PRAJYA

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World Athletics Championships

Adoption of National Flag of India
July 22nd, 1947

The National Flag is the symbol of India's pride and will always inspire us for selfless service to nation

THE PRAJYA TEAM

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FROM THE EDITOR'S DESK

उद्यमेन हि सिध्यन्ति कार्याणि न मनोरथैः ।
न हि सुप्तस्य सिंहस्य प्रविशन्ति मुखे मृगाः ॥

(Rough translation: Work is accomplished by putting in effort and not by mere wishful thinking. Deer certainly do not enter the mouth of a sleeping lion.)

Tireless and focused efforts alone lead to success. The month that passed by witnessed successes in many fields. The unprecedented medal tally in the Commonwealth Games and stellar performances have all been undoubtedly the result of hard work. The construction of world's highest railway bridge is no child's play especially considering the inclement weather conditions that prevail in such terrain. Increased connectivity through road and rail network would not have been possible without committed endeavour. Seasoned Indian scientists and engineers are developing new devices for increasing energy efficiency.

A nurturing environment is essential for the fructification of effort. Central government, through various schemes has given a boost to meaningful efforts. More than 80 startups every day is the result of spirited effort. A little more effort on innovation by the youth of the nation is required to take current success to greater levels of attainment.

Read, reflect and revert with your thoughts and feelings.

We look forward to your support and suggestions.

- Editorial Team

Dear Readers,

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

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

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

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

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

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

http://bit.ly/Prajya

Happy Reading !

Watch out for the Monthly Prajya Quiz online

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

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Shri Sivakumar R

India's exports to UAE up by more than 16% in May - June 2022

Our shipments of plain gold jewellery increased by 62% and 59 % in May and June 2022 USD 135.27 million and USD 185.78 million respectively.

India and UAE signed a Comprehensive Economic Partnership Agreement (CEPA) in February 2022,which came into force from 1st May 2022. This is the first Free Trade Agreement finalized by the present government.

Let's consider the immediate impact of CEPA. During the first 2 months i.e., May and June 2022, India's exports to the UAE rose by 16.22 % to $837.14 million.

India's exports to UAE which were in negative growth trajectory post the pandemic and up to April 2022 have witnessed a rebound since May 2022.

For example, our shipments of plain gold jewellery increased by 62% and 59 % in May and June 2022 to USD 135.27 million and USD 185.78 million respectively. Other sectors which have benefited are value-added and finished goods like Textiles, Machinery, Footwear, Furniture,Pharmaceuticals, Medical Devices, and Automobiles.

It is to be noted that during the same period imports have risen up by 67% thus widening the trade gap between India and UAE. But this is not a long-term concern as India basically imports raw materials like oil from UAE and exports value-added items.

It is only normal that the exporters of these value-added items will take a little time to firm up contracts for exports to importers in UAE and this should happen very soon. All in all, as already indicated, CEPA is likely to create 5 lakh new jobs in our country besides increasing USD inflows substantially.

Smt Sumathi Ramakrishnan

Aluminium Air Batteries

In an aluminium-air battery, energy is released when aluminium reacts with oxygen in ambient air to produce aluminium hydroxide. Due to its light weight and high energy density, it becomes ideal for electric vehicles.

It can also be 'refuelled' quickly and thus the need for expensive nationwide charging networks is eliminated.

The aluminium hydroxide produced in the battery can be recycled to recover aluminium.

Aditya Birla Group's Hindalco has signed an MoU with Israel's Phinergy to develop and pilot the production of aluminium plates for aluminium-air batteries in India. IOC Phinergy (IOP), a joint venture between Phinergy and Indian Oil Corporation is also party to the agreement.

Recycling of the used aluminium in the battery is part of the MoU signed by the three companies.

Sri Karthik Krishna M - Student

World Athletics Championships

The eighteenth version of world athletics championships were held at Hayward University Eugene, Oregon USA. It was planned to be held in August 2021, but was deferred as a result of COVID.

Nations like Peru and Kazakhstan accomplished their most memorable gold decorations and made their banners rise high. Due to the Ukrainian conflict issues, Russian and Belarusian nations were restricted from taking part. This occasion has likewise made a record. It is by far the most watched event in Television history. Over 146,000 tickets were sold and the night meetings were totally filled.

Originally the championships began in 1976 by dropping a few athletic events, for example, 50 km stroll from the Montreal Olympics. Until 1991, this occasion was held every 4 years and was changed to a 2 year cycle.

It was a humongous throw of 88.13 m by our country's Olympic lion Neeraj Chopra, which won him the silver medal in Javelin Throw despite beginning with a foul toss.

It was a humongous throw of 88.13 m by our country's Olympic lion Neeraj Chopra, which won him the silver medal.

He became the second Indian to win at the World Athletics Championships. We must recollect Anju George who got us the first bronze medal in world championships 2003. India is garlanded with decorations by these athletic fighters.

Smt Ramamani N

Commonwealth Games 2022

India placed 4th

Commonwealth Games is an international multi-sport event conducted every four years since 1930. In the CWG 2022 held in Birmingham in July-August 2022, a **total of 215 athletes participated in 141 events across 19 sporting disciplines, where India bagged 22 Gold, 16 Silver and 23 Bronze medals**.

Notably, India's medal tally in athletics has jumped from 3 in 2018 to 8 (including one gold and 4 silvers) in 2022. Out of 17 CWG editions that India has participated, it has won more than one medal in athletics only six times.

The best was 12 medals (2010) when India was the host. In the next two editions, the number decreased considerably. Now, it is a comeback performance and is India's second-best ever. India's strength has been field events in the past. However, Avinash Sable won silver in the 3000m steeplechase (track event).

India bagged 22 Gold , 16 Silver and 23 Bronze Medals.

Athlete	Medal	Event
Tejaswin Shankar	Bronze	Men's high jump
Murali Sreeshankar	Silver	Men's long jump
Priyanka Goswami	Silver	Women's 10,000m race walk
Avinash Sable	Silver	Men's 3000m steeplechase
Eldhose Paul	Gold	Men's triple jump
Abdulla Aboobacker	Silver	Men's triple jump
Sandeep Kumar	Bronze	Men's 10,000m race walk
Annu Rani	Bronze	Women's javelin throw

Sport	Gold medal	Silver medal	Bronze medal	Total
Weightlifting	3	3	4	11
Judo	0	2	1	3
Lawn bowls	1	1	0	2
Table Tennis	3	1	1	5
Badminton	3	1	2	6
Squash	0	0	2	2
Para Powerlifting	1	0	0	1
Athletics	**1**	**4**	**3**	**8**
Wrestling	6	1	5	11
Boxing	3	1	3	7
Para TableTennis	1	0	1	2
Hockey	0	1	1	2
Cricket	0	1	0	1
TOTAL	22	16	23	61

Rank	Country	Gold	Silver	Bronze	Total
4	India	22	16	23	61
3	Canada	26	32	34	92
2	England	56	64	53	173
1	Australia	66	57	54	177

The commendable performance of our athletes has been possible due to their hard work and consistent motivation by the Indian government.

The Union Ministry of Youth Affairs and Sports had earmarked a sum of Rs.259 crores as assistance to various National Sports Federations. On this, Rs. 190 crores were allotted for investing in the preparation of athletes for the Commonwealth games. CWG squad also attained gender balance with 108 men and 107 women athletes.

PM Modi interacted with the players through video conferencing to motivate them and also spoke with a few athletes individually.

He expressed his pride and congratulated the accomplishments of athletes and their coaches.

Kum Priyadharsshini S

India inspires Developing Countries

Many other developing nations have adopted or expressed interest in the Aadhaar-like unique identity scheme created by the International Institute of Information Technology in Bengaluru.

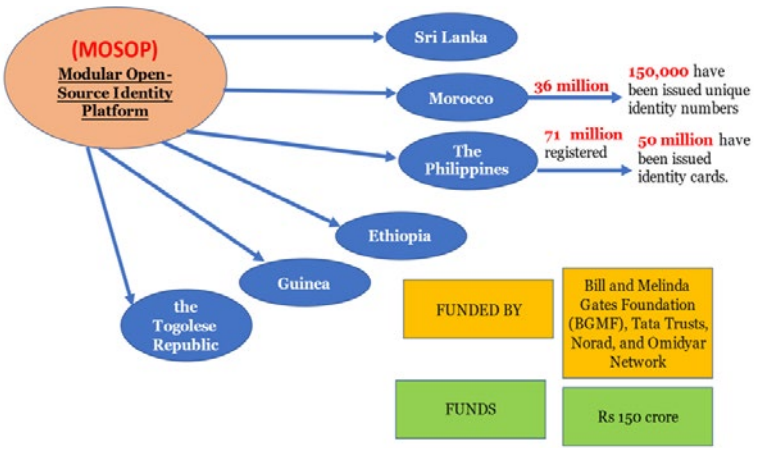
MOSIP is a unique, universal, cost effective and progressive digital identity system.

The open-source national foundational identity platform, called the **Modular Open-Source Identity Platform (MOSIP)** is currently being used by six countries.

MOSIP is a unique, universal cost effective and progressive digital identity system.

It has better scalability, security and privacy.

Several other countries including Uganda, Nigeria and Tunisia have shown interest in using MOSIP. In 2020, MOSIP version 1.0 was released and



countries began experimenting and sandboxing it.

Morocco was second to go live and has been followed by Sri Lanka, Guinea and Togo; Ethiopia is making preparations. In the coming years, the IIIT-B is optimistic to give unique identity numbers to almost a billion people worldwide.

Smt Sumathi Ramakrishnan

Indermit Gill
Chief Economist of World Bank

The World Bank has appointed Indermit Gill as the Chief Economist and Senior Vice president for Development Economics.

His role is a combination of leadership, invaluable expertise and practical experience working with governments on macroeconomic imbalances, growth, poverty, institutions, conflict and climate change.

He is the second Indian, after Kaushik Basu, to get this post.

Smt Ghana Saraswathy M

INDIA'S FIRST WOMAN ENVOY AT UNITED NATIONS

"To the girls out there, we all can make it," said **Ruchira Kamboj** upon becoming India's first female Permanent Representative to the UN. She set a new milestone for women in leadership.

On 2nd August 2022, she presented her credentials to the UN Secretary General.

Shri Sivakumar R

Top 5 countries for Foreign Direct Investment in India

India is rapidly emerging as a preferred country for foreign investments in the manufacturing sector.

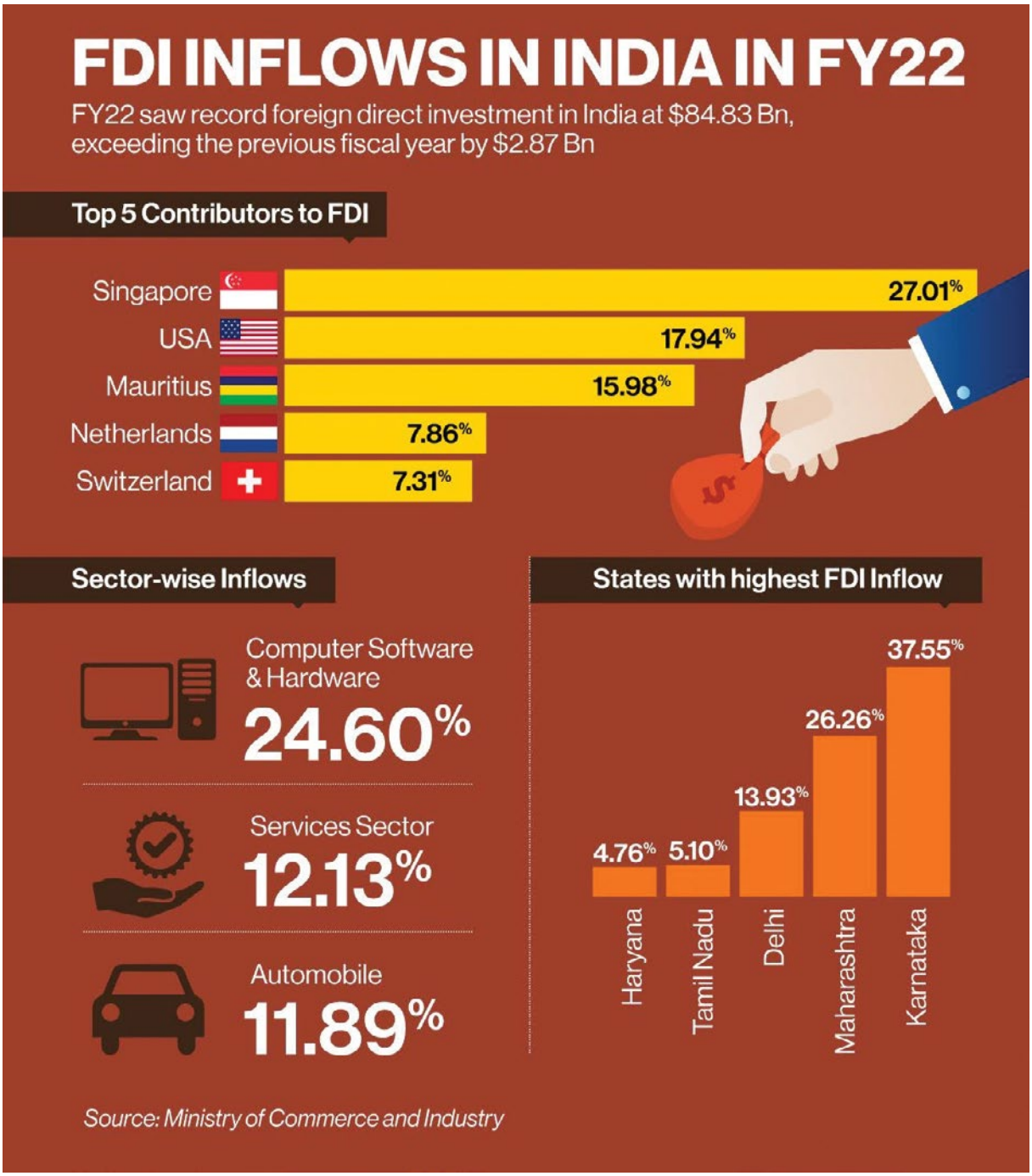
Singapore (27.01%), USA (17.94%), Mauritius (15.98%), The Netherlands (7.86%) and Switzerland (7.31%) were the top five nations in Foreign Direct Investment (FDI) equity flows into India in FY2021-22.

