-day reform movements based on hatred and division in the society.

He was responsible for facilitating the entry of Dalits in the temples. He completely restructured the Srirangam temple and Thirumala temple administration and included the neglected castes in the temple





He revived the Bhakti movement, and his preaching inspired other Bhakti schools of thought. He is considered to be the inspiration for poets like Annamacharya, Bhakta Ramdas, Thyagaraja, Kabir and Meerabai.

services. He laid out the procedures for the rituals and worship in temples. It was his conviction that all are equal, that prompted him to share the *Ashtakshara thirumantram* (Om Namo Narayanaya)

to all those who were genuinely interested, irrespective of their castes, despite his guru telling him not to do so. He also initiated people across castes into the Vaishnavite fold.

It is due to the efforts of Sri Ramanuja that the Tamizh hymns of the Azhwars (*Nalayira Divya Prabandham*) enjoy an exalted status in the Sri Vaishnava tradition. They are treated on par with the Vedas. He drew great inspiration from the Divya Prabandham and that enriched his interpretation of the Brahma Sutras too.

He included the chanting during the temple festivals. He also instructed one of his direct disciples Thirukurugaipiranpillan to write a commentary on Nammazhwar's Thiruvoimozhi. That was the first ever commentary written on the Divya Prabandham of the Azhwars. Many other commentaries followed suit.

Sri Ramanuja was also a visionary unmatched. He ordained 74 *simhasanathipathis* (heads of Mutts) to carry forward the philosophy and tradition. All these actions have proved to be the bulwark against alien machinations in the past many centuries. He revived the Bhakti movement, and his preaching inspired other

Bhakti schools of thought. He is considered to be the inspiration for poets like Annamacharya, Bhakta Ramdas, Thyagaraja, Kabir and Meerabai.

Sri Ramanuja jettisoned his mortal form and attained Samadhi in 1137 after 120 years of service to the Sanatana Dharma and human kind at large.

### The Inspirational Guru

Sri Ramanuja is the most important and revered Acharya of the *Srivaishnavite* tradition. The Acharya lineage has 19 acharyas – 9 preceding him and 9 succeeding him. He is celebrated as the central pendant in the garland of Acharya lineage. It is a normal practice among the followers of the Srivaishnava tradition to identify themselves as Ramanuja dasas. Such is the inspiration derived from him.

As the PM rightly said, “the knowledge of Sri Ramanujacharya ji is a priceless asset to our culture and heritage. And thus, through this statue of equality we intend to restore and preserve this great philosopher’s teachings.”

When he said that “Ramanujacharya’s call for equality among human beings was the inspiration for the Indian Constitution” he succinctly brought out the civilizational ethos of Bharata Varsha and its significant impact on the Indian constitution.

Let Sri Ramanuja’s life and teachings guide us to work towards an inclusive, harmonious and a united society.

**“Ramanujarya Divyagnya vardhatham abhivardhatham”**

(May we grow and succeed following the instructions handed down by Sri Ramanuja)





INTERNATIONAL CROPS RESEARCH  
INSTITUTE FOR THE SEMI-ARID TROPICS

# 50 years of improving Food Security



**O**n 7th February, 2022 the **International Crops Research Institute for Semi-Arid Tropics (ICRISAT)** began its 50th anniversary celebrations. PM Modi kickstarted the celebrations at its global headquarters in Hyderabad.

Started in 1972, ICRISAT has focused on research for rural development across the world. It is officially recognized as a part of the Food and Agriculture Organization (FAO) of the UN.

ICRISAT has been working diligently to increase crop yield in areas of the world that receive low to medium rainfall sporadically every year.

These semi-arid areas have poor soil quality and lack proper irrigation. ICRISAT takes on a two-pronged approach to address this issue – resources management and genetic research.

Through teaching proper resource management to endure droughts, ICRISAT

has helped farmers in India, China, Vietnam and Philippines. There is also an emphasis on cultivating crop varieties that yield better even with less water.

Through genetic research, ICRISAT aims to use biotechnology to improve yield of ground nuts, pearl millets, sorghum, chickpea etc. They also have a robust gene-bank with an extensive collection of seeds from over 144 countries.

Speaking at the celebration the current Director General Dr. Jaqueline Hughes reiterated ICRISAT's goal to share scientific innovation to help overcome malnutrition, poverty and environmental degradation in dry lands across the world.

PM Modi congratulated the scientists on their achievements and the effort to improve agriculture. ICRISAT is looking to expand its work across Central, East, and southern Africa and India, thereby providing food security for generations to come.







# India successfully flight tests Rafale - Marine

India's new aircraft carrier has been designed as a ski-jump launch ship, different from many other such carriers which use a catapult launch for their jets.

India successfully tested Rafale-marine for INS Vikrant at a shore-based facility in Goa on 2nd February 2022. The testing was done in a simulated environment similar to that of the indigenously-developed aircraft carrier INS Vikrant.

India's new aircraft carrier has been designed as a ski-jump launch ship, different from many other such carriers which use a catapult launch for their jets. A ski-jump in aviation is an upward curved ramp that allows air crafts to take off from a runway that is shorter than what the aircraft normally requires. The curve forces the aircraft upwards and helping it lift-off at a lower airspeed than that required for a sustained flight. Thus, the new aircrafts selected by the Indian Navy

need to be capable of taking off in this fashion.

The Rafale-M jet was tested for 12 days last month at Goa's INS Hansa facility using a 283-metre mock ski-jump facility. Rafale-M is pitted against the US-made Super Hornet or F/A-18 jet, both of which are being evaluated for a possible purchase by the Indian Navy. The Boeing's Super Hornet is also expected to undergo similar tests at INS Hansa in March.

The Navy expects the aircraft to be capable of delivering nuclear loads, air-to-air and air-to-ground missiles and precision guided bombs. And initially, the Navy wants to purchase 26 jets for its aircraft carrier, although it had issued a Request for Information (RFI) for 57 air-crafts in 2017.





## DO YOU KNOW ?

- **Pravega** means “great speed” in Sanskrit .
- “**Param Siddhi-AI**” is India’s fastest supercomputer (4.619 petaflops with a world ranking of 102).
- **1 teraflop** = 1 trillion floating point operations per second.
- **SahasraT** a Cray CX40 supercomputer (901.5 teraflops) was the fastest in 2015.

# PARAM Pravega SUPER COMPUTER

IISc commissioned a new super computer in its campus, PARAM Pravega clocking 3.3 petaflops (1 petaflop equals a quadrillion or 10<sup>15</sup> operations per second).

It is part of the PARAM series of high-performance computers (HPCs) designed by the Centre for Development of Advanced Computing (C-DAC), Pune.

IISc intends to accelerate its work in nationally important tasks and help realize Atmanirbhar Bharat.

### Super Computing power for public welfare includes

- Research on Covid-19 and other infectious diseases.
- Developing a platform for genomics and drug discovery.
- Facilitating green energy technologies.
- Studying climate change and impacts.
- Analyzing aircraft engines and hypersonic flight vehicles.
- Establishing flood warning and prediction systems.
- Optimizing Telecom networks.
- Studying urban environmental issues.

## HARDWARE CONFIGURATION

PROPERTY	SPECIFICATION
CPU Nodes Processor	Intel Xeon Platinum 8268 and Intel Xeon Gold 6248
GPU Nodes Processor	NVIDIA Tesla V100 cards
DCLS Racks	11 racks of Computer Nodes
Service Racks	Two racks of Master/Service Nodes
Storage Racks	Four racks of DDN storage
Total Number of Nodes	644 (20 + 624)
File System	Lustre parallel file system with throughput of 100GBps 4 PB primary storage.
High speed Node interconnect	ATOS BullSequana Mellanox XH2000 series system with computing power of 3.3 petaflops
Intel Xeon G-6248	# Cores = 40; clock = 2.5 GHz, Memory = 384 GB, HDD = 1 TBx8





# Empress of PLAYBACK SINGING



**L**ata Mangeshkar (28.9.1929 – 6.2.2022) was popularly known as the ‘Nightingale of India’, ‘Queen of Melody’, ‘Voice of the Millennium’ and many more. She recorded songs in over thirty six Indian languages with her euphonious voice, primarily in Hindi, Marathi and Bengali.

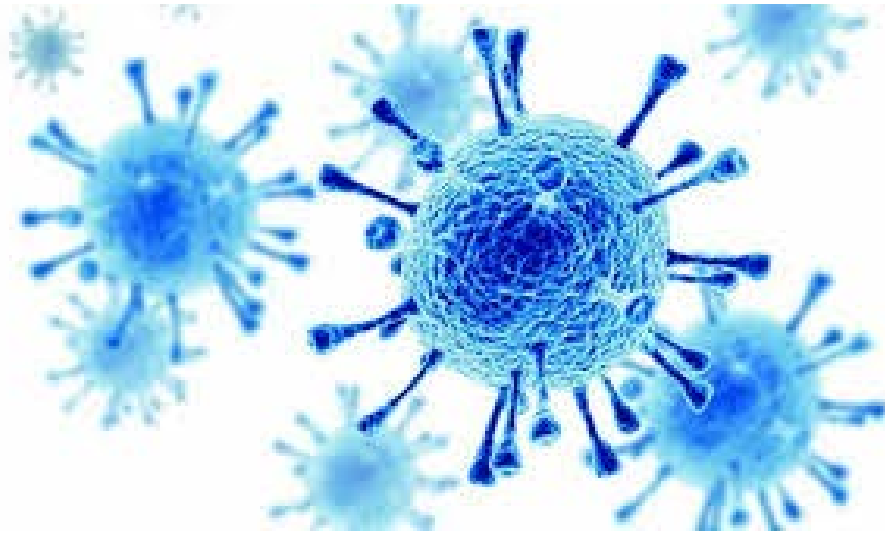
#### Honours include

- Padma Bhushan (1969)
- Dadasaheb Phalke Award (1989)
- Maharashtra Bhushan (1997)
- Padma Vibhushan (1999)

- Bharat Ratna (2001)
- Officer of the National Order of the Legion of Honour (2006) (France’s Highest Civilian Award)
- 3 National Awards
- 15 Bengal Film Journalists’ Association awards
- 4 Filmfare Best Female Playback Singer awards
- 2 Filmfare Special Awards
- The Filmfare Life Time Achievement Awards

The top female voice for more than five decades will continue to echo in millions of hearts.





