

# prajya

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## DELHI-MUMBAI EXPRESSWAY



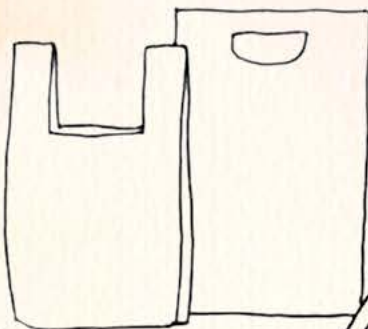




# SAY NO TO SINGLE USE PLASTIC BAGS



PLASTIC  
BAGS



NON-WOVEN  
BAGS

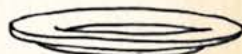


STRAWS

CUPS



BOWLS



PLATES

TAKE-  
OUT  
CONTAINERS



LOOSE  
PACKAGING



# SAY NO! TO PLASTICS



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चरन् वै मधु वनिदत चरन् स्वादुमुदुम्बरम्  
सूर्यस्य पश्य श्रेमाणं यो न तन्द्रयते चरन् ॥

(Aitareya Brahman 7.15, Rig Veda)

(Translation: The one who travels enjoys the nectar. The same enjoys sweet fruits. Look at the efforts of Surya Devata which is never tired of walking.)

This sloka subtly captures the spirit of exploration and dynamism. When the spirit seeks and the body moves towards attaining the goal, the fruits of the labour are many.

This issue captures many such human explorations – digging deep into the Antarctic to investigate the oldest ice deposit ; the effort to establish a Centre of Excellence to produce off shore wind energy; the innovative idea of dropping medical supplies from the sky ; the introduction of a new pan – India registration series for vehicles; building motorable roads in the most difficult terrains and altitudes.

For the likes of Pappammal, age was no hindrance to her vigour to popularize organic farming; and for Anil Basak, it was an inward journey to discover the depth of his own potential to face and ace a new challenge.

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:

- We don't want to print more than what is required and
- Keep the cost of the print version (plus postage) within reasonable limits.

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

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

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**Happy Reading !**



# Content



## International Current Affairs

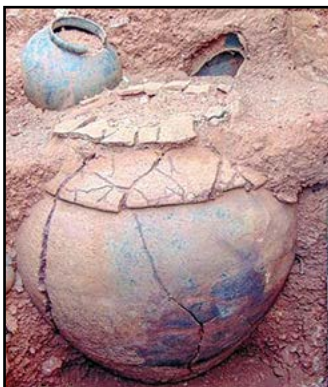
- 4** Operation Dev Shakti
- 6** PM's visit to the USA
- 8** CoE for Off Shore Wind Energy
- 10** Exploration of Antarctica's Oldest Ice
- 11** SpaceX's First All-Civilian Space Mission
- 12** 13th BRICS SUMMIT
- 14** Financial Emergency In Sri Lanka
- 16** Iceland installs the world's largest CO<sub>2</sub> Sequestering Plant

## National Current Affairs

- 19** BH Registration Series
- 20** The Porunai Civilization
- 22** Indian Army to procure Sky Strikers
- 24** BEST TOURISM VILLAGE
- 26** Piyush Goyal India's Sherpa for G20
- 28** Medicine From The Sky
- 30** India's First Emergency Landing Facility in Rajasthan
- 32** Turtle Conservation Award







**33** ₹ 125 coin in honour of Srila Prabhupada

**34** India's First Dugong Sanctuary

**35** Goa, 1st state in India to give free water

**36** Delhi-Mumbai Expressway

**39** Making of the Constitution e-Photo Exhibition Launched

**40** Air Defence Missile System MRSAM

**41** World's Highest Motorable Road in Ladakh

**42** SIR M.VISVESVARAYA - A Civil Engineer, Visionary and a Nation Builder

**46** GAGANYAAN

## Recurring Feature

**48** Platinum Series - Mass Immunisation Programmes

**51** Law In Focus

**53** Loans and Credit Cards

## General Knowledge

**55** Curiosity Corner

**56** Padma Shri at 105 - PAPPAMMAL

**57** Historical Wonders of India

**59** Harshavardhana and the Pushyabhuti Dynasty

**61** Madan Lal Dhingra: Lion-Heart from Punjab

**62** The Tree of Life

**64** The Power of Persistence





# Operation Dev Shakti

**O**n 15th August the entire world watched as the capital of Afghanistan, Kabul fell to Taliban forces. The ruling Afghan government was faced with a military offence when the United States of America pulled the troops stationed in the country.

What followed was a period of chaos and uncertainty as the new Taliban administration took over. Countries from around the world began to evacuate citizens of their nations from Afghanistan through any means possible, in cooperation with the US troops.

**Operation Dev Shakti**, named after the Goddess Shakti, was conducted by the Indian Airforce between 16th and 21st August 2021, through which **800 people, including Indian citizens and non-military personnel were rescued from Afghanistan.**

To understand the need for the rescue operation, we need to take a short look at the history of India-Afghan relationships and the danger that Taliban forces pose.



India and Afghanistan have had diplomatic relations since 1980, and India has even invested in the Afghan infrastructure with the assistance of US troops following 2001.



### The India-Afghan Relationship

India and Afghanistan have had a complicated relationship over the last forty years, though not as volatile as the one with Pakistan. Although India abstained from the voting on Soviet invasion of Afghanistan, our relationship with them has since settled down.

India and Afghanistan have had diplomatic relations since 1980, and India has even invested in the Afghan infrastructure with the assistance of US troops following 2001. India has helped in the training of Afghan troops, provided them with arms and maintained embassies in the country.

India has not recognised the Taliban administration as an official Government of Afghanistan. Minister Jaishankar described the Taliban as a ‘dispensation’ more than a government. This is because the Taliban are a radical force of Islamic extremists known for terror and oppression. This has triggered the evacuation of Indians from Afghanistan.

### Details

Under the orders of PM Modi, the Indian Armed forces were to take part in a complex mission to aid in the safe evacuation of all Indians, Afghan Sikhs and Hindus.

These evacuees would be given refugee status and provided safe haven in India.

On 16th August, 40 Indian citizens were airlifted from Kabul to Delhi. Later 168 people, (including 107 Indian citizens, 23 Afghan Sikhs and Hindus) were transported from Kabul to Delhi on a Boeing C-17 aircraft.

87 Indians and 2 Nepalese nationals were evacuated to Tajikistan on an IAF aircraft following which on 21st August, 2021, 78 more people were evacuated to Tajikistan by the Indian Air force.

In all 800 people were safely evacuated through the efforts of the IAF.

Dr. S Jaishankar, Indian External Affairs Minister revealed the name of Operation Dev Shakti when he congratulated the Indian Airforce on their successful evacuation of refugees.

Operation Dev Shakti was carried out in coordination with the USA and various other countries. The bravery exhibited by the personnel behind the operation shows the dedication that India has towards ensuring the safety of her citizens. Only time will tell when this state of chaos and confusion will come to an end.







# PM'S visit to the USA



**I**t was a hectic schedule by any standards: 20 meetings in 65 hours! In addition to addressing the UN General Assembly and attending the Quad summit, Prime Minister Narendra Modi used the opportunity to have bilateral meetings with the other heads of Quad. Quad is short for Quadrilateral Security Dialogue and comprises India, USA, Japan and Australia.

On 23rd September 2021, Modi met PM Scott Morrison of Australia and Yoshihide Suga of Japan separately. Talks with the Japanese PM, centred around ensuring reliable supply of critical materials, technologies and







He had a brief meeting with US Vice President Kamala Harris, who stressed the need for a free and open Indo-Pacific region.

developing new partnerships in manufacturing and skill development to deal with various crises.

He had a brief meeting with US Vice President Kamala Harris, who stressed the need for a free and open Indo Pacific region. She had words of admiration for India's vaccination efforts.

Later that day, PM Modi met CEOs from 5 different key sectors and highlighted economic opportunities in India. The CEOs are Mr Shantanu Narayan of Adobe, Mr Vivekh Lall of General Atomics, Mr Cristiano E Amon of Qualcomm, Mr Mark Wilmar of First Solar, and Mr Stephen A Schwarzman of Blackstone. The meeting reflected India's push for IT and digital priority.

Qualcomm CEO was enthusiastic to work with India on 5G, PM-WANI and others. General Atomics is a pioneer in military drone technologies from whom

**PM-WANI – (Wifi Access Network Interface) – a scheme to increase internet connectivity across India.**

India is in the process of procuring drones for the armed forces.

