# PRAJYA

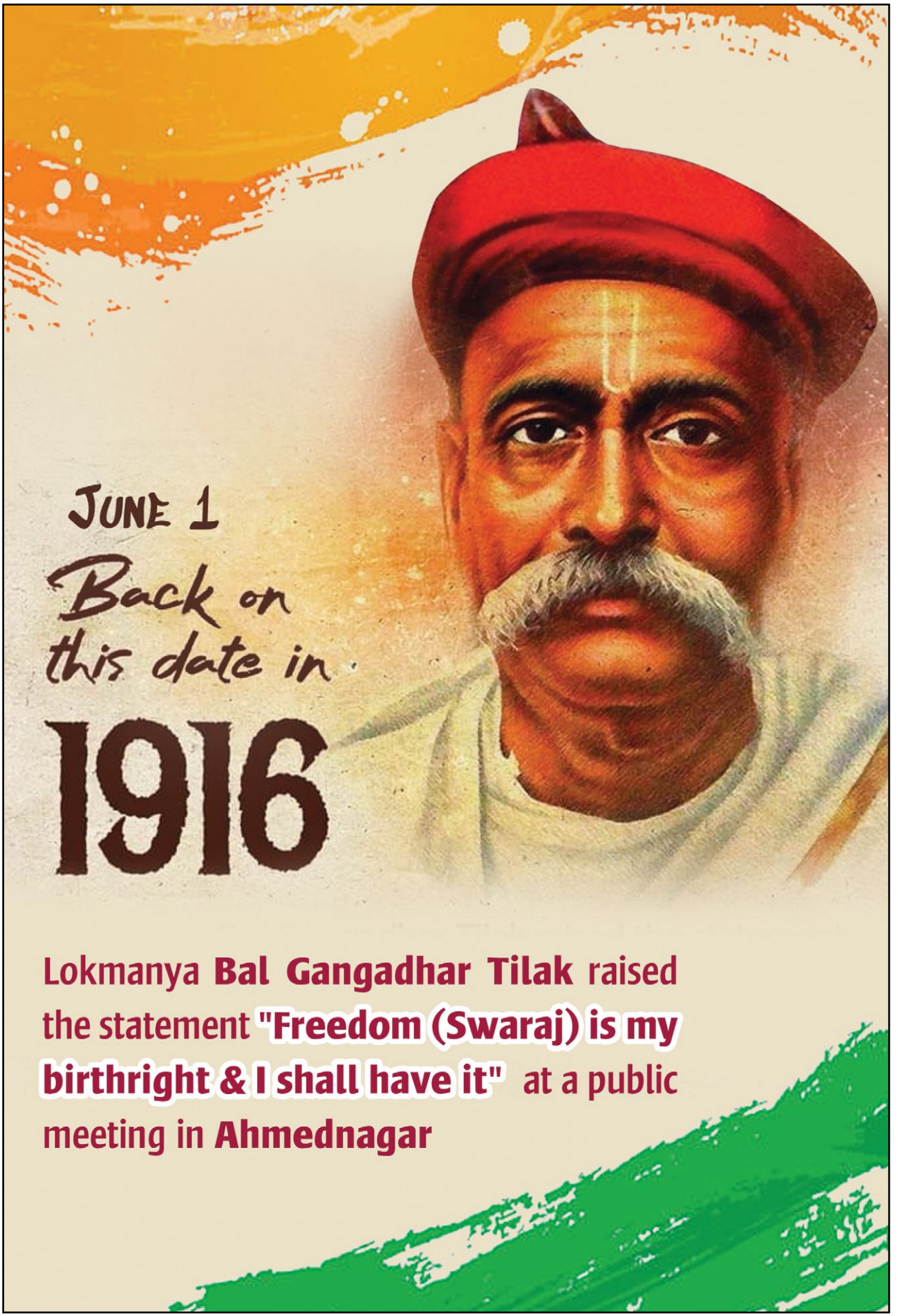
MONTHLY NEWS MAGAZINE FOR CHILDREN

ISSUE 11 JULY 2022 Rs.85/-

Deaflympics

Thomas Cup

Young Indian Grandmaster


JUNE 1
Back on this date in
1916
Lokmanya Bal Gangadhar Tilak raised the statement "Freedom (Swaraj) is my birthright & I shall have it" at a public meeting in Ahmednagar

THE PRAJYA TEAM

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# FROM THE EDITOR'S DESK

## अस्माकं कार्याणि अस्मान्सावधीकरिष्यंति

(Translation : Only action can define us.)

How very true! There are actions one needs to take for furthering one's own growth in the right direction. There are also preemptive actions that one has to take to avoid moves made by others in their self-interest but which may not be beneficial for many in the vicinity. This is equally applicable to individuals, business enterprises, nations and groups of nations.

We saw that in evidence in the life of Rash Behari Bose who took it upon himself to take bold actions against a powerful enemy like the British. With the ever-increasing demand for power, the need to explore hybrid models of power generation is a must. Adani's wind-solar power plant in Jaisalmer is a decisive step forward. Tata Motors stepping on the accelerator in the production of electric vehicles is another fine example of purposeful action.

To tackle the problem of an expanding population of 'qualified' yet unemployable youth, the **Agnipath** scheme is a welcome piece of action, which is likely to nurture disciplined, physically fit, skilled and multifaceted youth.

India's **Necklace of Diamonds** is a welcome initiative as much as the Quad to counter China's exploitative expansions in the South China Sea and beyond.

Read, reflect and revert with your thoughts and feelings.

We look forward to your support and suggestions.

***- Editorial Team***

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*Dear Readers,*

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

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

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

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

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

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

**http://bit.ly/Prajya**

**Happy Reading !**

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

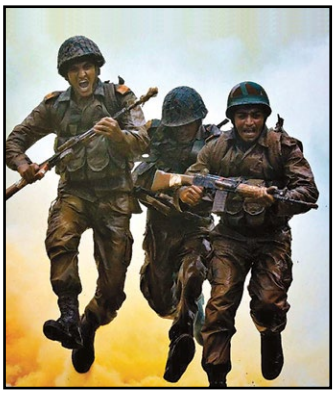
**Visit https://davchennai.org/publications/prajya-news-magazine/**

# Content


## International Current Affairs



## National Current Affairs





## General Knowledge

Shri Sampath D

# Why is Turkey blocking Finland and Sweden from joining NATO?

There is a compulsive requirement to get consensus of all NATO countries in the affirmative and a 'yes' for new members to join the Alliance. In an ironic twist, President Erdogan of Turkey says he won't agree to the proposal to admit Finland and Sweden to join the Alliance, since the two nations had applied sanctions on Turkey in 2019.

Sweden had suspended sale of arms to Turkey three years ago, on account of Ankara's military intervention in Syria. Turkish President Recep Tayyip Erdogan's objection to Sweden and Finland stems from Turkish grievances with Stockholm's — and to a lesser degree with Helsinki's — perceived support of the banned Kurdistan Workers Party (PKK), the leftist extremist group DHKP-C and followers of the US-based Muslim cleric Fethullah Gulen who Ankara claims was behind a failed military coup attempt in 2016.

Turkey is determined to extract a price for its vote to admit Finland and Sweden. Erdogan could also use this opportunity to get back to the US-led F-35 fighter jet program — a project it lost out on account of its purchase of Russian S-400 missile defence systems.

It could also possibly demand an end to an unofficial embargo on military sales to Turkey by allies and increased funds and aid to help support 3.7 million Syrian refugees.

Since US has committed to Finland and Sweden that every effort will be made to admit them in NATO, Secretary of State Mr Anthony Blinken will push for the same during his meeting with the President of Turkey.

Shri Sivakumar R

# Necklace of Diamonds Strategy

**In a counter-action, India has started working on the 'Necklace of Diamonds' by expanding its naval bases.**

China has been aggressively pushing its strategy of global dominance in the recent past. As part of its game plan, China has created a “String of Pearls” in the Indian Ocean, using “Debt Trap Diplomacy” to take over and develop dual use ports in India’s neighbourhood. These are strategically located ports in impoverished countries around India, which can choke India’s trade routes.

The Doraleh multi purpose port in Djibouti, Gwadar and Karachi Deep water ports in Pakistan, Hambantota and CICT Terminal in Sri Lanka and Kyaukpyu port in Myanmar are part of this “String of Pearls”.The goal is to increase China’s presence at the choke points of major maritime trade routes like the Strait of Mandeb, the Strait of Malacca, the Strait of Hormuz and the Lombok Strait.

In a counter-action, India has started working on the 'Necklace of Diamonds' by expanding its naval bases and also improving relations with strategically placed countries to counter China. India has obtained access to the following strategic assets:

**1. Changi Naval Base, Singapore:** In 2018, PM Modi signed an agreement with Singapore which provides the Indian Navy direct access to this base. While sailing through the South China Sea, Indian Navy can refuel and rearm its ships through this base.

**2. Sabang Port, Indonesia:** In 2018, India got the military access to Sabang Port located right at the entrance of Malacca Strait, one of


India is also increasing its strategic cooperation especially with countries in China's neighbourhood like Mongolia, Japan and Vietnam.

the world's famous choke points. A large chunk of trade and crude oil passes on to China through this region.

**3. Duqm Port, Oman:** The Duqm Port is located on the south-eastern seaboard of Oman. It facilitates India's crude imports from the Persian Gulf. Moreover, this is located right between the two important Chinese pearls - Djibouti in Africa and Gwadar in Pakistan.

**4. Assumption Island, Seychelles:** In 2015, India and Seychelles agreed upon the development of the naval base in this region, giving military access to India.

This base is of strategic importance to India as China desperately wants to increase its presence in the African continent through the maritime silk trade route.

**5. Chabahar Port, Iran:** In 2016, PM Modi signed an agreement to build this port which provides access to Afghanistan and an important trade route to Central Asia.

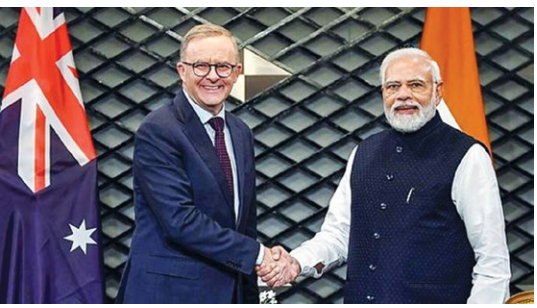
Apart from getting direct access to the strategically placed naval bases, India is also increasing its strategic cooperation especially with countries in China's neighbourhood like Mongolia, Japan and Vietnam.

In short, we have assembled a "Necklace of Diamonds" which can be used, if necessary, to protect our trade routes and cut China's predatory moves.

**Choke point - a strategic narrow route providing passage through or to another region.**

Kum Anisha S -Student

# PM at QUAD Summit



PM Modi, Shinzo Abe of Japan, Scott Morrison of Australia and Joe Biden of USA attended the Quad summit at Tokyo.

Established in 2004 to coordinate humanitarian assistance and disaster relief, the Quad has since developed into a leading regional partnership.

**'Quadrilateral Security Dialogue', the Quad is an informal strategic forum comprising India, USA, Australia and Japan. One of the primary objectives is to work for a free, open, prosperous and inclusive Indo-Pacific region.**

The Summit launched an initiative for The Indo Pacific partnership for Maritime Domain Awareness (IPMDA) sponsoring 100 students every year of each of the Quad Nations to study in USA and to graduate in any of the Science Technolgy Engineering and Maths (STEM) fields.

Shri Sridhar P


# Oil on the Boil

Oil has become central to the world economy. Oil is much more than a transportation fuel.

Oil is on the boil once again, threatening economies, derailing growth plans and bringing many a country to its knees. Ever since Col. Edward Drake struck oil in Pennsylvania in 1859, the world has changed forever. Oil has become central to the world economy. **Oil is much more than a transportation fuel. It is wealth, arrogance, power, anxiety and invariably shapes up the very infrastructural development of countries.**

**The roller coaster of crude oil prices:** Crude prices invariably follow the boom-and-bust cycles of world economy. On hindsight it can be comfortably argued that the reigning crude prices often fuel a boom or precipitate a recession in major economies. Wars, military adventurism, oil spills, sudden turmoil in major oil producing, exporting countries have caused jitters in world oil markets several times in the past. Some of the most headline-hogging events that have propelled oil prices to unthinkable levels, causing serious anxiety in supply have been the Yom Kippur war, Iran Iraq war, Gulf war in West Asia and the recent Russian invasion of Ukraine. However the most defining moment in crude oil history is the formation of OPEC that quadrupled crude prices during 1974. Crude prices seem to be more sensitive to turmoil and OPEC decisions than simple demand factors.

**OPEC:** OPEC or **Organization of oil producing countries** was established initially by 5 members states, 4 from Middle East and Venezuela. Venezuela's then oil minister Juan Pablo Perez Alfonzo was the master mind behind OPEC. Later OPEC would grow to its full strength of 13 members. The formation of OPEC cartel was not surprising at all. The statistics speak for itself. Today OPEC is responsible for 50% of world

supply of crude and sits on 80% of the proven reserves of crude.

**Oil Glut:** The need to firm up crude prices by several mechanisms, primarily by cutting production by OPEC members was often required because the world was for many years awash with oil. In the past the inability to foresee demand and contraction of demand during depression were the contributing factors. Oil was traded for 10 cents a barrel in 1917 and during the years of great Depression. Strange as it seems the cheating by OPEC members, often exceeding their quota in production volumes to grab as much market share has often resulted in glut. When oil prices fall, the reduction in oil revenue propels the member states to cheat by producing more, creating a vicious cycle. The beginning of the 21st century saw **shale oil** make remarkable entry in America. Hundreds of small independent shale oil producers produced close to 10 million barrels of oil per day or 10% of the world demand of 100 million barrels a day. This created a glut, worsening an already grim situation precipitated by the financial crisis of 2008. **Oil exporting countries think in terms of security of demand but oil importing countries think in terms of security of supplies.**

**Will crude prices head North?** Technological progress, the reigning cost of crude, supply bottlenecks, economic climate, change of political will and many other factors will decide crude oil prices in the long run. Perhaps the most important thing is the vulnerability of nations with respect to all these factors. India with its 80% dependence on imports is extremely susceptible to supply shocks and increase in international crude prices with its rising aspirational middle class's desire for cars. But India does manage well with a well-organized purchase pattern of spot purchases and long-term contracts. Government initiative for mass transportation systems,realigning or switching to rail-based or sea-based dedicated freight corridors are crucial. But undeniably crude prices will always spike up at the slightest turmoil anywhere and also due to the extreme concentration of proven reserves in volatile countries.

**Fallacy of subsidizing fuel:** Prudence lies in building efficiency. Nothing can derail this process more than subsidizing fuel costs. It is a known fact that Japanese automobiles owe their success to their fuel efficiency.

Energy wastage is evident when energy costs are low. India with very limited self-sufficiency in liquid transportation fuels can't afford subsidy. India earned 3.71 lakh crores in 3 years from its taxes on petrol and diesel which was used for infrastructural development and as a buffer when crude oil prices go up.

A casual observation will tell us that oil importing countries in our own neighbourhood that went the extra mile to please their citizens by subsidizing petrol and diesel are facing riots and are unable to import sufficient crude. India escaped this trap even when crude prices were low by not lowering prices, but instead built a buffer for future.

India earned 3.71 lakh crores in 3 years from its taxes on petrol and diesel which was used for infrastructural development and as a buffer when crude oil prices go up.

Shri Mrithyunjay GN

# India and US sign Investment Incentive Agreement

**IIA is an indication that India-US global strategic partnership still remains strong.**

On 23rd May 2022, Indian Foreign Secretary Vinay Kwatra and Scott Nathan, Chief Executive officer of the US International Development Finance Corporation (DFC) signed a significant Investment Initiative Agreement (IIA) at Tokyo, Japan.