# SINGLE-DOSE SPUTNIK LIGHT

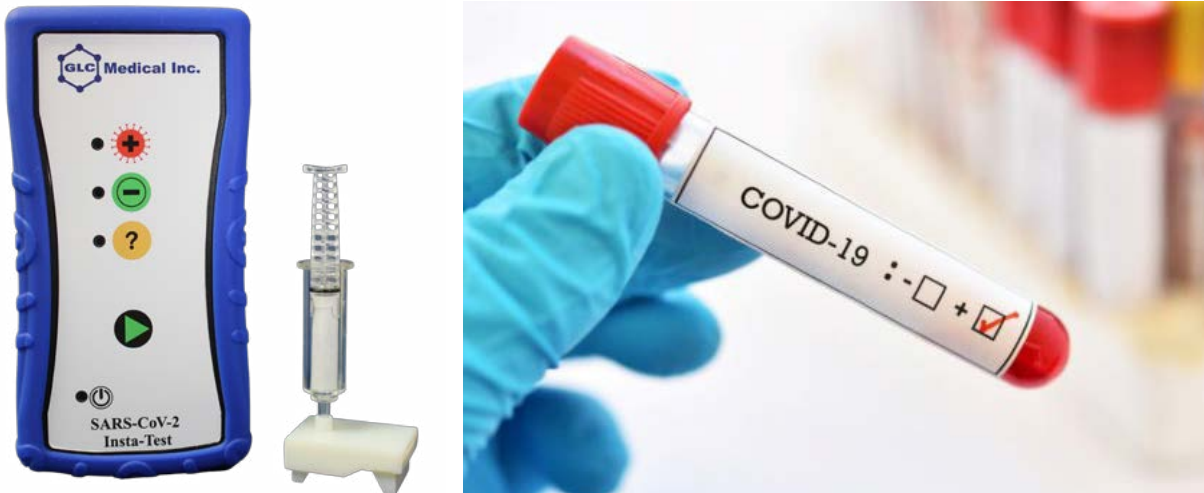
## VACCINE GETS EMERGENCY USE APPROVAL



The Drugs Controller General of India has granted emergency-use permission to the single-dose Sputnik Light COVID-19 vaccine created by the Gamaleya Center for Epidemiology and Microbiology under Russia's Ministry of Health.

This comes following recommendations of an expert

panel of India's central drug authority to grant restricted emergency use authorisation to Sputnik Light, subject to various regulatory provisions. This is the ninth Covid vaccine to receive regulatory approvals in India. The vaccine is being imported and also manufactured by Hyderabad-based Dr Reddy's Laboratories.

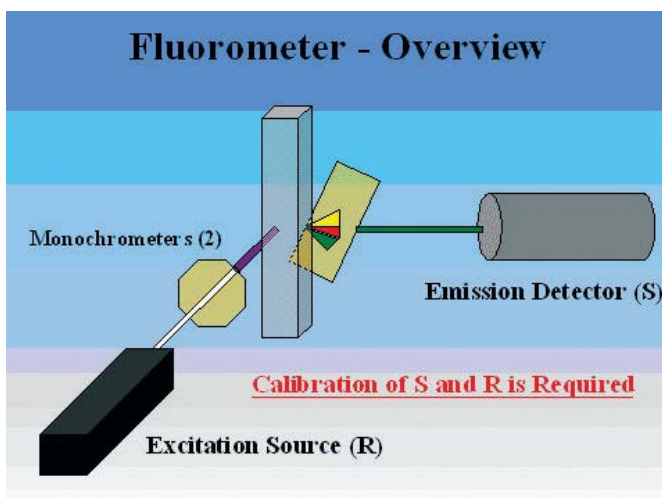


# NEW TECHNOLOGY TO DETECT SARS-COV-2

The ongoing Covid-19 pandemic caused by SARS-CoV-2 continues to inflict catastrophic effects on all aspects

of our lives. RT-q-PCR has been the gold standard for accurate detection of SARS-CoV-2 but the unexpected transmission rate of RNA virus has called for a rapid and accurate diagnosis to prevent spreading and provide timely treatment.

A team of scientists has developed a new technology called fluorometric detection of pathogens where the virus is found out by the measurement of fluorescent light emitted. This technology has been successful in the detection of SARS-CoV-2. This can also be used to detect other DNA/RNA pathogens such as HIV, influenza, HCV, Zika, Ebola, bacteria and also mutating/evolving pathogens.





# Why Was Tesla's Proposal For Tax Relief Rejected?

India currently imposes 100% import duty on fully imported cars with a Cost, Insurance, and Freight (CIF) value of more than \$40,000 and 60% on cars below \$40,000.

## Overview

Tesla has been targeting an entry into the Indian automotive market for several years. It was potentially eyeing the cheap availability of resources and lower labour cost to earn a higher profit if they were to set up a local manufacturing or assembly plant in India.

Tesla has an active production facility each in Shanghai and Germany. Musk wanted to test the demand for Tesla's EVs in India by utilizing the import method. The issue is, the import duties are doubling the price of vehicles and Tesla won't be able to accurately test its demand in India if these taxes are not reduced.

## TESLA INDIA – A New Beginning

In January 2021, Tesla registered 'Tesla India Motors and

Energy', based in Bengaluru. In August 2021, the electric vehicle giant cleared the **homologation stage** for all the four models/variants it had sought approval from the Indian Govt. Homologation process certifies that a particular vehicle is roadworthy after meeting all the specified criteria.

The company is hoping to have a cheaper price tag on its cars which is otherwise not possible due to the steep import duties.

India currently imposes 100% import duty on fully imported cars with a Cost, Insurance, and Freight (CIF) value of more than \$40,000 and 60% on cars below \$40,000.

Tesla has requested the government to standardize the tariff on electric cars to 40% irrespective of the customs value, and withdraw the social welfare surcharge of 10% on electric cars. Tesla has stated that these changes would boost





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## No “company-specific incentives” will be offered to Tesla without it launching a manufacturing plant in India.

the development of the Indian EV ecosystem and the company will make significant direct investments in sales, service and charging infrastructure and significantly increase procurement from India for its global operations.

The government wants the auto maker to produce in India rather than assemble **Completely Knocked Down** parts (CKD).

GOI is of the view that any tax break to Tesla could discourage other auto manufacturers who are complying with the current tax regime.

Further, any such move could also adversely affect local manufacturers who lag behind Tesla in terms of financial might and technical expertise.

Also, the recent Union Budget enhanced the allocation for the subsidisation of the purchase of electric vehicles for FY23 by 3.5 times to Rs 2,908 crores.

Meanwhile, Tata Power and Apollo Tyres recently inked a pact

to establish EV charging stations across the country. As India’s EV four-wheeler space is still in its nascent stages, local automakers like Mahindra, Tata and Maruti can easily ramp up and cater for the EV vehicles demand.

Local players also have an added advantage of knowing the pulse of the people in a country where foreign automakers have more or less fallen flat (Ford India having exited recently).

Mercedes-Benz also has announced that it will launch India’s first locally produced luxury electric car in 2022 itself. However, the adoption rate of such cars is poor - four-wheelers forming a mere 4% of the total sales.

But a major issue that could play spoilsport for Tesla is the price slab of its cars. Tesla’s popular Model 3 which costs \$39,990 – \$54,990 (approximately INR 60 Lakh with import duties) could be way off-budget for most Indians.

Indian government is keen on keeping manufacturing efforts at home under Atmanirbhar Bharat programme. No “company-specific incentives” will be offered to Tesla without it launching a manufacturing plant in India.

India Govt will need to work out something with Tesla as the opportunity may be too good to lose as it is one of the largest auto markets in the world. Tesla has been the only automaker to basically avoid any production stoppages due to the global semiconductor shortage and almost every automaker is currently suffering from the ongoing semiconductor shortage except Tesla.

The Centre has now more or less cleared its stance and the ball is now in Elon Musk’s court.





# LAUNCHING VESSELS for BSF PATROL BOATS

## DO YOU KNOW ?

- **Davit**– a crane-like device used on a ship for supporting, raising, and lowering boats and anchors. Davit systems are often used to lower an emergency lifeboat.
- **Cochin Shipyard Limited (CSL)**, the largest shipyard in India, can build vessels up to 1.1 lakh tons and repair vessels up to 1.25 lakh tons.
- **Stowage**– securing items stored in a ship so that they do not shift or move during at-sea periods.
- **Flotilla** – small fleet of ships or boats.



*“To be prepared for war is one of the most effective means of preserving peace.”*

**- George Washington.**

India has a 15106.7 km long land border. Border Security Force (BSF) has to be on alert throughout to prevent terrorist infiltration, illegal immigration, smuggling, and drug trafficking along the border. To negotiate the water bodies, BSF requires well-equipped vessels.

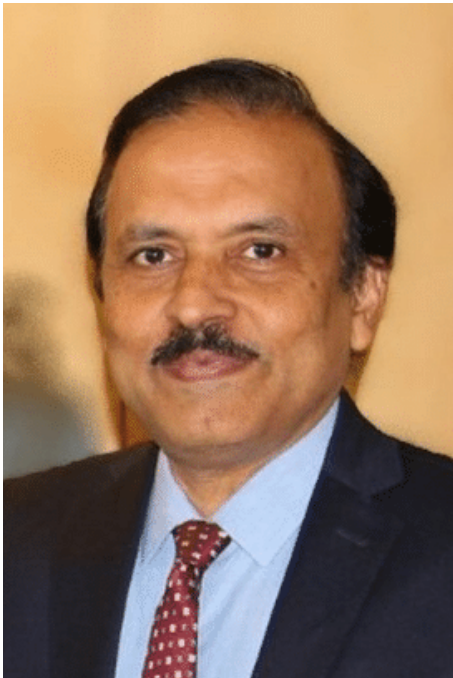
In February 2022, CSL delivered three more floating border outpost (FBOP) vessels to the BSF. So far, CSL has delivered

six vessels out of nine. The vessels flagged off on Republic Day from Kochi reached Sundarbans near the Indo-Bangladesh border.