24th September was a day of two very important meetings: a bilateral meeting with President Joe Biden and the Quad summit. The leaders of the two largest democracies discussed Indo Pacific region, Climate, Covid and economic cooperation in their first ever personal meeting. While stating his conviction that the coming decade will be shaped by talent and people-to-people linkages, PM Modi extolled Indian diaspora's contribution towards USA's progress.

The Quad Summit focused on resisting China's growing military presence in the Indo-Pacific region. Though relatively young, Quad may play a crucial role in geo-political issues.

25th September saw the PM addressing the UN General Assembly. He spoke about the diversity and plurality of India, the world's largest democracy and used the opportunity to pay homage to the victims of the pandemic and offered condolences to their families.

He hailed the development in technology and health sector which have helped combat the pandemic, noting that India has developed the world's first DNA vaccine which can be given to anyone above 12 years of age. His slogan "**When India grows, world grows. When India reforms, world transforms**" captured the present global scenario very succinctly.

He used the opportunity to invite global vaccine manufacturers to India and cautioned the world on regressive thinking and extremism.

He stated that Afghanistan should not be used to spread terrorism and that countries which promote terrorism as a tool stand threatened by terrorism themselves.





# Indo - Danish

## Centre of Excellence for

# Off Shore Wind Energy

**R**enewable Energy (RE) is an important component of India's energy planning. We are the 4th largest consumer of energy after USA, China and Russia. India is at the cusp of a revolution by being the 4th in wind and 5th in solar energy infrastructure based on installed capacity.

On 9th September 2021, India and Denmark launched a Centre of Excellence for Offshore Wind and Renewable Energy as part of the India-Denmark Strategic Energy Partnership.

According to MNRE (Ministry of New and Renewable Energy),

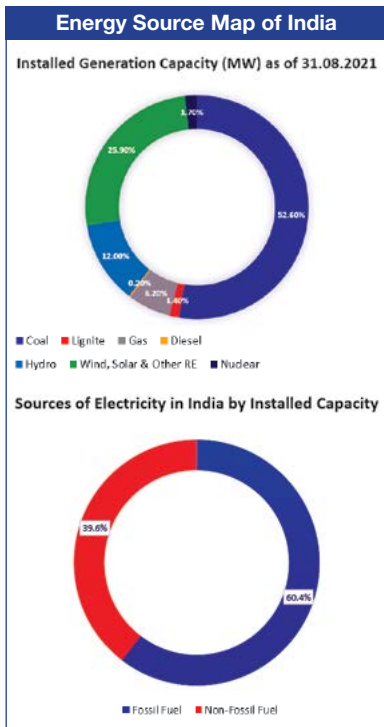
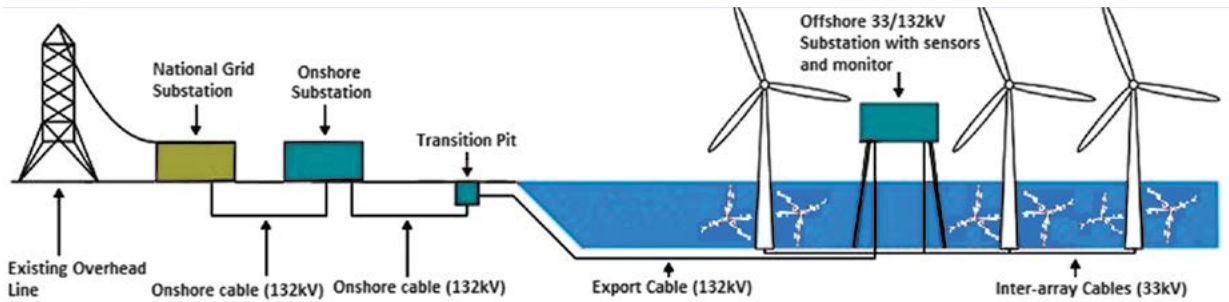
India can generate 127 GW of offshore wind energy with its 7,600 km of coastline.

### Contour

- CoE will have four inter-governmental working groups on financial framework conditions, supply chain infrastructure, spatial planning and integration of renewable and sustainable energy sources.
- The objective is to imbibe best available international knowledge, best practices, minimize risk and reduce the overall cost.



## Offshore Wind Energy – Generation and Distribution



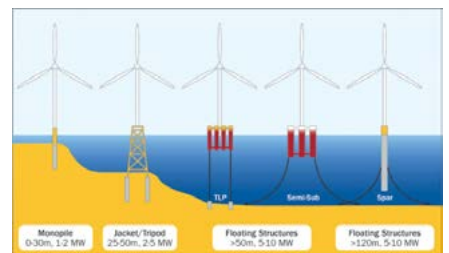
Source: <https://powermin.gov.in/en/content/power-sector-glance-all-india>

## DO YOU KNOW ?

- Onshore wind blows from the sea towards the land.
- Offshore wind blows from the land towards the sea.
- Offshore wind harvesting started nearly 100 years after the invention of onshore wind energy.



Shri RK Singh met with Mr Dan Jorgensen, Danish Minister



Types of offshore Wind Turbine Foundations

**Denmark has the skills,  
India has the scale.**

- Prime Minister Shri Narendra Modi



### Expectations

- Government's target - 450 GW of RE by 2030 with current levels at 146 GW and 175 GW by 2022.
- India to add 5 GW of wind energy by 2022 and 30 GW of offshore wind energy projects by 2030.
- 100% Green Energy profile for Ladakh, Andaman Nicobar and Lakshadweep.

### Benefits

- Bigger and taller offshore wind mills can be built, resulting in increased energy harvest.
- Wind speed over water bodies is high; hence more electricity per installed capacity.
- Offshore wind is stronger during daytime; it ensures a more consistent and efficient electricity generation when consumer demand is at its highest.



# Exploration of Antarctica's OLDEST ICE

## What is the NSF?

Set up in 1950, the NSF is an independent agency of the US government that supports fundamental research and education in all the non-medical fields of science and engineering.

The National Science Foundation (NSF) is setting up COLDEX to discover Antarctica's oldest ice to learn more about the changes in earth's climatic conditions. Oregon State University will lead the exploration in collaboration with various other universities.

COLDEX, the Center for Oldest Ice Exploration will be created within the next 5 years using a 25-million-dollar grant from the NSF. Dr. Ed Brook, a paleoclimatologist in OSU's College of Earth, Ocean and Atmospheric Sciences will be the principal investigator.

The oldest existing ice cores currently go back 130,000 years in Greenland and 800,000 years in Antarctica. These are collected by drilling miles down from the surface.

COLDEX aims to find ice cores from 1.5 million years ago and up to 3 million years or older, if possible.

University of Washington (UW) will lead in aspects of Antarctic fieldwork and modeling to identify the drilling location, deploy new technologies to scan the ice and use new ways to analyze the ice. Previous UW research has explored a possible location for this oldest ice record, in the Allan Hills region of East Antarctica.

This exploration will reveal about a period when Earth may have been warmer than today. The world has since transitioned to a longer glacial cycle. Learning what happened in the atmosphere back then by studying this ice will reveal more about the past and the future of human development.

"This ice and the ancient air trapped in it will offer an unprecedented record of how greenhouse gases and climate are linked in warmer climates and will help to advance our understanding of what controls the long-term rhythms of Earth's climate system," said Dr. Brook.





# SPACEX'S FIRST ALL-CIVILIAN SPACE MISSION



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This mission was set in motion with the aim of raising awareness and support to St. Jude Children's Research Hospital.

SpaceX has made history by successfully completing the first ever all-civilian space mission. Named Inspiration4, it carried 4 civilians on a 3 day journey around Earth. None of them had prior formal astronaut training.

Space Exploration Technologies Corporation is an aerospace manufacturer, space transportation services and space communication provider, founded in 2002 by Elon Musk with the goal of building reusable rockets to reduce the cost of space travel.

On 15th September 2021, captain Jared Isaac man and his crew lifted off from pad 39A at the Kennedy Space Center in the US. He is the founder and CEO of Shift4 Payments and an accomplished pilot and an adventurer. He was the space commander of this mission and he paid for this entire flight.

The 3 other crew members are Mission Pilot Dr. Sian Proctor, a geo scientist, entrepreneur and a trained pilot; Mission Specialist Chris Sembroski is an Air Force veteran and aerospace data engineer; and Medical

Officer Hayley Arceneaux, a physician assistant and pediatric cancer survivor.

Arceneaux is the first person with a prosthesis to fly in space. Proctor noted that she will be the first Black woman as designated pilot on an orbital space mission.

This mission was set in motion with the aim of raising awareness and support to St. Jude Children's Research Hospital, a leading pediatric cancer center in Tennessee. It surpassed its fundraising goal and raised more than \$210 million.