As per the **UNCTAD (United Nations Conference on Trade and Development)** World Investment Report (WIR) 2022, India has improved one position to seventh rank among the top 20 host economies for 2021.

Indian government has implemented several transformative reforms under the FDI policy in the recent years, across sectors such as insurance, defence, telecom, financial services, pharmaceuticals, retail trading, e-commerce, construction & development, civil aviation, manufacturing etc.

India is rapidly emerging as a preferred country for foreign investments in the manufacturing sector. FDI equity inflow in manufacturing sectors has increased by 76% in FY 2021-22 (USD 21.34 billion) compared to previous FY 2020-21 (USD 12.09 billion).

Despite the ongoing pandemic and global developments, India received the highest annual FDI inflows of USD 84.84 billion in FY 21-22 overtaking last year's



FDI by USD 2.87 billion which clearly underlines that recent policy changes are bearing fruit.

GoI continues to liberalise investment restrictions, eliminate regulatory barriers, nurture international relations and improve business environment. Today most sectors qualify for 100% FDI under the automatic route leaving a few like banking, broadcasting content, food products, retailing etc., which alone need prior government approval.

There has also been an increase in the breadth of FDI inflows. While in FY 2020-21, India received FDI inflows from 97 countries it increased to 101 countries in FY 2021-22.

Shri Sampath D

India's Foreign Exchange Reserves Rise to USD 573.875 BILLION

India is one of the very few countries poised to grow in spite of so many constraints.

India's foreign exchange (forex) reserves rose by $2.315 billion to $573.875 billion by July 2022 on the back of robust capital inflows in the equities markets and strengthening of rupee from the record low. The country's forex reserves have been volatile amidst macroeconomic uncertainties.

The value of gold reserves rose by $1.140 billion to $39.642 billion and India's reserve position in the International Monetary Fund (IMF) rose by $31 million to $4.991 billion during the same period.

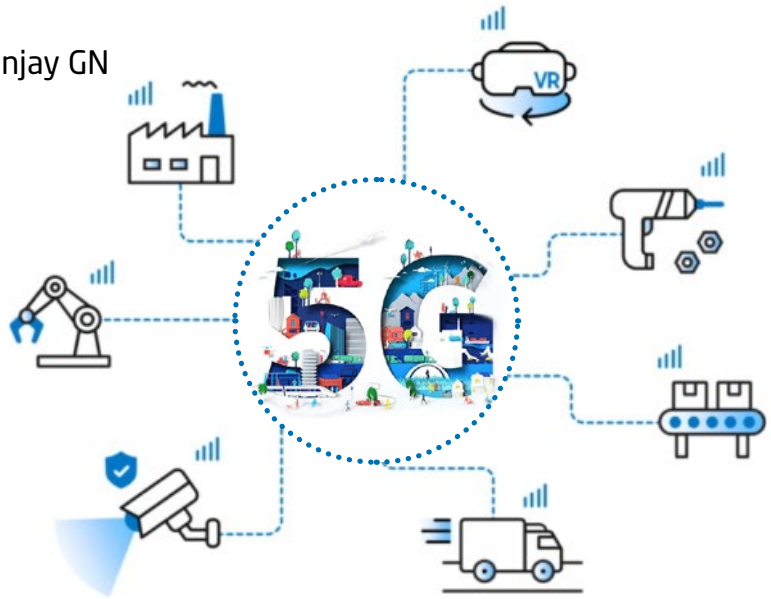
It is seen clearly that India's growth prospects remain strong and resilient. Despite headwinds from geopolitical developments, elevated crude oil prices and tighter external financial conditions, indicators point to an ongoing recovery in several sectors. **India is one of the very few countries poised to grow in spite of so many constraints**.

In the latest monetary policy, RBI announced key measures that are expected to strengthen forex reserves of the country going forward. RBI has raised the policy repo rate by 140 basis points in the last three policies to tackle mounting inflationary pressure. All economic parameters are being monitored closely, to ensure that the economy is kept on rails.

Market interventions by RBI have helped in controlling the volatility and checking the movement of Indian rupee. Every effort is being made to ensure that the basic economic practices are adhered to.

Repo rate is the rate at which the central bank (in India RBI) lends money to commercial banks in the event of any shortfall of funds. It is used to control inflation.

Shri Mrithyunjay GN



Successful Trial of India's first Private 5G Network

India will henceforth be at the forefront of affordable, large scale, reliable and indigenous 5G networking.

Lower latency refers to a minimal delay in the processing of computer data over a network connection.

On 15th July 2022, Bharati Airtel successfully completed a trial of 5G private network at the Bosch Automotive Electronics India Facility in Bengaluru. This marks a leap forward in terms of indigenous telecom technology.

All current networks across India are only capable of 3G or 4G connectivity. 4G has a maximum capability of 100 Mbps **throughput (the amount of material or items passing through a system or process),** making it the preferred network for fast mobile internet. But with 5G technology, a throughput of up to 20 Gbps is possible.

Airtel, as part of their trial, built a premise specific network over the trial spectrum allocated by the Department of Telecom for development of 5G. This is because, unlike 4G, 5G uses high frequency, short millimetre waves of electromagnetic energy to achieve high speeds of connectivity.

The trial proved that mobile internet and ultra-reliable low-latency connections were possible. These resulted in faster start-up times, reduced downtime and increased efficiency.

The facility has the capability to manage thousands of connected devices along with delivering multi-Gbps throughput.

With most of the world either investing in or already implementing 5G connectivity, India will henceforth be at the forefront of affordable, large scale, reliable and indigenous 5G networking.

Kum Kavya R

Low-Power Memory Device with excellent switching characteristics

The new device designed by our scientists uses hafnium oxide (HfO_2), an insulator which can be polarised on application of electric current as an insulating layer.

Swathi S P and Dr S Angappane from the Bengaluru-based Centre for Nano and Soft Matter Sciences (CeNS) have developed a memory device with excellent switching characteristics and low-power requirements for data storage applications. The memory device is made from the chemical hafnium oxide, a replacement for silicon oxide.

Resistive random-access memory (ReRAM or RRAM) is a type of non-volatile (NV) random-access (RAM) computer memory that works by changing the resistance across a dielectric solid-state material, often referred to as a memristor.

Resistive memory devices with insulating film sandwiched between electrodes can address the needs of high-performance, and high-density memories with low power requirements for data storage.

The new device designed by our scientists uses hafnium oxide (HfO_2), an insulator which can be polarised on application of electric current as an insulating layer. The HfO_2 film's **oxygen vacancies (loss of oxygen from their respective positions in the crystal lattice)** increases when they are subject to thermal treatment.

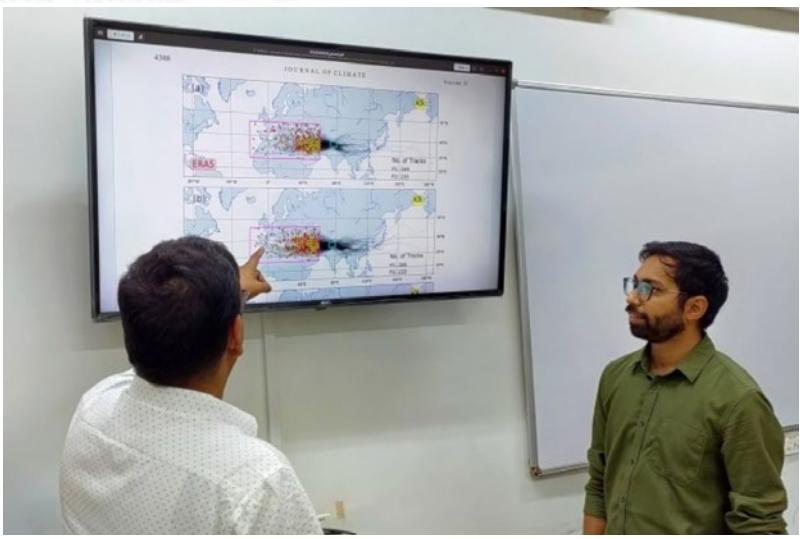
These devices exhibit good endurance and high retention. They can contribute to the development of efficient, cost-effective and reliable resistive memory drives in the future.

Shri Sridhar P

KARAKORAM ANOMALY

Mystery solved

Scientists from Indian Institute of Science Education and Research (IISER) have successfully solved the mystery as to why some pockets of Himalayan glaciers in Karakoram range have resisted trends of glacier retreat due to global warming.



Why we should be concerned about retreating glaciers

Glaciers have a powerful influence on world climate. To study them as a dipstick to assess climate change is incidental. Glaciers are 10% of the earth's surface though 90% of them are in the polar regions. Glacial ice can be several thousands of meters thick and their volume is estimated as 1,70,000 cubic km, holding vast quantities of water.

Glacial melt can raise sea water to unimaginable levels, marooning coastal areas, destroying agriculture, livelihood and creating environmental refugees.

DO YOU KNOW ?

- **John Tyndall** was the first to observe that glaciers are not static but a moving mass of ice.
- **Glacier:** Large mass of ice, resting on land or floating as an ice shelf in the sea adjacent to land. Glaciers are distinctly different from frozen lakes. Mass is dense ice formed from snow and water through a process of snowfall, contraction, recrystallization and growth over thousands of years.
- **Glacial mass** is an open system with inputs of snow and output of ice and melt water. A glacial mass budget consists of net gains or losses of the glacial ice, which determines if a glacier is expanding or retreating.
- **Western disturbances** are storms originating in the Caspian or Mediterranean Sea, bringing non-monsoonal rainfall to northwest India, important for the development of Rabi crop.

When the snow cover goes down the reflectivity (albedo) goes down, resulting in warming oceans that play a crucial part in climate change. Perennial rivers like Ganges and Brahmaputra originate from glaciers of the Tibetan plateau. Retreating glaciers or excessive ice melt can spell danger for India.

IISER findings

D Pankaj Kumar and his team have provided credible data in a paper published in The American Meteorological Society's journal claiming that the recent revival of western disturbance (WD) has been instrumental in triggering and sustaining the Karakoram Anomaly since the beginning of 21st century.

WD are the primary feeders of snowfall for these glaciers. They showed that precipitation intensity due to WD has risen 10% over the last 2 decades. While previous studies have highlighted the role of temperature in establishing this anomaly, this is the first time precipitation has been shown as a factor to explain this unique phenomenon.

Dr Kumar opines that this may just be delaying the inevitable.

Shri Sridhar P

MONKEY POX

Monkey Pox was first detected in Congo and later since 1970 in 11 other West African nations.

Monkey Pox is a zoonotic disease transmitted from animals to humans. It later mutates so that human to human transmission is possible.

Zoonotic diseases

Nearly all zoonotic diseases result from infections by virus, bacteria, protozoans, fungi and worms. They need a reservoir host to hide and multiply before infecting humans. Jumping from a reservoir host to humans is merely by chance.

From Ebola in West Africa to Zika from South America, MERS from middle East to Corona from China and now Monkey Pox, Zoonotic diseases see increased prevalence, with a 4-fold increase seen in the last 6 decades. Zoonotic diseases virus might have several reservoir hosts before jumping to humans. So identifying the primary reservoir host is a laborious task for implementing suitable effective sanitary solutions.

Monkey Pox was first detected in Congo and later since 1970 in 11 other West African nations. From 2017 onwards sporadic cases occurred in Europe and America. The highest prevalence is from Nigeria with more than 500 cases with a case mortality of 3%, since 1970.

Why is there a sudden surge?

Experts opine that the sudden surge in Monkey pox could be due to the cessation of small pox vaccination. This often happens like the sudden spurt in occurrence of

Zoonotic transmission occurs because of close contact with dead animals, consuming improperly cooked animal parts and consuming exotic meat.

Polio in Pakistan due to cessation of vaccination. Small pox vaccination seems to protect against monkey pox to a large extent. Rodents seem to be a reservoir host apart from rope squirrels. Monkey pox seems to have multiple reservoir hosts.

Transmission

Zoonotic transmission occurs because of close contact with dead animals, consuming improperly cooked animal parts and consuming exotic meat.

Even household pets transmit. It is difficult to arrest, first due to multiple reservoir hosts; secondly multiple layers of intervention are needed in the food supply chain. Human to human transmission occurs due to close contact with infected persons. It could be respiratory droplet infection, body fluids contact, skin contact with person who has skin eruption etc. Health workers invariably are at a great risk of being infected.

Signs and symptoms

During the invasive period (0 to 5 days) body pain, fever, intense headache is common. The perfect sign that is useful for differential diagnosis is swelling of the lymph nodes (Lymphadenopathy). Skin eruptions begin in 1 to 3 days after fever. The rash occurs more on the face and feet. Monkey pox is a self-limiting disease with prior small pox vaccination producing milder symptoms.

Self-limiting diseases resolve spontaneously, with or without specific treatment.

Example : mild infections (common cold, flu, conjunctivitis); general symptoms (headache, back pain).

President and Vice President sworn in

On 25th July 2022, **Droupadi Murmu** took oath as the 15th President of India. **Jagdeep Dhankhar** assumed office as the 14th Vice President on 11th August.

Murmu's journey is inspirational. She spent her childhood in a mud house and now shifted to Rashtrapathi Bhavan with her hard work and perseverance. She is 64 years old and the **first tribal woman** and the second woman to take the top constitutional position in the country. She is also the first elected president born in independent India. Born in the Santhal Tribe of Odisha, she worked as a teacher before entering politics in 1997.

Droupadi Murmu's political career

- Elected as a councillor as an independent candidate in 1997.
- Won Odisha Legislative Assembly in 2000.
- Minister of State with Independent Charge for Commerce and Transportation (2000 - 2002).
- Minister of Fisheries and Animal Resources Development from (2002 to 2004).
- Received Nilkanth Award for the Best MLA in 2007.
- Governor of Jharkhand (the first woman to hold the position) (2015 – 2021).