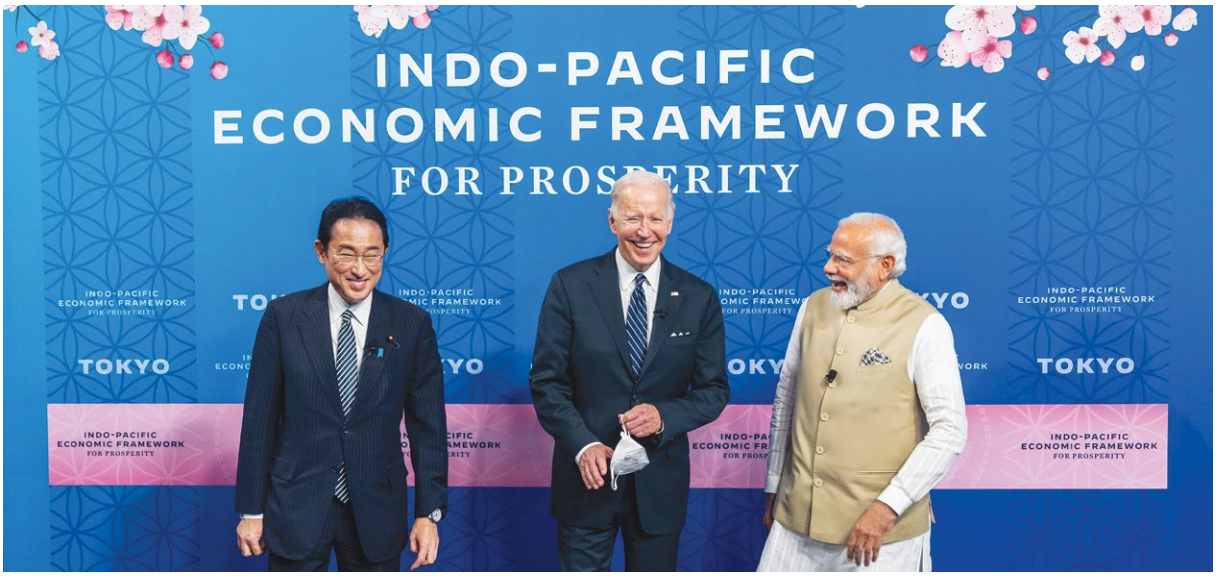
An IIA is an agreement signed by two countries which ensure economic support and cooperation through investment and financial guarantees. While there was a previous agreement between India and the USA, signed in 1997, there have been significant changes made, which led to this new agreement.

The primary purpose of this is to keep pace with additional investment support programmes that are offered by the DFC such as equity investment, investment guarantee, insurance or reinsurance and funds and grants for potential studies and projects.

Historically, since 1974, India has received 5.8 billion dollars in various projects and this agreement has proposals for projects worth USD 4 Billion. These funds will help in advancing vaccine manufacturing, healthcare financing, Small to Medium Enterprises (SME) financing and other essential projects.

IIA is an indication that India-US global strategic partnership still remains strong and with continued support it is expected to grow stronger in the future.

Shri Sampath D




# INDO - PACIFIC
## *Economic Framework*

**India's growth will be fuelled by a young population and it will add impetus to manufacturing facilities resulting in higher employment.**

India formalised its entry into the Indo-Pacific Economic Framework (IPEF), along with Australia, Brunei Darussalam, Indonesia, Japan, South Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, USA and Vietnam to strengthen economic cooperation as a geo strategic counter to China's growing clout in the region.

The IPEF aims to curb the predatory lending and port-hijacking diplomacy of China. China had almost become the master of Global supply chain but the covid pandemic has put paid to its ambitions. The IPEF vision document focuses on the supply chain and indicates that the Group is committed to improving transparency, security and sustainability in supply chains and make it more integrated and resilient.

It had become imperative to provide an alternate option to China's development and financial projects resulting in debt-trap,forcing many countries to lease ports to the Chinese because of their inability to pay the resulting high interest and principal amount pertaining to the joint developmental projects.

The IPEF will give a strong opposition to Chinese economic hegemony. Furthermore, it is likely to starve China of money as the cooperation by IPEF members on the line of businesses, logistics support, supply of raw material, semiconductors, clean energy technology and so on will almost pull the money from China to other members of the group.

India's growth will be fuelled by a young population and it will add impetus to manufacturing facilities resulting in higher employment. This will also help stop the aggressive Chinese push for growth.

Shri Sivakumar R

# INDIA *and* VIETNAM sign MOU for mutual logistics support

**Vietnam has become an important partner in India's "Act East Policy" and the Indo-Pacific vision.**

India and Vietnam recently signed an MoU called **"Joint Vision Statement on India –Vietnam Defence Partnership towards 2030",** the first such major agreement Vietnam has signed with any country towards simplifying procedures for mutually-beneficial logistic support. This MOU will significantly enhance the scope and scale of defence cooperation between India and Vietnam.

Logistic agreements are administrative arrangements enabling access to military facilities for exchange of fuel and provisions mutually, simplifying logistical support and increasing operational convenience of the military assets while operating away from India.

India has signed similar agreements with all Quad countries, France, Singapore and S.Korea. These will assume great significance in the context of China flexing its muscles in the Indo- Pacific region and more so across the entire South China Sea where it has built artificial islands and military bases.

Spanning 3.5 million sq. km, the South China Sea is one of the world's most strategically important bodies of water. One-third of global maritime trade passes through its sea lanes, and it is home to ample fishing, hydrocarbon and mineral resources.

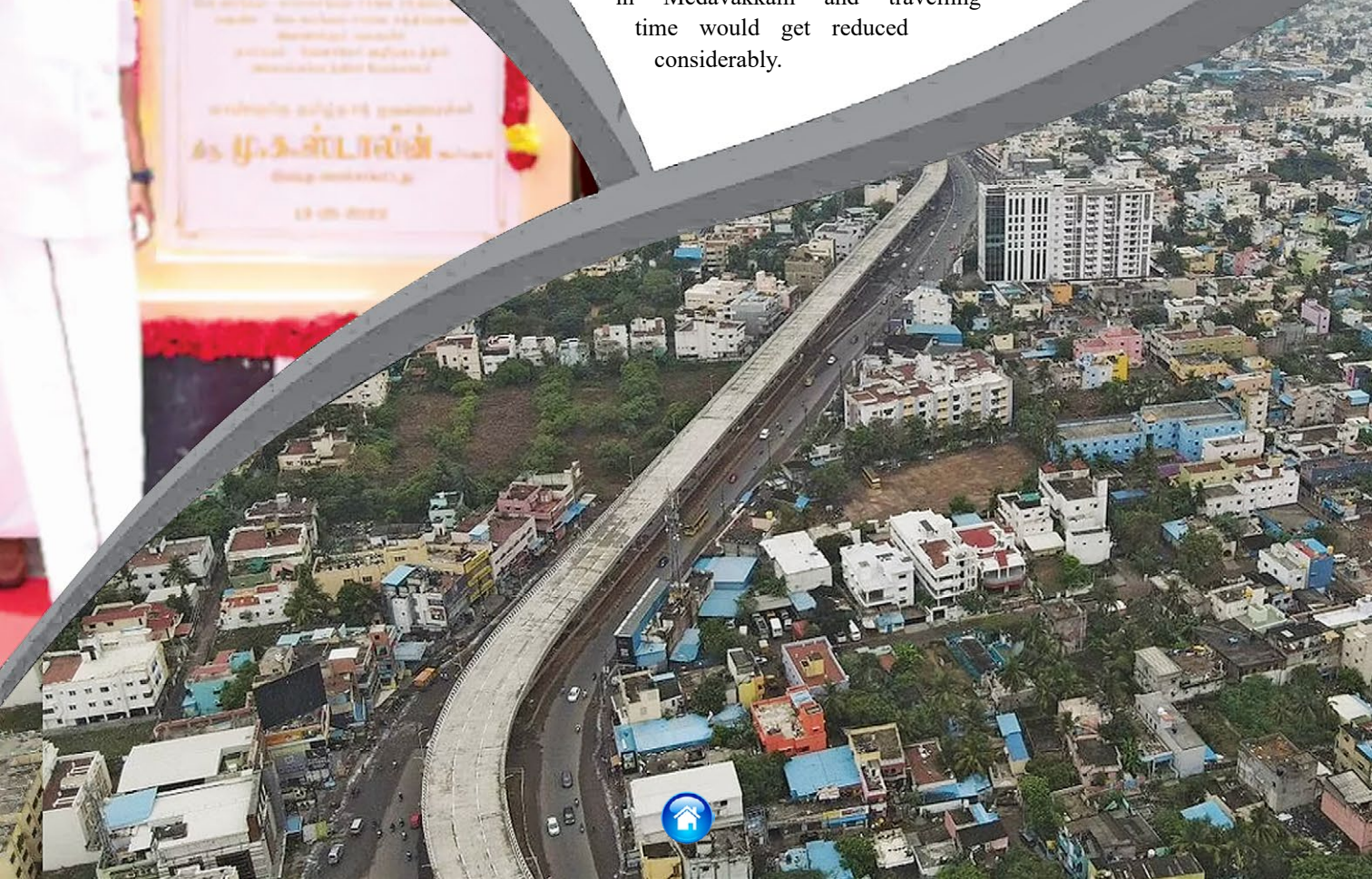
India through ONGC Videsh operates 2 oil fields in Vietnamese waters in South China Sea.

Vietnam has become an important partner in India's "Act East Policy" and the Indo-Pacific vision and this MOU will be complementary and supplementary to all other similar strategic partnerships in the region like the Quad.

Smt Meenakshi S

# Chennai's Longest Flyover inaugurated

Tamil Nadu Chief Minister M K Stalin inaugurated the longest unidirectional flyover at Medavakkam in Chennai that covers a distance of 2.03 km, connecting Tambaram and Velachery. The second arm of the three-lane flyover at Medavakkam facilitates hassle-free flow of vehicular traffic. Motorists could avoid three arterial junctions — Medavakkam-Sholinganallur road, Mount - Medavakkam main road and Medavakkam - Mambakkam road. The inauguration marks the completion of the construction of two unidirectional three-lane flyovers on Velachery - Tambaram Radial Road by the state highways department. With the opening of the twin flyovers, both traffic congestion in Medavakkam and travelling time would get reduced considerably.



Kum Kavya R

# Sports Victories Galore

India has created history by beating 14-time Badminton champion Indonesia and winning the Thomas Cup. India registered a 3-0 victory in the final held in Bangkok, Thailand. The stellar performance of world championship medallists **Kidambi Srikanth, Lakshya Sen** and the world number 8 doubles duo - **Chirag Shetty** and **Satwiksairaj Rankireddy** won us **our first-ever Thomas Cup victory in 73 years.**

As PM Modi rightly declared, this win will motivate many upcoming sportspersons.

Young Indian Grandmaster **R. Praggnanandhaa** won the Norway Chess Group A open tournament by scoring 7.5 points from 9 rounds. The 16-year-old GM was in excellent form and remained unbeaten throughout. He finished with a win over fellow Indian V. Praneeth, an International Master and a full point ahead of second-placed IM Marsel Efroimski (Israel) and IM Jung Min Seo (Sweden).

**India has won 16 medals at the Deaflympics 2021**. This includes eight golds, one silver and seven bronze. Around 2100 athletes from 72 countries participated in the Deaflympics 2021 held in Caxias do Sul in southern Brazil. India sent a contingent of 65 athletes to compete in 11 sports, making it the country's largest-ever representation at Deaflympics since making its debut in 1965.

This year, badminton player **Jerlin Jayaratchagan** won three gold medals - in the women's singles, mixed doubles and the mixed team event. Shooter **Dhanush Srikanth**, who shot a world record score of 247.5 to win the 10m air rifle event title, won two gold medals. Tennis ace **Prithvi Sekhar** won three medals. PM Modi hosted and felicitated the Indian contingent after their best-ever performance.

**Deaflympics (International Silent Games) is for athletes with hearing loss of at least 55db in their better ear.**

Shri Mrithyunjay GN

# MAKING 5G WAVES: India's indigenous 5G Test Bed

**This initiative has been projected to contribute over 450 billion dollars to the Indian economy over the next 15 years.**

On 17th May, 2022 PM Modi launched a 5G test-bed, developed in collaboration with eight institutes, led by the Indian Institute of Technology, Madras. This pan-Indian collaboration is a significant step forward in the development of indigenous 5G technology which is expected to play a major role in improving communication across the nation in the near future.

Others involved in the project were - IIT Kanpur, IIT Bombay, IIT Delhi, IIT Hyderabad, and IISc Bengaluru, **Society for Applied Microwave Electronics Engineering & Research** (SAMEER) and **Centre of Excellence in Wireless Technology** (CEWiT). This testing center will not only be made available to large scale technology manufacturers but also entrepreneurs and emerging start ups.

With an operating budget of over 200 crores, the funding for the test-bed was provided by the Department of Telecom. Further participation and investment by a large number of telecom industry companies and start-ups have made this initiative successful.

This test-bed will serve as an extensive testing ground for any new hardware or software related to emerging 5G technology. If the product meets the parameters set by the test bed, it can then be brought to the Indian and global markets.

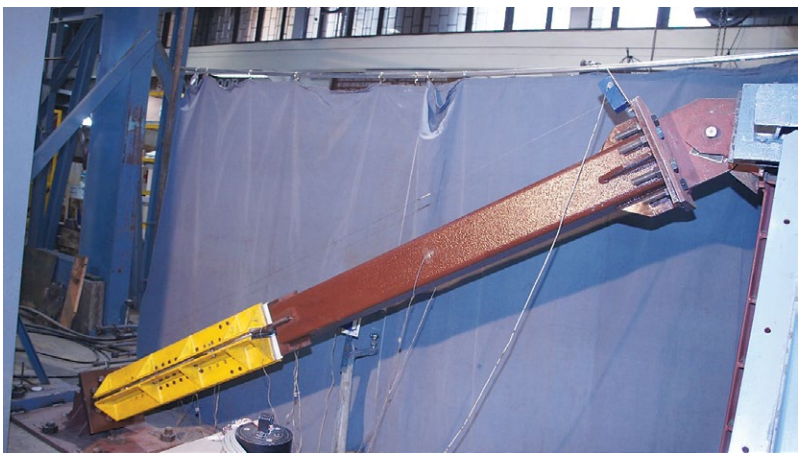
With 5G being the next big step in global communication, and countries around the globe investing in the development of affordable 5G technologies, this test-bed will serve as a significant stepping stone in bringing new Indian technology to global markets.

Development, manufacturing and implementation of 5G technology is expected to happen at an accelerated pace over the next decade and it has been projected to contribute over 450 billion dollars to the Indian economy over the next 15 years.

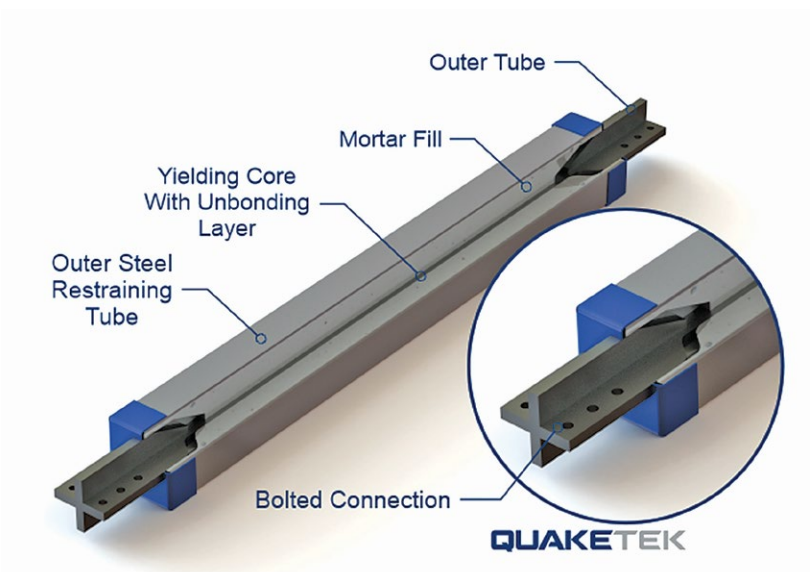
Smt Meenakshi S

# Super-elastic buckling-restrained braces for earthquake resistance

Professor Dipti Ranjan Sahoo and his student Dr Ahmad Fayeq Ghowsi of IIT Delhi, have fabricated novel **hybrid buckling-restrained braces** (HBRBs) **having higher strength, excellent ductility and better energy dissipation potential**. These braces have several advantages, such as all-steel components, onsite fabrication and assembling process, post-earthquake inspection and easy replacement. The earthquake resistance of civil structures is often improved by using seismic force-resisting systems or vibration control devices. Buckling-restrained braces are the special structural elements that serve both purposes.



A typical HBRB comprises two segments - elastic steel brace (non-replaceable) and short-core BRB (replaceable) segments, connected in series along their lengths. Steel braces can be made up of hollow circular or square hot-rolled structural steel sections. Superplastic shape memory plates are used at the centralized core elements of BRB. These braces can be customized depending on the seismic demand expected on buildings or bridges located in different seismic zones of India. The proposed technology is effective in the new constructions and has a great potential for the upgradation and retrofitting of seismically deficient reinforced concrete (RC) and steel framed structures, such as residential/office buildings, hospitals and school buildings.