The crew members underwent emergency training on SpaceX's Falcon 9 and Dragon spacecraft used for this mission. The Dragon spacecraft reached the orbit 10 minutes after lift off and reached the aimed orbital altitude of 590 km, which is higher than the International Space Station (ISS).

During this 3-day journey, the crew conducted research to understand the changes in the human body during long-duration space flights. On 18th September, they successfully landed in the Atlantic Ocean off the coast of Florida.





# 13<sup>th</sup> BRICS SUMMIT

India, which believes in the concept of '*Vasudhaiva Kutumbakam*' [Maha Upanishad (VI.71-73)], always prioritizes economic and political cooperation among the countries of the world. As a part of strengthening global collaboration, India has become a member of several regional and

economic groups. One among them is BRICS.

BRICS is an acronym for five emerging economies of the world – Brazil, Russia, India, China and South Africa.

In virtual format, Prime Minister Narendra Modi chaired the 13th annual summit of BRICS leaders on 9th September 2021. Talking about the theme selected by India for the duration of its chairship - '**BRICS@15: Intra - BRICS cooperation for continuity, consolidation and consensus**'- PM Modi said these 4 Cs are fundamental principles of the BRICS partnership. He stressed on BRICS Counter-Terrorism Action Plan referring to the developments in Afghanistan. He also said that for the first time, BRICS had taken a







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Narendra Modi said that the biggest challenges in the region are related to peace, security and trust deficit.

collective position on strengthening and reforming multilateral systems.

Members praised the role played by India in the fight against Covid – 19 and stressed the need for equal access to vaccines for all the countries.

#### **PM MODI ADDRESSES 'SCO' MEET**

The Shanghai Cooperation Organization (SCO) or Shanghai Pact, is a Eurasian political, economic, and security alliance. India became a member of SOC in 2017.

On 17th September 2021, the Shanghai Cooperation Organisation (SCO) held a heads-of-state summit in Dushanbe, Tajikistan, in a hybrid setting. PM Modi addressed the plenary session of the Summit via video link.

Narendra Modi said that the biggest challenges in the region are related to peace, security and trust deficit; and the prime reason behind these problems is growing radicalization. He praised the valuable work done by the

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“  
Members praised the role played by India in the fight against Covid – 19 and stressed the need for equal access to vaccines for all the countries.  
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Regional Anti-Terrorist Structure (RATS) of the SCO in this regard. He said that while the fight against radicalization is vital for regional peace and mutual trust, it is crucial for the bright future of the youths.

He also stressed the importance of technological and scientific cooperation among members. India organized the first-ever SCO Startup Forum and SCO Young Scientists Conclave last year. PM Modi expressed his desire to strengthen economic relations with Central Asian countries.





# Financial Emergency in Sri Lanka



On 1st September 2021, Sri Lankan President Gotabaya Rajapaksa declared an ‘economic crisis’ in the wake of unprecedented inflation and the decrease in value of the Sri Lankan currency.

Prices of essential food items like rice, potatoes, onions, sugar as well as kerosene oil which is used to light stoves by the poor have skyrocketed with their supply getting depleted in the markets.

## What has caused this crisis?

Sri Lanka’s economy is mainly dependent on two Ts – tourism and tea.

Due to the COVID-19 pandemic and its resultant travel ban, tourism has taken a toll across the world. Sri Lanka was no exception and the country saw a drop in foreign exchange reserves.

Also, the Sri Lankan Government’s policy of completely shifting to organic agriculture resulted in having drastic effects on agriculture especially tea, the major export commodity of Sri Lanka.

The government had banned the use of chemicals and fertilizers in agriculture which has affected the tea production. The yields of





**Inflation** - a general increase in prices and a fall in the purchasing value of money over a period of time.

For example, if you get 2 kg of potato for Rs.20 in this month and in the next month you get only 1 kg of potato for the same Rs.20, then the purchasing value of the rupee has decreased leading to inflation.



different crops including tea have decreased. With tea exports falling down, the Sri Lankan government saw less money coming in through tea trade.

Meanwhile production of other food items has also seen a drop due to the complete switch over to organic farming. Because of the fall in production, food items like rice, potato and other essentials became less in the market. As a result, many people started hoarding these essential items leading to further scarcity. This has ultimately resulted in the inflation going up and the Sri Lankan money losing its value.

### **Is organic farming to be faulted?**

Many generations of farmers had adopted green revolution farming using chemical fertilisers to increase the yield. So, the skills and knowledge required for organic farming are scarce. One is not sure if Sri Lankan farmers had adequate knowledge and skills with respect to choosing the right seeds, using organic soil nutrients and bio-pesticides or even had access to seed banks.

A survey showed that only 20% of farmers had the knowledge to transition to completely organic production and 63% had no guidance on organic cultivation.

Additionally, there should have been adequate supply of compost, organic fertilisers, biopesticides etc., which are indispensable for organic farming. Though official communication says, 'sufficient fertilizer has been imported', there is no information on other farm inputs. Similarly, it is uncertain whether a proper supply chain was established to connect the producers and the consumers. It is possible that this was due to lack of proper research, planning and execution.

The survey also shows that 64% of farmers supported the government policy only with a transitional approach.

### **What is the Sri Lankan Government doing?**

Sri Lanka has declared a financial emergency which allows government more powers to regulate prices. It has appointed a former army general as commissioner of essential services, who will have the power to seize food stocks held by traders and retailers and regulate their prices.

**Foreign Exchange Reserves** – the money earned by a country through export of goods and services produced there. This money is used for importing items not available in one's own country.

### **What is the fear?**

Sri Lanka is just rebuilding itself after a prolonged civil war that lasted decades. It has also fallen under the debt trap due to Chinese projects which were brought in by the earlier President Mahinda Rajapaksa, who is now the Prime Minister. Unable to pay back huge loans taken, Sri Lanka handed over the Hambantota Port to a Chinese company on a 99-year lease.

There is also the fear that too much power in the hands of the Rajapaksa brothers (President Gotabaya Rajapaksa and Prime Minister Mahinda Rajapaksa) might once again lead to authoritarian rule in the island nation where the rights of ethnic Tamil minority are at stake.



# Iceland installs the world's largest CO<sub>2</sub> Sequestering Plant

Iceland recently completed installing the world's largest plant that plucks CO<sub>2</sub> from air and pumps it down into earth to be mineralized. This huge and exotic project is the march of technology to mitigate a universal problem and a crying need.

## Carbon di oxide build up and climate change

There is irrefutable evidence that excessive build up of CO<sub>2</sub> in our atmosphere is one of the important factors that warm

up earth's atmosphere and cascade catastrophic extreme weather events. **Today CO<sub>2</sub> concentration in our atmosphere is close to 410 parts per million. In the pre industrial era it was 270 parts per million.** No one can be sure how serious and manifold the effects will be.

To appreciate the need and scope of this technological idea it is essential to know the powerful role of electricity, fossil fuels, reasons behind CO<sub>2</sub> build up, share of different sources of energy in the energy mix etc.





The discovery of electricity and its applications is a seminal moment in human history like the discovery of fire and the wheel.

### Hydrocarbon man

The advent of industrial revolution demanded energy in very concentrated form. Coal was pure godsend. Coal packed a lot of energy which could be used to power looms, run huge machines producing goods on a large scale. Later the discovery of crude oil, invention of automobiles established the central role of oil in our economies. Since then, it has been the age of the hydrocarbon man whose dominance continues today to the extent that 63% of the world's energy comes from coal, oil and natural gas.

### The Dynamics of CO<sub>2</sub> cycle

There is an equilibrium that defines the concentration of different gases of our atmosphere. Several natural bodies and events spew CO<sub>2</sub> into the atmosphere like oceans, volcanic eruptions, decaying vegetation, natural ice melt exposed soil, forest fires etc. On the other hand, oceans acting as carbon sinks and growing vegetation also sequester carbon from air.

### Activities responsible for CO<sub>2</sub> build up

Electricity is the dominant form of energy that powers our modern world. It comes from power plants that burn fossil fuels, windmills and solar photovoltaics. Human activities responsible for significant CO<sub>2</sub> emissions are:

Electricity and heat generation.....	32%
Agriculture .....	12%
Transportation .....	27%
Manufacturing.....	12%

Other activities contribute to the rest.

### Is coal dirty?

The discovery of electricity and its applications is a seminal moment

in human history like the discovery of fire and the wheel. Coal provides 40% of all energy to produce electricity. One ton of burnt coal releases 2 tons of CO<sub>2</sub> (add oxygen weight). More and more coal fired plants are cropping up all over the world.