She said, "I started my journey from a small tribal village in Odisha. Today, I'm the President. This is the greatness of India, the mother of democracy." She also said that she resolved to give a new thrust to women-led development in the country.

Shri Jagdeep Dhankhar was born in the year 1951. He is an advocate by profession, hailing from a small village in Rajasthan. He was the governor of West Bengal from 2019 to 2022.

Shri Krishnakumar C S

170–foot Bailey Bridge facilitates smooth pilgrimage

Machail Mata Temple dedicated to Goddess Durga is located in the Kishtwar district, Jammu & Kashmir on a tributary of River Chenab.

The pilgrimage to the temple happens in August. This year's pilgrimage was in trouble because the bridge across this river was washed away by flash floods.

The 40 day annual Shree Machail Mata yatra, which started on Monday after a gap of two years due to the Covid pandemic, is witnessing a huge rush of pilgrims despite heavy rains, officials said.

Indian Army in association with National Highways and Infrastructure Development Corporation Limited constructed a bailey bridge (a pre-fabricated bridge made of wood and steel) in record time.

Local administration has been entrusted with the work to ensure the sanitation and hygiene in and around the langar sites for the convenience of the yatris, officials said. A chopper facility has also been made available from Gulab Garh to Paddar for which booking centres have been established at Jammu, Udhampur, Kishtwar and Gulab Garh, they said.

Kudos to our soldiers !!

Shri Sampath D

India remains among the FASTEST GROWING ECONOMIES

Despite the lowered forecast, India will remain one of the fastest growing key economies globally in 2022-23 as well as 2023-24.

The International Monetary Fund (IMF) lowered India's economic growth forecast for the current fiscal to 7.4% from the 8.2%. In its latest World Economic Outlook update, it also lowered the country's growth forecast for the financial year 2023-24 by 0.8 points to 6.1%. **Despite the lowered forecast, India will remain one of the fastest growing key economies globally in 2022-23 as well as 2023-24.**

"The revision reflects mainly less favourable external conditions and more rapid policy tightening," says the IMF report.

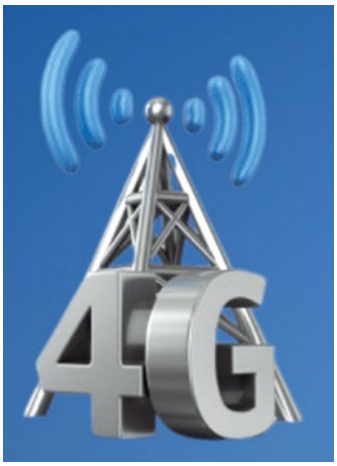
IMF projects the global economy to slow down further to 3.2 % in 2022 from last year's 6.1 %. Global growth at 3.2 % in 2022 and moderation to 2.9% in 2023 is lower than projected in the April 2022 World Economic Outlook by 0.4 and 0.7 percentage points, respectively.

The world economy has been hit badly and weakened by the pandemic. The war in Ukraine has driven up global prices for food and energy, prompting various central banks to raise interest rates sharply. IMF has said that with increasing prices continuing to squeeze living standards worldwide, taming inflation should be the first priority for policymakers.

The ongoing covid lock downs and a worsening real estate crisis have hindered economic activity in China and the aggressive interest hikes by the Federal Reserve are slowing supplies in USA.

The economic measures taken by India to face the Covid crisis and the war in Ukraine have helped it stand in good stead.

Kum Silpa Nandakumar



4G Mobile Services in over 24,000 uncovered villages

Thousands of rural villages are gearing up for 4G coverage. Union Cabinet has approved an investment of ₹26,316 crores to provide network connectivity in uncovered villages across India. A survey had revealed that there were 24,680 villages without network.

The package known as Saturation Coverage will be executed by BSNL using **Atmanirbhar Bharat's** 4G technology stack, funded through Universal Service Obligation Fund.

Shri Nagarajan R

Nanotechnology for rain-proof rural roads

Nanotechnology is the engineering of functional systems at the molecular scale. It incorporates nanoparticles (individual molecules) into existing materials to give them enhanced properties.

Tripura will use nanotechnology for developing rural roads to make them last long, considering the heavy rainfall it receives. The Union Ministry of Rural Development has approved Rs 214.23 crore for constructing 32 roads of 231.64 km in the state under the **Pradhan Mantri Gram Sadak Yojana.** The state will use nanotechnology for constructing 16 roads of 114.23 km. "Under this technology, the roads will be turned into solid concrete structures by using cement and chemicals. Chips and bitumen are generally used to construct roads but they get damaged within a few years, wasting crores of rupees. The roads constructed with nanotechnology will last longer" said chief engineer, Bimal Das.

PMGSY focuses on the consolidation of the existing rural roads network by upgrading major rural links that connect habitations with agricultural and rural markets, educational facilities, hospitals, and administrative headquarters. Among the 32 roads, four are in North Tripura, one is Dhalai, eight in Khowai, six in South Tripura, and 11 in West Tripura.

Shri Mrithyunjay GN

Indian Railways' breakthroughs

The construction of the tunnel faced major challenges such as the hostile terrain, remote location, fractured geology and intense weather conditions in the lower Himalayan regions.

One of the most significant projects undertaken by the Indian Railways is the Udhampur-Srinagar-Baramulla Rail Link (USBRL) Project, which is expected to provide high speed connectivity across the Jammu Kashmir valley. Alongside achieving the milestone of the inauguration of the Chenab Railway Bridge, another important step forward was taken on 26th July 2022.

T-48, the 9.7km – long, 5.30m-wide horseshoe shaped escape tunnel is designed to provide a safe path running parallel to the main railway lines for ease of access during service or rescue operations.

Built over a span of 5 years alongside the development of the USBRL project, the construction of the tunnel faced major challenges such as the hostile terrain, remote, location, fractured geology and intense weather conditions in the lower Himalayan regions.

The tunnel spans between the Sumber and Sangaldan station in the Katra-Banihal section of USBRL and is one of the many tunnels that will ensure that the safety standards of the project are met.

BF infrastructure joins hands with Talgo to manufacture High Speed Trains

Another important milestone in the Government's continued efforts to improve the country's infrastructure is the partnership between Bharat Forge's subsidiary BF Infrastructure and Talgo to manufacture high speed passenger trains. Talgo, a Spanish high speed passenger train manufacturer, has over 75 years of experience in the manufacturing and maintenance of trains and this partnership is expected to significantly contribute to India's **Atmanirbhar Bharath** initiative.

This joint venture plans to bring high speed, state-of-the-art passenger trains and technologies to the Indian Railways network, thereby improving passenger access, comfort and reliability.

Smt Sandhya Nair

Ratan Tata supports GOOD FELLOW start-up

Ratan Tata (84), industrialist and former Chairman of Tata Group is known for his grace, simplicity, humility and philanthropy.

He has extended his support to GOOD FELLOWS by making the seed investment of the first companionship start-up that provides meaningful company to senior citizens who live alone.

The startup which is a subscription-based "companionship company" connects young college students to senior citizens and will do everything from grocery shopping to doctor's appointments.

The startup founded by Shantanu Naidu is a mentee of Ratan Tata.

Smt Sandhya Nair

Agasthiyarmalai Elephant Reserve

Tamil Nadu got its 5th Elephant Reserve at Agasthiyarmalai in Tirunelveli on 12th August 2022.

The Periyar - Agasthyarmalai region spanning 5600 sq km and 16 forest divisions in TN and Kerala is home to around 1500 elephants.

This step will result in more focused management, secure the corridors that are important for Asian elephant's genetic dispersion. The Asian elephant is considered to be a premier flagship species and its presence is a crucial indicator of the health of a forest and the ecosystem.

Smt Archana Sundar

44th FIDE Chess Olympiad

In the last 12 years, the number of Indian grandmasters has tripled to 74 now.

India is the birthplace of chess. In the last 12 years, the number of Indian grandmasters has tripled to 74 now. With a total of 33,308 rated players. India is ranked 4th overall with an average rating of 2668.

The 153-year-old iconic Napier Bridge in Chennai was painted white and black like a chess board for the Olympiad happening f**or the first time in India** (July - August 2022).

The winners of the 44th Chess Olympiad

The young Uzbek team surprised everyone by winning the gold medal.

Standing	Gold	Silver	Bronze
Board 1 Open Section	GM Gukesh D	GM Abdusattorov N	GM Carlsen,M
Board 1 Women Section	GM Cramling P	Roebers E	GM Abdumalik Z
Board 2 Open Section	GM Sarin N	GM Theodorou N	GM Yakubboev N
Board 2 Women Section	GM Batsiashvili N	GM Muzychuk A	WGM Balajayeva K
Board 3 Open Section	GM Howell D	GM Erigaisi A	GM Praggnanandhaa R
Board 3 Women Section	WIM Kiolbasa O	GM Ushenina A	IM Vaishali R
Board 4 Open Section	GM Vakhidov J	GM Pultinevicius P	GM Santos Latasa J
Board 4 Women Section	WCM Mungunzul B	FM Malicka M	IM Tania S
Board 5 Open Section	GM Bartel M	GM Hovhannisyan R	GM Onyshchuk V
Board 5 Women Section	WGM Schneider J	WGM Fataliyeva U	WGM Divya D

Open Section Gold Winners

Uzbekistan	-	Category A
Moldova	-	Category B,
Tunisia	-	Category C,
Libya	-	Category D
Maldives	-	Category E.

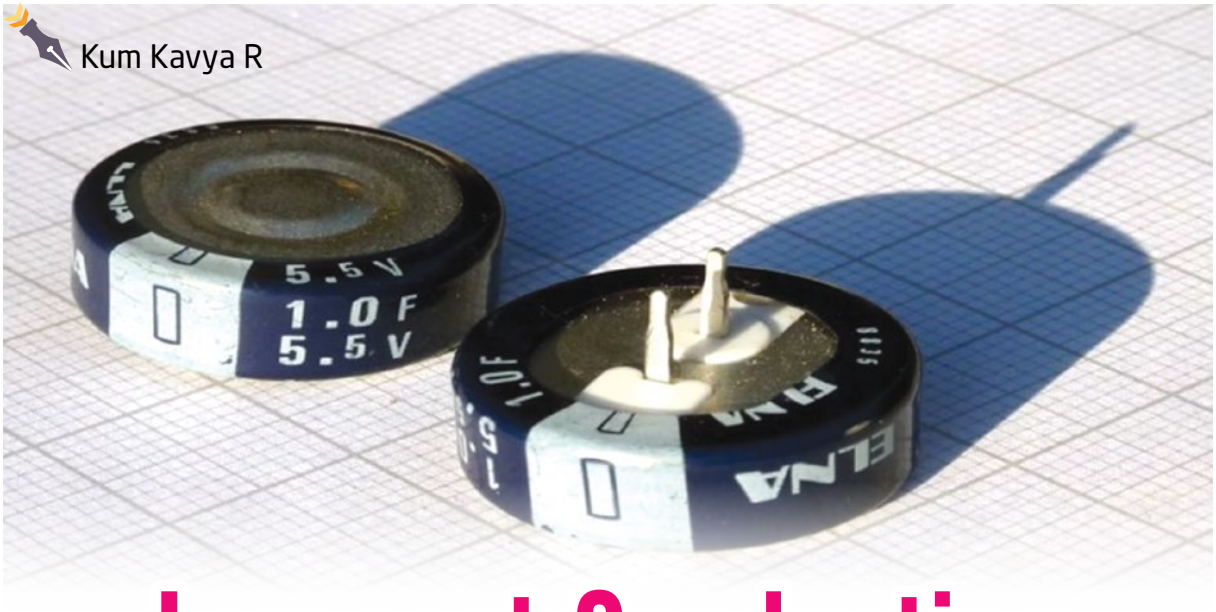
Women's Section Gold Medals

Ukraine	-	Category A
Lithuania	-	Category B
Albania	-	Category C
Kenya	-	Category D
Eswatini	-	Category E

Inaugurated at the Nehru Indoor Stadium with fanfare, in the presence of PM Modi and M.K. Stalin, CM of Tamil Nadu, the event witnessed a march-past of the participating teams.

For the first time in the history of chess,the Olympiad Torch Relay went across 75 cities in India. The relay kicked off on 17th June grandly at Indira Gandhi Stadium, New Delhi with Vishwanathan Anand carrying the torch.

Kum Kavya R



Low-cost Conducting Polymer - Based Electrode

The lightweight symmetric super capacitors built using these electrodes will outperform many new electrode materials.

With the world turning towards renewable energy, the search for new methods and materials for renewable energy harvesting is in full swing. A team of Indian scientists have synthesised a new low-cost, pristine, conducting polymer-based electrode/redox-active electrolyte combination.

This can give enhanced electrochemical performance and cycling stability to super capacitors, facilitating energy storage and powering in wearable integrated devices.

Super capacitors or ultra-capacitors combine the characteristics of conventional capacitors and batteries to give a sudden kick-start to devices by providing a large amount of power and sustained energy release. The performance and stability of these energy devices can largely be affected by the electrode material used in them. Some of the most commonly used electrode materials are conducting polymers such as polyaniline and polypyrrole.

The team headed by Dr Sreekanth J.Varma of the Physics Department of Sanatana Dharma College, has found a strategy to improve the performance of polyaniline (PANI)-based super capacitors and has achieved very high areal capacitance and prolonged cycle life.

This PANI is synthesised by **self-stabilized polymerization** (SSDP). The conducting polymer-based electrode is lightweight and highly stable. The lightweight symmetric super capacitors built using these electrodes will outperform many new electrode materials.

Smt Ghana Saraswathy M

Rare sighting of Black Tiger in Odisha

DO YOU KNOW ?

- A group of tigers is called an **Ambush.**
- Tiger' stripes are as unique as human fingerprints.
- **Mutation** - Sudden heritable change of a gene

Tigers are a symbol of conservation in India's forests. Black tigers, which have only been captured in Similipal Tiger Reserve, are not a distinct species but rather a colour variant of the normal orange tiger.

The melanistic tigers are born with thick black stripes that cover their orange fur, giving them the appearance of being completely black sometimes.

The reason behind the majestic black stripes is mutation. They are Bengal tigers with a single base mutation in a specific gene. The tigers' distinctive black stripes enlarge and spread into the orange background as a result of this mutation.