Each FBOP is designed with stowage arrangements for four fast patrol boats that can be launched and hoisted using its davit system. The vessels will act as a floating base for the flotilla of fast patrol boats, and supply petrol and freshwater to smaller ships.







## Leading us to New Frontiers: **ISRO and Vikram Sarabhai Space Centre appoint new chairmen**

**Under these  
capable  
leaders,  
ISRO and  
VSSC are  
expected  
to make  
great strides  
in their  
international  
projects too.**

**S**omnath took over the reins of ISRO as the new chairman on 15th January, 2022. The Director of Vikram Sarabhai Space Centre (VSSC), Kerala till the 14th of January 2022, he is a senior rocket scientist who has been instrumental in the initial phase of the Polar Satellite Launch Vehicle (PSLV). S Somnath's tenure as Chairman will last three years.

The VSSC is a key research centre of ISRO and it specializes in rocket and space vehicles for satellite programs. As Somnath steps up from his position as head of the VSSC to Head ISRO, his position has been filled by senior scientist Dr. S Unnikrishnan Nair.

Taking charge as the new chairman on 7th February, 2022 Dr. Unnikrishnan is a Launch vehicle specialist and is also the first director of Human Space Flight Centre,

Bangalore. He has had extensive experience working as a specialist in advanced space transportation systems, propulsion and reusable launch vehicle development.

Some of ISRO's projects include Gaganyaan, India's first human space flight mission expected to launch late 2022 and Chandrayaan III, India's third mission to the moon. Gaganyaan comes under the purview of Dr. Unnikrishnan and is spearheaded by the Human Space Flight Centre.

Under these capable leaders, ISRO and VSSC are expected to make great strides in their international projects too such as the Lunar Polar Exploration Mission. A collaboration with Japan Aerospace Exploration Agency (JAXA), this mission aims to send a lunar rover to the south polar region the moon.





## Charting New Tracks : HIGH SPEED RAIL CORRIDOR AND VANDE BHARAT TRAINS

**S**pread across more than one lakh km, the Indian Railways is the largest rail network in Asia and the second largest network operated under a single government. It is continuously being added to and upgraded to improve accessibility to different parts of the nation.

Vande Bharat Express, also commonly known as Train 18 is a high-speed, intercity train designed and manufactured by Integral Coach Factory (ICF) in Perambur, Chennai as part of the Make in India initiative. Designed to run at speeds of 200 kmph, Vande Bharat trains are produced at a lower cost than other international vehicles of the same calibre.

Despite their capability of running at such high speeds, Vande Bharat Express trains have not been used to their full potential as

tracks in the Indian railway network cannot support speeds higher than 130 kmph.

This is all about to change with the help of National High Speed Rail Corporation Limited.

With equal stake from the company and the state governments of Gujarat and Maharashtra, National High Speed Rail Corporation Limited is in charge of the High-Speed Rail (HSR) project. Designed to save travel time and operation cost, reduce pollution, increase jobs and enhance safety, HSR is expected to boost the country's infrastructure and add to the growth of the economy.

An ambitious construction under the HSR project is the Mumbai-Ahmedabad High Speed Rail Corridor. Expected to be completed by October 2028, the

Mumbai-Ahmedabad High Speed Rail Corridor will be India's first HSR Line. The tracks can accommodate trains that can travel up to speeds of 300 kmph, making this the first system in India able to support bullet trains.

With Vande Bharat Trains, high speed travel is expected to become more convenient and affordable than ever. Major stops between Mumbai and Ahmedabad are Vapi, Surat and Vadodara. The Mumbai-Ahmedabad HSR Corridor, upon completion will further be extended to connect Ahmedabad to Delhi.

These two projects are expected to set a precedent for how the Indian Railway network will continue to improve on its infrastructure, thereby guaranteeing not only convenient travel avenues but also creating new job opportunities.

# MUNGER-GANGA BRIDGE

## brings better connectivity

**O**n 11th Feb 2022, Bihar woke up to a new dawn when CM Nitish Kumar and Union Minister Nitin Gadkari inaugurated the long-delayed bridge over the Ganga. In 2002, the then PM A.B. Vajpayee had laid the foundation for this rail-cum-road bridge. Munger Ganga Bridge is the third rail-cum-road bridge over Ganga in Bihar.



### Key Details

**Length** ----- 3,750 metres

**Width** ----- 12.25 metres

**Cost**----- Rs 2,776 crore

### Districts connected

Munger, Khagaria, Saharsa, Bhagalpur



Gadkari said there will be a saving of three hours in travelling from Munger to Khagaria - Saharsa and 45 minutes in travelling from Munger to Begusarai - Samastipur. This bridge will get rid of traffic jams and result in saving fuel costs. He hoped that the project will bring progress and prosperity in the entire region, which will prove to be a milestone in the progress of Bihar and also the country. Bihar CM Nitish Kumar said the bridge has been named as **Sri Krishna Sinha**.

The city of Munger is one of the major tourist and pilgrimage sites of Bihar known for its rich ancient history, culture, education and commerce.

# Launch Of PSLV-C52

----- 14th February 2022 -----

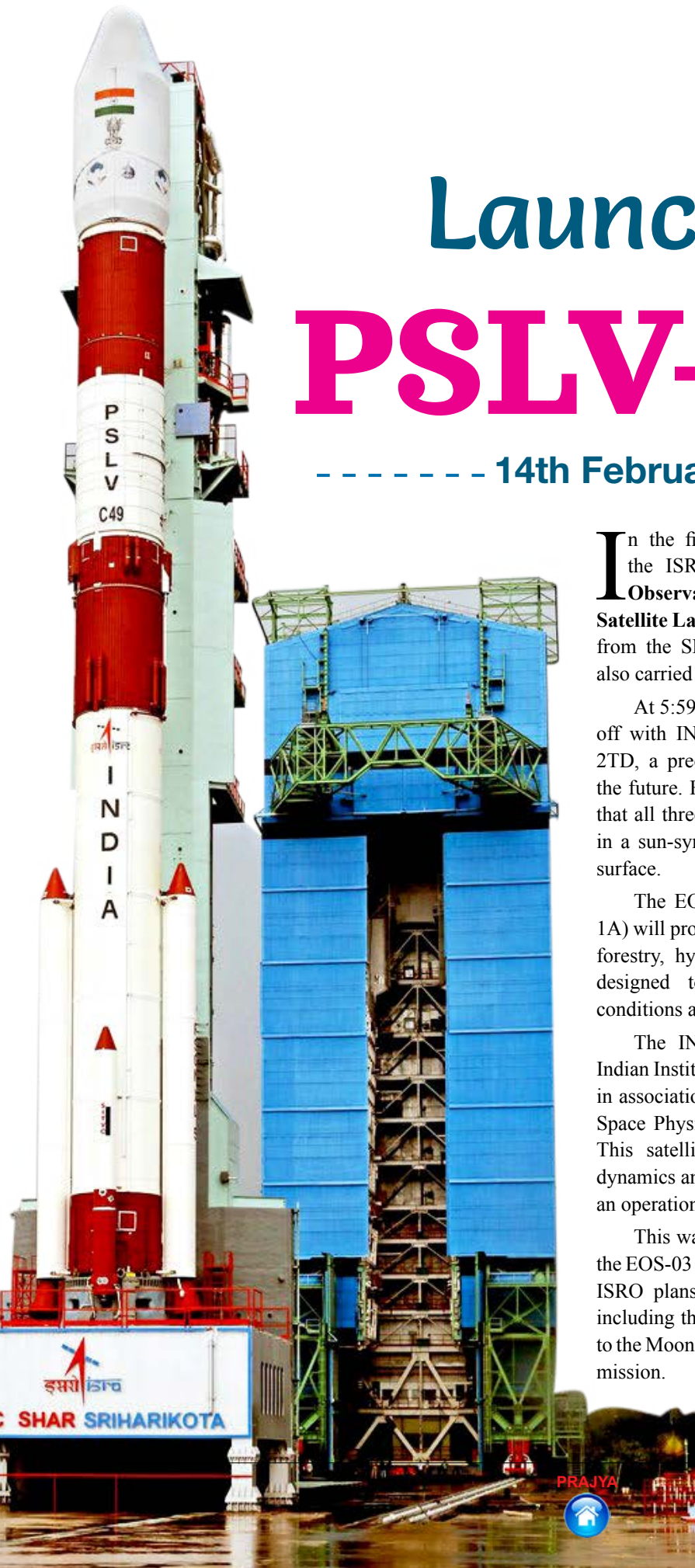
In the first of many missions planned for 2022, the ISRO has successfully launched the **Earth Observation Satellite (EOS-04)** onboard the **Polar Satellite Launch Vehicle-C52 (PSLV-C52)**. Conducted from the SHAR spaceport in Sriharikota, the launch also carried two other satellites as secondary payloads.

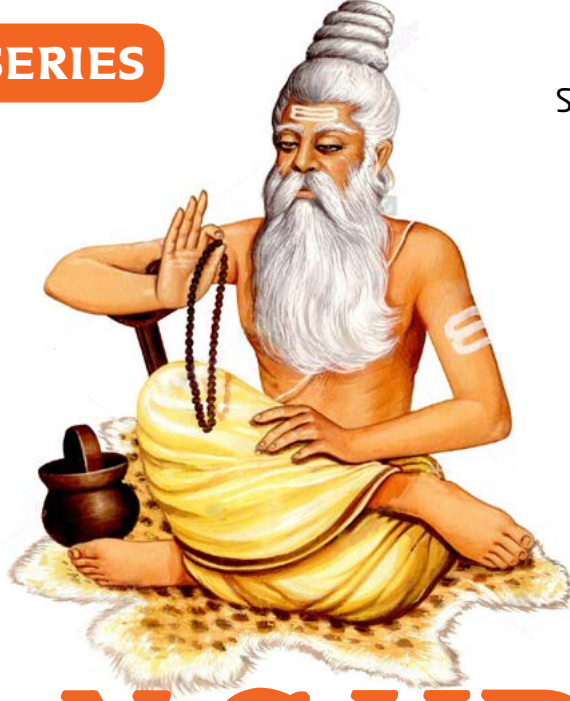
At 5:59 am on Monday, the four-stage rocket lifted off with INSPIRESat-1, a student satellite, and INS-2TD, a precursor of a joint India-Bhutan mission in the future. Following this, Mission Control announced that all three satellites had been successfully deployed in a sun-synchronous orbit, nearly 529 km above the surface.