The international energy agency IEA confirms that 80% of all additional coal fired plants will come up in developing countries. Coal is abundantly available uniformly throughout the world unlike oil and natural gas whose proven reserves are highly concentrated in a few countries. That is a huge incentive to go for coal fired plants which don't fall under the purview of international regulatory agencies like IAEA (International Atomic Energy Agency).

Further worldwide coal reserves are said to last for 300 years and more. Now we get a fair idea about how dependent the world is on fossil fuels and how difficult it is to roll back CO<sub>2</sub> emissions.

### Efficiency of electricity generation

The efficiency of electricity generation especially from fossil fuel fired plants counts. Fossil fuel burnt for whatever purpose is responsible for 75% of CO<sub>2</sub> emissions. The efficiency of coal fired plants is just 35 to 40%, if it exists for electricity production alone. If the heat produced is used then it could jump to 60%. Transmission losses run to another 20%. **So the end user of electricity gets only 40% of the energy content of fossil fuels.**

If we see the mechanics of electricity generation, we realize that rolling back emissions is not easy. However, experts have postulated that energy efficiency at all levels could make a 5 billion





Perhaps the best and easy method of CO<sub>2</sub> sequestering is augmenting forestry and checking deforestation.

ton difference to emissions every year, that works out to 15 to 20% reduction in CO<sub>2</sub> emissions.

Conservation revolution is now the crying need which can be easily achieved without lowering the standard of living by simply avoiding excessive consumption.

### Natural processes of CO<sub>2</sub> sequestering

We emit some 36 billion tons of CO<sub>2</sub> per year from all sources of which oceans absorb 50 %.

Natural methods of CO<sub>2</sub> sequestering include augmenting forestry, wetlands restoration, natural algae bloom in water bodies and intensified seaweed cultivation. Perhaps the best and easy method of CO<sub>2</sub> sequestering is augmenting forestry and checking deforestation. The soil holds 10 times as much carbon that exists in the atmosphere and stores 1000 billion tons and more.

### Artificial methods of CO<sub>2</sub> sequestering

Several artificial methods exist but the latest and the most innovative is what Iceland has installed recently - a machine named ORCA, developed by a Swiss company called 'Clime Works'. The plant uses fans to draw air into a collector

which has several layers of filters. This traps the CO<sub>2</sub>. Once the filters are saturated the temperature is raised to separate CO<sub>2</sub>, which is mixed with water and pumped deep below earth to 1000 m and allowed to mineralize.

**ORCA can sequester some 4000 tons of CO<sub>2</sub> per year, a truly brilliant attempt.**

It is energy intensive and perhaps Iceland has taken the first tentative steps to put to use its surplus energy which is derived 100% from hydro and geothermal sources. **It must be noted that the effects of climate change are felt more in and around the arctic circle rather than in the tropics.** ORCA like technologies may find extensive applications in industries where carbon emissions are intense like thermal plants, cement plants refineries etc.

ORCA may be the forerunner of exciting new technologies in CO<sub>2</sub> sequestering programs when sufficiently scaled up. **Certainly, it is a matter of serious introspection when tiny Iceland is willing to try out new technologies when major polluters can't see the fact that their economies are a subset of environment and not the other way round.**





# BH REGISTRATION SERIES

**B**y amending Rule 47 of the Central Motor Vehicle Rules-1989, the Ministry of Road Transport and Highways has notified a Bharat series “BH” registration for people who own two wheelers and four wheelers in order to simplify the process of registration of vehicles while relocating from one state to another.

Relocation can often be a pain. One has to get an NOC from the current state and then re-register

the vehicle in the destination state. There is also the issue of paying road tax all over again and applying for a tax refund from the parent state. The GoI has realised that getting a refund from the parent state is a very cumbersome process and varies from one state to another. One has to wade through the bureaucratic maze of the Regional Transport Offices and encounter several hurdles. The process also gave room for a lot of corruption as there was human intervention at every stage. The new process is totally online and one can expect it to be smooth and corruption free.

The all-new BH registration series is meant for those who are in transferable jobs like Defence, Railways, other government offices or even private sector employees whose companies are present in multiple states.

Vehicles registered under the BH system will be levied road tax for every two years periodically instead of the owner having to pay the whole amount of fifteen years’ worth of road tax upfront. The scheme is yet another step towards unifying India and gives one a sense of pride in being a “Bharat wasi.”



## A “BH” NUMBER PRESENTATION

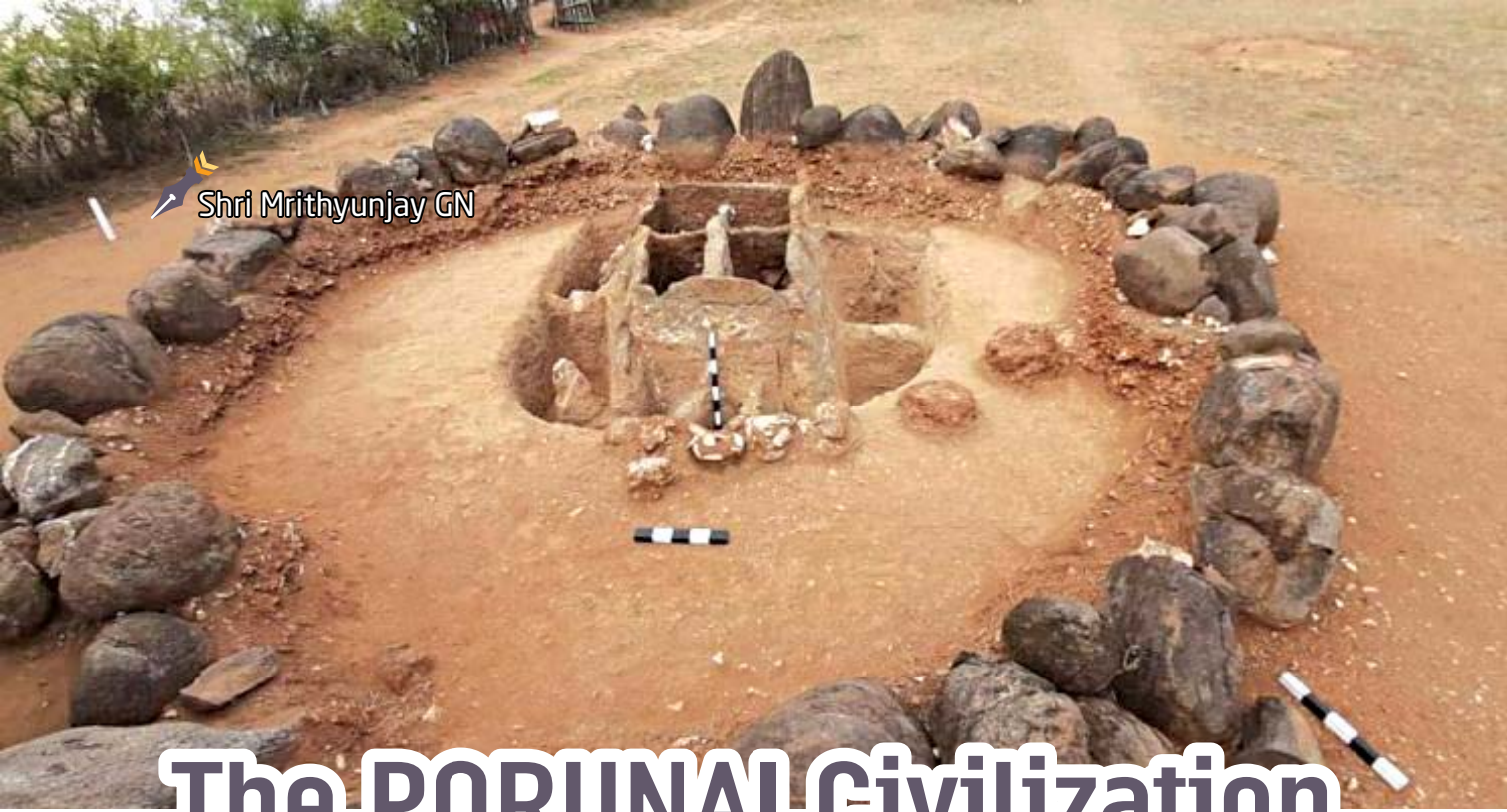
**A typical BH number looks like “21 BH XXXX AA”.**

**The first two digits is the year of the first registration.**

**BH is the code for the series.**

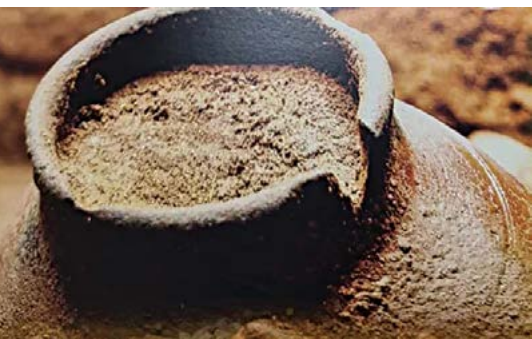
**(XXXX): randomly generated four-digit number.**

**It is followed by two letters of the English Alphabet.**



# The PORUNAI Civilization

## Unearthing Evidence of a Society 3200 Years Old



A famous quote goes, “And some things that should not have been forgotten were lost. History became legend. Legend became myth.” Despite what we know about the recent history of our nation a lot of what came before modern history has been lost in the sands of time. Even today historians and archaeologists are discovering details of what was once part of Indian history.