Shri Bharath

Startups kickstarted

What Next?

India is the third largest start-up ecosystem in the world after US and China.

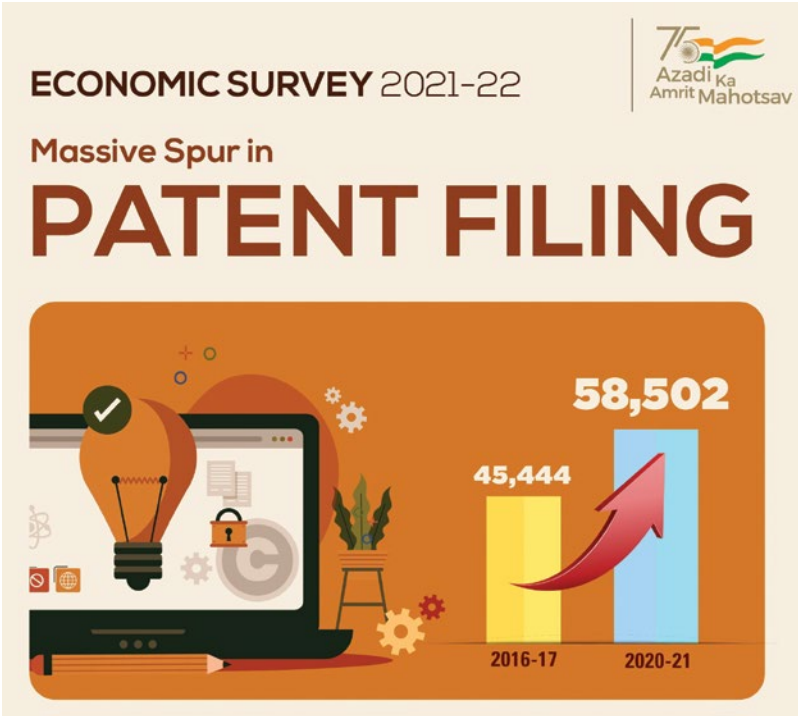
A start up is defined as a company in its early years promoted by an entrepreneur to develop a unique product or service with a clear scope to scale up over a period of time. India is the third largest start-up ecosystem in the world –after US and China. While the Start up wave in India started in 2004, the year 2014-15 was the inflection point. Six unicorns (valuation above USD 1 Bn) emerged in those two years and that, along with other factors, gave an impetus to the ecosystem. **Currently India has 105 unicorns.**

GOI launched the **Start-up India** initiative on 16th January 2016 to nurture the start-up ecosystem which in turn would promote economic growth,entrepreneurship, innovation and employment opportunities.

The number of start-ups in India has grown from 471 in 2016 to nearly 73000 as of 30th June 2022.Startups are emerging at the rate of 80 per day in India ,which is the highest in the world. The main drivers for this boom are:

- Demographic Dividend - our young population.
- India's huge market size.
- Political will demonstrated by the GOI.
- Industry-academic-government linkages.

Nowadays, good ideas do not have a problem for funding. There are angel investors ever ready to invest in startups.



Angel Investors are wealthy private investors focused on financing small business ventures in exchange for equity. Unlike a venture capital firm that uses an investment fund, angels use their own net worth.

Government's Role

While start-ups are robust in India in terms of numbers, the innovation levels are very low. Between FY 17 and FY 21, while the patent filing by the start ups increased from 0.5% to 2.4% their share in the granted patents tanked from 0.38% to 0.06%. This needs drastic improvement.

The Department for Promotion of Industry and Internal Trade (DPIIT) has recognized start-ups across 56 diversified sectors. About 4500 start-ups relate to emerging technologies like IOT, Robotics, Artificial Intelligence, Analytics etc. Indian market size is irresistible and the more aggressive and less risk averse young Indian population is definitely illuminating the scene.

Another major factor is the political will demonstrated by the GoI. **There are innumerable government schemes like NIDHI, PRAYAS etc.** These nurture innovation and develop entrepreneurship. Initiatives targeting specific sectors like iDex (Innovations for defence excellence) and BioNEST (Bio incubators nurturing entrepreneurship for scaling technologies) encourage innovation and technology development in the respective sectors. The ATAL innovation mission and domain specific centres of excellence are also established to stimulate innovation.

Funding

Nowadays, good ideas do not have a problem for funding. **There are angel investors ever ready to invest in start-ups.** The government also has the **Start up India Seed Fund scheme (SISFS)** 2022.With such support it is easy to scale up if the idea is good and well received by the market. Given the favourable environment and the enormous improvement in the ease of doing business, the start-up entrepreneurs should now focus on innovation. That is extremely important to ensure a step change in the start-up landscape, enhancing profitability and scale.

Shri Mrithyunjay GN

548 km of Metro Rail network in 8 years

One of the biggest indicators of infrastructural development in any country is the implementation of reliable, effective and accessible mass public transportation. Recently, India has experienced a rapid expansion of its metro rail network across all major cities.

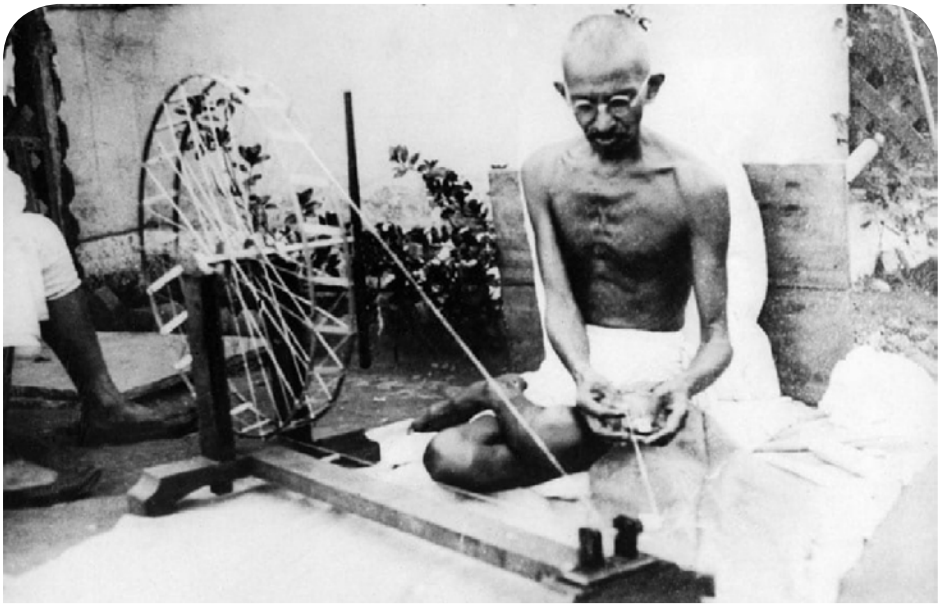
India's metro rail network was mainly based around the Delhi NCR before 2014. But since then, as informed by Kushal Kishore, Minister of State for Housing and Urban Affairs at the Lok Sabha, 584 kilometres of metro rail has been built and made operational.

Some of the projects include, Phase 1 of the Chennai Metro and its extension (54 km), the Hyderabad Metro (69 km), Noida Metro (30 km), Phase 3 of the Delhi Metro (160 km) and Phase 1 and 2 of the Bangalore Metro (54 km).

Several other projects under construction with support from the central government with extensive budgets are expected to be completed in the near future.

These projects and future plans for India's metro rail network suggest a bright future for mass public transportation.

Smt Shubha T R



Centre of Excellence for Khadi at five NIFT centres

DO YOU KNOW ?

- National Handloom Day is observed on 7th August to mark the special significance in India's history – "The Swadeshi Movement".
- Unlike synthetic fibres, Khadi (also known as Khaddar) is hand-woven, using naturally dyed yarns that ensures zero carbon footprint.
- Khadi fabric is unique and keeps the wearer warm in winter and cool in summer.

PM Modi's **"Make in India", "Vocal for local", "Atmanirbhar Bharat"** missions are in exact consonance with Gandhi's vision of Swadeshi goods. GoI is establishing a **Centre of Excellence for Khadi (CoEK)** through the Khadi and Village Industries Commission (KVIC) at National Institute of Fashion Technology (NIFT), New Delhi, Gandhinagar, Kolkata, Shillong and Bengaluru.

The goal is to create new trendy-quality fabrics, home goods, fashion accessories etc., appealing to all age groups and to make khadi a worldwide, value driven brand.

Shri Nagarajan R

UP government appoints Deloitte India as consultant

More than 50 departments across 10 sectors will be tested for the $1 trillion target.

Taking off from the Prime Minister's vision of making India a $5 trillion economy, UP Chief Minister Yogi Adityanath had appointed Deloitte Touche as consultant to fulfil the vision of turning UP into a $1 trillion economy.

UP's GSDP in 2020-21, in nominal terms, was Rs 17.2 trillion, roughly the same level as in 2019-20.

Deloitte will critically analyse the macro and micro-economic sectoral data around trade, investment, expenditure, savings, workforce participation, inflation, import & export etc., to identify the strengths and weaknesses of UP's economy.

The CM said, "Now is the time of UP, taking full advantage of its potential. UP will become the most important base for multi-dimensional development of the country. By 2027, UP will become a benchmark for the policy of Sabka Saath, Sabka Vikas."

The action plan will be examined by a high-level committee headed by the chief secretary. It will also be reviewed by a group of ministers. More than 50 departments across 10 sectors will be tested for the $1 trillion target. The ongoing schemes in all these departments and their impact on the ground will be examined. On the basis of that, department-wise strategy will be prepared and then implemented.

Shri Nagarajan R

ISRO launches satellite built by 750 School Girls

On 7th August 2022 , ISRO's Small Satellite Launch Vehicle (SSLV) from the Satish Dhawan Space Centre in Sriharikota launched two satellites into orbit EOS-02 and AzaadiSAT, creating a historic moment in the space and technology sector of India.

Built and launched to mark the Azadi ka Amrit Mahotsav, the **AzaadiSAT satellite** is a special achievement for the nation as this satellite was created through the brilliant minds of 750 schoolgirls from around 75 schools across India.

This is the smallest satellite (8 kg) to be launched into the Earth's orbit by India. It carries 75 different payloads each weighing around 50grams.

Girl students from rural regions across the country were provided guidance to build these payloads. AzaadiSAT was developed by an organization called Space Kidz India, and the mission behind the launch of this satellite is to promote women in STEM (science, technology, engineering, and mathematics) as this year's **UN theme is 'Women in Space'.**

SSLV-D1/EOS-02

MISSION

Small Satellite Launch Vehicle (SSLV) is the new launch vehicle of ISRO capable of launching Mini, Micro or Nano satellites (10 to 500 kg mass) to 500 km planar orbit. SSLV is a three-stage vehicle with all solid propulsion stages. The satellite insertion into the intended orbit is achieved through a liquid propulsion-based Velocity Trimming Module (VTM).

The design drivers of SSLV are low cost, low turnaround time, flexibility in accommodating multiple satellites, launch-on-demand feasibility, minimal launch infrastructure requirements, etc.

SSLV-D1 is a mission to launch EOS-02 (Earth Observation Satellite – 02) and a co-passenger satellite, AzaadiSAT, into Low Earth Orbit.

SSLV-D1 launch is planned from the First Launch Pad (FLP), SDSC, SHAR.

Payload Accommodation in SSLV-D1

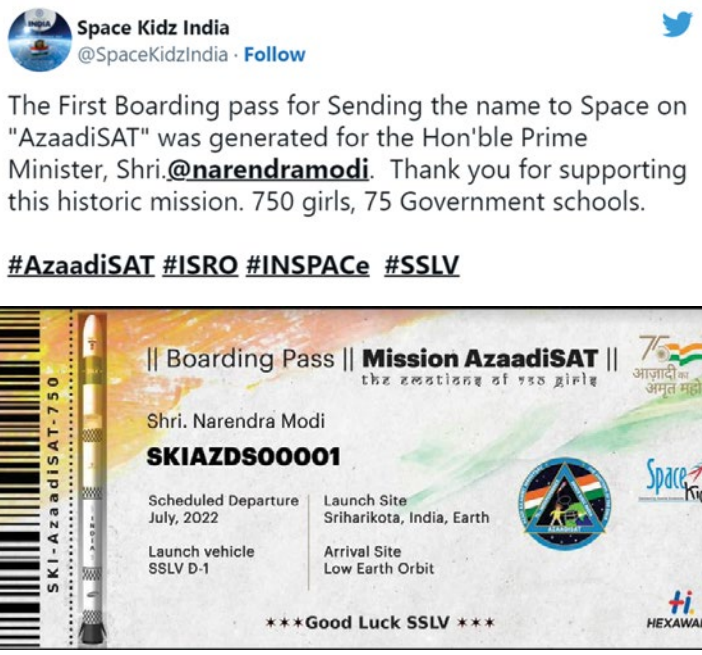
SSLV-D1 Vehicle Characteristics

Vehicle Height	34 m
Vehicle Diameter	2 m
Lift off Mass	120 t
Vehicle Configuration	SS1 + SS2 + SS3 + VTM

SSLV-D1 Mission Specifications

Parameter	Specifications
Altitude (km) (wrt. equatorial Earth radius)	356.2
Inclination (deg)	37.21
Launch Azimuth (deg)	135

Girl students from rural regions across the country were provided guidance to build these payloads.



With ISRO becoming the preferred agency for launch of satellites across the globe, integration of SSLV in its portfolio will open up another option for the space agency to market its offerings. It will also be the preferred launch vehicle due to its low cost, ability to launch on demand, and capacity to carry multiple loads.

Shri Mrithyunjay GN

Indian Railways achieves best ever monthly freight loading in July

As the fourth largest national railway system in the world, the Indian Railways (IR) connects over 67,000 kilometres of land across the Indian subcontinent. It is one of the largest and most efficient transport systems for people and freight in the form of raw materials and finished products.

Super Vasuki carried nearly triple the capacity of the largest freight trains operational now and took less than 12 hours to cover a distance of 267 km as part of its testing.

IR registered a record setting monthly freight loading at 122.14 metric tons in July 2022, driven mainly by loading of cement and clinker. This is of significance, because July 2022 marks 23 months of incremental freight loading.