The EOS-04 or Radar Imaging Satellite (RISAT-1A) will provide high-resolution images for agriculture, forestry, hydrology, and flood mapping. It has been designed to capture imagery under all weather conditions and has an operating life of a decade.

The INSPIRESat-1 has been developed by the Indian Institute of Space Science and Technology (IIST) in association with the Laboratory of Atmospheric and Space Physics (LASP) at the University of Colorado. This satellite will aim to elaborate on ionosphere dynamics and the sun's coronal heating process and has an operational lifetime of a year.

This was the first PSLV launch since the failure of the EOS-03 mission last year due to a technical anomaly. ISRO plans to conduct 18 other launches this year, including the much-awaited mission of Chandrayaan-3 to the Moon, and the high-profile, unmanned Gaganyaan mission.





# SANSKRIT

## Language of Immense Richness and Antiquity

"Sanskrit" means "refined, decorated" or "produced in perfect form". It is known for its clarity and beauty. As per the Indian tradition Sanskrit has no beginning and no ending. It is eternal, self-born, divine and everlasting. First used in Vedas, it has been the means of expression in other fields too.

The Vedas are dated by different scholars from 6500 to 1500 BCE. Sanskrit must have evolved to its expressive capability prior to that. It is presumed that the language used in Vedas was prevalent in the form of different dialects. Termed as Vedic Sanskrit, it was slightly

different from the present Sanskrit. Each Veda had its book of grammar known as *Pratishakhya*.

The *Pratishakhya*s explained the forms of the words and other grammatical points. Later, many schools of grammar developed. During this period a vast literature-Vedas, *Brahmana-Granthas*, *Aranyakas*, *Upanishads* and *Vedangas* had come to existence which could be termed as Vedic Literature being written in Vedic Sanskrit.

Sanskrit the classical language of Hinduism, the most systematic in the world has always been regarded as sacred and still continues to

be used in holy functions and ceremonies. Sanskrit mantras are made with a combination of sound vibrations, which when recited have a specific effect on the mind and the psyche. Hence the richness of Sanskrit language is left to one's imagination.

**Panini** (500 BCE) was a great landmark in the development of Sanskrit. He wrote *Ashtadhyayi*, the master book of grammar which served as beacon for the later period. Literary and spoken Sanskrit both followed Panini's system of language. Today the correctness of Sanskrit language is tested upon the touchstone *Ashtadhyayi*.

क	ka [kʌ]	ख	kha [kʰʌ]	ग	ga [gʌ]	घ	gha [gʰʌ]	ङ	ṅa [ŋʌ]
च	ca [cʌ]	छ	cha [cʰʌ]	ज	ja [jʌ]	झ	jha [jʰʌ]	ञ	ña [ɲʌ]
ट	ṭa [ʈʌ]	ठ	ṭha [ʈʰʌ]	ड	ḍa [ɖʌ]	ढ	ḍha [ɖʰʌ]	ण	ṇa [ɳʌ]
त	ta [tʌ]	थ	tha [tʰʌ]	द	da [dʌ]	ध	dha [dʰʌ]	न	na [nʌ]
प	pa [pʌ]	फ	pha [pʰʌ]	ब	ba [bʌ]	भ	bha [bʰʌ]	म	ma [mʌ]
य	ya [jʌ]	र	ra [rʌ]	ल	la [lʌ]	व	va [vʌ]		
श	śa [ʃʌ]	ष	ṣa [ʃʰʌ]	स	sa [sʌ]				
ह	ha [ɦʌ]	ळ	ḷa [ɭʌ]						

**Mahakavi Kalidas, one of the greatest authors of ancient India, (कालदास) was a classical Sanskrit writer and a playwright.**

### The vowel-consonant pronunciation of the alphabet

The sound of each of the 36 consonants and the 16 vowels of Sanskrit are fixed and precise since the very beginning. They were never altered, improved or modified. All the words of the Sanskrit language always had the same pronunciation as they have today.

There was no 'sound shift,' no change in the vowel system, and no addition was ever made in the grammar of the Sanskrit in relation to the formation of the words. The reason is its absolute perfection.

The most striking feature of Sanskrit is the vowel-consonant pronunciation of the alphabet and the uniqueness of every consonant (or its combination) as a complete syllabic unit when it is joined with a vowel.

Another unmatched feature is the formation of the words. Since the beginning there was a complete dictionary of root words called *dhatu* that could create any number of words based on the requirement by adding a proper prefix and suffix described in detail in the Sanskrit grammar.

The formation, modulation and creation of words have been originally the same, in an absolutely perfect state since the beginning, as they are today.

When a language is spoken by unqualified people the pronunciation of the word changes to some extent; and when these words travel by word of mouth to another region of the land, with the gap of some generations, it permanently changes its form and shape to some extent. Just like the Sanskrit word *matri*, with a long 'a' and soft 't,' became 'mater' in Greek and 'mother' in English.

The last two words are called the '*apbhransh*' of the original Sanskrit word '*matri*.' Such *apbhranshas* of Sanskrit words are found in all the languages of the world and this situation itself proves its antiquity.

Considering all these it is quite evident that Sanskrit is the source of all the languages of the world and not a derivation of any language. As such, Sanskrit is the Divine mother language of the world.

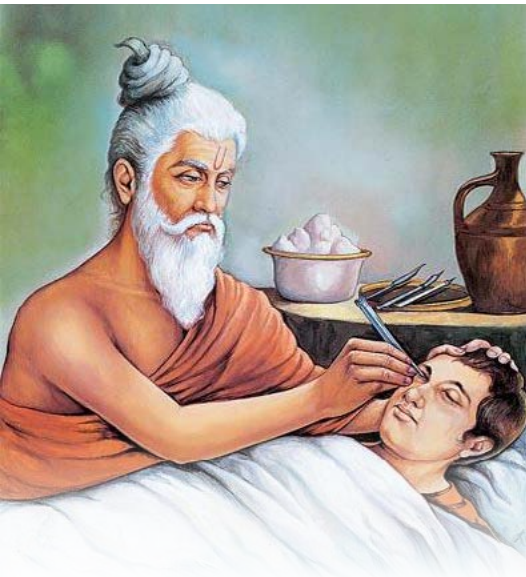
### Sanskrit Literature

Mahakavi Kalidas, one of the greatest authors of ancient India, (कालदास) was a classical Sanskrit writer and a playwright.

He lived between 4th and 5th centuries CE, during the Gupta period. His writings are an intellectual treat to the thinkers and the common readers alike. Kalidas had wide-ranging knowledge about Bharat travelling across India. Among his immortal works are *Kumarasambhavam*, *Raghuvamsham*, *Abhijnana Shakuntalam*, *Malavikagnimitram*, *Vikramorvashiyam*, *Meghadutam* and *Ritusamharam*.

**Bhāsa** is one of the earliest and most celebrated Indian playwrights in Sanskrit, predating Kalidasa. His name was already well-known by the 1st century BCE and he belongs to the late-Mauryan (322-184





**Sushruta is regarded as the father of Indian surgery and he invented cataract surgery, plastic surgery etc. many centuries before it was popularised by the West.**

BCE) period at the earliest, but the thirteen plays attached to his name are commonly dated closer to the first or second century CE.

**Ashvaghosha**, (born 80 CE, Ayodhya, India—died 150 Peshawar), philosopher and poet is considered India's greatest poet before Kalidasa and the father of Sanskrit drama; he popularized the style of Sanskrit poetry known as *kavya*. A brilliant orator, Ashvaghosha spoke at length on Mahayana Buddhism. Among the works attributed to him are the *Mahayana-shraddhotpada-shastra* ("The Awakening of Faith in the Mahayana"), the *Buddhacarita* ("The Life of Buddha"), in verse, and the *Mahalankara* ("Book of Glory").

**Banabhatta** born around the 7th century was the Asthana Kavi in the court of King Harsha Vardhana. Bana's principal works include a biography of Harsha, *Harshacharita* and one of the world's earliest novels *Kadambari*. Bana died before completing the novel and it was completed by his son Bhushanbhatta.

### **Sanskrit in Medicine**

The names of Sushruta and Charaka are the most famous in ancient Indian medicine. Sushruta is regarded as the father of Indian surgery and he invented cataract surgery, plastic surgery etc. many centuries before it was popularised by the West.

**The oldest book in Sanskrit on rhetoric is Natyashastra of Bharata.**

### **Sanskrit outside India**

Historically, Germany has had a special affinity for Sanskrit, which continues to be the case today. The

language has enjoyed a great revival in the country, with 14 universities teaching Sanskrit, as opposed to just four in the UK.

The poet, philosopher and Indologist, **Friedrich Von Schlegel** (1772-1829) published an epoch-making book, *Über die Sprache und Weisheit der Indier* (On the Language and Wisdom of India) in 1808. In the book, he advanced his ideas about religion and argued that a people originating from India were the founders of the first European civilisations.

**Sanskrit, Tamil, Telugu, Kannada, Malayalam and Odia have been given the status of classical language.**

Schlegel compared Sanskrit with Latin, Greek, Persian and German, noting many similarities in vocabulary and grammar. He also said, "India is superior in everything — intellectually, religiously, even Greek heritage seems pale in comparison."

In 2006, GOI declared the following criteria for classical languages: High antiquity of its early texts/recorded history over a period of 1500-2000 years.

Sanskrit is one of classical languages. More than 100 universities in the world teach Sanskrit and perform research.

**In fact, Sanskrit was the language of free thinkers, who questioned everything and expressed the widest spectrum of thoughts on various subjects ever.**

GOI decided to celebrate World Sanskrit Day in 1969, on the occasion of Raksha Bandhan that falls on the full moon day of the Hindu month of Shravana.