A recent discovery is proof that there was once a civilization along the banks of the Thamirabarani river. Evidence of the Porunai civilization, as termed by historians, came from a clay burial urn found at Sivakalai in the Thoothukudi district of Tamil Nadu. The urn contained rice, which was then taken to a

Miami-based carbon dating lab. The approximate date yielded by the test suggests that the urn and its contents are from the year 1155 BC, making it 3200 years old. The dating indicates that this civilization existed at the same time as the Indus Valley civilization (IVC).

### The details

We have very little surviving records of this period. One thing that is certain is that the Porunai Civilization was one of the first river-based civilizations in the Indian subcontinent. This could also expand our understanding of the origin and antiquity of Tamil language and Tamil society, which have long been debated.

The discoveries of Porunai





The Chief minister said that archaeological excavations need to be carried out to determine how far the roots of the Porunai civilization go.

Civilization appear somewhat similar to the recent archaeological discoveries at Keeladi in Madurai, Tamil Nadu, where the remains of a civilization that existed on the banks of the Vaigai river in the 6th Century BC were found. Beginning in March 2015, a total of 5820 antiquities were found ranging from brick structures, ring wells, roof tiles, golden ornaments, copper objects and chess pieces, possibly from the Sangam era.

### Implications

The artefacts from the Porunai civilization suggest that it may be more ancient than the other riverine civilizations like IVC and Vaigai Valley civilization.

The Chief minister said that archaeological excavations need to be carried out to determine how far the roots of the Porunai civilization go. With plans to perform research with archaeologists from Kerala, scientists hope to establish the culture and history of the Chera



Empire and other parts of south India. Research will be conducted at various sites in Andhra Pradesh, Karnataka and Odisha.

This will help discover a possible link to the IVC and civilizations in other countries like Malaysia they might have traded with.

Encouraged by all these findings, the establishment of Porunai Museum at a cost of Rs 15 crores has been announced.

We have a history far greater and richer than what we know currently and we need to work towards unearthing it.





# INDIAN ARMY *to procure* SKY STRIKERS

**W**e cannot forget the Pulwama attack (14th February 2019) in which more than 40 CRPF personnel were killed by the terrorists. In turn, India made an airstrike on the terrorist training camp at Balakot on 26th February 2019. In order to make such

counterattacks, it is crucial that our armed forces have strong weapons to safeguard the country. The Indian Air Force (IAF) has signed a contract to procure over 100 drones called Skystrikers.

SkyStrikers are unmanned aircrafts that can strike operator



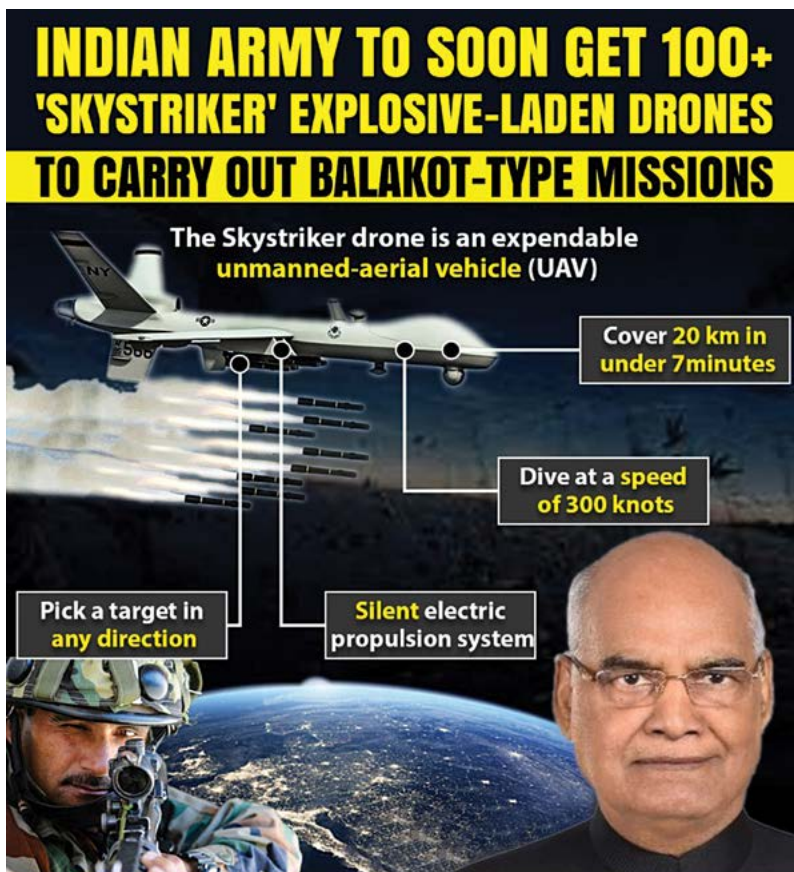


## DO YOU KNOW ?

- A loitering munition ( a suicide drone or kamikaze drone) is a weapon system category in which the munition loiters around the target area for some time, searches for targets and attacks once a target is located.
- The Knot is a unit of speed. 1 knot = 1.852 km/hour.
- Electric Propulsion (EP) makes use of electrical power to accelerate a propellant by different possible electrical and/ or magnetic means.
- Covert operation – a military operation that conceals the identity of the party.

### Features

- Can cover 20 km in less than 7 minutes.
- Has silent electric propulsion system that makes it ideal to undertake covert operations.
- Can dive at a speed of 300 knots and operate effectively against wind speeds of up to 20 knots.
- Can hit the target in any direction.



designated targets. They enable high-precision performance and come with a 5 kg warhead installed inside the fuselage (main body of the aircraft).

These drones are to be manufactured by the Bengaluru based Alpha Design in a joint venture with Israel's Elbit Security Systems (ELSEC).

This will also boost the 'Make in India' mission.

According to Elbit System, "a SkyStriker is a cost-effective loitering munition that is capable of long-range precise tactical strikes.

The technology enabled Sky Striker improves performance, situational awareness and survivability by providing direct-fire aerial-precision capabilities to manoeuvrable troops and Special Forces."

CMD of Alpha Design Col (ret'd) HS Shankar said, "Location

“ SkyStrikers are unmanned aircrafts that can strike operator designated targets.

details (GPS Global Positioning System) will be loaded onto the drone before launch.

Upon launching, it will hover around the area, pick up the target, relay the information back to ground control equipment and strike only after getting clearance."

As per some reports, the conventional military troops from the ground, can change the targets and even call it back if the mission has to be aborted.

With these unique features, the drones can save our nation. It is in our best interest to keep our nation well protected.







# KONGTHONG

## *Best Tourism Village in Meghalaya*



**K**ongthong, also known as Meghalaya's Whistling Village, is one of the three villages that India has nominated for United Nations World Tourism Organisation's (UNWTO) 'Best Tourism Village'. The other two villages are Pochampally in Telangana and Ladhpora Khas in Madhya Pradesh.

Kongthong is located in the Khat-ar-shong area in the East Khasi

hills. Nestled between Meghalaya's Sohra and Pynursla ridges it was isolated for a long time because of the terrain. The village attracts tourists for not just its scenic beauty, but for an extraordinary tradition called 'Jingrwai Iawbei', this tradition has existed since time immemorial. Within a week of one's birth, the mother assigns each child a unique tune which becomes their name. Each person has 2 names: a





Each person has 2 names: a regular name and a song name. The song names also have 2 versions: a long and a short song.

regular name and a song name. The song names also have 2 versions: a long and a short song. A short song is used when they are home and the long songs are used outside to keep the evil spirits away in the forest area.

The UNWTO is a special agency that ensures responsible, sustainable and universally accessible tourism. UNWTO announced its new 'Best Tourism Village' initiative at the opening of their Middle-East regional office in Riyadh, Saudi Arabia. Its mission is to advance the role of tourism

in valuing and safeguarding rural villages along with their associated landscapes, knowledge systems, biological and cultural diversity, local values and activities.

The 'Best Tourism Village' label will be given to a rural tourism destination with distinguished cultural and natural assets. The village should also have a clear commitment to sustainability.