Kum Kavya R

# Indigenous Hyperloop System

The Railway Ministry will collaborate with the Indian Institute of Technology Madras to develop an indigenous hyperloop system. The Railway Ministry has approved a fund allocation of 8.34 crore to IIT Madras to set up a centre of excellence for hyperloop technology at the institute.

The hyperloop transportation system will use the magnetic levitation technology in low-pressure tubes to enable travel at airplane-like speeds. This futuristic technology will have very low energy requirements and will reduce carbon emissions.


A team of 70 students named **"Avishkar Hyperloop"** have been working on this technology since 2017. The team has won the ***'Most Scalable Design Award' at the European Hyperloop Week-2021.*** They also finished in top -10 global ranking at the SpaceX Hyperloop Pod Competition in 2019.

Officials said that the plan is to build a 500 m tube (diameter 2 m) and track capable of supporting various propulsion and levitation system configurations to enable rapid development of pod technology.

**The tube will be on par with the Virgin Hyperloop facility in the USA in terms of functionality but will significantly outperform it in terms of cost.**

Shri Nagarajan R

# Nechiphu Tunnel

**Once in service, the Nechiphu Tunnel will provide safe, all weather strategic connectivity while reducing the carbon foot print in this eco-sensitive area.**

BRO (Border Roads Organisation) is doing it again! The Nechiphu Tunnel, at an altitude of 5,700 feet, is a unique 500-metre-long "D-shaped, Single Tube Double Lane Tunnel" on the Balipara-Charduar-Tawang (BCT) Road in West Kameng district of Arunachal Praesh.

## PURPOSE

The tunnel has been conceived to bypass extreme foggy conditions prevailing around Nechiphu Pass which have caused hindrance to general traffic and military convoys for decades.

## TECHNIQUE

The ongoing tunnel construction is being accomplished by cutting through fragile and highly fractured rock strata. The attendant challenges are being tackled on daily basis through strict 3D monitoring and through proactive application of desired tunnel support systems in accordance with the New Austrian Tunnelling Method.

## FACILITIES

The tunnel will be provided with a state-of-the-art electro-mechanical system including fire fighting devices, auto illumination system and supervisory control and data acquisition controlled monitoring systems.

It will also accommodate raised footpaths on both sides for safer pedestrian movement with ducts for power cables, optical fibre cables and utility lines to strengthen the civic amenities infrastructure.

Once in service, the Nechiphu Tunnel along with the Sela Tunnel will provide safe, all weather strategic connectivity on the BCT Road while reducing the carbon foot print in this eco-sensitive area. BRO has also embarked on construction of a series of small tunnels.

Smt Sarada Devi Ravutu

# National Portal for Biological Research

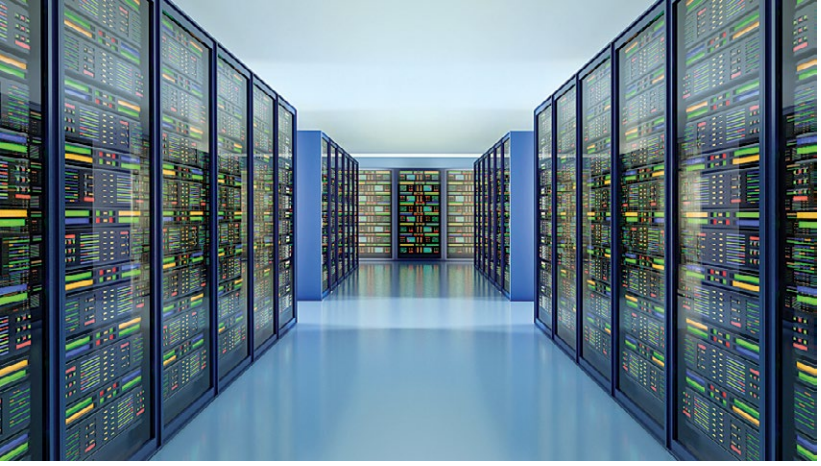
**A unique BioRRAP ID is generated for every researcher.**

Bio RRAP is a unique portal of the Department of Biotechnology to enable researchers to see the status of approval of their applications for regulatory clearances and get preliminary information on all the research work.

A unique BioRRAP ID is generated for every researcher. When a research proposal is submitted on this portal, the list of regulatory agencies from whom approvals may be required for their search is attached. The applicant submits details to relevant regulatory agency before undertaking research.

### Some Indian Regulatory Agencies

- **HMSC** Health Ministry's Screening Committee
- **RCGM** Review Committee on Genetic Manipulation
- **CPCSEA** Committee for the Purpose of Control and Supervision of Experiments on Animals
- **NBA** National Biodiversity Authority
- **DPPQ** Directorate of Plant Protection, Quarantine & Storage




Smt Ghana Saraswathy M

# Super Computer 'PARAM PORUL'

On 25th May 2022 PARAM PORUL, a state-of-the-art Supercomputer was inaugurated at NIT Tiruchirappalli under National Supercomputing Mission.

It is outfitted with a combination of CPU (Central Processing Unit) nodes and GPU (Graphics Processing Unit) nodes. In order to achieve high power usage effectiveness and lower operational costs, this system is based on **Direct Contact Liquid Cooling technology.**

For the benefit of researchers, the system has been installed with numerous applications from various scientific fields including weather and climate, bio-informatics, computational chemistry, molecular dynamics, material sciences, computational fluid dynamics, etc.

**The performance of a super computer is measured in FLOPS (Floating-point operations per second) instead of MIPS (Million Instructions per second) as in the case of general purpose computers.**

Kum Anu Narayan

# Blue-bellied kukri snake spotted in Assam

After more than a century, the blue-bellied kukri snake has been rediscovered at the Manas National Park, Assam.

On 25th May 2021, nature photographer **Soumabrata Moulick** photographed a dead snake, with unusual black and bluish speckling on its belly. He forwarded those images to Abhijit Das of Wildlife Institute of India, who was unable to identify the species.

After extensive review and consultation, the snake was identified as the ***Oligodon melaneus,*** last seen in July 1908 in Tindharia Village in West Bengal, 267 km west of Manas.

The muscle tissue of the snake was extracted for DNA analysis. It took almost a year to confirm the species due to Covid-19 restrictions as well as the time involved in researching records at the Bombay Natural History Museum and the Natural History Museum, London. The DNA analysis also showed that the blue-bellied kukri snake is related to the more common banded kukri snake.

This rediscovery may indicate the presence of rarer snake species in the northeast which might be similarly related to common snakes.

Kum Kavya R

# India's first Wind-Solar Hybrid Power Plant

AHEJOL, a subsidiary of Adani Green Energy Limited (AGEL), has commissioned a 390 MW wind-solar hybrid power plant in Jaisalmer, Rajasthan. This is the first of its type in India. As the peak operating times for wind and solar systems occur during different times of the day and year, a hybrid power plant will maximise the potential of renewable energy by resolving the intermittent nature of power generation. This is a more reliable solution to meet the rising power demands of our nation.

"The new plant has a Power Purchase Agreement (PPA) with the Solar Energy Corporation of India (SECI) with tariff at Rs. 2.69 per kWh, well below the Average Power Procurement Cost (APPC) at national level, delivering access to affordable, modern, and clean energy to all," said the statement issued by the company.

With the successful commissioning of this plant, AGEL has reached an operational capacity of 5.8 giga watts (GW). This increases AGEL's renewable energy portfolio to 20.4 GW, furthering their vision to reach 45 GW by 2030.

"It is commendable that the project was successfully executed amidst the uncertainties imposed by the global pandemic, " said Mr. Vneet S. Jaain, MD & CEO, Adani Green Energy Ltd.

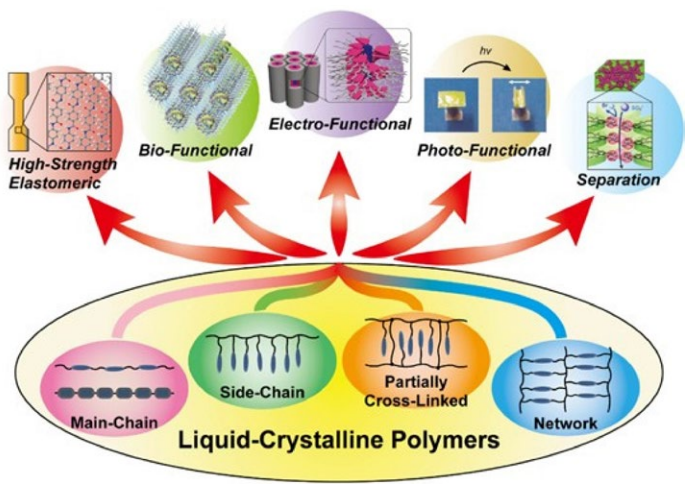
Kum Anu Narayan

# Smart Material harnessing Solar Energy

Indian scientists have developed a smart material that responds to light stimulus by converting it to thermal energy. This is invaluable for applications that require solar energy like soft robotics and micro-electromechanical (MEMS) devices.

Many smart materials are successful examples of biomimicry, having replicated natural stimuli-responses seen in plants such as the Venus Flytrap, which snaps its leaves around a prey or the ***Mimosa pudica*** (the 'touch-me-not' plant) or the sunflower, always facing the sun.

Liquid crystal polymer networks (LCNs) is one such smart material. When heated, a uniformly aligned LCN film changes into a reversible two or three-dimensional shape caused by the liquid crystal-liquid phase transition. Deformations like bending, curling and even spiral ribbons can be formed by manipulating the average orientation of the rod-shaped molecules.




However, the devices using this material needed additional layers to the light-responding film to achieve bi-directional actuation.

The solution came about in a collaboration between researchers at the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, an autonomous institute of the Department of Science and Technology (DST), and the Department of Mechanical Engineering, IIT Madras. They have cross-linked a mixture of mono-functional and bi-functional liquid crystal mesogens (a chemical compound) and fabricated spatially spread-out LCN films.

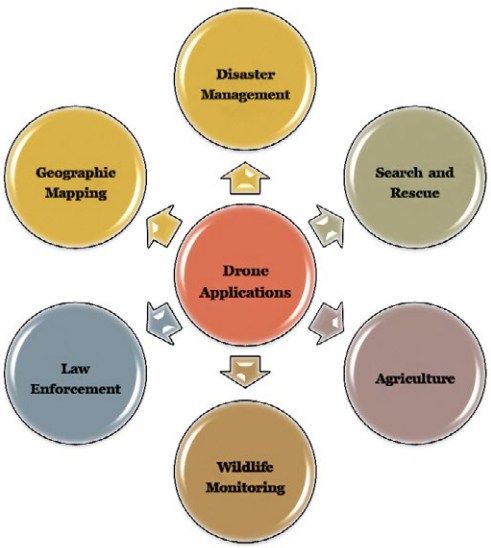
The two types of mesogens comprise one and two molecular units to absorb light respectively, and incorporate near-infra-red (NIR) active dye into the system. The NIR laser beam impinges on the film, causing a significant rise in the local temperature. The resulting order-disorder transition leads to a change in the macroscopic shape.

Smt Ghana Sarasawathy M

# BHARAT DRONE MAHOTSAV 2022

Bharat Drone Mahotsav 2022 was organized by the Ministry of Civil Aviation (MoCA) with event partner Drone Federation of India (DFI) at Pragati Maidan, New Delhi, recently.

Inaugurating the event, PM Modi shared the vision of making India a global drone hub by the end of the decade. He stated that the Indian government will provide full support to the industry to make this vision a reality.




## Key events

- Virtual award of drone pilot certificates
- Panel discussions
- Product launches
- Display of a 'Made in India' Drone Taxi prototype
- Flying demonstrations

Smt Ramamani N

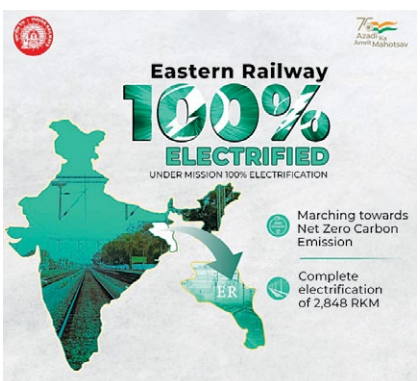
# Eastern Railway achieves 100% Electrification

The Indian Railways is on track in its mission of becoming a **Net Zero Carbon Emitter** before 2030.

The Eastern Railway has achieved the target of 100% electrification of its 2,848 km long rail network.

The milestone has been achieved by the zonal railway with the completion of the last part of the work in 41 km long Hansdiha-Godda section. The total route spreads over Howrah (889 route km), Sealdah (719 route km), Asansol (690 route km)and Malda divisions (550 route km).

100% electrification of three other railway zones, i.e., West Central Railway, Kolkata Metro and East Coast Railway has already been achieved.



Smt Shubha T R

रेलटेल RAILTEL

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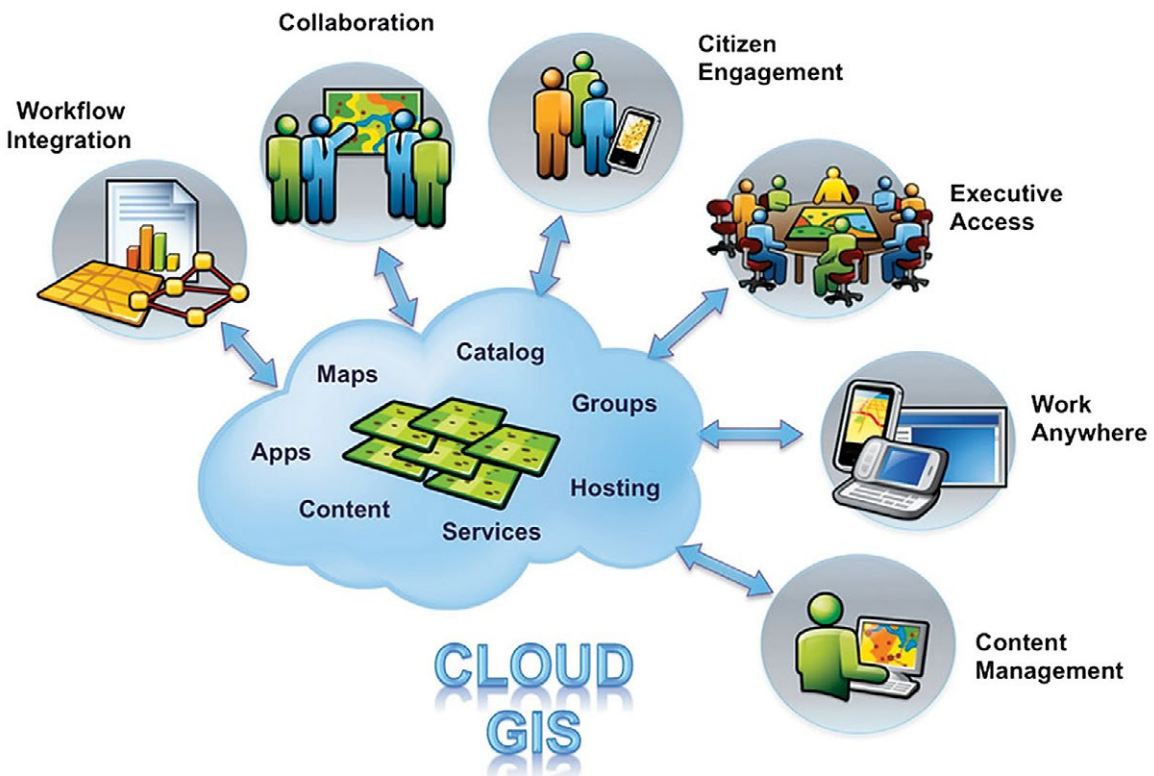
# CLOUD-BASED GIS solutions

With governments increasing focus on using **Geographic Information System,** GIS for various national programmes such as Digital India, Smart Cities etc., the availability of robust and scalable geospatial infrastructure has become the need of the hour.

Railtel Corporation of India Ltd, under the Ministry of Railways




## DO YOU KNOW ?

- **Spatial data** - a specific geographic area or location. It can be Geometric data that is mapped to two-dimensional flat surface (Ex : google maps) or Geographic data that is mapped to latitudes and longitudes of the object (e.g., Global Positioning System, GPS).
- **GIS** is a system that creates, manages, analyses and maps all the types of data (e.g.,navigation).
- **Cloud GIS** allows data to be captured in real or in near real time to be displayed directly onto our system (e.g.,street maps).