**This year 12th August is celebrated as Sanskrit Day.**





# CRIMINAL LAW IN INDIA

**Criminal law deals with wrongful acts and other offences, trial of such acts and the punishment to be granted to the convicted offenders.**

**W**e shall have a look at the basics of criminal law, the Acts governing criminal law and the courts where criminal cases are tried in India.

Acts which include punishments/penalties for specific offences. For example, the Prevention of Cruelty Against Animals Act contains offences and punishments relating to cruelty against animals.

**Question: What is criminal law?**

Answer: Criminal law deals with wrongful acts and other offences, trial of such acts and the punishment to be granted to the convicted offenders.

**Q: What is the Code of Criminal Procedure?**

A: The Criminal Procedure Code (CrPC) is a procedural law which states the procedure to be followed by police, courts, etc during inquiry, investigation and trial of various offences. The CrPC classifies criminal offences into several categories and procedural treatment of different offences is different. It also lays down classes of criminal courts.

**Q: Which are the legislations governing criminal law in India?**

A: The major Acts governing criminal law are the Indian Penal Code, 1860, The Code of Criminal Procedure, 1973 and the Indian Evidence Act, 1872.

**Q: What is the Indian Evidence Act?**

A: The Indian Evidence Act contains a set of rules governing admissibility and weightage of evidence in the Indian courts of law, while trying and deciding criminal cases.

**Q: What is the Indian Penal Code?**

A: The Indian Penal Code (IPC) is the substantive law governing all criminal acts and the punishments for the offences. However, apart from the IPC, there are several other





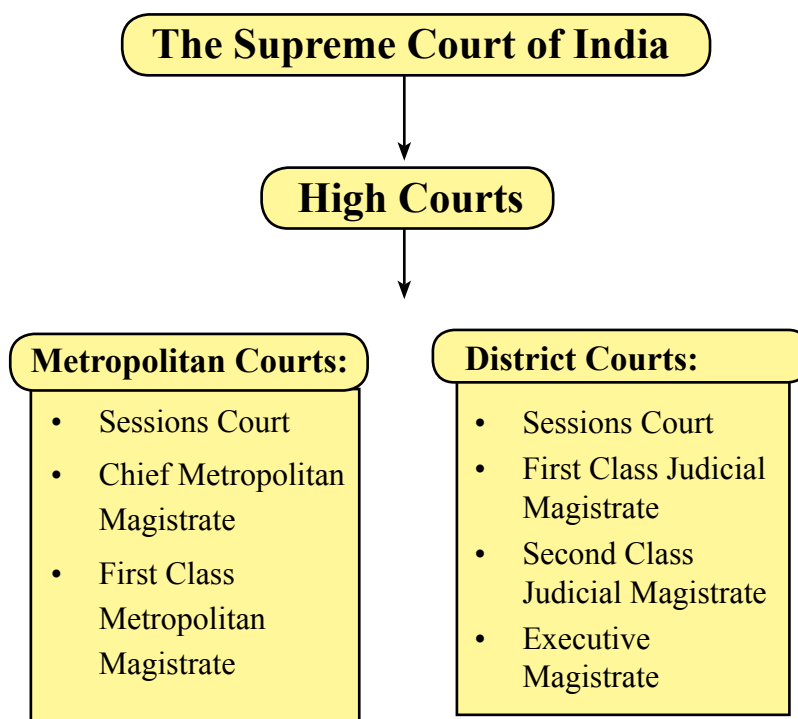
There are specific courts called **Magistrate Courts** and **Sessions Courts** for holding criminal trials.

**Q: In which fora are criminal cases conducted?**

A: There are specific courts called Magistrate Courts and Sessions Courts for holding criminal trials. Appeals from these cases are heard by the High Court and the Supreme Court.



**A broad hierarchy of criminal courts is:**



**DO YOU KNOW ?**

In most categories of criminal cases, the prosecution (State) must prove 'beyond reasonable doubt' that the accused has committed the crime. That is the high 'standard of proof' required for conviction!

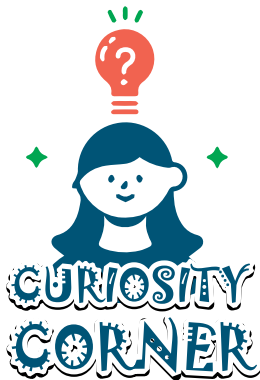
**Q: Who are the parties in a criminal case?**

A: The parties are usually the State, which is the prosecution and the accused, who constitute the defence.

**Q: Are the victims of a crime not a party to the criminal cases?**

A: Since criminal acts are considered offences *in rem*, i.e., crimes against society in general, the State itself acts as the prosecuting party, representing the victims in court.





# CEREALS and PULSES

**A** cereal is any grass cultivated for the edible components of its grain. Cereals have high levels of carbohydrates but a good source of dietary fibre, vitamins, calcium, phosphorous, and other minerals. Pulses are edible seeds of the legume family harvested as dry grains. These are rich in proteins, amino acids, fibre, vitamins and minerals and less of carbohydrates.

### Word Search

Find out the hidden pulses in all directions.

### Pulses everywhere!

A	G	G	G	A	M	U	E	R	A	L	N	K	I
N	K	I	D	N	E	Y	B	E	A	N	S	E	C
B	L	A	C	K	E	Y	E	D	B	E	A	N	S
Y	D	G	G	L	K	G	R	G	E	B	I	S	H
R	M	G	D	A	E	A	D	Z	U	K	I	A	S
G	R	E	E	N	G	R	A	M	S	L	G	S	G
M	C	A	L	N	N	L	A	E	D	S	C	A	L
I	T	S	O	S	L	I	T	N	E	L	D	E	R
Z	G	R	E	E	N	P	E	A	S	L	E	P	B
I	G	N	O	E	G	I	P	W	O	L	L	E	Y
Y	M	C	H	I	C	K	P	E	A	S	D	T	P
M	L	S	Y	A	G	E	E	P	B	E	G	I	N
S	S	L	A	N	D	B	A	C	A	A	L	H	Y
L	B	P	M	A	R	G	K	C	A	L	B	W	N

## DO YOU KNOW ?

- Cereals are produced in large quantities and provide large amount of food than any other crop and hence termed as staple crops.
- The production of pulses improves soil quality, decreases greenhouse gases and requires less water than any other crop.





Can you match them with the pictures given below?

**Cereals or Pulses???**

- Poaceae is the family name of \_\_\_\_\_.
- Leguminosae is the family name of \_\_\_\_\_.
- Corn is an example of \_\_\_\_\_.
- India is the largest producer of \_\_\_\_\_.
- Wheat is an example of \_\_\_\_\_.

**Millets and how they are known locally**

Try to find out the local names of the millets given below. There are examples in Hindi, Tamil and Telugu. Don't stop with these. **Go ahead! Find more!**

Millets	Vernacular name	Millets	Vernacular name
Amaranth		Little millet	
Barnyard		Pearl millet	Bajra, Kambu, Sajjal
Buckwheat		Sorghum	
Finger millet	Ragi, Kelvaragu, Ragulu	Proso millet	
Foxtail millet		Kodu	

**Sudoku**

1			4	8	9			6
7	3							4
					1	2	9	5
		7	1	2		6		
5			7		3			8
		6		9	5	7		
9	1	4	6					
	2						3	7
8			5	1	2			4

**Answers on page 55**





# KNOW YOUR CURRENCY

**Banks take lot of precautions in sorting and loading fresh currency in the ATMs.**

“Shravan, I am planning to count the money in my piggy bank today. Why don’t you also count yours? We can then go to the bank and deposit the money in our savings account.” Gita said.

“You are still counting cash? The whole world has moved to digital banking.” Shravan shrugged.

Grandpa looked up from his newspaper, laughing. “Shravan, you’ve spent all the money in your piggy bank again, haven’t you?”

Shravan nodded. “But grandpa, isn’t it outdated? Even the vegetable vendor accepts mobile payment.”

Grandpa shook his head. “Cash is still very much an important part of our economy.”

The doorbell rang. Shravan ran to the door. Mr. Gupta, their neighbour, entered. “I want to speak to your grandpa.”

Grandpa greeted him. “Please be seated Mr. Gupta. What happened?”

“I withdrew cash ₹10,000 from the ATM today. I got these new 2000-rupee notes.” Mr. Gupta showed them.

“My wife commented that the notes look too new and bright and

could be fake. Mr. Gupta sighed. “I’m worried.”

Grandpa pacified him. “Don’t worry. Banks take a lot of precaution in sorting and loading fresh currency in the ATMs. Banks have currency chests where notes are screened, checked and sorted. Secondly, we can examine the note and verify whether it is genuine.”

Grandpa held them one by one against the light. “I think these are genuine.”

“Thank you very much. I am so relieved.” Mr. Gupta collected the notes and left.

“Grandpa, what is a fake note? How did you know that the notes were genuine?” Shravan and Gita were curious.

Grandpa smiled. “It is interesting to learn about our currency notes. Do you know the denominations in which currency notes are available in India?”

“2000, 500, 100..” Gita tried to recollect.

Shravan interrupted. “You left out so many – 1000, 200, 50, 20”

Gita added. “10-rupee notes.”

“Oh yes.” Shravan clapped his hand.



**With a view to bringing the identity closer to the cultural heritage of the country and for showcasing scientific advances, a new series of notes in a new design has been launched.**

Grandpa nodded. “You got seven right and one wrong.”

2000, 500, 200, 100, 50, 20, 10 are the denominations.

**₹1000 notes are now not valid legal tender.”**

“What do you mean, Grandpa?”

### **Demonetisation**

“On 8th November 2016, our PM announced the demonetisation of existing 500-rupee and 1000-rupee notes which meant that the currency notes would no longer be valid legal tender.”

“Why was this done Grandpa?” Shraavan was curious.

“The government believed that the action would weed out black money and prevent the flow of fake currency in the economy.”

“People who had ₹500 and ₹1000 currency notes, did they lose everything?” Gita asked.