Another sector where there has been marked increase in the amount of freight moved is coal. A total of 47.9 MT of coal has been loaded and moved to power houses across the country in July. **This is a 32% increase from the average amount of coal loaded in July 2021.**

The increased loading of freight shows that raw materials and resources are being utilised for developmental projects across the country and the IR network is continuing to operate efficiently.

In lieu of the sustained increase in freight loading, IR unveiled the aim to operationalize 100 **Gati-Shakti Cargo Terminals (GCT).** These terminals will help with effective loading and unloading of cargo thereby increasing efficiency and profits.

Super Vasuki

Another significant achievement connected to freight transport is the test run of **Super Vasuki, India's longest and heaviest freight train.** Run by the South East Central Railway, it consists of 6 engines and 295 wagons with a gross weight of 25,962 tonnes.

Super Vasuki carried nearly triple the capacity of the largest freight trains operational now, and took less than 12 hours to cover a distance of 267 km as part of its testing.

Once continued testing is completed and safety precautions are taken, Super Vasuki is expected to take to the tracks of the Indian Railways, transporting mainly coal to power plants across the country.

DR. KALAISELVI

First woman to lead CSIR

On 6th August 2022, Dr. Nallathamby Kalaiselvi became the first woman Director-General to lead the Council of Scientific and Industrial Research (CSIR). She has also been appointed Secretary of the Scientific and Industrial Research Department. She hails from Ambasamudram, a small town in Tirunelveli District,Tamil Nadu. She is not new to paving a path for herself in technology and sciences industry.

She has more than 125 research papers and six patents to her name that focus on electrochemical power systems, the development of electrode materials, lithium batteries, super capacitors, and electrolytes for energy storage and electrocatalytic applications. In 2019, she became the first woman to steer the Central Electrochemical Research Institute (CSIR-CECRI).

Founded in 1942, CSIR is governed by the Ministry of Science and Technology and has 38 research centres. Its president is the Prime Minister of India.

Smt Sarada Devi Ravutu

HAR GHAR TIRANGA

more than 1 crore National Flags sold

'Har Ghar Tiranga' campaign was part of **'Azadi ka Amrit Mahotsav,'** held from 13th to 15th August encouraging people to hoist the Tiranga at home to commemorate India's 75th anniversary of independence.

The amendment to the flag code resulted in the sale of flags by different vendors.

The department of posts sold more than 1 crore flags within ten days at a price of ₹ 25. Flags were bought by citizens in the post office or online at 'epostoffice.gov.in'.

Citizens could also take a selfie with the flag and upload it on www.harghartiranga.com.

Free doorstep delivery was available. Prabhat Pheris, Bike Rally, Choupals sabhas, and social media were used to take the message of the campaign to every section of the society.

India's first Saline Water Lantern

PM Modi launched the UJALA scheme in 2015 for the distribution of LED bulbs across the country. Union Minister of Earth Sciences, Jitendra Singh launched India's first saline water lantern named **'Roshini'** to power Light Emitting Diode lamps during his visit to Sagar Anveshika, a coastal research vessel operated by the National Institute of Ocean Technology Chennai.

Saline water lanterns use seawater as an electrolyte between specially designed electrodes to power LED lamps. The technology will make life easier especially for the fishing community living along the 7,500-km-long coastal line of India. The NIOT team was further advised to transfer the technology to the industry to facilitate mass production of this multipurpose lamp which can be of immense help in disaster-prone rural and remote areas.

Kum Sunita D Behera

75 RAMSAR sites in India

TN has the most Ramsar sites (Fourteen), followed by Uttar Pradesh (Ten).

India has added 11 new wetlands to the list of Ramsar sites or marshes of international importance, bringing its overall tally to 75.

Four of the 11 are in Tamil Nadu, three in Odisha, two in J&K, and one each in Maharashtra and Madhya Pradesh. TN has the most Ramsar sites with 14, followed by Uttar Pradesh with ten.

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The four new sites in Tamil Nadu:

1. Chitrangudi Bird Sanctuary

It has 50 birds from 30 different families. Among these 47 area quatic and three terrestrial. Water birds include a spot-billed pelican, a grey heron, a small egret, a big egret, purple and pond herons and an open-billed stork.

2. Suchindram Theroor Wetl and Complex

The overall population is around 10,500 people, with agriculture accounting for 75% of the community's income, which is dependent on the water discharged from the Theroor tank. Around 250 bird species have been documented in the region, with 53 being migratory, 12 indigenous and four threatened.

75 RAMSAR SITES

Ramsar identifies wetlands of international importance, especially those providing waterfowl habitat.

3. Vaduvur Bird Sanctuary

This covers an area of 112.638 hectares. The vast man-made irrigation tank serves as a refuge for migrating birds by providing suitable habitat for feeding, shelter and nesting.

4. Kanjirankulam Bird Sanctuary

Many internationally threatened species such as the Spot-billed Pelican, Oriental Darter, Oriental white Ibis and Painted Stork may be found in the marsh. Shore and lake birds like greenshank, plovers and stilts are also frequent, as are woodland birds like bee-eaters, bulbuls, cuckoos, starlings and barbets.

The Ramsar Convention (aka The Convention on Wetlands), signed in 1971 in Ramsar, Iran, which came into force in 1975, **is the only global treaty focusing on the conservation and protection of wetlands and the needs of migratory birds.**

It provides for national action and international cooperation regarding the conservation of wetlands and wise sustainable use of their resources. Ramsar identifies wetlands of international importance, especially those providing waterfowl habitat.

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water.

Kum Kavya R

Google's Street View Launched in India

Google Street View will also provide information on road closures and incidents on Google Maps across eight cities.

Flat, two-dimensional maps are becoming a thing of the past. Google's famed 360-degree Street View is now in India! It was launched across 10 cities in India on 27th July 2022.

The plan was originally launched in 2011 but paused in 2016 after the government restricted it citing security issues. Google has partnered with Tech Mahindra and Genesys International to provide this service.

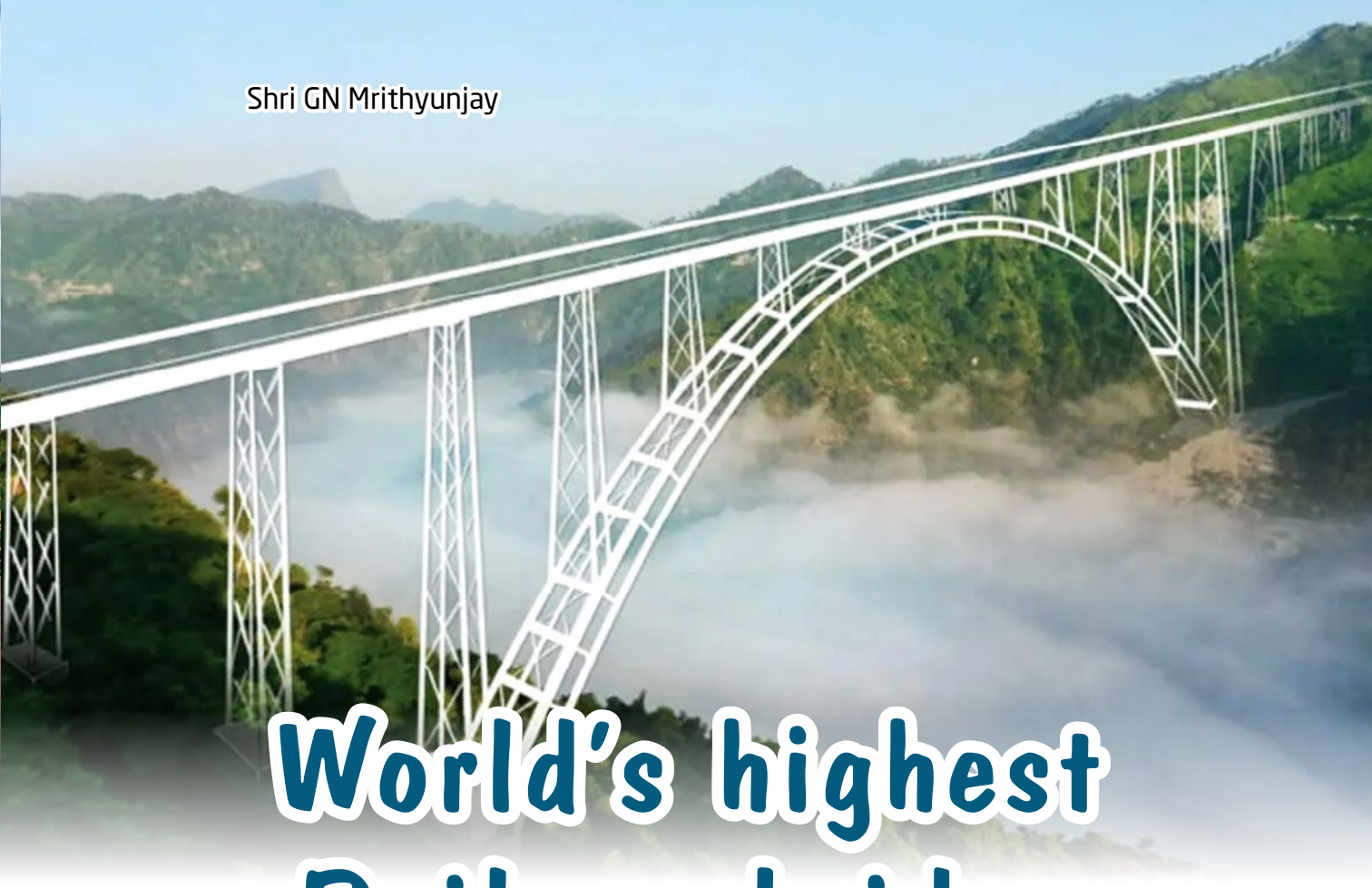
"This is the first time in the world that Google Street View is being brought to life completely by local partners," said Miriam Daniel, Vice president - maps experiences, Google. "They (the partners) have covered 1,50,000 kilometres in India. We plan to expand this to 50 cities by the end of this year."

The service has gone live in Bengaluru, Chennai, Delhi, Mumbai, Hyderabad, Pune, Nashik, Vadodara, Ahmednagar and Amritsar. Google Maps will also show information on speed limits shared by traffic authorities, starting with Bengaluru and Chandigarh.

It will also provide information on road closures and incidents on Google Maps across eight cities, including Delhi, Hyderabad, Chandigarh, Ahmedabad, Kolkata, Gurugram, Bengaluru, and Agra to help people avoid congestion zones.

"We are looking forward to 7,00,000 km of data collection across the country over the next couple of years. We have started with Andhra Pradesh and want to cover 19 states by May 2023," said Birendra Sen - Business Head, Business Process Services, at Tech Mahindra.

Shri GN Mrithyunjay



World's highest Railway bridge

The bridge connects the districts of Katra and Banihal and once fully functional, it is expected to be 35 meters higher than the Eiffel Tower.

With a span of 1315 metres, standing 360 metres above the Chenab River in the Reasi District of Jammu and Kashmir, the world's highest railway bridge was inaugurated on 13th August 2022. The supports for the bridge were completed in November 2017, allowing for the construction for the main archways.

The bridge connects the districts of Katra and Banihal and once fully functional, it is expected to be 35 meters higher than the Eiffel Tower. This will serve as an important step in increasing the connectivity network being developed across the Kashmir Valley by the Indian government.

The bridge itself is part of a 272-kilometre-long railway line connecting Udhampur and Baramulla. Envisioned formally as the Udhampur-Srinagar-Baramulla Rail Link Project, this railway line is expected to provide, once complete, all-weather high speed connectivity between Jammu and Kashmir.

While the construction of the Chenab Railway bridge started first in 2004, it was put on hold in 2008 to ensure safety aspects of the bridge were up to regulations.

Once the requirements to withstand the high-velocity winds that often pass through the valley were met, construction resumed in 2010.

Designed as a collaboration between the Indian Railways and Afcons Infrastructure, an Indian infrastructure company, the bridge is expected to become fully functional by December 2022.

Col Shashidhar M V (Retd)

Indigenously developed Future Infantry Soldier as a System (F-INSAS)

The Galwan valley attacks in June 2020 and the 'Surgical Strike' in September 2016 highlight the ever-increasing threat to infantry-oriented operations.

Overview

The basic tenet behind all Infantry Soldiers Modernisation Programmes in modern and evolving armies is that the infantry soldier remains the mainstay in any operation across the spectrum of conventional and hybrid warfare under varying terrain conditions. Infantry spectrum of operations are complex and characterised by high tempo mobile warfare under difficult, unfamiliar terrain and climatic conditions.

The Galwan valley attacks in June 2020 and the 'Surgical Strike' in September 2016 highlight the ever-increasing threat to infantry-oriented operations. Thus, the necessity for the soldier to be empowered with emerging technologies.

Future Infantry Soldier as a System (F-INSAS). Conceived in April 2005, the Indian Army's Future Infantry Soldier as a System (F-INSAS) aims to harness the advanced cutting - edge military technologies that would enhance the operational capabilities of the infantry soldier and enable him to operate across the entire spectrum of conflict. Reportedly around 20 armies worldwide are using such a system.

Objectives of the F-INSAS Programme

The concept focuses on the need to provide infantry soldier

- **Phase 1: Equipping the infantry soldier with the best assault rifle, carbines and other armoured equipment like Bullet Proof Jackets, Helmets etc.**
- **Phase 2: Battlefield Management System (BMS).**

with enhanced capabilities to include: -

- Lethality
- Survivability
- Sustainability
- Mobility
- Communication and situational awareness
- An effective sensor-shooter interface (integrated with his organisational chain of command).

About the (F-INSAS) System

The full gear of F-INSAS includes an AK-203 assault rifle manufactured by a Russian-Indian venture with a range of 300 metres.

A rifle-mounted holographic sight with a range of 200 metres also provided for target acquisition along with a multi-mode hand grenade for both defensive and offensive modes and a weapon kit with a multi-purpose knife for close-quarters combat.