**Users will be able to easily share and integrate nearly any type of distributed geo-referenced data.**

has signed a Memorandum of Understanding (MoU) with ESRI India, country's leading GIS Software and Solutions provider, to provide cloud-based GIS solutions to the users in the government sector. Its unique product "Indo ArcGIS on Cloud", would now be available on RailTel cloud for its customers. Users will be able to easily share and integrate nearly any type of distributed geo-referenced data. This suite also includes products for disaster management, forest management, land records and property tax management etc.

Shri Mrithyunjay GN

# Jindal Steel to manufacture Rail Wheelset for Indian Railways

The Gati Shakti initiative has made great strides in bringing together 16 ministries including railways and roadways for integrated planning and implementation of infrastructure and connectivity projects.

One sector that has seen great growth as a result, is the Indian Railways. With multiple developmental and expansion projects already underway, another significant manufacturing project expected to show great dividends is by Jindal Steel & Power (JSP).

India's first and only private sector rail producer, JSP has signed a deal with the Indian government to become India's first rail wheelset manufacturer. This historic deal will involve the installation of a rail wheelset manufacturing plant at Raigarh, Chhattisgarh.

Expected to have an initial manufacturing capacity of 25,000 wheelsets per year, this project involves a collaboration with Hungary's GIFLO Steel. The two companies signed an MOU at the "India-Hungary Business Forum" to develop the strategies needed for JSP to set up state of the art manufacturing facilities.

Along with wheelsets, rail forging units used in the production of rail track switches for high-speed train tracks are also expected to be installed. This will ensure that Indian Railways are able to meet international standards for rail safety and lead to further modernization of India's extensive rail infrastructure.

Smt Ramamani N

# Private Logistics Park in GOA

The Goa Investment Promotion and Facilitation Board (IPB) has notified a private land of around 32 acres at Dharbandora as an investment region, facilitating the establishment of a private logistics park in the area by the CMM group.

The provisions of local authorities will not apply over there. However, the CEO of the Goa IPB will be issuing permissions and would collect taxes on behalf of the local authorities. In the 125-crore logistics park, the investment promotion area will be set up on 12.75 hectares of non-forest land and 2 hectares of unclassed forest land, located close to the Panaji-Belgaum national highway.

The CMM Group has approached the central government to get necessary forest and environment-related clearances for this project. Logistics park helps businesses by providing storage space which would reduce the number of trucks on the road thereby improving environmental quality. It provides opportunities for businesses to grow.

Shri Krishnakumar C S

# World Class Sports Complex

Sports play a vital role in the physical, mental, social and emotional growth of an individual. A nation that gives priority to sports is bound to earn disciplined, talented, healthy, balanced, motivated and patriotic citizens. India has the largest youth population in the world. Nearly 40% of the Indian population is aged 13 to 35 years. However, our performance in Olympic Games has been dismal over the years.

A root-cause of our unsatisfactory performance in the international sports events is inadequate infrastructural facilities for training. With the goal of overcoming this barrier GOI has initiated several big projects.

Union Home and Cooperation MinisterAmit Shah laid the foundation stone for an international sports complex in Naranpura area of Ahmedabad on 29thMay 2022. This project will be completed in the next 30 months in 20.39 acres of land at a cost of Rs 631.77 crore. It will have facilities to play and train in numerous indoor and outdoor activities. It can simultaneously hold around 7,000 spectators.

Let us hope that these initiatives will help our national flag to be raised and national anthem to be played several times in the next Olympic Games.

Kum Kavya R

# India's Core Sector Output in April grows

The combined index of eight core industries stood at 143.2 in April 2022, which increased by 8.4% as compared to the index of April 2021. The output growth in April is the highest since October 2021 when the core sector grew by 8.7 %.

The eight core sector industries are cement, coal, crude oil, electricity, fertilisers, natural gas, refinery products and steel. The growth rate of ICI during April-March 2021-22 was 10.4% as compared to the corresponding period of last financial year. Together, these sectors comprise 40.27% of the weight of items included in the Index of Industrial Production (IIP).

The eight core sector industries are cement, coal, crude oil, electricity, fertilisers, natural gas, refinery products and steel.

### According to the data published

| Production | Increase |
|---|---|
| Coal | 28.8% |
| Electricity | 10.7% |
| Petroleum refinery products | 9.2% |
| Natural gas | 16.4% |
| Fertilisers | 8.7% |
| Cement | 8% |

- **ICI -** Index of Eight Core Industries (ICI) refers to a production volume index that measures the collective and individual production performances of eight core industries. The index is compiled and released by the Office of the Economic Adviser (OEA), Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry.

- **IIP -**The Index of Industrial Production (IIP) shows the growth rates in different industry groups of the economy in a stipulated period of time.

  The IIP index is computed and published by the Central Statistical Organisation (CSO) on a monthly basis.

Shri Nagarajan R


# India - Bangladesh Rail Connectivity

**There are plans to develop hospitals, shopping malls and low-cost hotels in the area.**

On 1st June 2022, Railway Minister Ashwini Vaishnaw and his Bangladeshi counterpart Nurul Islam Sujan jointly flagged off a new passenger train – Mitali Express connecting New Jalpaiguri in North Bengal with Dhaka in Bangladesh. The train will travel the 513 km distance in about 9-10 hours twice a week from India and back.

Departing from New Jalpaiguri at 11.45 am on Sunday and Wednesday, it arrives at the Dhaka Cantonment station at 10.30 pm. From Dhaka Cantonment it will depart on return journey at 9.50 pm on Monday and Thursday and arrive in New Jalpaiguri at 7.15 am on Tuesday and Friday respectively. The train consists of four First AC, four AC Chair Car and two Power cars.

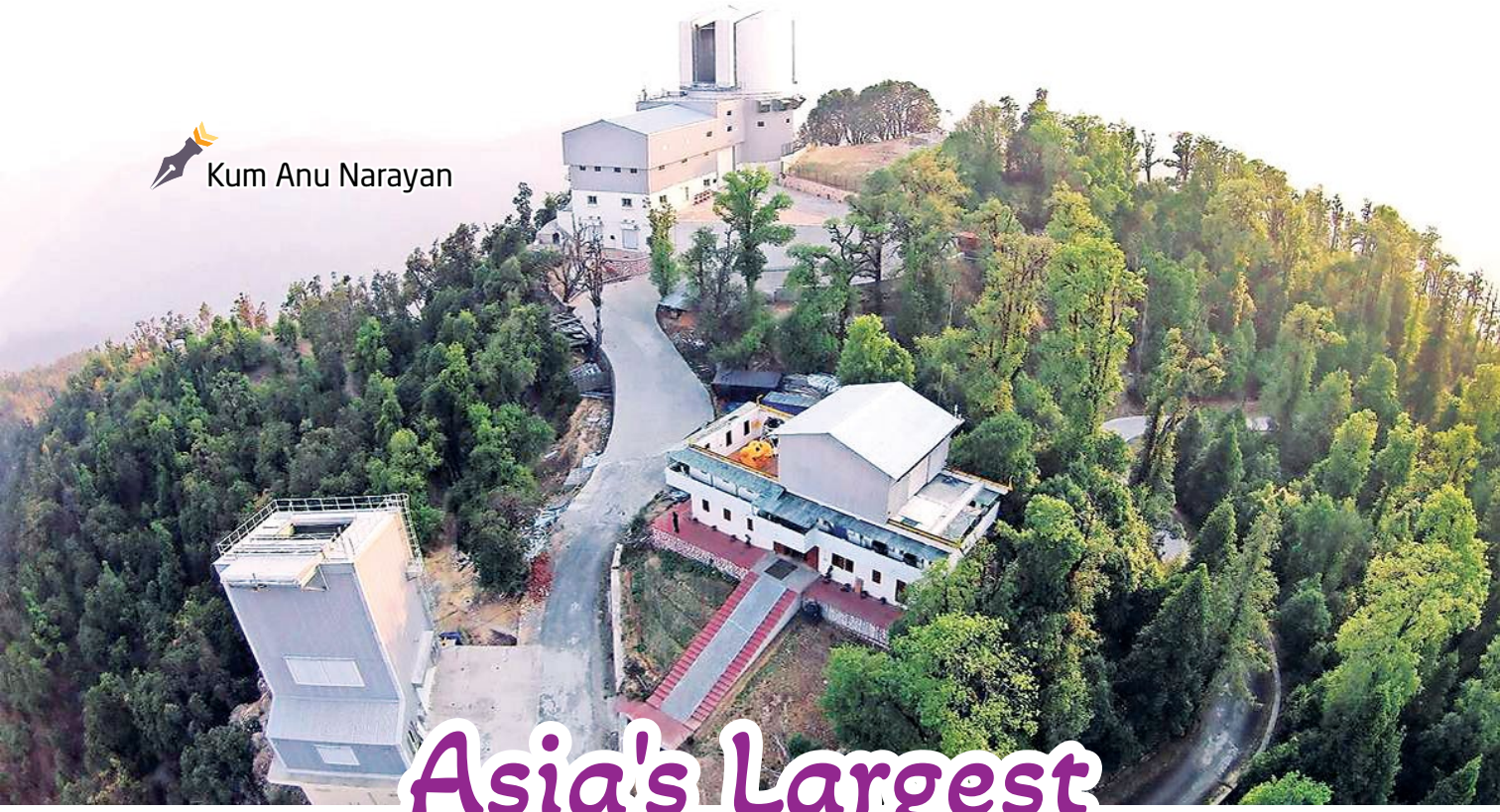

## Key benefits

- Resuming traffic on the main line route that existed before the partition.
- Increase in regional connectivity and development of tourism in North Bengal.
- Increase in economic activity and socio-economic development.
- Promoting regional connectivity among SAARC countries.

Also, there are plans to develop hospitals, shopping malls, and low-cost hotels in the area which will help people to move around the stations.

Railway spokes person informed "It is a direct service, with no pantry-car facility. We have installed a number of CCTV cameras at the platform as well and our Railway Protection Force (RPF) personnel will be deputed in every corner. The Border Security Force (BSF) will take the train at Haldibari station and hand it over to Bangladesh at the Zero line".

Kum Anu Narayan



# Asia's Largest Liquid Mirror Telescope

**The telescope will observe transitory objects such as supernovae, space debris and asteroids just by observing the strip of sky that passes overhead.**

The country's first and largest liquid-mirror telescope will monitor the sky above Devasthal in Uttarakhand's Himalayan range for transitory objects such as supernovae, space debris and asteroids just by observing the strip of sky that passes overhead.

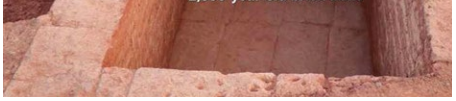
The instrument employs a 4m diameter rotating mirror made up of a thin film of liquid mercury to collect and focus light. Astronomers from India, Belgium and Canada spun the pool so that the surface curved into a parabolic shape ideal for focusing light. A thin transparent film of mylar (a polyester resin used to make heat-resistant plastic films and sheets) protects the mercury from wind.

The reflected light passes through an advanced multi-lens optical corrector that produces

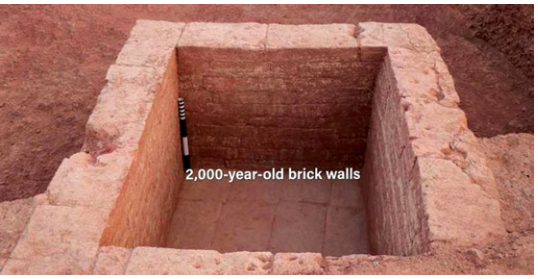
sharp images over a wide field of view. These images are recorded by a large-format electronic camera located at the focus.

The camera electronically compensates for the motion of the Earth's rotation, which causes the images to drift across the lens, said Professor Paul Hickson (University of British Columbia, Canada), an expert on liquid mirror technology.

The ILMT is located at an altitude of 2,450 m at the Devasthal Observatory campus of Aryabhatta Research Institute of Observational Sciences (ARIES).

# ANCIENT BRICK WALLS UNEARTHED




The historically known Pataliputra (Patna) is the oldest continuously inhabited place in the world. Recently, the Patna circle of the Archaeological Survey of India (ASI) has dug up remnants of brick walls at the site of a pond rejuvenation work in the Kumrahar area. Officials believe that it could be at least 2,000 years old. It is interesting to note that remains of the ancient city of Pataliputra were excavated by the ASI starting from 1913 in Kumrahar.

Goutami Bhattacharya, the superintending archaeologist of ASI-Patna circle, said that the officials discovered the remains 6 km to the east of Patna Railway Station where relics of the Mauryan empire had been found in the past. The ASI is rejuvenating the protected pond as part of the GOI's 'Mission Amrit Sarovar initiative.'

It appears that these bricks belong to the period of Kushan Dynasty that ruled over most of the northern Indian subcontinent, Afghanistan and parts of Central Asia from circa (approximately) 30 CE to circa 375, but any conclusion can be drawn only after a detailed analysis, she said.

**Officials believe that it could be at least 2,000 years old.**

## DO YOU KNOW ?

**Under the Kanishka's rule, Kushan controlled a large territory, includes present-day Uzbekistan, Afghanistan, Pakistan and northern India.**

**Patna was founded in 490 BCE by the king of Magadha.**

Smt Shubha T R


# Tata Motors signs India's Largest EV Fleet Order

## DO YOU KNOW ?

- **The first ever electric car was built (1884) in the UK by Thomas Parker.**
- **Tesla is the most popular electric vehicle manufacturer.**
- **Hybrid electric car uses petrol/diesel with electric motor and burns less fuel.**
- **In FY22, Tata Motors achieved a market share of 87 % in India's four-wheeler EV sector and crossed 25000 Tata EVs.**
- **Reva is India's first electric car launched in 2008.**

To promote sustainable transportation, Tata Motors on the occasion of World Environment Day (5th June), signed an agreement with BluSmart Electric Mobility for delivering 10,000 XPRES-T EVs to the company making it the biggest ever electric vehicle (EV) fleet order in India.

### 2021, Tata XPRES-T EV (First Electric Sedan)

**Range:** 213 Km / 165 Km

**Battery Capacity:** 21.5 kWh / 16.5 kWh

**Charging Time (0-80%):** 90 minutes / 110 minutes

Kum Priyadarsshini S

# JAN SAMARTH PORTAL for Government Schemes




The Jan Samarth site is a one-stop digital portal It is a unique platform that connects beneficiaries with lenders for government funded initiatives.

The major goal is to "promote inclusive growth and development of diverse sectors by giving apt benefits through simple and straightforward digital processes."

The website features four loan categories - Education loan, Agri infrastructure loan, livelihood loan and business activity loan. Many schemes are offered under each loan category. There are 125 lenders.

The applicant must first check eligibility for the desired loan category by answering a few basic questions. If eligible, one may choose to apply online to receive digital approval. To apply on the portal, the documents required are PAN, Aadhaar, Voter ID and bank statements.

Smt Sandhya Nair

# IISc among Top Research Varsities

The Indian Institute of Science (IISc), Bangalore was ranked at 155th place in the 19th QS World University Rankings.

The premier institute proved its mettle in quality research, as it emerged as the global leader in the citations per faculty indicator achieving a perfect score of 100/100 on this metric.

Quacquarelli Symonds (QS), global higher education analysts, used as many as six indicators to determine the rankings. They included academic reputation, employer reputation, faculty/ student ratio, citations per faculty, international students ratio and international faculty ratio.

**QS World University Rankings is one of the top international rankings measuring the popularity and performance of universities all over the world. Nunzio Quacquarelli is the founder of QS - the UK based company.**

Shri Mrithyunjay GN

# The Road to a Guinness World Record

**75 km of the longest continuous concrete road laid in just 105 hours and 33 minutes.**

At 5:00 PM on the 7th June 2022, as the sun hung low in the skies over Akola, Maharashtra, 720 workers and teams of independent consultants erupted in celebration as they set a Guinness world record.

75 km of the longest continuous concrete road laid in just 105 hours and 33 minutes, this monumental task was performed on the NH 53, an important national highway that connects major cities like Kolkata, Nagpur and Surat. Done by the National Highways Authority of India (NHAI) as part of routine maintenance and reconstruction of the highway, this world record is truly something to be proud of.