“People were given time to deposit the currency notes already in their possession into their bank accounts. However, they could not use these currency notes to pay for their purchases or make payments to others.”

“Fake or counterfeit currency printing is an illegal activity where fraudsters try to copy the features of currency notes and print their own money on paper. Then they circulate the fake money in the market. A fake note is of no value to you. That’s why it is important to learn the features of currency notes.”

“Who issues currency notes in India and what features should we check?” Gita asked.

Grandpa answered.

### **ISSUER OF CURRENCY**

The Reserve Bank of India (RBI) is the nation's sole note issuing authority. Along with

the GOI, the RBI is responsible for the design, production, and overall management of the nation's currency, with the goal of ensuring an adequate supply of clean and genuine notes.

The RBI prints currency notes in the following seven denominations.

2000, 500, 200, 100, 50, 20, 10-rupee notes.

Do you know what are the denominations of coins?

“10, 5, 2, 1 - rupee coins and 50 paise coins,” Gita answered.

“Right. Government of India is responsible for the minting of coins.”

### **Know Your Bank Notes**

Currency notes reflect the nation’s rich and diverse culture, struggle for freedom and proud achievements as a nation.

With a view to bringing the identity closer to the cultural heritage of the country and for showcasing scientific advances, a new series of notes in a new design have been launched.

The theme of the new series notes is India’s heritage sites. Other elements added in these notes are numerals in Devanagari and the logo of Swachh Bharat. The new notes also have design elements in myriad and intricate forms and shapes. These security features are difficult to copy.

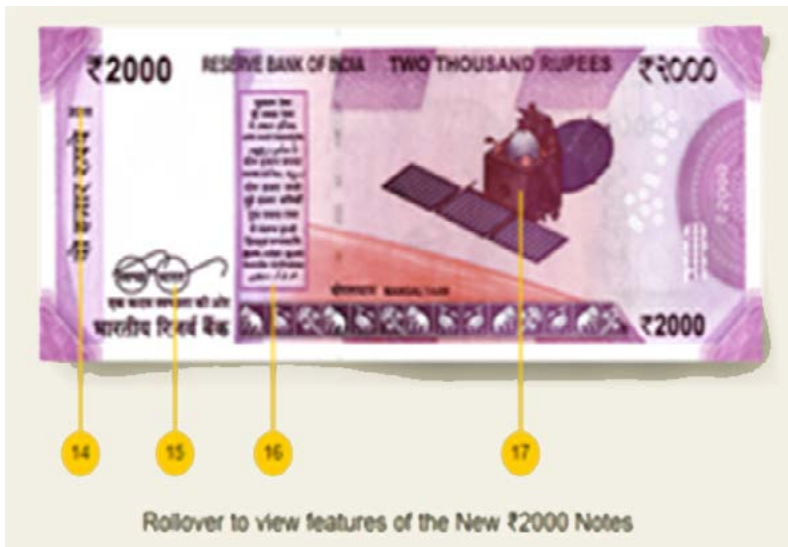
Grandpa took out a 2000 rupee note from his safe and showed it to the children.

### **How to check currency notes?**

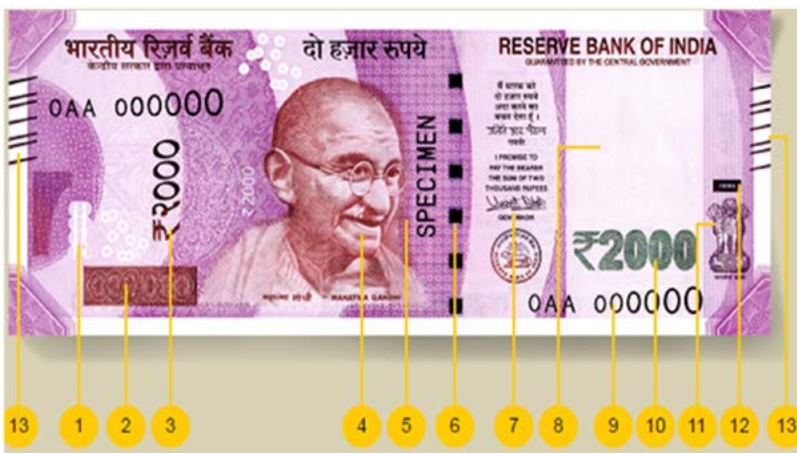
Grandpa asked the children to touch and feel the note.

1. The feel of the paper in a genuine currency note is thick because the notes are printed





Rollover to view features of the New ₹2000 Notes



Check out this website for features of currency notes of other denominations:

<https://paisaboltahai.rbi.org.in/>

on special quality paper not available in the market.

2. Base colour of the 2000-rupee note is bright magenta. The colour scheme is different for each denomination.
3. Some features on the obverse and reverse are visible to the naked eye.
4. Some features are visible if you hold the note against light or tilt the note.
5. Banks also check the notes under ultraviolet lamp/scanner.

Grandpa asked . “What do you notice on the front and reverse of the note?”

**The children answered:**

- ▶ Mahatma Gandhi's portrait
- ▶ Reserve Bank of India in English on the right and Hindi on the left
- ▶ Guarantee clause and promise clause signed by RBI Governor
- ▶ ₹ 2000 on the right side
- ▶ ₹2000 in Devanagari script appears vertical on the left hand side
- ▶ Ashoka pillar emblem on the right

**On the reverse**

- ▶ Motif of Mangalyaan on the right
- ▶ Swachh Bharat logo on the left.

Grandpa nodded. “Good. Now some security features become visible when you tilt the note or hold it against the light.”

For example, the security thread next to Mahatma Gandhi's picture looks green. When you tilt the note, it appears blue. Similarly, the number 2000 on the right



appears green. When you tilt or hold against light, it appears blue.

Grandpa opened his laptop and showed them the website of RBI.

<https://paisaboltahai.rbi.org.in/rupees-two-thousand.aspx>

Look at this picture. The security features are marked and numbered. If you hover over each number, you can see the feature and read the details. The children gasped. “Wow, we didn’t realise that the currency note has so many features.”

“Grandpa, what is intaglio for visually impaired”? Shruvan asked.

“It means the print is slightly raised so that the visually impaired can feel the note and identify.”

RBI has also introduced a

mobile app called MANI – Mobile identified Note identifier. The visually impaired can scan the currency note – the app reads out the denomination and features.”

1. See through Register
2. Latent image
3. Denominational numeral in Devanagari
4. Mahatma Gandhi portrait
5. Micro letters “RBI” & “2000”
6. Security thread with inscription “Bharat”
7. Guarantee clause
8. Portrait and electrotype watermark
9. Number panel
10. Denomination in numerals

11. Ashoka pillar emblem
12. Intaglio printing
13. Intaglio printing on the lines for visually impaired

Grandpa added. “Some features like Mahatma Gandhi picture, RBI, promise clause and security thread are common for all notes.

The colour scheme, the motif on the reverse and the identification mark are unique for each note. You can click on each denomination on the RBI website to know more about the specific features.

You can then check the physical currency note to identify the features. “Check out this website for features of currency notes of other denominations:

<https://paisaboltahai.rbi.org.in/>

# ANSWERS

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## Pulses every where!

A	G	G	G	A	M	U	E	R	A	L	N	K	I
N	K	I	D	N	E	Y	B	E	A	N	S	E	C
B	L	A	C	K	E	Y	E	D	B	E	A	N	S
Y	D	G	G	L	K	G	R	G	E	B	I	S	H
R	M	G	D	A	E	A	D	Z	U	K	I	A	S
G	R	E	E	N	G	R	A	M	S	L	G	S	G
M	C	A	L	N	N	L	A	E	D	S	C	A	L
I	T	S	O	S	L	I	T	N	E	L	D	E	R
Z	G	R	E	E	N	P	E	A	S	L	E	P	B
I	G	N	O	E	G	I	P	W	O	L	L	E	Y
Y	M	C	H	I	C	K	P	E	A	S	D	T	P
M	L	S	Y	A	G	E	E	P	B	E	G	I	N
S	S	L	A	N	D	B	A	C	A	A	L	H	Y
L	B	P	M	A	R	G	K	C	A	L	B	W	N

## Sudoku

1	5	2	4	8	9	3	7	6
7	3	9	2	5	6	8	4	1
4	6	8	3	7	1	2	9	5
3	8	7	1	2	4	6	5	9
5	9	1	7	6	3	4	2	8
2	4	6	8	9	5	7	1	3
9	1	4	6	3	7	5	8	2
6	2	5	9	4	8	1	3	7
8	7	3	5	1	2	9	6	4

### Identify the pulses

1. Black eyed beans
2. Yellow pigeon peas
3. Kidney beans
4. Green gram
5. Green peas
6. White peas
7. Black gram

### Cereals or Pulses?

- Cereals
- Pulses
- Cereals
- Pulses
- Cereals



# INDIAN ARMY'S OPERATION RESCUE BABU

On 7th February, 23-year-old trekker R.Babu, a resident of Cherad near Malampuzha and three of his friends went on a trip to Kurumbachi hill in Palakkad district. On their way down, Babu slipped and fell and got stuck inside a small cavity that was just enough for him to squat. Babu's friends tried everything — wooden sticks, logs, ropes, but Babu could not climb up. His friends informed the local residents and the police.







The height of the hill is said to be around 1000 metres, and Babu was stuck 600 metres away from the base and 400 metres from the top of the hill.

### THE RESCUE

The operation was successfully carried out jointly by the mountaineering team of the Indian Army, the Navy and National Disaster Response Force (NDRF) after 45 hours.

The rescuers identified the specific location with the help of drones and cameras. When a Coast Guard helicopter tried to rescue

him, it could not go anywhere close to the gap that Babu was stuck in. The teams tried different paths in the hill to reach the spot. While one team climbed from above, another climbed from below.

Two highly skilled men of Madras Regimental Team, rappelled down the distance of 250 ft, reached Babu, decided to pull him up instead of taking him downhill. Babu was almost physically carried uphill and rescued on 10th morning.

In one of the videos, he is heard saying “Thanks Indian Army” and joins them in chanting “Indian Army ki jai, Bharat Mata ki jai”.