For the better operability a ballistic helmet, ballistic goggles, bulletproof vest, elbow pads and knee pads have all been provided in the system. The helmet and vest provide protection from 9 mm ammunition from point blank range and AK-47 assault rifles. A state-of-the-art target acquisition and advanced communication is also part of the system.

As the modern battlefields become multi-dimensional, highly lethal, more diverse with the complexities of asymmetric warfare, the F-INSAS is another welcome addition from the **"Make in India"** initiative undertaken by GOI towards self-reliance. The Defence Minister handed over the Indian Army F-INSAS in an unveiling ceremony on 16th August 2020.

Col Shashidhar M V (Retd)

ATAGS HOWITZERS join the 21 Gun Salute

The ATAGS is a howitzer gun developed by the Defence Research and Development Organisation (DRDO).

History

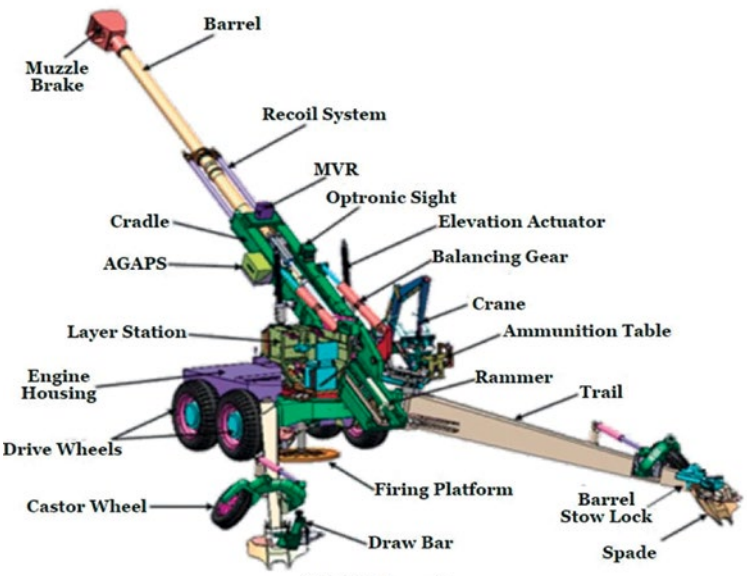
Cannon salute dates back to the 14th century with the advent of firearms and cannons. A canon contained only one projectile (shot) which became ineffective once discharged. Hence came into existence 'all at once' firing tradition. In the early days, warships were known to fire seven-gun salutes. Naval ships and coastal defence of maritime armies adopted this tradition to communicate to each other that "the port/ warship(s) lack any hostile intent and to welcome a ship".

Later in 15th century as improvements were made to gunpowder and evolution of larger artillery weapons resulted in each side firing a total of 21 shots. Historically, naval armies fired volleys varying from 21 to 101 shots to accord official welcome to the Crown, royals and heads of state.

What is a 21-gun salute?

The 21-gun salute is now used worldwide for according the highest honour to any constitutional authority/entity. India too adopted the 21-gun salute from the British like other Common wealth nations.

Before independence, eight guns were generally deployed for the salute and seven used to fire three rounds each. Nowadays, receiving a 21-gun salute is the highest honour which is also the



ATAGS Schematic

international standard. During Independence and Republic Day, the Indian National Flag and the President are both honoured with a 21-gun salute.

The Indian Legacy

Whenever the National Anthem is played by the Military Band after the unfurling of the Tricolour at the Red Fort by the Prime Minister, a 21-volley gun salute is fired by a ceremonial battery from an artillery regiment. Over the years, this 21-gun salute firing of blank rounds was resorted to by the Second World War Vintage British howitzers known as **'Ordnance Quick Fire 25 Pounder'.**

Independence Day 2022

On 15th August 2022,two Advanced Towed Artillery Gun Systems (155mm/ 52 calibre) (ATAGS) joined the battery of 25-Pounder gun howitzers,the standard artillery guns being used by India during this salute.

The ATAGS is a howitzer gun developed by the Defence Research and Development Organisation (DRDO) with its Pune-based facility Armament Research and Development Establishment (ARDE). Developed as part of the **Atmanirbhar Bharat** initiative, this "Make in India" howitzer with an effective firing range of 48 km is being manufactured by Bharat Forge and Tata Power (SED).

Weighing 18 tonnes, this holistic weapon system can fire a variety of ammunition, including **Terminally Guided Munitions (TGM)** and has an advanced communication system and automatic command and control system for a modern day battle field environment and found very effective in extreme weather conditions.

Smt Archana Sundar

Dr Subbanna Ayyappan

Aquaculture Scientist

Dr Ayyappan has made history in the ICAR by becoming the first non-crop scientist to head this institution.

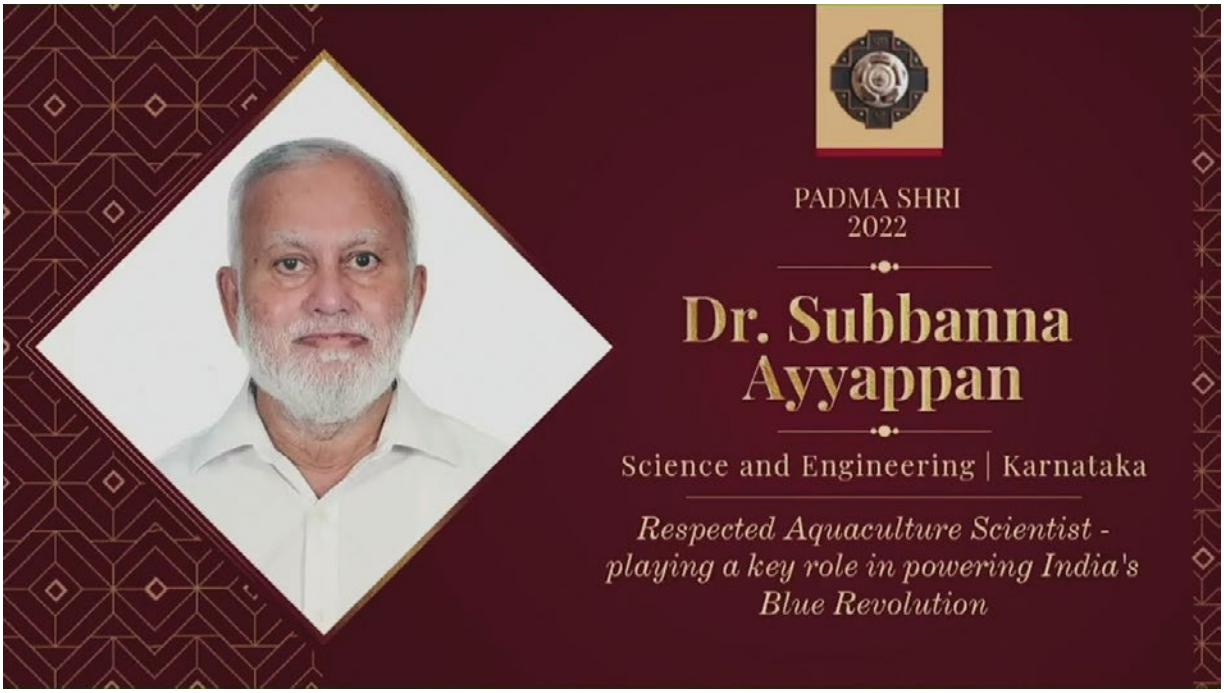
What is Blue Revolution in India?

Blue Revolution (aka Neel or Nili Kranti Mission) in India was launched in 1985-1990 during the 7th Five-Year Plan to develop, manage and promote fisheries to double the farmers' income. Hiralal Chaudhuri and Dr Arun Krishnan are known as Fathers of Blue revolution.

Dr Subbanna Ayyappan, a native of Bengaluru is a 67-year-old aquaculture scientist playing a key role in powering India's Blue revolution.

He has a PhD from Bangalore University and a master's degree in fish production and management from the College of Fisheries, Mangalore. He has published research papers on fisheries, limnology and aquatic microbiology. He is a former director of the Indian Council of Agricultural Research and the chancellor of the Central Agricultural University in Imphal.

Dr Ayyappan has made history in the Indian Council of Agricultural Research (ICAR) by becoming the first non-crop scientist to head this institution. Presiding over 100 institutions with limited funds, he has had the difficult task of juggling finances, ensuring that his 4,000-odd scientists are achieving national objectives.



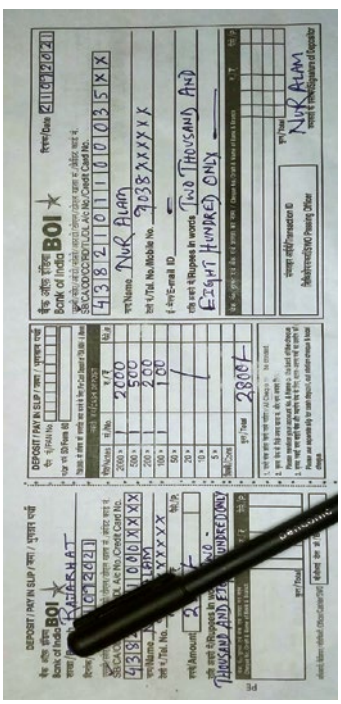
Blue Revolution

- Focuses on enhancing the production and productivity of aquaculture and fisheries **(Fish farming or pisciculture)** both from the inland and marine sources.
- Promotes and encourages the economically backward sections like the Scheduled Castes, Scheduled Tribes, Women and their co-operatives to take up fishing.
- Works in consonance with the '**Sagarmala Project'** of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA), Ministry of Shipping, National Rural Livelihoods Mission (NRLM), Rashtriya Krishi Vikas Yojana (RKVY) etc.
- Encourages entrepreneurship development, private investment, Public-Private Partnership (PPP) and better leveraging of institutional finance.

भाकृअनुप
ICAR
Indian Council of Agricultural Research

Established on 16 July 1929, ICAR is an autonomous organisation under the Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare, Government of India. 'ICAR Vision 2050', provides the strategic framework for innovation-led inclusive and sustainable agricultural growth in the country.

CUSTOMER PROTECTION in Banking



Shravan and Gita were counting the cash in their piggy banks.

"Grandpa, look here, I have saved around thousand rupees in my piggy bank," Shravan called out.

"I have saved one thousand five hundred rupees," Gita added.

Grandpa nodded. "Good. Let's go and deposit the money into your accounts."

"Why don't you fill up the cash pay in slips with the details?" Grandpa advised them. "This will help us complete our work faster at the bank."

Grandpa handed over the pay in slips and guided them to fill in the details.

- Account number
- Name
- Cash deposit amount in words
- Cash denomination X number of notes
- Total cash deposit amount in figures

The children filled in the details meticulously. They each carried their cash in a small bag.

They walked to the bank. There were no customers, yet the staff were all busy staring at their computers.

Shravan handed over the pay in slip to the cashier and placed the pile of currency notes and coins on the counter.

"What is this? I cannot accept these small denomination notes and coins. Take it back." The cashier shouted at Shravan.

"This is my savings. I want to deposit into my account. I have already filled in all the details." Shravan's voice was low.

Grandpa came up to the counter. "What is the problem?" he asked the cashier.

"I can't accept these notes and coins. I don't have the time to count this." The cashier replied rudely.

Gita looked at her bag full of small notes and coins, tears in her eyes.

Grandpa drew a long breath and spoke sharply. "Look here young man, as per RBI rules, it is your duty as a banker to accept cash from customers - whatever the denomination. If you refuse to accept this cash, we can complain against you and the bank to the Banking Ombudsman for deficiency of service."

The cashier called his senior officer on the intercom. The senior officer rushed out of his cabin and apologised to Grandpa. "Sorry sir, the cashier is new. He doesn't know the rules. I'll ask him to accept the cash."

The cashier accepted the cash and gave the acknowledgement without looking up. A queue had formed behind them.

Mr. Gupta was in the queue – he waved at Grandpa and the children.

Grandpa asked the children to wait in the lobby while he went to the ATM to withdraw cash.

Mr. Gupta sat down on a chair and called out to the children. "Please stand here in front so that nobody comes here." He placed a bag on his lap and started dropping the 100-rupee currency notes one by one on the bag.

He tried to separate the torn and old notes from the bunch. A few notes slipped from his hands and the children bent down to collect the notes.

"What are you doing?" Grandpa was back from the ATM.

"I withdrew cash Rs.3000. The cashier has given me these old currency notes. Some of the notes are torn. I want to exchange these notes now itself otherwise he will not accept."

"This cashier gives us soiled notes, but he will not accept a note even if it's slightly torn," a customer standing nearby commented.

Grandpa shook his head. "That's not right. Please wait. I'll bring the service manager here."

The service manager came to the lobby. Grandpa showed him the notes that Mr. Gupta was holding on his lap.

The RBI has specified the following five rights of customers of banking in India.

Right to	
Fair treatment	to be treated with respect
	to approach the bank for service and transactions in their accounts
	to receive a solution/explanation when they have a problem with some service.
Transparency, fair and honest dealing	to be provided with information about interest rates, charges and other details of their banking transactions
Suitability	to be provided the right product & service for their need.
Privacy	to maintain secrecy of their account - banks cannot disclose information about a customer even to closest relative
Grievance redressal & complaint resolution	to complain to the bank and its customer service department if they do not receive proper service or have suffered any loss.
	If the bank does not resolve the complaint, customer can complain to banking ombudsman

Clean note policy of RBI

As per the "Clean note policy" of RBI, public are advised not to write on currency notes or staple them. Banks are also advised to issue clean notes to customers and not recirculate the soiled notes received at the counter. Banks are required to send the soiled notes to the currency chest.

What are soiled, mutilated and imperfect banknotes?

(i) A **'soiled note'** means a note which has become dirty due to normal wear and tear and also includes a two-piece note pasted together wherein both the pieces presented belong to the same note and form the entire note with no essential feature missing.

(ii) **"Mutilated banknote"** is a banknote, of which a portion is missing or which is composed of more than two pieces.

Refund value of these notes is, however, paid as per RBI (Note Refund) rules.

(iii) **"Imperfect banknote"** means any banknote, which is wholly or partially obliterated, shrunk, washed, altered or indecipherable but does not include a mutilated banknote.