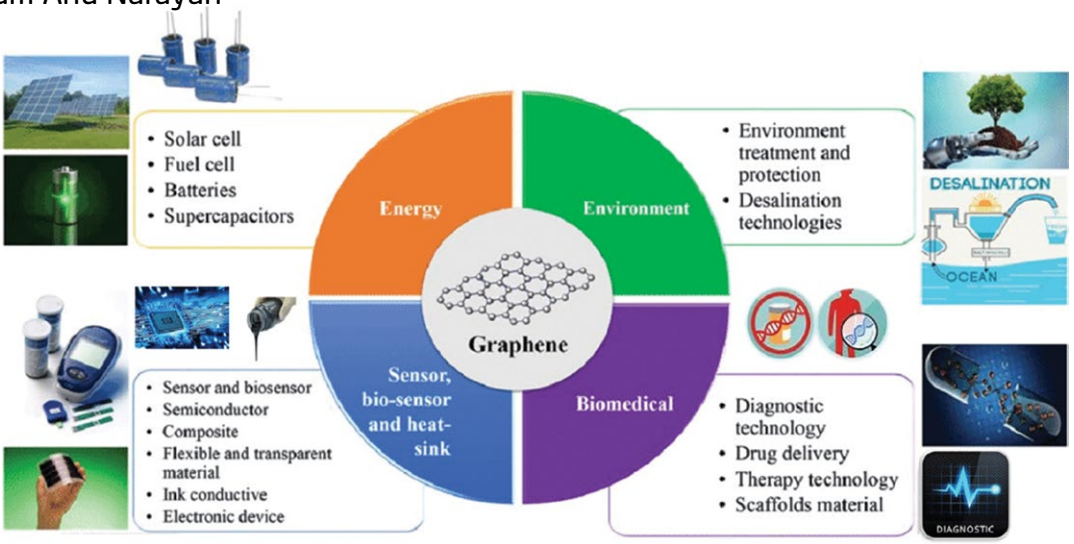
NHAI oversees the construction and maintenance of highways across India and works with private corporations such as Raj Path Infracon to ensure that it can carry out its duties to the best possible extent. Raj Path Infracon played an essential role in the planning and implementation of this world record project.

During the ceremony, Nitin Gadkari, the minister for Road Transport and Highways spoke about people, technology and the bituminous concrete mix that was used to make this project possible. He congratulated the team that undertook the project and spoke about how they worked from 7:30 AM on 3rd June to the 5th, almost continuously, to make this a success.


Bitumen concrete is a composite material commonly called asphalt or tarmac commonly used to surface roads, parking lots and airports. It is weather resistant and resilient to wear and tear for longer periods of time than regular concrete. It also serves to increase surface durability of roads, reduce tire wear and increase braking efficiency.

This world record is another feather in the cap of the Gati Shakthi initiative that aims to make the infrastructure connecting different parts of India more efficient and future ready.

Kum Anu Narayan




# Indian Scientists detect **Neutral Electron Flow** in Graphene

**For conventional electrons, the current flows only in one direction - downstream to the magnetic field.**

Physicists have detected counter-propagating channels in two-layered graphene, along which certain neutral quasi particles break conventional norms by moving in opposite directions. This discovery can potentially shape future quantum computation, the Ministry of Science and Technology said.

When a strong magnetic field is applied to a 2D material or gas, the electrons at the interface are free to move along the edges in channels - similar to highway lanes. This phenomenon - called the **Quantum Hall effect** - has given rise to a platform for hosting exotic emerging quasi particles, whose properties could lead to exciting applications in quantum computing.

For conventional electrons, the current flows only in one direction - downstream to the magnetic field. Scientists had predicted earlier that some materials can have counter-propagating channels where some quasi particles can also travel upstream. However, these channels have been difficult to identify because they don't carry any electrical current.

To detect these channels, researchers from the Indian Institute of Science (IISc) employed electrical noise - fluctuations in the output signal caused by heat dissipation. When they applied an electrical potential to the edge of two-layered graphene, they discovered that though the upstream excitations were charge-neutral, they can carry heat which was dissipated at certain 'hotspots' upstream.

At these spots, the heat-generated electrical noise could be picked up by an electrical resonance circuit and spectrum analyzer, explained Dr. Anindya Das, Associate Professor at IISc.

Kum Silpa Nandakumar

# Ramkrishna Mukkavilli

## the first Indian Global SDG Pioneer

For the first time in history, an Indian has been named a Global Sustainable Development Goal (GSDG) Pioneer for water stewardship by the United Nations Global Compact (UNGC).

Ramkrishna Mukkavilli is among the ten new SDG Pioneers who are business leaders doing an exceptional job to advance the Sustainable Development Goals through the implementation of the UN Global Compact Ten Principles. He is the founder and managing director of Maithri Aquatech, a Make-In-India company. Mukkavilli's work involves building water security with nature-based water solutions across India and 27 countries spanning South East Asia, the Middle East and Africa.

Kum Silpa Nandakumar

# 1.4 km Cable - stayed bridge

## across Chambal River

Union Minister for Road Transport and Highways Nitin Gadkari announced the completion of the project for the construction and maintenance of a cable-stayed bridge on Kota bypass on NH-76 of the east-west corridor stretching from Porbander (Gujarat) to Silcher (Assam).

The cables of the bridge are aerodynamic with the ability to be neutral in stormy winds. Noise barriers installed on both sides of the bridge prevent disturbance to wildlife. **The bridge is capable of handling extreme traffic-jam situations, heavy rains, wind sand is equipped with earthquake sensors.**

# AGNIPATH

## Another Path to the Defence Forces

**A tax-free corpus of INR 11.71 lakhs will be given to Agniveers as Seva Nidhi at the end of four years.**

Dissent is normal and even welcome in a democracy. Dissent crystallizing in to demonstrations and protests is legal. But when such protests degenerate into mindless violence and destruction of public property, it is despicable and has to be put down unequivocally. India witnessed such violent protests and destruction of public property as a reaction to the GOI's announcement of the Agnipath scheme. Let us understand the scheme and evaluate for ourselves.

### The Scheme

Agnipath is a recruitment scheme for the Indian armed forces in which youth between the age of 17 and a half and 21 years will be recruited for a period of four years. At the end of four years 25% of the recruits called Agniveers will be absorbed by the armed forces. The others will be back to the civil society.

### Financial package

It is a composite annual package which will be INR 4.76 lakhs for the first year scaling up to INR 6.92 lakhs in the fourth year. Agniveers will be eligible for various allowances like Risk and Hardship, Ration, Dress and Travel allowances as per applicability.

A tax-free corpus of INR 11.71 lakhs will be given to Agniveers as Seva Nidhi at the end of four years. They are also covered by Death compensation and Disability compensation.

## Advantages

This is expected to make the Indian armed forces more youthful and tech savvy. This gives an opportunity for the youth to serve the armed forces. It will help imbibe the ethos, courage, camaraderie, commitment, discipline and team work of the armed forces in the youth.

Over a period, such a body of youth will change the complexion of the civil society into a bold and disciplined one. Apart from other things, they can also help the local administration in times of crises like natural calamities or maintaining law and order during protests and the like. According to the 2021-22 Budget estimates, salary and pension contributes to 54% of the total defence budget while the capital outlay that goes towards new weapons and technologies is just 27%. This scheme will reduce the salary and pension bills of the defence forces in the long run and enable modernization of the Defence forces. Thus the nation, armed forces, society and individuals are likely to be benefited.

## Concerns

The protests initially seemed to be spontaneous. Later it turned political.

Bihar with an unemployment rate of 17.70% was a tinder box waiting to be ignited. In January we had a sense of this when Bihar faced an agitation over the entrance exams to the Railways. This coupled with the fact that the recruitment to the defence forces at the Jawan level has been on hold since 2019 might have resulted in dissatisfaction among the youth. The normal recruitment to the forces would have given the employment for a longer period with retirement benefits and pension, which Agnipath does not provide for.

Some army veterans have also expressed concern that Agnipath will have an adverse impact on the armed forces.

## Response

While violence is condemnable, all the concerns cannot be brushed aside as motivated or meaningless. GOI has taken cognizance of this and announced certain measures for the Agniveers, like 10 % jobs in the coast guard and state-run defence firms, 10 % vacancies and three years age limit relaxation in the Central Armed Police Forces and Assam Rifles, employment opportunities in merchant navy, six service avenues for induction by the shipping ministry.

The age limit for the scheme was raised from 21 to 23 as a one-time relaxation. Several state governments have offered to give preference to Agniveers in police recruitment. Top business houses have also proposed to absorb the Agniveers post their four-year service.

## Lessons

While the immediate provocation for the protests has been the Agnipath scheme, this is an alarm bell of sorts. GOI should take this seriously and course correct to a high-growth-high-employment model from the current jobless growth model. This will eliminate disgruntlement among the youth over the economics of such schemes. As far as the politics of the protests are concerned, GOI should handle it with an iron hand.

Col Shashidhar MV (Retd)

# INS Surat and INS Udaygiri launched

**DO YOU KNOW ?**

**Project 15B (P-15 Bravo Class) is a class of Guided Missile Destroyers being built for Indian Navy. Its predecessor is the Kolkata Class of Destroyers.**

## Importance of Maritime Security

On 17th May 22, two indigenously built warships 'Surat' and 'Udaygiri' were launched concurrently for the first time at the Mazagon Docks Limited (MDL), Mumbai as part of the "Make in India" projects. The MDL is a premier ship and submarine building defence public sector undertaking which has the reputation of building the formidable maritime arsenal of our nation.

The launch signals GOI's focus as the world is witnessing a new surge of nations strengthening their maritime sector to counter an aggressive China, which has the fastest-growing navy in the world.

## INS SURAT

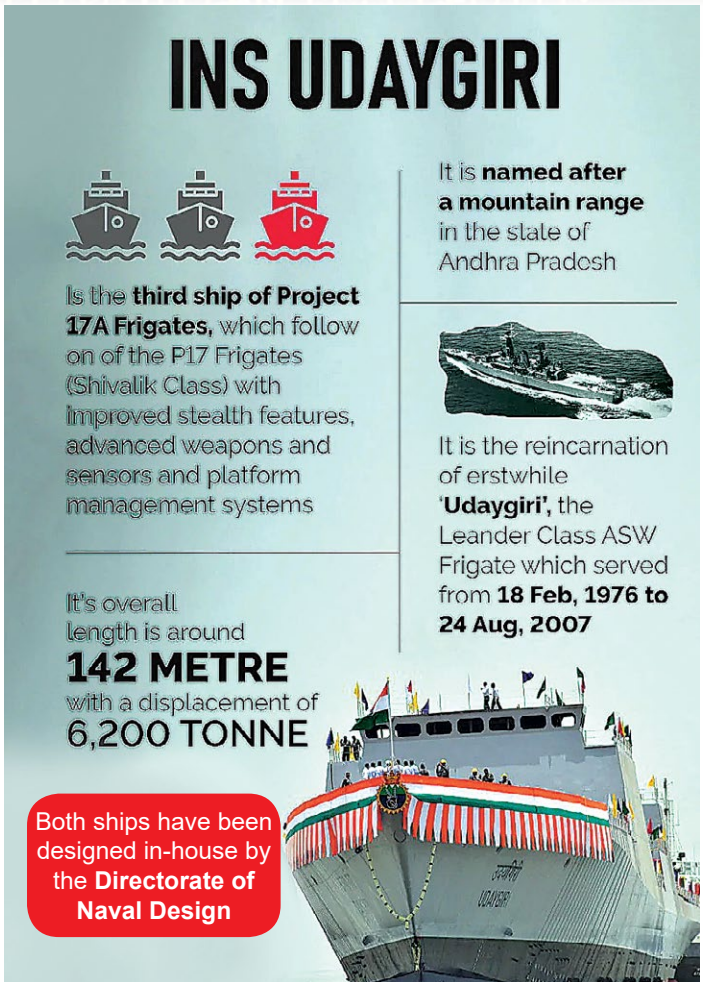
'INS Surat' is the fourth and last ship of Project 15B Destroyers (the most technologically advanced Guided Missile Destroyers of the world) marking a significant improvement on generation P15A (Kolkata Class) destroyers.

It is named after the commercial capital of Gujarat,Surat, which has a rich maritime and ship building history between 16th and 18th centuries.

## INS UDAYGIRI

Udaygiri', named after a mountain range in Andhra Pradesh, is the third ship

# INS SURAT


**" INS Surat has been built using the Block construction methodology which includes hull construction at two different locations and later joined together at MDL. "**

of Project 17A Frigates and are a follow-on of the P17 Frigates (Shivalik Class) with improved stealth features, advanced weapons and sensors and platform management systems. It is an improved version of the erstwhile 'Udaygiri', the Leander Class ASW Frigate.

## Stealth features

- Smaller radar cross-section of the ship achieved through the use of a special super structure shape which reduces radar wave reflections.
- Low noise emanating from propellers, operating machinery like diesel generators etc.

Smt Vaishnavi V


# India's first indigenous Naval Anti-Ship Missile test fired

## DO YOU KNOW ?

**Sikorsky MH-60R are multi role helicopters that have been inducted into the Indian Navy from the United States.**

**Sea King 42B is among the most potent, versatile and advanced multi role aircraft used in the Indian Navy.**

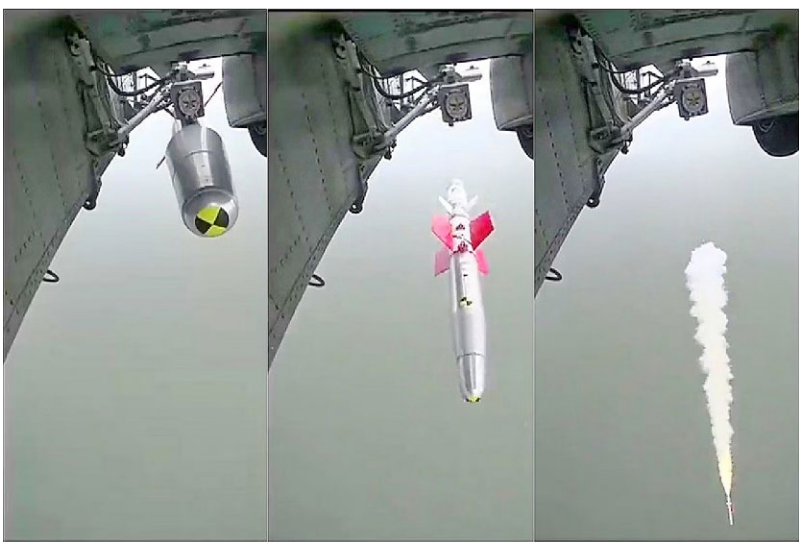
Another significant step towards Atma Nirbhar Bharat! The Indian Navy with the DRDO, on 18th May successfully tested the first indigenous air-launched anti-ship missile from Sea King 42B helicopter.

The launcher was also indigenously designed. A fund of Rs 434.06 crore was allocated for the project.

### Key Features

- A range of 55 km.
- Capable of travelling at a subsonic (slower than the speed of sound) speed of 0.8 Mach.
- Weighs 380 kg.
- Has a 100-kilogram warhead.
- Can be used to target ships and patrol boats.
- Cruise altitude of 15 m in midcourse and 5 m in the terminal phase of its flight.
- Includes sea-skimming trajectory (flying low, close to the surface of the water to avoid detection).

Though the specifications were tailored for Sea King helicopter as the launch platform for the missile, it may also be integrated with the MH-60R helos that will join the Indian Navy over the next few years.



*DRDO is likely to develop new variants of the missile with longer ranges.*

Col Shashidhar MV (Retd)


# INDIA SUCCESSFULLY TESTS AGNI - IV


AGNI is a surface-to-surface missile designed to be launched from the ground or the sea and strike targets on land or at sea. It may be fired from hand-held or vehicle mounted devices or fixed installations or a ship.

## Successful Test

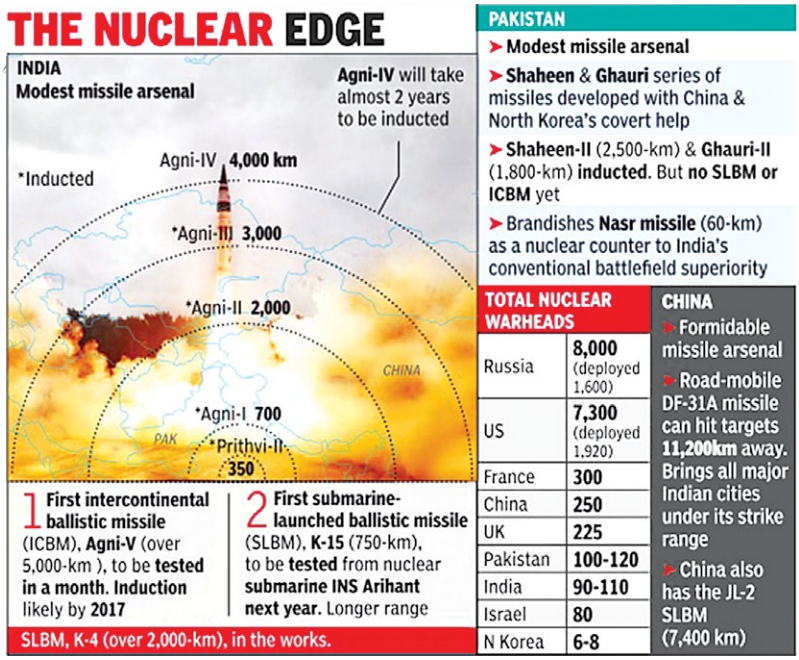
On 6th June 2022, the nuclear capable Agni-IV ballistic missile which can strike targets 4,000 km away, was successfully test-fired off the APJ Abdul Kalam Island in Odisha coast marking a significant boost to the country's military capabilities. GOI maintained that the successful test reaffirmed India's policy of having a credible minimum deterrence capability.Agni-IV is the fourth in the Agni series of missiles – earlier known as Agni II prime – developed by DRDO. Last year, India successfully test-fired the nuclear-capable strategic Agni Prime missile with the capability to hit targets between 1,000 to 2,000 kms.