# 7 Year Old TN Girl Wins PM Rashtriya Bal Puraskar Award



*"My motto for the young scientists in this country is -innovate, patent, produce and prosper. These four steps will lead our country towards faster development."*

**- Shri Narendra Modi**

**P**roving the above words true, a Virudhunagar girl, N.C. Vishalini, received Pradhan Mantri Rashtriya Bal Puraskar from PM Modi, at a function held through video conference mode. The award carries a citation and a purse of 1 lakh.

Vishalini, a class 2 student and daughter of M Naresh Kumar and Dr Chithrakala, invented the Automatic Functional Life Rescue Flood House that floats on water. A floating house contraption, can be used to save the lives of people, especially the vulnerable such as

children, pregnant women, aged, the physically challenged, pets and important objects during flood.

During flood this pop-up house with seating arrangement and seat belt will start floating. The floating house, with a zippered top, has provisions to keep oxygen cylinder, a bag of food, water and first aid kit. It also has equipment to gauge temperature and humidity, GPS and GSM facilities, UPS for use of emergency electrical appliances and solar panel. GOI has given a child patent for the invention.

Government presents 'Pradhan



Mantri Rashtriya Bal Puraskar' award every year to children below 18 years, who excel in the field of art, education, culture, innovation, social service and sports.

So, students, start your journey right away towards the path of success!





# Reverse Waterfall at SINHAGAD

## DO YOU KNOW

- **Upside down waterfalls** - waterfalls that flow in the reverse direction.
- **Reverse waterfall** is a phenomenon in which water is blown upward due to strong blowing of wind about 75 kmph in waterfalls giving an apparent perception of water flowing upwards.

The earth is filled with plenty of strange and incredible things. Many mysterious and strange places are yet to be explored by humans. Some that have been discovered are still lesser-known to the public.

The torrential monsoon rains turn the Western Ghats into lush green and slopes are dotted with innumerable waterfalls. Perched along this scenic spot lies Sinhagad Fort. This waterfall moves towards the sky instead of falling. This reverse waterfall forms during heavy monsoon when water starts flowing upwards due to the high pressure of the strong winds blowing at a speed of 70 km per hour.

Other than a gorgeous trek, a visit here also provides the uniquely enjoyable experience of standing at the top of a waterfall (behind

a guarded railing) and getting drenched in its reverse-flowing water!

### Location

Around 49 km southwest of Pune, Maharashtra.

### Height

About 1312m

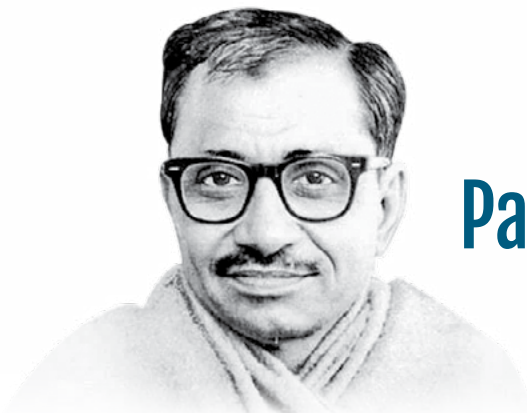
### The best time to visit

Monsoon months - June to September

### Other reverse waterfalls in India

- Naneghat in Malshej Ghat Road near Mumbai.
- Samrad village in the Sandhan Valley in Maharashtra.
- Ambolihills near Belgaum, Karnataka





## Pandit Deendayal Upadhyaya

- A ROLE MODEL NATIONALIST

**Deendayalji gave a strong ideological foundation to the BJS. His thoughts were totally aligned to the civilisational ethos of our nation.**

### Early Life

Deendayalji was born on 25th September 1916 in Dhankia, Rajasthan to Bhagavati Prasad and Rampiari. Having lost his parents and elder brother early in life, he was brought up by his maternal grandfather and uncle.

A gold medalist in matriculation and intermediate, he then completed BA and L.T. He did his entire college education with the help of scholarship.

### R.S.S.Karyakartha

In 1937, Deendayalji came into contact with the R.S.S and in 1942, became a Pracharak (full time worker) given the responsibility of Lakhimpur district in UP. In 1947 he assumed the role of *Sah-Prant-Pracharak* of UP. He was in close contact with all the grass root workers of UP. In 1947 he started Rashtra Dharma Prakashan, a publishing house. As the editor of 'Panchajanya' and 'Swadesh', he had written innumerable articles and also two literary books.

Dr. Shyama Prasad Mookerjee, after resigning from the Nehru cabinet, in 1950, decided to start a nationalist political party and sought the help of RSS chief Guruji Golwalkar. Guruji deputed six Pracharaks to help start the political party and take it forward. Pandit Deendayal, Atal Bihari Vajpayee and Nanaji Deshmukh were among them.

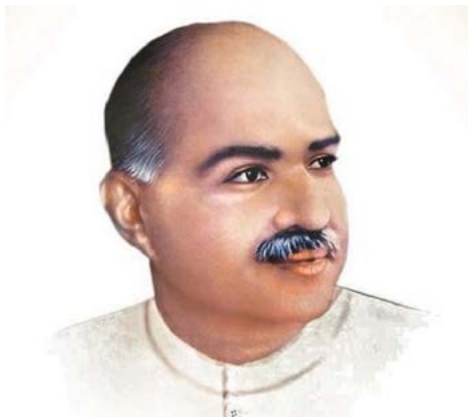
### Politics with a Difference

In 1951, the Bharatiya Jana Sangh (BJS) - the fore runner of the BJP was formed. In 1952, Deendayalji, was made the General Secretary of the party. Simple and affable, he was an organizer, social thinker, economist, writer and journalist –all rolled into one.

He mentored the party for 15 years even while the party saw many presidents during this period. He became the president of the party in 1967.

Deendayalji gave a strong ideological foundation to the BJS. His thoughts were totally aligned to the civilisational ethos of our nation.

He was a strong advocate of Swadeshi and he realized the need to Indianise public discourse, policy and practices. He propounded an alternative economic model and a political philosophy. His doctrine



**Dr. Shyama Prasad Mookerjee**

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**The Jana Sangh does not support any step which restricts the right of those who do not know Hindi or deprives them of any of their rights. He also demanded that the U.P.S.C exams be conducted in regional languages.**

of *Ekatma Manava Vaad* (Integral Humanism) is an alternative to both capitalism and communism, and is essentially Bharatiya in its approach.

His concept of *Antyodaya* (the rise of the last person) has been the guiding spirit of many BJP governments in the states and the centre. The doctrine was essentially pluralistic, secular and universal. During the East Pakistan war Deendayalji along with Dr. Lohia issued a joint statement calling for the protection of Hindus and other minorities in East Pakistan and the protection of Muslims, against whom there were some attacks, in India.

He was also a strong votary of the three language formula. He had said, "The Jana Sangh does not support any step which restricts the right of those who do not know Hindi or deprives them of any of their rights". He also demanded that the U.P.S.C exams be conducted in regional languages.

An astute strategist, he evolved a strong coalition with Dr. Lohia and others in 1963 and 1967 which resulted in the formation of the Samyuktha Vidhayak Dal (SVD) governments in nine states, defeating the Congress which looked invincible till then. The BJS's vote share kept increasing from election to election and the pioneering work of Deendayalji has borne fruit in creating a strong national party.

He lived like an ascetic. To him politics was for the Nation's sake. He would not compromise on values for political expediency. In the by-elections to the Lok Sabha (1963) he contested from Jaunpur (UP) much against his wishes. While at all places caste and communal campaign took the centre stage, Deendayalji firmly refused to resort to that line and lost the seat which was considered to be safe. He reacted, "Though I lost, the Jana Sangh's ideology has won". Whether it is the expulsion of the Party President or a majority of the elected MLAs of the party, he did not hesitate to take tough decisions. Such an uncompromising approach from a party that has just started to grow!! But Deendayalji was different and he built the party brick by brick. From 14 Lok Sabha seats in 1962 the party scaled up to 35 seats in 1967.

### **The Abrupt Loss**

Just 44 days after assuming the presidentship of the party he was murdered. On 11th February 1968, his body was found on the railway tracks of Mughalsarai station in UP. The murder remains unresolved. His was a life of dedication and sacrifice to the nation. He had mentored many youngsters like Vajpayee and Advani, thus building a strong cadre and keeping the leadership pipeline of the party primed. Vajpayee succeeded him as the president of the BJS.

He was respected and admired by leaders across the political spectrum. The rising star in the political firmament of India had disappeared abruptly. But his work and ideology dominates the polity today.

**Let us all strive to realize his every day prarthana:**

**paramvaibhavamnetumetatsvarāṣṭram**

**samarthābhavatvāśīśātebhṛṣam ||**

*(Bless us and make us capable of achieving the dream of leading our motherland to its greatest glory)*