Each member state can nominate up to three villages and the results will be announced in the UNWTO general assembly in October.





# PIYUSH GOYAL

## India's Sherpa for G20



### What is G20?

G20 grouping brings together 19 of the world's leading economies and the European Union (EU). The group comprises most of the world's largest economies and accounts for almost two-thirds of the world's population, 90% of the global GDP and 75% of global trade.

Founded in 1999, the Group of Twenty (G20) convenes at least once a year since 2008. It was formed in response to several world economic crises and works to address major global issues including climate change mitigation, international financial stability and sustainable development. The European Commission and the European Central Bank represent EU.

India will host the G-20 summit for the first time in 2023 and will hold the Presidency of the grouping from 1st December 2022. Union Commerce and Industry Minister Piyush Goyal has been appointed India's Sherpa.



# G20

## G8

### G7



Russia



Argentina



Australia



Brazil



China



European Union



India



Indonesia



Mexico



Saudi Arabia



South Africa



South Korea



Turkey

A Sherpa is the personal representative of a government who prepares an international summit.

## DO YOU KNOW ?

- **The name is derived from the Sherpas a Nepalese ethnic group, who serve as guides and porters in the Himalayas. The Sherpa clears the way for a head of state at a major summit.**
- **PM Modi has been leading India's representation at G20 summits since 2014.**

A Sherpa is the personal representative of a government who prepares an international summit, particularly the annual G8 and G20 summits. The Sherpas meet much

### The members of the G20

Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States, and the European Union.

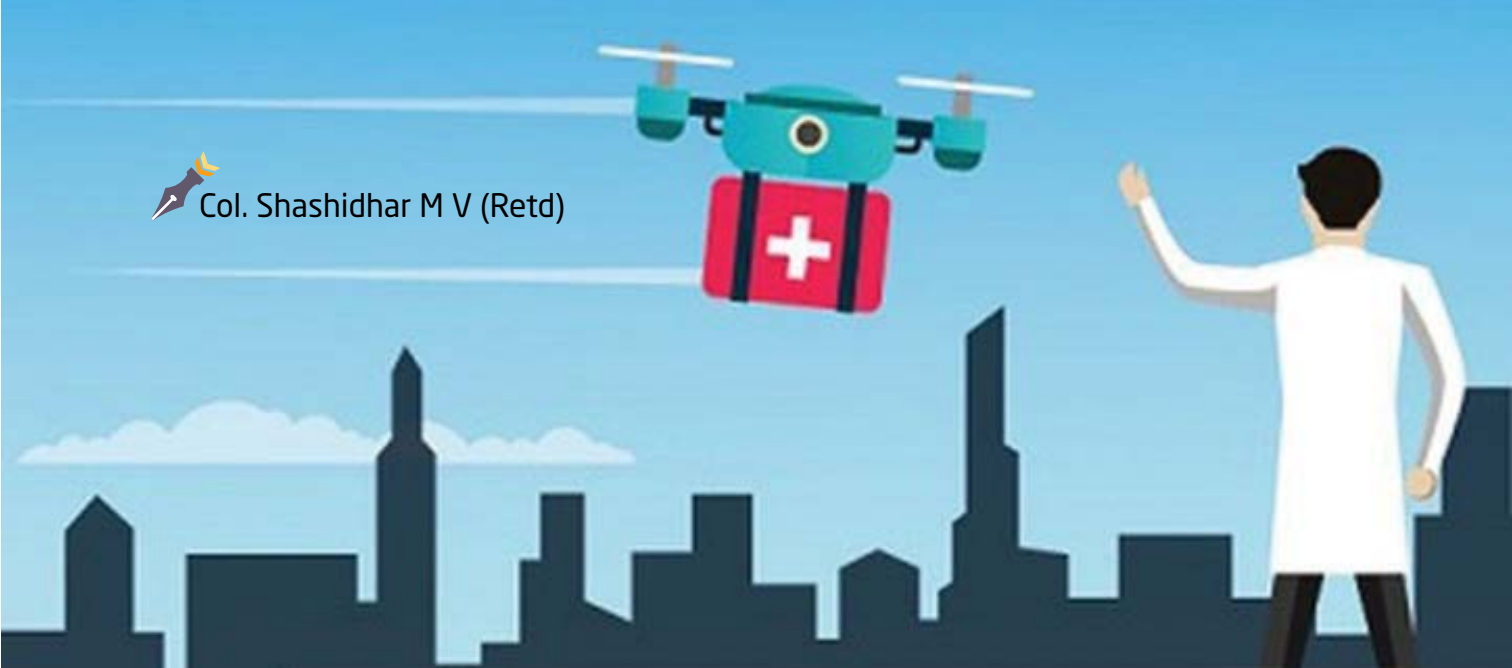
before the start of the summit and engage in planning, negotiation and implementation of tasks. There is only one Sherpa per summit for each member country.

The next G20 Summit is scheduled to take place from 30th to 31st October 2021 under Italian presidency. Piyush Goyal replaces Suresh Prabhu as India's G20 Sherpa.





Col. Shashidhar M V (Retd)



# MEDICINE

## from the SKY

**G**overnment of Telengana launched a new initiative **Medicine from the Sky** on 11th September 2021. As part of it, **Hepicopter** a medical delivery drone recently carried out trials in the presence of Civil Aviation Minister Jyotiraditya Scindia, Telengana IT Minister K.T. Rama Rao and Telengana Education Minister Patlolla Sabitha Indra Reddy.

### Features

- Heavy payload long range drone.
- Has a special temperature-controlled box platform (patent pending).
- Safe and reliable delivery of multiple medical supplies including vaccines, lab samples etc.
- Can access even remote areas easily.
- A pair can make 10 trips every day.





In India, most of the primary health centres and sub centres are in rural, remote and hard to reach areas.

- Can safely deliver 2000-5000 doses of vaccine at 2-8 degrees C in one trip over a straight-line distance of 20-40 kms.
- Accessible through a mobile application.

In India, most of the primary health centres and sub centres are in rural, remote and hard to reach mountainous, forest or river areas. Sometimes natural occurrences like floods, landslides, heavy fog and snow can also render an otherwise connected place inaccessible for several months.

At times like these, the drone comes in very handy. Approved medication can be reached using these drones within Beyond Visual Line of Sight (BVLOS) for one year. With mobile applications, daily supplies can literally be made available at the click of a button.

#### Collective effort

This project, spearheaded by Telangana government has the combined efforts of World Economic Forum, Niti Ayog, Healthnet Global and Ministry of Civil Aviation. Necessary exemptions and rights to fly drones were granted on an experimental basis.

## DO YOU KNOW ?

- Hyderabad- based Marut Dronetech, RICH, Public Health Foundation of India and Adani Defence Group company Alpha Digital Technologies were all involved in the making of Helicopter.
- Drone is a layman terminology for Unmanned Aircraft (UA). There are three subsets of Unmanned Aircraft- Remotely Piloted Aircraft, Autonomous Aircraft and Model Aircraft.
- Remotely piloted aircraft have been divided into five categories based on their weight:
  - Nano : Less than or equal to 250 grams
  - Micro : 250 g – 2kg
  - Small : 2 kg – 25kg
  - Medium : 25kg – 150kg
  - Large : > 150kg

Starting off with the first ever drone delivery of a vaccine in India, these trials are focused on laying the groundwork for a more elaborate drone delivery network that will improve access of vital healthcare supplies to vulnerable communities.





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China and many European countries are using drones for broadcasting messages to the public.

### Usage of Drones during the pandemic

- Lab sample pick-up and delivery and transportation of medical supplies to reduce the transportation time, logistic planning and minimize the exposure to infection.
- Aerial spraying of public areas in order to disinfect potentially contaminated places.
- Public space monitoring and guidance during lock down and quarantine.



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Aerial spraying of public areas in order to disinfect potentially contaminated places.

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### Surveillance

An important policy for authorities across the globe right now is to prevent the spread of the virus. To ensure that, they are taking unprecedented measures to reduce people-to-people contact. Most countries took measures like the closure of non-essential public places, ban of mass gatherings and ensuring a social distancing to limit physical contact.

### Broadcast

In addition to street surveillance, authorities are also using drones to broadcast messages and information about lock down measures, especially in rural areas that lack open communication channels for health information.

Drones equipped with loudspeakers are used to make public announcements to keep people indoors, take necessary precautions, make social-distancing

# Risk

These operations carry more safety concerns due to the fact that the pilot may only be observing potential obstacles via a remote camera feed, or, in the case of automated flights, there may be no human observation at all.