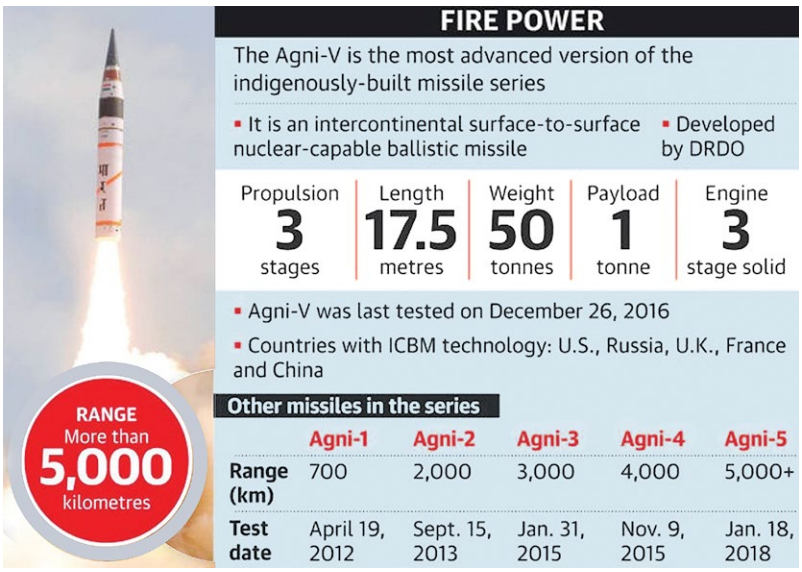
## Features

- A two-stage solid propellant
- 20m long and 17 tonnes in weight.
- Can deliver a payload of 1 tonne nuclear war head to a distance of 4,000 kms.
- Equipped with state-of-the-art avionics, 5th generation on-board computer and distributed architecture ensuring high accuracy. It has the latest features to correct and guide itself for inflight disturbances.

## What are Agni missiles?

- Agni class of missiles are the





mainstay of India's nuclear launch capability which also includes the Prithvi short-range ballistic missiles, submarine-launched ballistic missiles and fighter aircraft.

- Agni missiles are long range, nuclear weapons capable surface to surface ballistic missile.
- The first of the series, Agni-I was developed and tested in 1989.
- It was designated as a special program in India's defence budget and provided adequate funds for subsequent development.

## What are the other ranges of Agni missiles?

- **Agni-I:** Medium Range Ballistic Missile (MRBM) - 700-800 km.
- **Agni-II:** MRBM -> 2000 km.
- **Agni-III:** Intermediate Range Ballistic Missile (IRBM) > 2,500 km.
- **Agni-IV:** IRBM - >3,500 km and can fire from a road mobile launcher.
- **Agni-V:** Inter-Continental Ballistic Missile (ICBM) > 5,000 km.
- **Agni-VI:** ICBM - 11,000–12,000 km (under development)

## Summary

India has long adhered to a nuclear no-first-use (NFU) policy and in 2020 India officially stated that there has been no change in its NFU policy. Further, the Agni-V test launch in October 2021 was accompanied by a reaffirmation of a "'credible minimum deterrence' that underpins the commitment to 'No First Use'.

# PAYMENT SYSTEMS in Banking

Gita and Shravan were browsing through websites of banks to collect details for a project. Grandpa was reading a newspaper.

Mother walked in, took out some currency notes from her handbag and gave it to Grandpa.

"Dad, here is cash ₹5000/- I withdrew from the ATM. Please hand this over to the temple cook. He wanted an advance to buy groceries."

## Cash continues to be a popular method of payment.

Gita wondered,"Grandpa, why don't you pay him through G Pay? "

Grandpa nodded. "He doesn't have a G Pay facility nor use his bank account for transactions. Unfortunately, many aren't comfortable or even aware of digital banking. They still prefer cash payments."

## Limitations of cash transactions

**Inconvenient:** "It is such a hassle to go withdraw from the ATM and then visit the temple and pay him, isn't it?" Shravan asked.

Grandpa: "True. Digital banking is very convenient."

**Look at these two sample cheques to understand what mistakes to avoid and how to write a safe cheque.**


## Payment and settlement systems

The Reserve Bank of India (RBI) as the central bank of India has taken several initiatives for Safe, Secure, Sound, Efficient, Accessible and Authorised payment systems in the country.

Payment and settlement systems play an important role in improving overall economic efficiency. They consist of all the diverse arrangements that we use to systematically transfer money

- Currency
- Paper instruments such as cheques
- Electronic funds transfer
- NEFT
- RTGS
- IMPS

### Bulky/Risky

Grandpa: "We agreed to pay cash because we needed his service and this was a small amount. Suppose we have to pay ₹5 lakhs? It would be bulky to carry around. Then the risk of theft / missing some notes etc. We'd probably have convinced him to accept a cheque."

### Cheque Payment

"How does cheque payment work?" Shravan was curious.

Grandpa: "Suppose I have to pay ₹1 lakh. I can issue a cheque from my bank account. Cheque leaves are issued by banks to customers who open accounts– savings or current."

### What is a cheque?

It is a written instruction by the customer to his bank to pay a certain sum of money to the person named in the cheque. The instruction format is printed by the bank on the cheque leaf. The customer has to fill in the details, sign the cheque and give it to the person to whom they want to pay. This person is called the "Payee".

We must write the cheque as per banking rules and regulations.

"Look at these two sample cheques to understand what mistakes to avoid and how to write a safe cheque."

Grandpa pointed to the picture. "The bank has printed the account number, cheque number and bank branch address on the cheque. The customer has to fill in the following details correctly. If there's any mistake, the bank won't pay the money.

- Date
- Name of the beneficiary
- Amount in words and figures
- Signature

Gita: "I see that the words A/C payee are written between two lines

on the top left. What does it mean?"

Grandpa: "Drawing two parallel lines is called crossing of a cheque. Writing the words "A/c payee" between the lines is called A/C payee crossing. This means that the customer is instructing the bank to pay the cheque only through the bank account of the payee."

Shravan:"What happens if the cheque isn't crossed?"

"Banks can pay cash against an uncrossed bearer cheque. Suppose you write a cheque and it's misplaced or lost. Anyone who finds the cheque can go to the bank, present it and get cash. A/c Payee crossing is done to protect our interest and ensure that the money goes to the correct account."

**The Reserve Bank of India has introduced three types of funds transfer facility for customers to transfer money from one bank account to another.**

## Electronic Funds Transfer

Mr. Gupta walked in and spoke to Grandpa.

"I need your help. I am buying a new flat for ₹1.5 crore.

The builder wanted me to pay money through RTGS. I said I don't know how to do it. I told the builder that I'll pay only through cheques. He agreed.

However, he wants me to pay stamp duty for registration through NEFT. I need to pay `9,30,000/-for stamp duty and registration charges through NEFT. I don't even know what this NEFT is. Can you help me?"


Grandpa answered.

"The Reserve Bank of India has introduced three types of funds transfer facility for customers to transfer money from one bank account to another. All these transactions are routed through the RBI payment and settlement mechanism."

- NEFT
- RTGS
- IMPS

## What is NEFT?

The **National Electronic Funds Transfer** (NEFT) is an electronic payment system that facilitates direct one-to-one payments across the country. Using this, you can electronically transfer funds from any bank branch to any individual having an account with any other bank branch in India that is a part of the NEFT scheme. You can also make NEFT transfers using digital modes of internet banking and mobile banking.

"Can we do it today? Second Saturday is a bank holiday," Mr. Gupta was worried.

"You can do it any time. As per the RBI guidelines, NEFT facility is available 24x7."

"Can we transfer such a large amount?"

Grandpa:"There is no limit specified by RBI. However, banks may fix some maximum limit to protect customers.You can visit your bank and give them instructions to do the NEFT or you can do it online.

You have to register the payee by entering the following


**The National Electronic Funds Transfer (NEFT) is an electronic payment system that facilitates direct one-to-one payments across the country.**


information after you login to your internet banking or mobile banking account:

- Beneficiary name
- Beneficiary Bank account
- Beneficiary Bank IFSC code

Once the payee is registered, you can transfer the amount required."

Mr. Gupta nodded and showed a slip of paper. "Yes, all this information is written down here by the builder. But how will we know the funds will go to this account?"

Grandpa:"The IFSC code is the **Indian Financial System Code.** Each participating bank branch has a unique code. When you enter this IFSC code,money will go to the specific bank branch. The beneficiary account number will ensure that the funds go to the correct beneficiary."

Mr. Gupta: "Can you please sit with me while I do this NEFT transaction?"

They sat together and completed the transaction.

Grandpa showed the receipt on the screen to Mr. Gupta and helped him download the receipt.

**Note the transaction number.**

"Did you see this transaction number on the first line? Note down this number and give it to your builder. With this number he'll be able to check whether the funds have been received. This is the reference number for your NEFT transaction."

"I will send him the details now. When will the funds get credited?"

Grandpa: "NEFT transactions are processed in batches. It would take around two hours to get credited to the beneficiary.

For instant funds transfer, we can do RTGS for large value transactions and IMPS for small value transactions.

Mr. Gupta thanked Grandpa and left.

Grandpa looked at Gita and Shravan.

"Do you see how convenient it was to transfer ₹9,30,000/- from one bank account to another?"

"Yes, Grandpa. It'd have been very cumbersome to count and pay cash." Shravan shrugged.

Right. I will tell you about RTGS and IMPS later.

Dr Preethy .SP



# CUMIN

## A healthy seed for a healthier life

**Drinking jeera water also helps in losing weight thus keeping obesity and associated health problems at bay.**

In Kerala, if you ask for hot water in any house or restaurant, you will be served with the famous "jeera vellam" which is water boiled with cumin seeds. Knowing the health benefits of cumin seeds, Keralites have been practising this for centuries.

Cumin seeds (Jeera) are the full flavoured seeds from the cumin plant

### Why are we required to constantly drink jeera water?

Generally, boiled water is safer to drink and drinking it warm to hot aids in digestion.

Cumin water adds to the digestive benefits and it enables proper bowel movements, relieving constipation. It helps in purification of blood and reduces the body heat and itching,apart from providing mild quantities of iron supplementation to the body.

With most of the Indians, especially women suffering from iron deficiency anaemia, here we have a very simple and cost-effective remedy at hand.

Drinking jeera water also helps in losing weight thus keeping obesity and associated health problems at bay. It also helps in immunity boosting.

Cumin is an essential spice in most of the Indian curries. It imparts enhanced flavour and taste to the cuisine apart from several health benefits. Food items such as Pongal, Jeera rice are known for the flavour because of the cumin seeds.

### How to make Jeera water

Boil water with cumin seeds. Cumin seeds can be removed through staining after water is boiled. The water is usually yellow by now. This water can be used for regular drinking. It is advisable to drink it warm in small quantities, but frequently.

Kum Priyadarsshini S



# Captain Abhilasha Barak

Balu returns home from school.

Dadu is flipping the pages of the newspaper.

**Balu:** [hurriedly and inquisitively] Dadu, who is Captain Abhilasha Barak?I didn't know and promised to find out.

**Dadu:** [with furrowed eyebrows] You were clueless because you hadn't been readingthe newspaper.

**Balu:** [regretfully] Sorry, Dadu!!

**Dadu:** [smiling] Never mind! Captain Abhilasha Barak is the Army Aviation Corps' **first female combat aviator officer.** Director General and Colonel Commandant Army Aviation awarded her with coveted wings, along with 36 other army pilots. In September 2018, she was commissioned into the Army Air Defence Corps. She is the daughter of Retd. Col. S.Om Singh and hails from Haryana.The Indian army tweeted, "Golden Letter Day in the History of Indian Army Aviation."

**Balu:** Interesting! What makes it so remarkable?

**Dadu:** Earlier, women were only assigned to ground duties in the Army Aviation Corps (AAC). Our Indian Army Chief General, Manoj Mukund Naravane, stated that women would be inducted as pilots by 2022, and it did happen.

**Balu:** What does AAC do?

**Dadu:** AAC's helicopters are used for reconnaissance, casualty evacuation, supply drops and search and rescue missions.They also engage in Humanitarian Aid and Disaster Relief (HADR) operations during peace times.

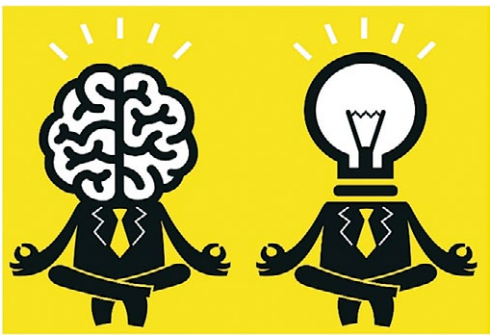
**Balu:** When was AAC formed?

**Dadu:** On 1st November 1986, AAC was established as a separate entity. However, its origins may be traced back to 1942, when the Army Aviation Wing of the Royal Air Force was established and stationed in India.

**Balu:** Amazing!When I grow up, I wish to join and serve the Indian Army!!

Smt Archana Sundar

CURIOSITY CORNER

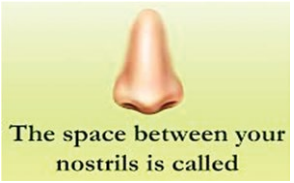
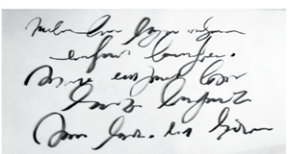
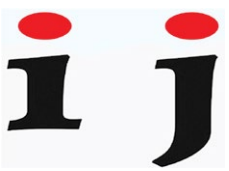


## Did you know these things had names?

## Match the right answer.

| | | | |
|---|---|---|---|
| 1.   | **a. Phosphenes** | 4.   The rumbling of stomach | **d. Petrichor** |
| 2.   | **b. Griffonage** | 5.  The cry of a new born baby | **e. Vocables** |
| 3.  The plastic or metallic coating at the end of your shoelaces | **c. Tines** | 6.  The prongs on a fork | **f. Aglet** |

**Answers on page 55**

| | | | |
|---|---|---|---|
| 7.  The sheen or light that you see when you close your eyes and press your hands on them are called | **g. Agraffe** | 14.   | **n. Minimus** |
| 8.  The tiny plastic table placed in the middle of a pizza box | **h. Armscye** | 15.  The armhole in clothes, where the sleeves are sewn | **o. Overmorrow** |
| 9.   | **i. Wamble** | 16.  The condition of finding it difficult to get out of the bed in the morning | **p. Bannock device** |
| 10.  Your tiny toe or finger | **j. Columella nasi** | 17.  Unreadable hand-writing | **q. Glabella** |
| 11.  The wired cage that holds the cork in a bottle of champagne | **k. Box tent** | 18.  The dot over an “i” or a “j” | **r. Interrobang** |
| 12.  The "na na na" and "la la la", which don't really have any meaning in the lyrics of any song, are called | **l. Vagitus** | 19.   | **s. Dysania** |
| 13.  When you combine an exclamation mark with a question mark, it is referred to as | **m. Tittle** | 20.  The metallic device used to measure your feet at the shoe store. | **t. Crapulence** |

# INTERNATIONAL ENVIRONMENTAL CONVENTIONS – I

**The World Commission on Environment and Development presented a report (popularly known as the Brundtland Commission Report) in 1987, titled "Our Common Future."**

Environmental law as it stands today has evolved over the course of several international conventions over the past century.

## THE STOCKHOLM CONFERENCE 1972

The first major international discussion on environmental protection is the "International Conference on Human Environment" or the Stockholm Conference of 1972. World nations gathered under the UN leadership to discuss strategies to combat environmental pollution and other issues.