# LOTHAL

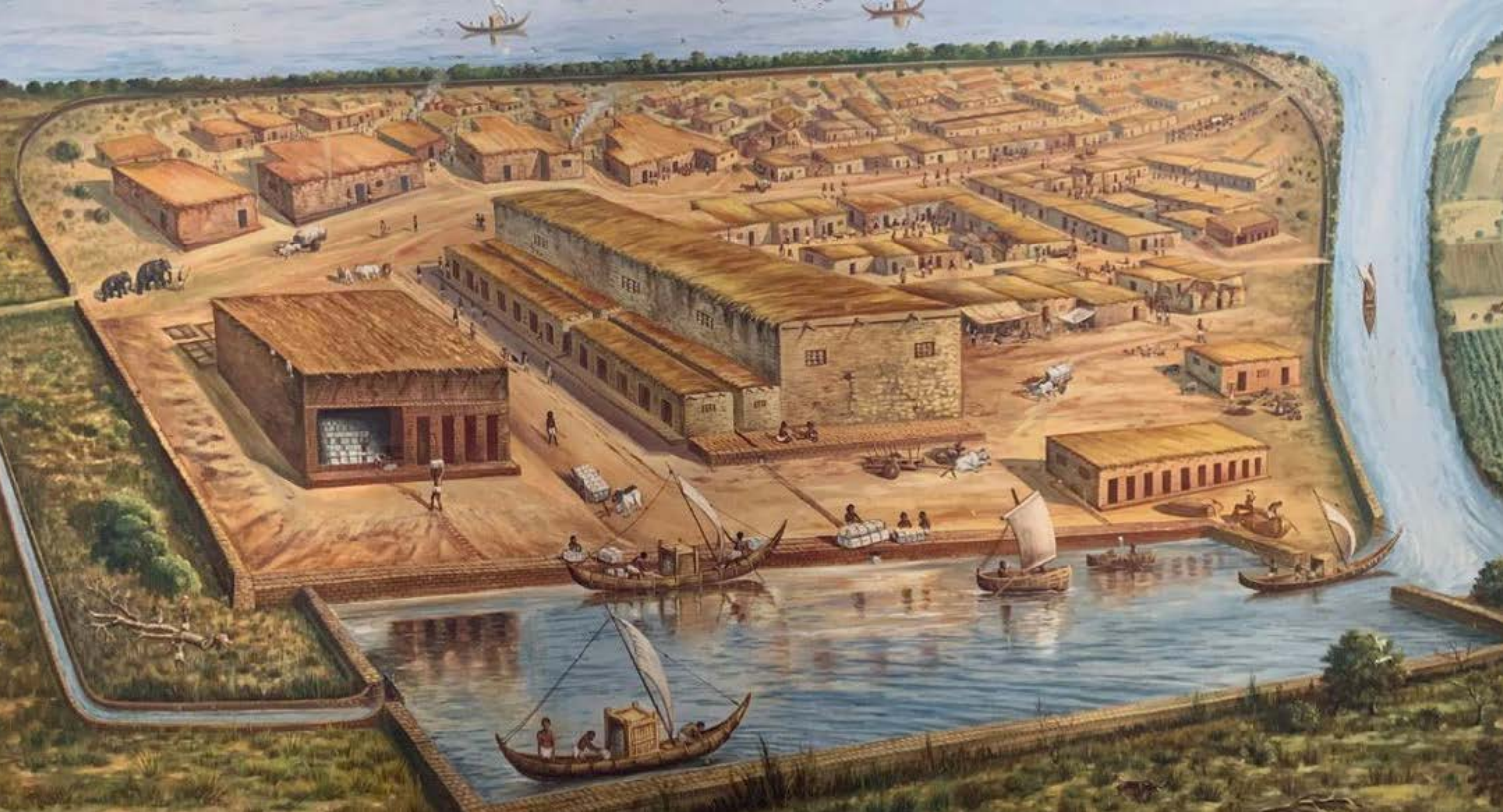
## World's First Naval Dockyard

**The warehouse, which was central to the city's economy, was built on a raised platform to protect the goods from floods.**

**T**his large rectangular, water-filled structure may look like a reservoir, but it is arguably the oldest dock in the world. It is located in the ancient city of Lothal, about 85 km south of Ahmedabad. Lothal is one of the few sites within the Indus Valley Civilization (IVC) accessible from India.

Lothal is around 5,000 years old and was the only port-town of the IVC. Lothal's dock connected the city to the Sabarmati River an important trade route between Harappan cities in Sindh (now in Pakistan) and the peninsula of Saurashtra. At that time, the surrounding Kutch desert of was a part of the Arabian Sea.

The dock is roughly 200 meters long and about 35 meters wide. During high tides, the dock would have filled with seawater allowing ships and boats to move in and out of the dockyard. In fact, Lothal's location was ideal for a dock because the Gulf of Khambhat has the highest tidal amplitude and ships can be sluiced through flow tides in the river estuary. It also possessed a lock in the form of a wooden door that could be lowered at the mouth of the outlet to retain a minimum column of water in the basin so as to ensure flotation at low tides. The warehouse, which was central to the city's economy, was built on a raised platform to protect the goods



**Indus Valley  
Civilisation  
-Mature Phase-  
(c. 2600-1900 BCE)**



*Terracotta toy of a bullock cart : around 2300 to 2100 BCE : Lothal museum*

from flood. A ramp led directly from the dock to the warehouse to facilitate loading. Despite elaborate precautions, it was floods that brought the city's decline.

The site was first excavated in 1955. The discovery of marine microfossils, salt and gypsum crystals has provided decisive proof that the structure once held seawater. Today, the site is not linked to the gulf by a waterway because the river had since changed its course.

Lothal survived long after the core settlements of Mohenjo-Daro and Harappa, had decayed away. But tropical storms and frequent floods caused immense destruction, and the city became unliveable and was eventually abandoned.





# PALASH TREE

Jharkhand's state flower Palash is also thought to be a manifestation of *Agni*, the God of Fire. During the Holi festival, these flowers are used to create natural colour. They are believed to have religious value and are used in havan or yagna ceremonies.



Palash is regarded as a sacred tree and the Indian Postal Department has issued a stamp to commemorate the flower's importance in the Indian landscape. The tree's blooming season begins in April, and its orange flowers make it a stunning sight. Fruiting occurs between the months of May and July after flowering. The gum

is also prepared from red juice secreted by the bark.

## MEDICINAL USES

- Palash can be used both externally and internally to treat a variety of ailments.
- The bark is used to treat wounds and cuts on the skin, and seeds contain palaosin, which is used to treat worm infestations.
- In the summer, dried flowers are used as a colour and in bathing to treat skin rashes and infections. The flowers are high in sulphur, making them an excellent treatment for skin problems. Free radicals are removed from the bloodstream by the flowers.
- Externally, the flower paste is used to treat joint pains, swelling, sprains, injury, and arthritis.

<b>Botanical name</b>	: <i>Butea monosperma</i>
<b>Other name</b>	: Flame of the Forest or <i>Raktha Pushpa</i>
<b>Family</b>	: Fabaceae
<b>Genus</b>	: Butea
<b>Climate</b>	: Tropical, Sub-tropical
<b>Height</b>	: 10 – 15 metres







Smt Nagalakshmi R 

प्राकृतिकजीवनम् | Living Naturally

## We are what we eat and how we eat!

ओ३म् अन्नपते अन्नस्य नो देहानमीवस्य शुष्मिणः। प्र प्र  
दातारं तारिष ऊर्जं नो धेहि द्विपदे चतुष्पदे ॥

–Yajurveda 11.83



“O Lord! Provider of food grains, and all edibles  
Thanks for giving us food today.

May this food be disease-free and nourishing,  
And be it good for my body, mind and soul, I pray !  
O Benefactor of the donors and providers of food,  
May all living receive their sustenance every day !

**A**s the bhojan mantra says, the food we eat must be nourishing to our body, mind and soul. We know that if we don't eat clean food, we will get disease. But, can food actually affect our mind and soul? Science has proved yes. There is a neural-hormonal-immune axis from our stomach to our brain called the

gut-brain axis. If we don't eat proper food, the bacteria in our gut gets changed/affected, which in turn affects the brain health i.e the mental health and in advanced stages the soul as well. The soul can be well only if our body and mind are well.

Fine, we try to eat healthy food. But do we eat in the proper manner? This is very important because how, when, and what we eat matters. Have you seen birds eating food after sunset? Those small creatures exactly know when to eat and that is why they don't fall sick often. We have so much to learn from nature on eating.



## How should we eat?

**Breakfast**

- Moderate
- Kick-start the digestion and provide energy for the day

**Dinner**

- Sparing
- 2-3 hours before sleeping
- Preferably before sunset

**Lunch**

- Good
- Sun @ its peak

**Breakfast**

**Lunch**

**Dinner**

Ideal Time: 7-8 am  
Don't have it later than: 10 am  
Must Remember: Drink / eat something within 30 mins of waking up

Ideal Time: 12.30 - 2 pm  
Don't have it later than: 4 pm  
Must Remember: An ideal time gap between breakfast and lunch is 4 hours.

Ideal Time: 6 - 9 pm  
Don't have it later than: 10 pm  
Must Remember: The meal should be at least 3 hours before you sleep.

*Jatharagni* or the flame in the stomach which is lit after we eat is critical for ensuring that food gets burnt/broken down instead of turning into fat. Eating dessert like ice creams or sweet at the end of a meal is inadvisable. We should start a meal from sweet and we should end it with something hot which will aid digestion rather than something cold like ice-cream.



## When should we eat?

- Only when we are hungry and not gobble up food just because it is the usual time.
- Do not eat if previously eaten food has not yet been digested.
- Eating small and large portions at irregular intervals disturbs digestion.

## Eating – How ? Posture

**Sitting on the floor** > Sitting on chair > Standing

- **Cross legged**
- **Enabled blood flow to stomach**
- **Muscles get activate**
- **Opens Sushmana nadi for free air flow**



- Improves digestion
- Increases blood circulation
- Relaxes mind and body

## Eating – How?

Five fingers are like the five elements



- Stimulate these five elements
- Facilitates better digestion than when had food using spoon and fork

## Banana Leaves



- Banana leaves have anti-bacterial properties that can possibly kill the germs in food
- Chemical free
- Hygienic
- Natural and bio-degradable
- Adds to the taste of food



4<sup>th</sup> FEBRUARY

# WORLD CANCER DAY



**CLOSE THE  
CARE GAP**

## WHAT YOU CAN DO



### KEEP MOVING

staying active is essential, take part in a CANSA event or support World Cancer Day Solidarity Challenge, a global virtual cycling event



### SUPPORT A CANCER PATIENT

offer practical support or refer them to CANSA - tell them about CANSA's Tele Counselling service, iSurvivor, Metastatic Breast Cancer email support programme, pain management guides and Facebook support groups



### BE SUNSMART

avoid excessive / prolonged sun



### AVOID

tobacco and alcohol

# World Wetlands Day

2nd February



Wetlands are Biodiversity hotspots



Wetlands absorb and store freshwater

Reduce Coastal Storm Damage

Streambank Stabilization and Erosion Control



Mangrove forests protect coastlines from storm surges

For many animals and plants i.e, wood ducks, muskrat, and swamp rose, wetlands are the only places they can live

Wetlands act as natural water purifiers, filtering sediment and absorbing many pollutants in surface waters

Maintain Ecosystem Productivity



Wetlands are sources of livelihoods