All these notes can be exchanged at the counters of any public sector bank branch, any currency chest branch of a private sector bank or any Issue Office of the Reserve Bank of India.

"The cashier has given him old notes some of which are soiled or torn."

The service manager apologised immediately. "I'm sorry sir. Let me sort this out." He went and stood in front of the cashier.

"Jayesh, why have you given soiled notes to this customer?"

Jayesh replied. "Sir, I offered him 500-rupee notes but he insisted on 100-rupee notes. I had only these notes deposited by a customer this morning."

The service manager replied. "Jayesh, you are supposed to sort the cash received and pay only clean notes to customers. What you have done is against the rules of the bank as well as RBI."

He collected the entire cash from Mr. Gupta and gave it to the cashier. "Sort this cash and pay only clean notes to the customer."

Mr. Gupta heaved a sigh of relief as he collected the cash from the cashier.

Mr. Gupta thanked Grandpa as they walked out of the bank. "I wouldn't have complained about the service. I didn't know the RBI rules that you talked about."

Grandpa answered, "Banks are here to serve the customers. The RBI's Consumer Education and Protection department is publishing information and releasing advertisements to educate customers. Banks also publish a charter of rights on their website so that customers are aware of their rights."

You can go to RBI website and click on Consumer education and Protection for more information.

What is a banking ombudsman?

Banking ombudsman is an officer appointed by the Reserve Bank of India to settle disputes between customers and bank.

Customers are required to complain to their bank if they have a problem. If they are not satisfied with the resolution provided by their bank, they can lodge a complaint online or send a letter to banking ombudsman.

The banking ombudsman

- Reviews the complaint from customers.
- Seeks explanation from the bank.
- Awards sanctions.

Shah Nawaz Khan

The first to hoist the Tricolour at Redfort

Shah Nawaz Khan was born in Rawalpindi district in 1914, graduated in a Military College and joined the British army following his father's footsteps. During World War II, he fought against Japan in Singapore and was imprisoned among the 40,000 Indian soldiers. Netaji addressed and encouraged them to join the Azad Hind Fauj.

Influenced by Netaji's patriotic speeches, he decided to fight for Indian liberation. Impressed by Shahnawaz's courage and dedication, Netaji promoted him in 1944 to lead the INA contingent in Mandalay. He fought against the British in Kohima and was captured in Burma.

Post-independence, Khan joined the Congress and began his political career in 1952. He was a Lok Sabha MP for four years representing Uttar Pradesh and served for 20 years as a minister in various departments of the Central Government.

He headed the Shah Nawaz Committee probing into the mysterious death of Netaji Bose.

The committee after a detailed investigation, concluded that Netaji died in the plane crash and his ashes were kept in Japan's Renkoji Temple and should be reinstated to India.

In 1983, Shah Nawaz passed away and was buried with full state honours near Lal Qila, the same place where he was branded as a traitor and emerged as one of the heroes of our freedom struggle.

ENVIRONMENTAL LEGISLATIONS IN INDIA

CPCB and SPCB establish and enforce certain standards for factories which discharge pollutants into water bodies.

Domestic environmental law in India has evolved alongside the international environmental conventions discussed earlier. Let's look at a few briefly.

The Wildlife (Protection) Act, 1972

This enables protection of wild animals, birds and plants. Under this, several bodies have been created including the National Board for Wildlife and State Wildlife Advisory Boards, Central Zoo Authority, Wildlife Crime Control Bureau and the National Tiger Conservation Authority.

The Water (Prevention And Control Of Pollution) Act, 1974

This aims to prevent and control water pollution, apart from maintenance and restoration of the purity of various sources of water.

The Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCB) are statutory bodies created under this Act. **CPCB and SPCB establish and enforce certain standards for factories which discharge pollutants into water bodies.**

The Forest (Conservation) Act, 1980

The main objective is to protect forests and their flora, fauna and other diverse ecological components while preserving the integrity and territory of the forests.

Furthermore, **forest land is prevented from being converted for commercial uses and intentions.**

The Air (Prevention And Control Of Pollution) Act, 1981 targets to control and prevent air pollution in India.

The Air (Prevention And Control Of Pollution) Act, 1981

This targets to control and prevent air pollution in India. It states that sources of air pollution such as internal combustion engines, industry, vehicles, power plants etc., are not permitted to release lead, carbon monoxide, sulphur dioxide, nitrogen oxide, or other toxic substances beyond a fixed limit.

The Environment (Protection) Act, 1986

This was passed after the Bhopal gas tragedy in 1984 to achieve the principles decided upon in the Stockholm Declaration, 1972. Under this, eco-sensitive zones or ecologically fragile areas are notified by the Ministry of Environment, Forest and Climate Change (MoEFCC). Statutory bodies under the Act are Genetic Engineering Appraisal Committee and National Coastal Zone Management Authority.

The Biological Diversity Act, 2002

This was enacted to give effect to the Convention on Biological Diversity (CBD), to protect biodiversity, to protect and control the appropriate use of its components, and to ensure equitable distribution of the benefits of such use. It

sets up State Biodiversity Boards (SBBS), Biodiversity Management Committees (BMCS) and National Biodiversity Authority (NBA).

The National Green Tribunal Act, 2010

This has been enacted to establish a National Green Tribunal (NGT) for the effective and quick disposal of cases relating to environment protection and conservation of forests and other natural resources; and giving relief and compensation for matters connected to it. NGT will deal with all laws relating to air and water pollution, the Environment Protection Act, the Forest Conservation Act and the Biodiversity Act.

Smt Vaishnavi V

CURIOSITY CORNER

UNESCO

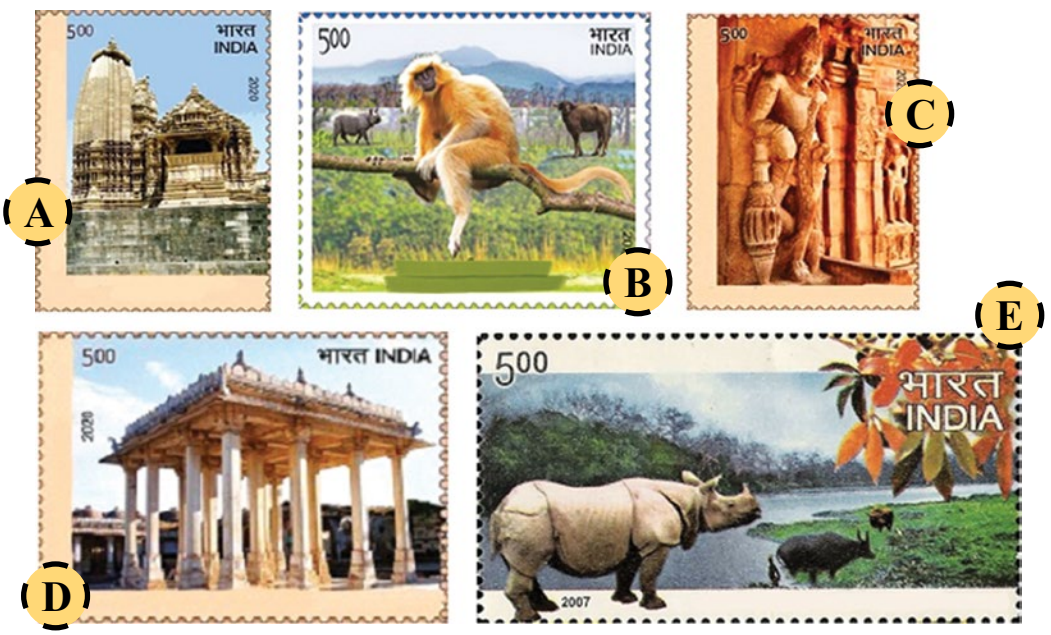
World Heritage Sites

There are 40 UNESCO World Heritage Sites in India under three categories — Cultural, Natural and Mixed. Out of these, 32 are cultural, 7 are natural, and Khangchendzonga National Park in Sikkim alone is of mixed type.

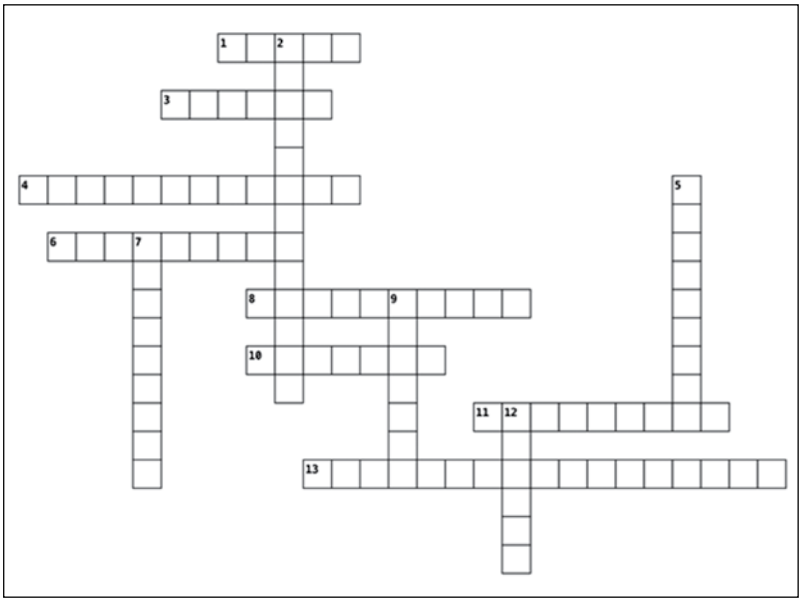
A. Match it:

India Post released a set of commemorative postage stamps on UNESCO World Heritage Sites in India. Can you match the stamps with the places given below?

1. Kaziranga National Park
2. The Historic City of Ahmedabad, Sarkhej Roza
3. Group of Monuments at Pattadakal
4. Khajuraho Group of Monuments - Jabari Temple
5. Manas Wildlife Sanctuary



B. Crossword



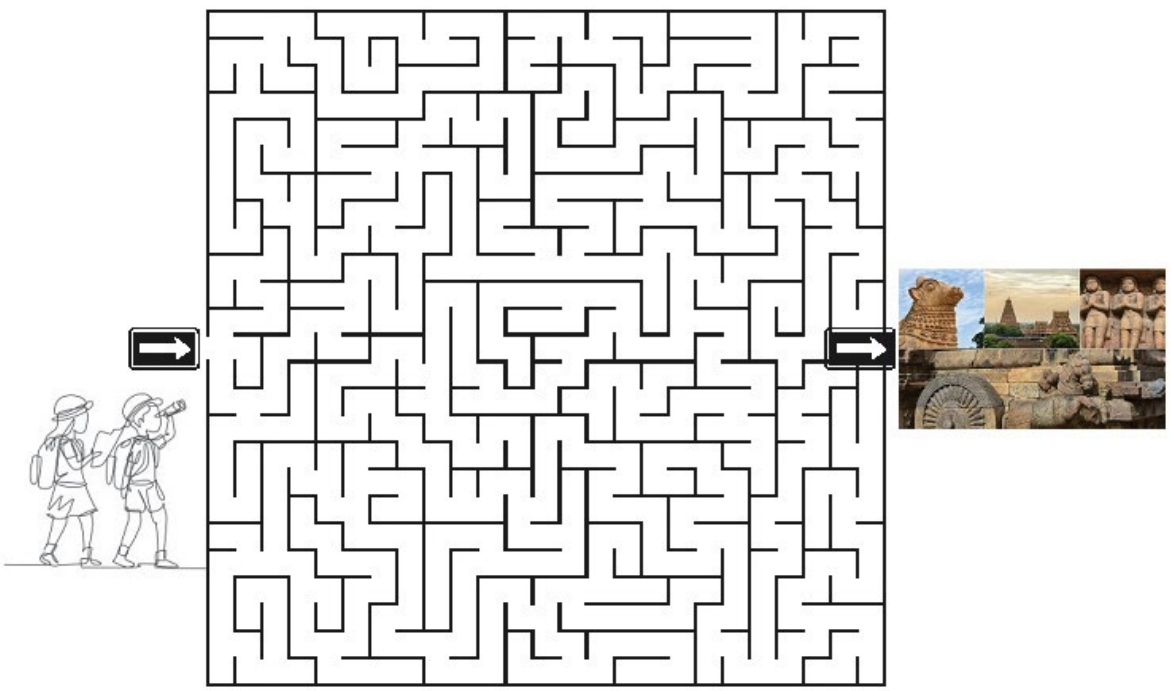
Across

1. A group of monuments in the capital of the Vijayanagara Empire.
3. Oldest Buddhist sanctuary in existence.
4. A physical feature of India and one of the biodiversity hotspots.
6. Known for the Valley of Flowers National Park.
8. A national park that forms a part of Gangetic Delta.
10. Most ancient university in India.
11. A step well on the banks of Saraswati River, Gujarat built in Maru-Gurjara style.
13. A railway terminus that represents Victorian Gothic Revival architecture.

Down

2. A group of monuments known for *rathas*, *mandapas* and open-air reliefs.
5. Rock shelters that span Paleolithic and Mesolithic periods.
7. A metropolis of the Indus Valley civilization.
9. Salimgarh Fort is a part of this complex.
12. A total of 29 rock-cut caves.

C. Aditi and Pranav are on their way to the Great Chola Temples which is a UNESCO World Cultural Heritage site in India. Can you help them reach their destination?



Answers on page 63

Farmer Kaleem Ullah Khan's mango tree produces 300 varieties

> Grafting is the process of joining the section of one plant into another to create new varieties.

For decades, farmer Kaleem Ullah Khan has tended to a 120-year-old mango tree, and the fruits of his toil are all too obvious. The giant specimen now bears 300 unique varieties of mangoes, each with their own size, texture, colour and taste, thus earning him the moniker of 'Mango Man'.

Born in a small town in Lucknow, Khan was just a teenager when he dropped out of school to begin looking after his family farm. Soon, he began conducting experiments with propagating the fruit using grafting techniques. His initial experiments resulted in a tree that could produce seven new kinds of mangoes, but it soon blew down due to a storm.