Twenty six principles known as the Magna Carta (Great Charter) on Human Environment were declared in this conference which opted for a non-binding declaration. One of its most important outcomes is that it set the stage for several subsequent international collaborations on conservation of the environment.

## THE BRUNDTLAND COMMISSION REPORT

The World Commission on Environment and Development was established by the UN General Assembly (UNGA) in 1983, for a 'global agenda for change.' The Commission presented a report (popularly known as the Brundtland Commission Report) in 1987, titled "Our Common Future." The report stressed upon sustainable development and discussed various global concerns including population and energy concerns. The principles of inter-generational equity and 'strict liability' were also enunciated.

## THE EARTH SUMMIT – RIO CONFERENCE 1992

The 1992 UN Conference on

A ***binding*** document or convention creates an obligation upon the signatory nations to follow it, whereas a non-binding one does not.

By ***signing*** a treaty, a country expresses the intention to abide by the treaty but is not legally bound to do so.

By ***ratifying*** a treaty, the country agrees to be legally bound to abide by it.

Environment and Development (UNCED), also known as the Rio Conference and 'Earth Summit,' aimed to develop strategies and measures to halt and reverse the effects of environmental degradation in the context of increased national and international efforts to promote sustainable and environmentally sound development in all countries. It was a continuation of the process that began with the Stockholm Conference.

The Earth Summit 1992 produced several long-range reports and plans that continue to serve as blueprints for international action on environmental issues, including the World Summit on Sustainable Development (Earth Summit 2002) and the Kyoto Protocol. The Earth Summit 1992 produced:

**(i) The Rio Declaration on Environment and Development** - a set of principles defining the rights and responsibilities of nations towards environmental protection and sustainable development.

**(ii) The Statement of Forest Principles,** which called for sustainable management of forests worldwide is a non-binding document produced through compromise after developed nations refused to pay for the setting aside of national forests by developing nations.

**(iii) Agenda 21,** which is a comprehensive plan for inter-governmental agencies, national governments, local governments and NGOs to work together to protect the environment through sustainable development. It recognised that developing nations and developed nations both contribute to environmental degradation.

ANSWERS of page 52 & 53

## CURIOSITY CORNER ANSWERS

**1.q; 2. d; 3. f; 4. i; 5. l; 6. c; 7. a; 8. k; 9. o; 10. n; 11. g; 12. e; 13. r; 14. j; 15. h; 16. s; 17. b; 18. m; 19. t; 20. p**

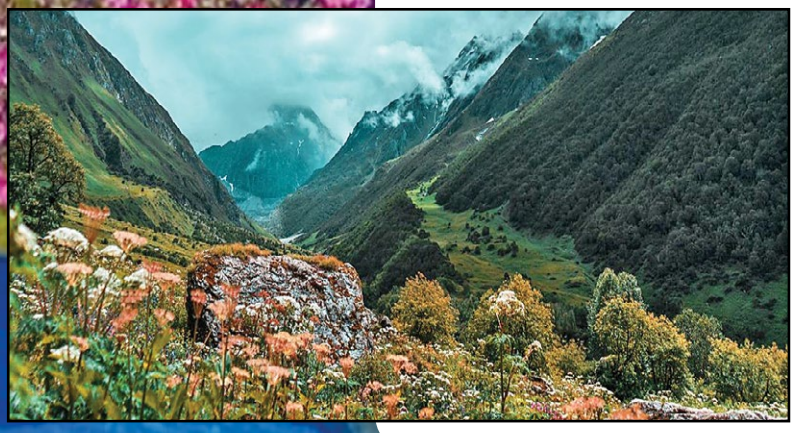
**HOW MANY OF THE ABOVE DID YOU ALREADY KNOW?**

Smt Sumathi Ramakrishnan

# Valley of Flowers
# UTTARAKHAND

Spread over an area of 87 sq km in the Chamoli district, the Valley of Flowers National Park is a UNESCO World Heritage Site and forms one of the two core zones (the other being the Nanda Devi National Park) of the Nanda Devi Biosphere Reserve with a stunning backdrop of the mighty Himalayan ranges, an ethereal view and an unforgettable experience for visitors.

Believed to have been discovered in 1931, when three British mountaineers led by Frank S Smythe lost their way and chanced upon this spectacular valley. Attracted by the beauty they named it the "Valley of Flowers".



As the name suggests, it is home to exotic flowers (over 600 species). Orchids, poppies, primulas, marigold, daisies and anemones are an eye-catching spectacle. Sub-alpine forests birch and rhododendron cover parts of the park's area. The trek to the valley offers breathtaking views of waterfalls and wild streams. At an altitude of around 3,600m above the sea level, the valley has rare and amazing wildlife species like the gray langur, the flying squirrel, the Himalayan weasel, black bear, the red fox, the lime butterfly, the snow leopard, Himalayan Monal etc.

The flowers here can be best viewed between the months of May and October - the time when the area turns into a botanical wonderland.

Smt Sumathi Ramakrishnan

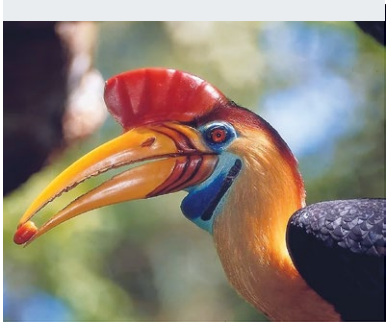


# NARCONDAM HORNBILL

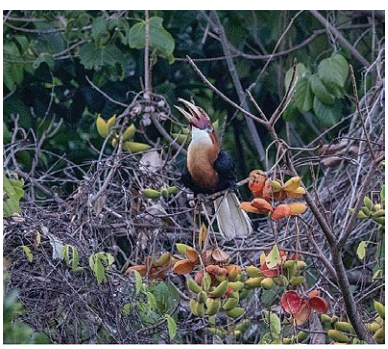
**Common Name:** Narcondam Hornbill

**Scientific Name:** ***Rhyticeros narcondami***

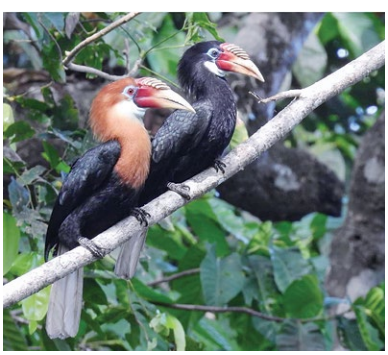
**Narcondam Hornbill was listed on the IUCN Red List of Threatened Species in 2020.**



Narcondam Hornbill is a native of Narcondam Island in north-east Andamans.There are 62 hornbill species in the world—32 in Asia and 30 in Africa. Currently, 26 of them are Globally Threatened or Near Threatened with extinction.



*The Narcondam Hornbill thriving in its natural habitat.*



*Male and Female Narcondam Hornbill enjoying a view.*

**Identification:** A small hornbill with a black body, a white tail, and a strong pale bill with a flat, grooved horn on top. The male has a rust-coloured head and breast, while the female's head and breast are black. It is found only in Narcondam.

**Habitat:** Found in evergreen and deciduous forest; occupies relatively open, mixed forest and dense bushes from the coast inland to the island's summit at 700 m elevation. It can be found all over the island except for the grassy slopes in the south and south-east.

**Feeding habits:** It feeds on figs, berries and fruits in tall trees and sometimes small animals like geckos, skinks, spiders, mantids, land crabs and snakes.

**Voice:** The call is a loud, harsh ka-ka-ka-ka followed by a cackle, often 3-4 calling from the same tree. In alarm, calls kraawkkokkok.

Smt Vaishnavi V



# Rash Behari Bose

Rash Behari Bose,one of the unsung heroes of the Indian freedom struggle, was a revolutionary leader and a master of disguise. Born in Subaldaha village in West Bengal on 25th May 1886, he completed his schooling here and college education in Chandernagore (ruled by the French then).Deeply influenced by the 1789 French Revolution, he was attracted to revolutionary ideas and involved in radical movements in Bengal.

## Delhi Conspiracy Case

On 23rd December 1912, an assassination attempt was made on Lord Charles Hardinge, the Viceroy of India. Bose who was the mastermind in this attack somehow escaped the big man-hunt arranged by British. This event was also known as the Delhi-Lahore Conspiracy case.

## Ghadar Movement

Bose as the leader of the Ghadar Movement which had its origins in the USA and composed of Indians abroad planned large-scale mutinies in the country. Many were captured but Bose eluded arrest once again and fled to Japan in 1915.

## In Japan

Bose actively advocated the independence of India in Japan and urged the Japanese government to support the Indian nationalist movement.

He learnt Japanese and worked as a writer and journalist; and got acquainted with many Pan-Asian groups. He married a Japanese girl and lived there for the rest of his life.

**He founded the Indian Independence League in 1942 in Tokyo and also wished to raise an army for India's freedom. This was the genesis of the Indian National Army.** At the League's 2nd conference in Bangkok, a resolution was adopted to call upon Subhas Chandra Bose as the leader of the movement.

The League urged the Indian prisoners of war taken by Japan during the World War II to join the Indian National Army.

Bose succumbed to tuberculosis on 21st January 1945 in Tokyo. **The Japanese government had conferred on him the honour 'Order of the Rising Sun'.**

He founded the Indian Independence League in 1942 in Tokyo and also wished to raise an army for India's freedom.

# 125-year-old living embodiment of Yoga, Dhyan and Seva

"The world is my home, its people are my fathers and mothers, to love and serve them is my religion."

Swami Sivananda was born on 8th August 1896 in Sylhet district (now in Bangladesh) of undivided India. Due to abject poverty, his beggar parents could feed him only boiled rice and water during his early days.

He lost his mother and father at the age of six. Then he was brought to his Guruji's Ashram at Nabadwip in West Bengal. Guru Omkarananda Goswami brought him up, imparted all practical and spiritual education including yoga without school education.

Having experienced extreme poverty, Sivananda embarked on a mission to serve humanity. He has been teaching yoga on the ghats of Varanasi and feeding the poor and needy. He has also been serving around 600 beggars hit by leprosy by arranging meals and other items for their survival.

His long and healthy life without any medical complications has attracted doctors across India. He is an active supporter of the COVID-19 vaccine and among the oldest to be administered the vaccine.

He has received several awards for his yogic teaching and humanitarian service to the needy. Some of these are Yoga Ratna Award, Basundhara Ratan award and Padma Shri.

His simple and well-regulated routine with early morning yoga, oil-free boiled diet and selfless service to mankind in his own way have given him disease-free and tension-free long life. His life is an exemplary lesson. He is now applying to Guinness World Records to verify his claim. It currently lists Japan's Jiroemon Kimura, who died in June 2013 aged 116 years and 54 days, as the oldest man to have ever lived.

The grace and dignity of Swami Sivananda is both humbling and inspiring.

Shri Vikas Arya


# India-China Border Dispute

# Doklam & Galwan

**Tibet has acted as a buffer between India and China for thousands of years.**

India-China-relations date back to more than 2,000 years ago. Though there have been cultural and economic ties between the two countries with the Silk Road serving as a trade route, the relationship was rather limited till the pre-1950s.

A new chapter evolved after India got Independence in 1947 and the Communist Revolution took place in China in 1949. In 1951, China invaded and occupied Tibet. Geographically, Tibet had acted as a buffer between India and China for thousands of years. With China's invasion of Tibet, India and China became immediate neighbours and started sharing a very long common border.

The root cause of India-China dispute there fore lies in an ill-defined, 3,488 km long border, divided into three sectors namely: Eastern sector which spans Arunachal Pradesh and Sikkim (1346 km), the Middle sector in Uttarakhand and Himachal Pradesh (545 km) and the Western sector in Ladakh (1597 km). Rivers, lakes and snow- capped mountains along the frontier make it very challenging to define a clearly delineated border.

Therefore, since the 1950s, the relations between India and China have come under 'severe stress' on multiple occasions – the most significant one being the 1962 war, which India sadly lost allowing China to acquire control over most regions of Aksai Chin (Western sector).

Emboldened, the Chinese came back to attack India in 1967 at the other end of the Himalayas near the Doklam plateau, also known as Nathu La & Cho La clashes. The Indian soldiers strongly resisted the attack and defended the Indian territory. Fortunately, this did not snowball into a full-fledged war.

There was another military stand-off in 1987 in the Eastern sector, bordering the Tawang district, Arunachal Pradesh, which was triggered following India providing full statehood status to Arunachal Pradesh, a completely internal matter of India.

**In 1996, India and China signed another agreement to ensure that peace is maintained.**

## Pact of 1993 and 1996

India and China intermittently engaged in diplomatic discussions over the years to define the boundaries and resolve the border disputes.

In 1993, both the sides managed to formally document certain key geographical locations across the 3,488 km long border (Western, Middle & Eastern sectors) which would define the boundary. This came to be known as the LAC (Line of Actual Control). However, considering such a long border, some element of ambiguity still remained.

It may be noted that LAC is different from the 776 km long LOC (Line of Control), which denotes the boundary separating parts of Jammu & Kashmir in India and that illegally occupied by Pakistan.

In 1996, India and China signed another agreement to ensure that peace is maintained. Both sides agreed to not hold military exercises at the border, deploying more than 15,000 troops. The need to limit the combat tanks, infantry combat vehicles, guns and any other weapon system was also mutually agreed upon.

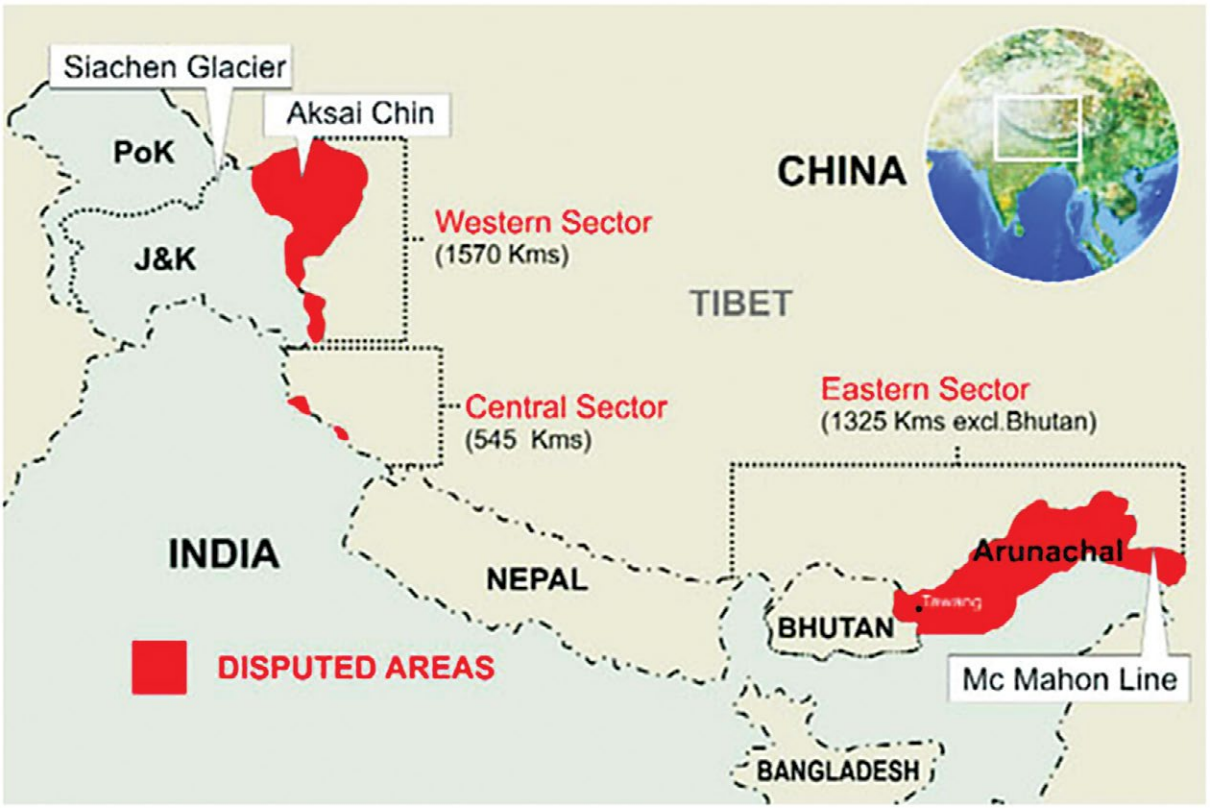

## Recent Developments 2015 – 2022

**Chinese strategy** -The economic global rise of China coupled with an authoritarian rule by its President Xi Jinping since 2013 has propelled China towards adopting an aggressive expansionist policy. China today has active disputes with 17 countries over its land and sea borders including Taiwan, Philippines, Vietnam, Malaysia, Brunei, Japan, Indonesia, Nepal Bhutan etc. with South China Sea being a major point of confrontation with numerous countries.