There is a risk of collisions with other aircraft, or damage to property and people, especially when flights take place in non-segregated air space.

and wear a mask if stepping outside from home. China and many European countries are using drones for broadcasting messages to the public.

- As per Drone Regulation (2018), the Ministry of Civil Aviation partitioned the Air space into
- **Red Zone** (flying not permitted)
- **Yellow Zone** (controlled airspace)
- **Green Zone** (automatic permission)
- BVLOS flights typically require additional equipment and extra training and certification; need permission from aviation authorities.
- Unmanned Aircraft System Rules 2021 states that drones will not be allowed to operate BVLOS, which would limit the use of these gadgets to surveys, photography, security and various information gathering purposes.





# India's First Emergency Landing Facility in Rajasthan

## DO YOU KNOW

- In the 1971 war, the Pathankot air base landing strip was bombed heavily and there was no back up runway / ELF.
- During WW II, British had used Red Road in Calcutta, between Chowringhee and Maidan for landings by the Royal Indian Air Force.
- ELFs, despite being fixed assets, merge with the highway infrastructure and are difficult to locate and target for enemy attacks.

**O**n 9th September 2021, Union Ministers Rajnath Singh and Nitin Gadhkari inaugurated the 3 Km Emergency Landing Facility (ELF) as an auxiliary military airbase on the Satta-Gandhav stretch of NH 925A in Barmer, Rajasthan.

A Hercules C-130J plane of the IAF, carrying the two ministers, Chief of Defence Staff Gen. Bipin Rawat and Chief of Air Staff, Air Chief Marshal R.K.S. Bhadauria conducted a mock emergency landing on NH 925A. Besides, a Sukhoi-30MKI, Jaguar, AN-32 military transport aircraft and Mi-17v5 helicopter of the IAF also landed at the ELF, showing its complete operational readiness.

### ELF-Prerequisites

- 3 km uninterrupted straight road.

- Strength fortified with additional asphalt, concrete and tar.
- Routine clearing of debris and obstacles.

The ELF was completed in a record 19 months despite Covid-19 restrictions. Three helipads (100 x 30 metres each) have been constructed in Kundanpura, Singhania and Bakhasar villages to strengthen the security network on the western international border of our country.

ELF will be used for road traffic flow on every day basis. However, during war time or rescue & relief operations it will be used to facilitate the landing of all types of aircrafts.

NHAI in collaboration with IAF is preparing ELF at 19 other NH locations. Each of this would be ready in a record 15 days' time.



# INDIAN BIOLOGIST WINS Turtle Conservation Award



**W**ildlife is a precious gift of God to this planet. The term 'wildlife' not only refers to wild animals but also all undomesticated lifeforms including birds, insects, plants, fungi and even microscopic organisms.

Indian culture has always given importance to the protection and preservation of our diverse flora and fauna. The Sacred Groves maintained by the villagers is a testimony to this fact.

bringing three critically endangered turtle species back from the brink of extinction.

**Indian biologist Shailendra Singh has been awarded the Behler Turtle Conservation Award 2021.** It is a major annual international award honouring excellence in tortoise and freshwater turtle conservation and biology. Named after John L. Behler, a well-known environmentalist, it is also known as the “Nobel Prize” of Turtle Conservation. Shailendra has dedicated his life and spent the last 13 years successfully saving seven species from becoming extinct.

Freshwater turtles are crucial for keeping the water ecosystems healthy as they clean the rivers and ponds by consuming dead matter and algae. They also control invasive fish varieties and often serve as a source of protein for other animals in the water body.

There are 29 species of freshwater turtles in India, out of which 17 are threatened due to the high demand in the international market, illegal trafficking, trading, and loss of habitat.

**“Not just endangered, commonest of the common turtles must be protected.”**

Dr Shailendra Singh  
Biologist



It is indeed a proud moment when International Organisations recognize an Indian for his unparalleled contribution towards

# ₹ 125 coin in honour of SRILA PRABHUPADA

Whenever we go to any other country, and when people we meet there say 'Hare Krishna', we feel a sense of belonging and pride.



On the occasion of the 125th birth anniversary of Srila Bhaktivedanta Swami Prabhupada, Prime Minister Narendra Modi released a special commemorative ₹125 coin in honour of the service rendered by the spiritual guru.

Abhay Charanaravinda Bhaktivedanta Swami, also known as Srila Prabhupada was an Indian spiritual icon who founded the International Society for Krishna Consciousness (ISKCON).

He is regarded as a saint equivalent to the 15th century saint Chaitanya Mahaprabhu, an ardent devotee of Lord Krishna. He was instrumental in the spread of Bhakti yoga not only in India but also in the west through the Hare Krishna movement.

PM Modi, while unveiling the coin said that it was a happy coincidence as Janmashtami and the birth anniversary of Srila Prabhupada

fell on adjacent dates (August 30 and September 1 respectively). He also mentioned that Srila Prabhupada was not only known for his supreme devotion to Lord Krishna but also to his motherland. He had participated in the freedom struggle and refused to accept his diploma from Scottish College in support of the non-cooperation movement.

PM exclaimed, “Whenever we go to any other country, and when people we meet there say 'Hare Krishna', we feel a sense of belonging and pride. The same feeling will be there when Make in India products get the same affinity. We can learn a lot from ISKCON in this regard.”

ISKCON today has centres worldwide in countries like USA, UK, Canada, Belgium, France, Brazil, New Zealand, etc. They have built many temples across the world to spread the teachings of Lord Krishna.







# INDIA'S FIRST **DUGONG** **SANCTUARY** TO BE SET UP



**T**he dugong - endangered and facing extinction due to water pollution, habitat loss and loss of seagrass- is a medium-sized grey/brown marine mammal with a torpedo-shaped body.

It has a massive body, fluked tail and shy temperament, it usually lives within 10 m from the surface. With poor eyesight, it relies on its sensitive bristles along its pig-like snout to locate the seagrasses, its food, and it can dive for up to 10 minutes at a time while grazing.

The dugong's hearing is sharp, and even without vocal cords, it can produce squeaks and pips to communicate with its young.

Establishment of a Dugong sanctuary in Tamil Nadu is one of the measures taken in the state to protect its wildlife, forests and marine life. The new sanctuary will comprise of feed, spanning up to 500 kms approximately.

## DO YOU KNOW ?

- Dugongs have a very small brain in comparison to their body size.
- They never enter freshwater and are the only exclusive herbivorous sea mammals.
- Around 200 Dugongs are believed to inhabit the marine regions of Tamil Nadu.

### **Dugong is generally found in two places in TN:**

**Gulf of Mannar-** A shallow bay area between the south-eastern tip of Tamil Nadu and the western part of Sri Lanka

**Palk Bay-** A semi-enclosed shallow area in the same region.



# GOA

## 1st state in India to give FREE WATER



### DO YOU KNOW ?

- Government of India initiated **Har Ghar Jal Mission** in 2019 with the aim to provide tap water to every rural household by 2024.
- As per WHO and UNICEF, about 2.1 billion people lack access to clean drinking water worldwide.
- Ireland and Turkmenistan are the only two countries in the world that give free water.

Earlier in October 2020, Goa was the first state to provide 100% tap water connections in rural areas as per the “Har Ghar Jal Jeevan Mission” of the central government.

Now, it is the first to announce free water facilities for the people. Chief Minister Shri Pramod Sawant launched the “Save Water to Get Free Water” scheme. He said, “Goa will be the first state in the country to give free water to the people.

We don’t waste this water; we want to save water to have free water.” A standard nominal amount is usually charged irrespective of the volume of

consumption. To encourage people to save water, this scheme provides zero water bills for at least 60% of the households.

#### Highlights

- 16000 litres of water will be given free.
- It can also be utilised by residents in flats or complexes.
- Small businesses and restaurants can also benefit as they will be transferred from industrial to commercial segments for water billing.
- One-time settlement has been extended by two months to facilitate payment of pending bills.

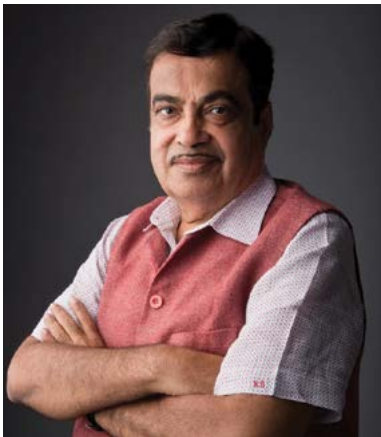




# DELHI-MUMBAI

## EXPRESSWAY

—World's Longest—



**U**nion Minister of Road Transport and Safety Nitin Gadkari checked the progress on the Delhi-Mumbai Expressway on 17th September 2021. Spanning a distance of 1350 km upon completion, this 8-lane road will be the world's longest expressway.