However, since 1987, his legacy has been the 30 feet tall specimen with a stout trunk and thick, widespread branches. The leaves are a miscellany of unique smells and textures. In some places, they are a dull, dark green, while in others, yellow and glossy. "For the naked eye, it's just a tree," the 82-year-old says. "But if you see through your mind, it's a tree, an orchard, and the biggest mango college in the world."

Khan has a unique way of naming his beloved creations. One

of his earliest and best varieties was named 'Aishwarya', after the Bollywood star Aishwarya Rai Bachchan. Others have been named in honour of Sachin Tendulkar and Narendra Modi. Another is 'Anarkali' or pomegranate blossom - with two layers of different skin and two different pulps, each with a unique aroma.

Khan's skills have earned him many laurels. **In 2008, he was awarded the fourth highest civilian honour of the Padma Shri, for his valuable contribution to India in horticulture.** He also received an invitation to Iran and the United Arab Emirates.

ANSWERS of page 60 & 61

A. Match it

a. The Historic City of Ahmedabad, Sarkhej Roza

b. Manas Wildlife Sanctuary

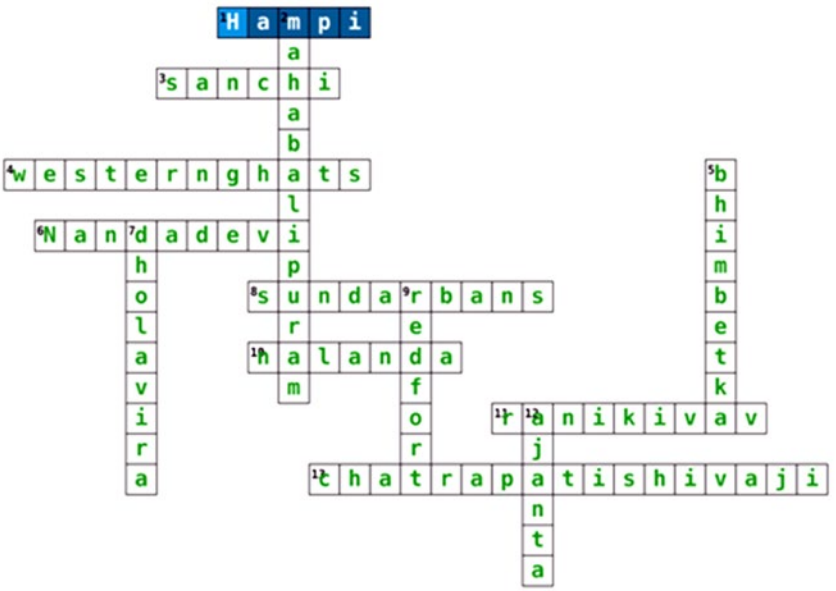
c. Group of monuments at Pattadakal

d. Khajuraho Group of Monuments - Jabari Temple

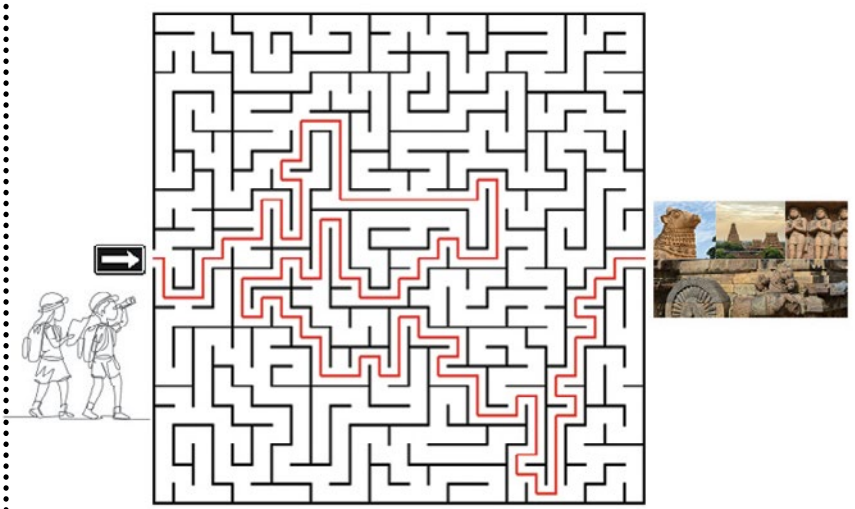
e. Kaziranga National Park

B. Crossword

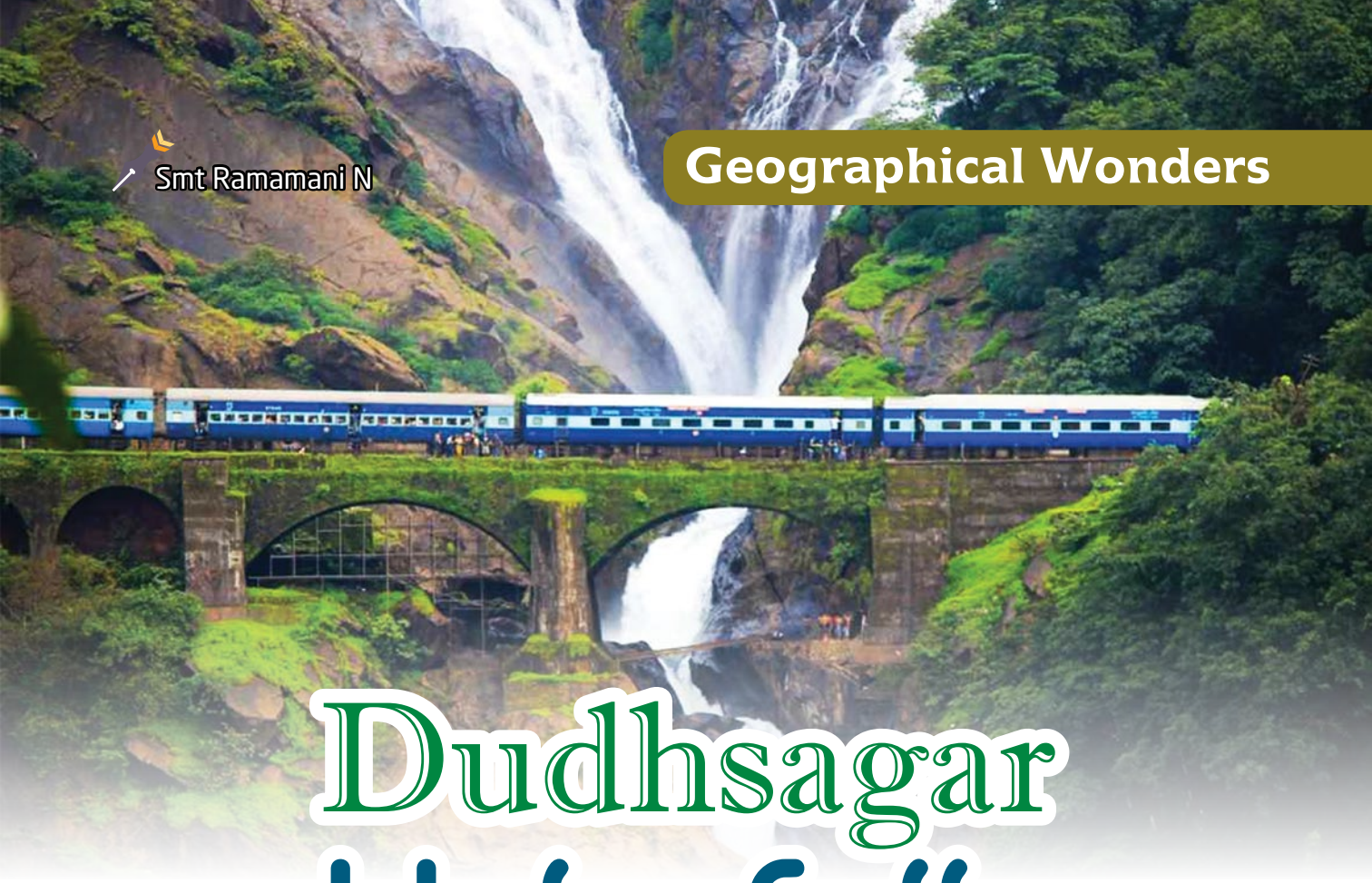
UNESCO WORLD HERITAGE SITES OF INDIA



C. Maze



Smt Ramamani N



Dudhsagar Waterfalls

The height of Dudhsagar is 310 m (1017 feet) and the average width is 30 metres (100 feet).

A waterfall is a deep lineage of rivers or other water bodies over a rocky ledge. The wearing away of the earth and the process of erosion helps in the formation of waterfalls. They also contribute to erosion in turn. Waterfalls are always a treat for the eyes and our minds too.

Karnataka and Maharashtra have the highest number of waterfalls in India. Dudhsagar waterfalls is one the tallest in India, located in Goa with Maharashtra to the north and Karnataka to the east and south.**The height of Dudhsagar is 310 m (1017 feet) and the average width is 30 metres (100 feet).**

As the name suggests, it has a magnificent look like a sea of milk flowing down. It is a four-tiered waterfall on the Mandovi River (Mahadayi River). The waterfalls lie in the South of Goa in the proximity of Panaji city which is about 60km in the Western Ghats.

It lies in a scenic deciduous forest and has Bhagwan Mahavir Wildlife Sanctuary nearby.

The waterfall has its peak flow during the southwest monsoon (June to September). It attracts tourists till December every year.

The forest ministry has recently announced that the waterfalls across Goa would be provided with facilities like bio-toilets every 500 metres, lifeguards and guides. India's amazing geographical features make it distinctive and one lifetime would not be enough to visit and cover all the unique places in India.

Smt Archana Sundar

Suka and Sari Temples Bhubaneswar

Located on the right side of a small alleyway connecting Rath Road with Bindu Sagar in old Bhubaneswar, the temple precinct contains three temples, although the largest structure here is often incorrectly known as Suka Sari.

The main temple here is in fact Sari Temple, the smaller structure to the south-west is Suka Temple and the third is a partially ruined temple.

Sari Temple

The west-facing Sari Temple belongs to the 13th century CE constructed during the Ganga rule.

The temple is wonderfully ornamented with carvings of human figures, deities, scroll work and floral motifs. Although subjected to quite severe weathering due to the soft sandstone fabric of the building, the more sheltered areas have survived particularly well.

In terms of major iconography, the only surviving parshva devata image is that of Parvati in the north-facing central niche.

The variety of carvings is spellbinding with meandering creepers, flowers, mythological animals, elephants, lions, and divinities as well as secular motifs like warriors and royal figures.

Suka Temple

Dedicated to Lord Shiva, the west-facing Suka Temple is considered contemporary with its larger neighbour, being built during the Ganga period in the 13th century CE. There is clear evidence that this temple once had a *jagamohana*, (an assembly hall) the footprint of which is still visible in front of the structure. Also strewn around are remains of carved masonry, almost certainly associated with this temple.

Although subjected to some serious weathering over the last 800 years, there are a handful of very well-preserved carvings worthy of a closer inspection.

Mystery Temple

The third temple still standing in the complex is a bit of a mystery.

It is possible that it was originally part of the neighbouring Bindhya Basini Temple, and it's curious that the compound wall makes a point of diverting and mirroring the footprint of the temple before resuming its original alignment.

It is unfortunate that the local people are not only neglecting this beautiful temple but are using it as a dumping yard. Let us respect and protect our heritage!

Smt Nagalakshmi R

CORIANDER

A seasoning herb with several health benefits

Chutney made with coriander is a perfect side dish for a range of Indian dishes such as idli, dosa, dhokla and poha.

Coriander leaves (*Kothamalli* in Tamil) and dried seeds (*Dhaniya* in Hindi) are essential parts of Indian kitchen, used in almost every dish for ages. They also have several important medicinal properties. Coriander grows in warm, dry, light or heavy soil, often sown in the months of March and April and best harvested during the month of August.

Coriander drink is a natural coolant and cleanser. It also serves as a herbal detox for conditions such as high fever, burning sensation due to body heat and thirst. Plain or crushed coriander seeds can be boiled with water, brought to room temperature and consumed as the first drink in the morning for maximum benefits.

This can also be used in the water consumed over the day. Soaking the crushed coriander seeds in water overnight, filtering and drinking it along with small amount of sweetener, if required, in the morning is an ancient practice followed by many in India.

Coriander has antioxidant properties. It cleanses the body and tissue channels, thereby energizing the entire body. This is also the drink recommended during excessive acidity, high sweat, cholesterol, mouth ulcers and diarrhoea.

Coriander also promotes liver health, improves appetite, immunity, as well as helping in reducing blood glucose levels and bleeding during menstrual cycles.

These leaves which are often used as seasoning in various Indian foods impart rich flavour and taste. They are also rich in calcium, magnesium, manganese, Vitamin K and dietary fibre.

Chutney made with coriander is a perfect side dish for a range of Indian dishes such as idli, dosa, dhokla and poha.

there are
only few
left on this planet

SAVE TIGERS

LET'S RAISE PUBLIC AWARENESS AND SUPPORT FOR TIGER CONSERVATION.

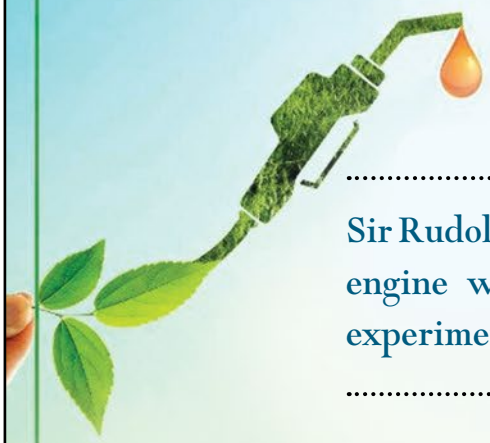
INTERNATIONAL

TIGER DAY

29TH JULY 2020

World Biofuel Day

10th August



World Biofuel Day is celebrated to honour Sir Rudolf Diesel

Sir Rudolf Diesel was the first one to run a mechanical engine with peanut oil. To mark this marvellous experiment, World Biofuel Day is celebrated.

Biofuels are the key to reducing our dependence on crude oil and it ensures a cleaner environment. It leads to the generation of more employment for rural people.

This will not only help meet India's rural energy needs but also fulfill the rising demands for transportation.

Biofuel helps in the reduction of carbon emission