**China typically engages in what is known as 'Salami Slicing' or 'Nibble & negotiate' technique.** This is the process of making many small changes along the border which finally amass into a big change. It implies small, stealthy military operations against neighbouring countries which accumulate over time in a large territorial gain.

Such military operations are too small to lead to a war but significant enough to stump the neighbour who is not sure how and how much it should respond. A series of such actions not only accumulate territory for China but also become too frequent to attract international diplomatic attention.

China assiduously builds an extensive network of roads, highways, railway lines, air bases, radars, logistics hubs and other infrastructure at the border areas.




**China is indeed the only country which has been expanding its territorial jurisdiction post-World War II at the expense of its neighbours.**

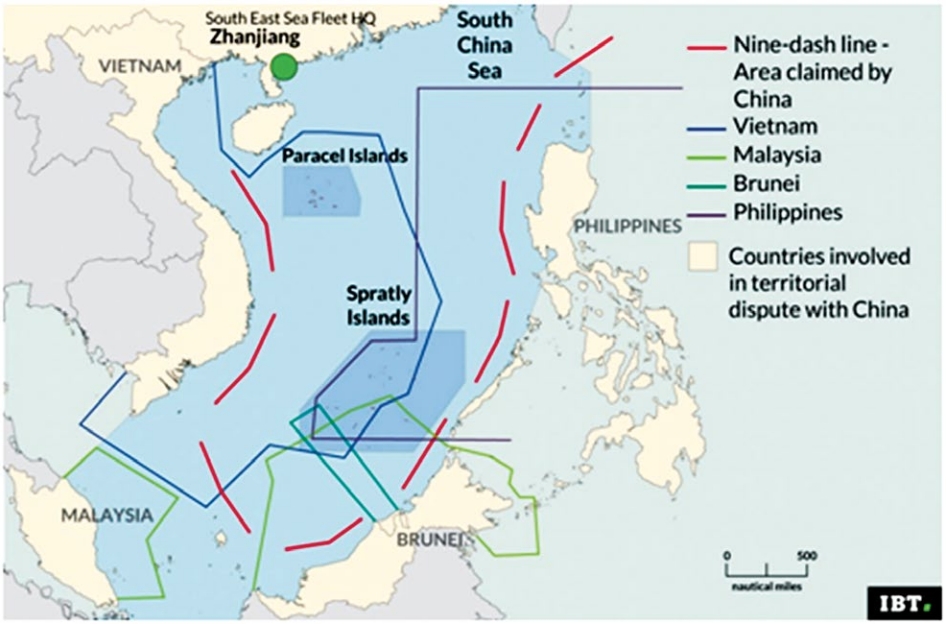
They then overnight create a military outpost a few kilometres into the neighbouring country's territory and station their army personnel out there.

In certain cases, they also set up entire villages in the neighbour's territory encouraging a few of their civilians to start living out there, protected by their army. China is indeed the only country which has been expanding its territorial jurisdiction post-World War II at the expense of its neighbours.

**Indian response -** India which is also now an emerging global power, is actively countering the Chinese by developing infrastructure (roads, bridges, airbases etc.) within its own territory at the border with China. It is also actively monitoring its border 24x7, and is thwarting any attempt by the Chinese to violate the pacts of 1993 and 1996. The two armies had one major stand-off at the Doklam plateau in 2017 – the same region that witnessed clashes in 1967. Doklam is an area spread over less than a 100 sq km comprising a plateau and a valley at the trijunction of India, Bhutan and China. It is surrounded by the Chumbi Valley of China (Tibet), Bhutan's Ha Valley and Sikkim.

**This area is also known as the Siliguri corridor (chicken neck).** Located in northernmost border of West Bengal, the corridor is 60 km long and 20 km wide connecting the North-East with the rest of India. It is not just an important trade route but also an important gateway to South East Asia.

The region is surrounded by Bangladesh, Nepal, Bhutan and China. In 2017, the Chinese were attempting to extend a road through Doklam in an area which lies in Bhutan. This road could potentially help China easily attack the Siliguri corridor in case of a war, thereby




snapping India's access to the North Eastern states. Indian army resisted changing the status quo.

Despite an intense stand-off for about 73 days, the situation was brought under control through diplomatic channels. India's approach on Doklam, under PM Modi, was widely recognized, since India boldly confronted the bullying approach of the Chinese.

2020 saw another round of escalation between the countries. Starting in April 2020, China amassed a large number of troops and armaments along the LAC in eastern Ladakh, leading to stand-offs and skirmishes at Galwan Valley, Pangong Tso (lake) and other areas.

A key trigger was India completing an all-weather 255 km long **Darbuk-Shayok-DBO** (DSDBO) road in 2019. This road, the construction of which started in 2001, now provides India quick access during the entire year from Leh to DBO i.e., Daulat Beg Oldie (DBO). DBO is a military airbase with an airstrip – one of the highest advanced landing grounds in the world. It can be used by large military transport aircrafts like the AN-32 and the C-130J Super Hercules, thus enabling Indian defence forces to quickly reach critical supplies. West of DBO is Gilgit-Baltistan, part of the POK (Pakistan Occupied Kashmir) region and part of CPEC (China Pakistan Economic Corridor).

China has therefore been apprehensive of India's strategic leverage in the region. India also constructed a road including a bridge that branches off from DSDBO road towards the Galwan Valley, up to the point that India has been patrolling. **It is to be noted that India has been building all the roads and other infrastructure well within its own undisputed territory.**

*(To be continued)*

***(Acknowledgement – Articles available electronically on indianarmy.nic.in; honourpoint.in; indiatimes.com; iasgyan.in; clearias.com; ibtimes.co.uk)***

It is to be noted that India has been building all the roads and other infrastructure well within its own undisputed territory.

## DO YOU KNOW ?

**CPEC (China Pakistan Economic Corridor) is a vast network of highways and railways being built by China across Pakistan. CPEC helps connect the deep-sea Pakistani ports of Gwadar and Karachi to China's Xinjiang province and beyond by overland routes, reducing the time and cost of transporting goods and energy such as natural gas to China by circumventing the Straits of Malacca and the South China Sea.**

Shri Subramanian S



# Indian CINEMA

Cinema, otherwise known as a motion picture or film, brings joy and excitement to a lot of Indians. Indians, have made cinema an integral part of our lives.

India is one of the largest film producers in the world, with studios across the country making movies in over twenty languages. Bollywood, the Hindi-language film industry based in Mumbai, is the biggest, though a large number of films are made in regional languages including Bengali, Tamil (nicknamed Kollywood) and Telugu (Tollywood).

The Indian film industry is the largest in the world in terms of number of films released per year with 1,500 to 2,000 movies released annually across twenty languages.

## History and Growth

History was actually created when Harishchandra Sakharam Bhatavdekar popularly known as Save Dada, the still photographer, was so much influenced by the Lumiere Brothers' production that he ordered a camera from England. His first film was shot at the Hanging Gardens in Mumbai, known as 'The Wrestlers'. It was a simple recording of a wrestling match which was screened in 1899 and is considered as the first motion picture in the Indian Film Industry.

The first full-length feature film made in India was the 1913 silent film **Raja Harishchandra,** from director Dadasaheb Phalke. The first talkie (talking film) was released in 1931, by which time

India was producing more than 100 films a year. Dadasaheb Phalke is now remembered through a life-time achievement award bestowed by the film industry in his name.

After 1947, the Indian movie industry never looked back. Film historians regard the period between the late 1940s and 1960s to be Hindi cinema's "Golden Age". This era saw the production of some of India's most critically acclaimed movies which received recognition not only in India but the world over. It produced classics like Pyaasa (1957) and Kaagaz Ke Phool (1959) by Guru Dutt, Awaara (1951) and Shree 420 (1955) by Raj Kapoor.

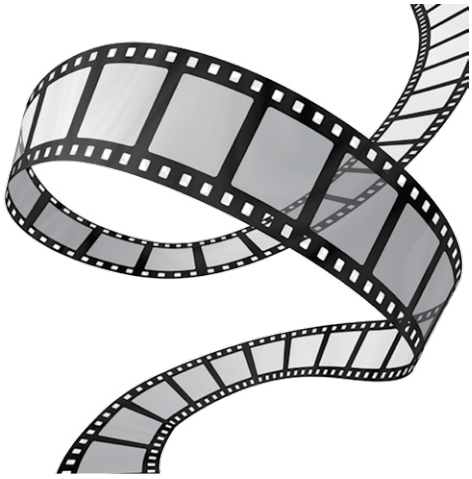
In the 1970s, director Manmohan Desai launched the Bollywood masala film era. His purpose was to entertain people in such a way that they forgot about their problems, and his films reflected this. He created a formula that still governs the Bollywood industry- a hotchpotch of action, romance, hilarity and musical numbers. However, the Indian film business is now paying more attention to the concept, narrative and character development.

## Modern Cinema and Recognition

With films of different genre, the role of Indian cinema is too diverse. Films like Golmaal, Dhamaal, De Dana Dan, Bhagam Bhag, Housefull etc., have not failed to entertain the people through their humour in India and globally. On the other hand, deep message-oriented movies like Lagaan, Slumdog Millionaire and Super 30 have shown the sufferings of underprivileged people and how they succeed in overcoming all adversities to make a difference to themselves as well as to the society. These inspiring films are laced with a powerful message that with hope, dream and hard work, everything is possible.

The Indian film industry had a banner year in 2008, with A.R. Rahman winning two Academy Awards for best music for Slumdog Millionaire.

India is the first 'country of honour' at the Marche du Cinema, the business counterpart of the Cannes Film Festival whose 75th edition May 2022. It was only in 2002 that Bollywood made its Cannes debut with the screening of Sanjay Leela Bhansali's 'Devdas'. The following year, Aishwarya Rai became the first Indian woman to be a part of the international jury. Director Mrinal Sen was the first ever from India to have sat on the jury in 1982.



Films like The Lunchbox, Bombay Talkies and Monsoon Shootout have also been showcased with The Lunchbox winning the Critics Week Viewer's Choice awards. The last Indian film to bag an award was Neeraj Ghaywan's Masaan (2015). It received the Promising Future and International Jury of Film Critics prize.

Like the Filmfare Awards, the National Film Awards also premiered in 1954. However, unlike most other award ceremonies, it was introduced by the Indian Government. The ceremony is held on an annual basis in New Delhi, where winners are selected by a government appointed national panel and awards are handed out by the President of India. Following the ceremony, the National Film Festival takes place where award-winning films are screened for public viewing. There other awards like IIFA, Zee Cine, Filmfare etc.

Director Shaunak Sen's documentary 'All That Breathes' won the Golden Eye award at the ongoing 75th Cannes Film Festival 2022.

### List of Indian Oscar Winners

| Recipients | Category |
|---|---|
| Bhanu Athaiya | Best Costume Design |
| Satyajit Ray | Honorary Award |
| Resul Pookutty | Best Sound Mixing |
| Gulzar | Best Original Song |
| A R Rahman | Best Original Score and Best Original Song |

## Cinema Music

One of the most striking examples of Bollywood's unique aesthetic are the movies' use of song and dance. While it is almost

impossible to characterize the musical aspects of Indian film music, it is this originality that has encouraged its mass appeal.

Although classical and traditional elements are part of the genre, it is more likely to be dominated by Western jazz, rap, disco or whatever styles may currently be in vogue.

Very often songs are produced with a mix of all of the various elements, giving birth to the original style that has come to symbolize Indian film music. India's entertainment and media (E&M) industry is expected to reach

₹4,30,401 crore by 2026 at 8.8 % CAGR (compound annual growth rate) and film music contributes substantially to this revenue.

Composer Ilaiyaraaja is considered one of the world's most prolific composers, with more than 7,000 songs to his name, 1,000 movies, and performed in more than 20,000 concerts.

## Contribution to Indian Economy

A major share of this revenue was contributed by the sector's digital and over-the-top (OTT) rights. India's entire media and entertainment (M&E) industry represents under 1% of its GDP. On the surface, the television, film, and OTT industries (together referred to in this report as "creative industries") are estimated to have a gross output of INR 101,359 cr (USD 15.6 bn), and to employ 7.4 lakh people.

Indian film industry is multi-lingual and the largest in the world in terms of ticket sales but 3rd largest in terms of revenue mainly due to having among the lowest ticket prices in the world. The all-time top three highest-grossing Indian movies worldwide are Dangal - ₹2008.30 crores, Baahubali: ₹1754.50 crores and RRR - ₹913 crores.

## Popular Indian cinema personalities

Raj Kapoor made films which carried a social message and a mix of entertainment, he became immensely popular in the USSR, South Asia, Africa and China. Through his films, the people of these countries came to know about India's social and family values.

Rajinikanth, the Tamil star has a cult following in Japan. Worshipped like a god in India, Rajinikanth scored an unlikely breakthrough with his film 'Muthu' – which filled Tokyo cinemas, ran for 23 weeks and grossed USD 1.6m. It is estimated there are about 3,000 members of the Rajinikanth fan club in Tokyo alone, with other clubs also active in cities like Osaka and Kobe.

## Conclusion

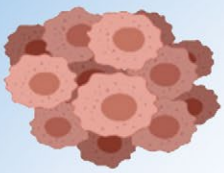
Certainly, Indian cinema has played a major role in our

lives in innumerable ways. But good and bad are two sides of the coin. On the one hand it has contributed hugely towards the society but on the other hand, it has led to many new crimes too. With a far-reaching appeal it has the power to influence the thinking of the people. They have the potential to change the society and social trends.

It is India's soft power that the world recognises.

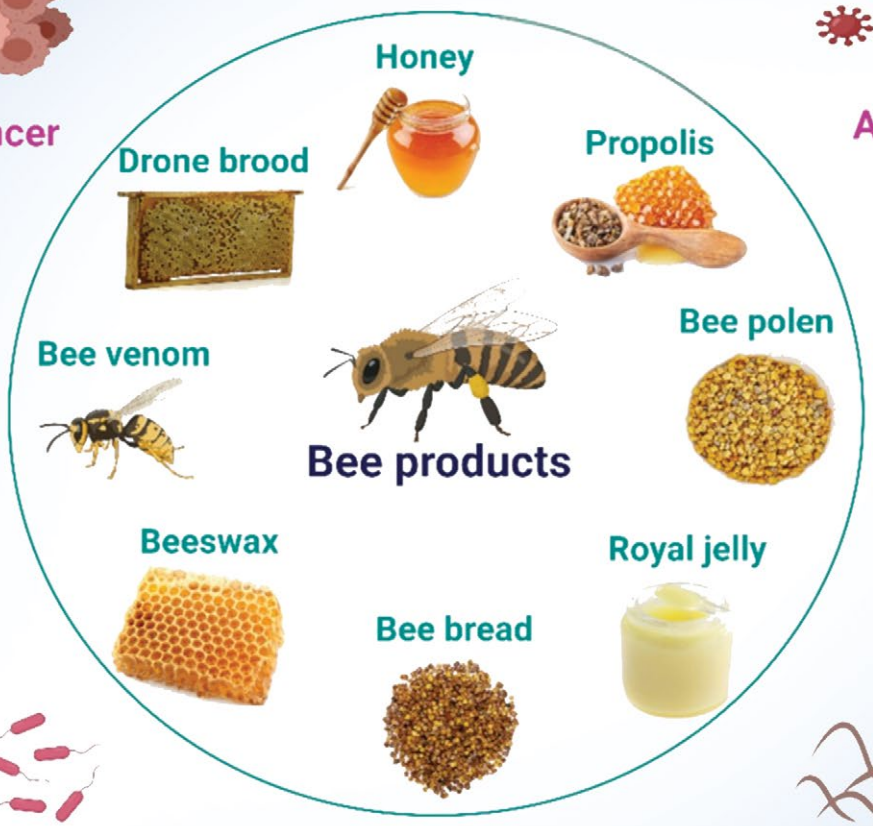
# World Bee Day

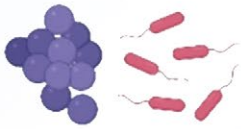
## May 20



Anticancer

Antiviral



Antibacterial

Antiparasitic

Theme for the year 2022 is

*Bee Engaged: Build Back Better for Bees*

# NHAI Sets Guinness World Record for Laying 75 KM Highway in Just 5 Days


**National Highways Authority of India**

भा रा रा प्रा
NHAI