When it becomes operational in March 2023, it will halve the travel time between Mumbai and Delhi.

Nitin Gadkari posted a short video which shows him cruising through the expressway at 170 kmph speed. The speed limit for this expressway is 120 kmph, though. He notes in the video that the roads are wide enough to land a small aircraft. He also inspected the progress from air.

The expressway covering Delhi, Haryana, Rajasthan, Madhya Pradesh and Gujarat is the first phase of 'Bharatmala Pariyojana'





This will be the first highways in India with fully equipped trauma care centres every 100 kms for accident victims.

which focuses on optimizing the efficiency of freight and passenger movement across the country. The central government will be funding multiple projects under this programme like development of Economic Corridors, Inter Corridors and Feeder Routes, Green-field express ways etc.

The first phase of the express way between Delhi-Jaipur-Lalsot and Vadodara is set to open for public usage by March 2022. The completion of this expressway will be a boost for the country's economy.

Being built at the cost of ₹980 billion, it will also host wayside amenities such as fuel stations, charging ports for e-vehicles, ATMs, resorts, hotels and food-courts. It will have helipads for emergency response and business purposes.

This will be the first highway in India with fully equipped trauma care centres every 100 kms for accident victims. This highly eco-friendly express way will have 2 million trees watered via drip irrigation.

It will also have 5 wildlife crossing zones known to be wildlife corridors between tiger reserves. One of these crossings will be the country's first 8-lane wide tunnel in Mukundara Hills National Park. A stretch of this highway will also be developed as an e-highway and

4 lanes will ply only e-vehicles.

Nitin Gadkari has been the driving force behind multiple roadways and transportation development projects for the past seven years. But concerns regarding National Highway Authority of India (NHAI) being saddled with heavy debts are rising.

He has pointed out that all the projects of NHAI have received AAA rating, one of the highest credit ratings and an indicator of robust financial position.

“  
This highway will reduce transportation time for heavy duty trucks from 2 days to a mere 24 hours.

He said that “NHAI was not in a debt trap, and it will never be in debt trap in future. It is a gold mine, and is on strong footing... in the next five years, NHAI's toll income will rise to ₹1.40 lakh crores per year from the current toll income of ₹40,000 crores.”

India's economy had been hit due to the pandemic. This highway will reduce transportation time for heavy duty trucks from 2 days to a mere 24 hours. Improving a country's infrastructure will create more employment opportunities and accelerate the country's growth. When the economy is on a decline, “there is a need to increase investments in infrastructure,” as Gadkari has stated.







# 75 Azadi Ka Amrit Mahotsav



## Making of the Constitution e-Photo Exhibition Launched

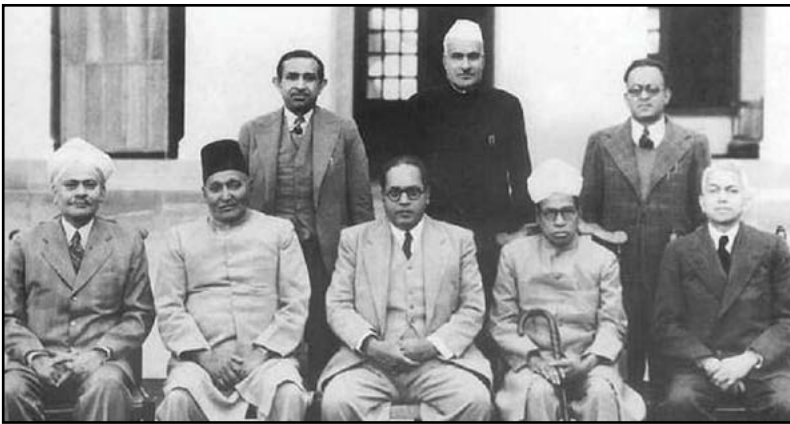
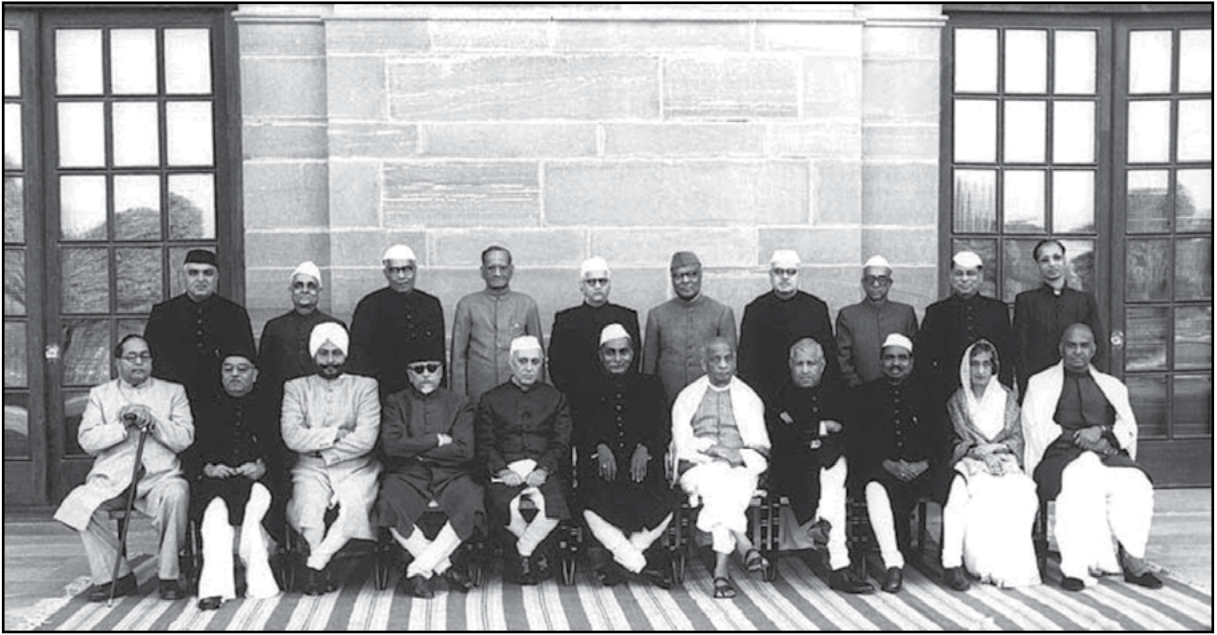
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The exhibition is supported by nearly 30 rare pictures.

**A**s part of 'Azaadi ka Amrit Mahotsav', Ministry of Information & Broadcasting (MIB) is launching a series of e-photo exhibitions, over a year, on various aspects of the freedom struggle, out of which the first one is on 'Making of the Constitution'. The virtual exhibition was inaugurated on 27th August 2021 in New Delhi.

The exhibition is supported by nearly 30 rare pictures. It also has links to videos and speeches sourced from AIR archives and Films Division. It traces the entire journey, right from the formation of the Constituent Assembly to the adoption of the Constitution and finally celebrating the first Republic Day of India. It aims to help youngsters not only know





more about the Indian constitution but also familiarize them with their rights.

The exhibition incorporates a quiz comprising a set of 10 questions to enhance engagement of the readers and ensure 'Jan Andolan through Janbhagidari' of the citizens.

This is available in Hindi, English, Odiya, Gujarati, Marathi, Assamese, Telugu, Kannada, Tamil, Malayalam, Punjabi, Bengali and Urdu.

## DO YOU KNOW ?

- Our National Flag was adopted during a meeting of the Constituent Assembly held on 22nd July 1947 and it became the official flag of the Dominion of India on 15th August 1947.
- The first election to Lok Sabha was conducted between 25th October 1951 and 21st February 1952.
- The objective of Janandolan through Janbhagidari is to ensure involvement of the people in recalling the spirit of sacrifice and patriotism in the journey towards a new India.

### Highlights

- Image of the Indian Parliament
- The first meeting of the Assembly (9th Dec 1946)
- Dr. Rajendra Prasad appointed as the President (11th Dec 1946)
- National Flag (22nd July 1947)
- Independent India (15th Aug 1947)
- Drafting Committee (29th Aug 1947)
- Last meeting of Constituent Assembly (24th Jan 1950)
- First General Election (1951-52)







# Air Defence Missile System MRSAM to Indian Air Force



The first deliverable Firing Unit (FU) of the Medium Range Surface to Air Missile (MRSAM) System was handed over to the Indian Air Force (IAF) in the presence of Defence Minister Rajnath Singh at Jaisalmer in Rajasthan on 9th September 2021.

## HIGHLIGHTS

The MRSAM is a sophisticated network-centric combat Air Defense System developed in conjunction with India's corporate and public sectors, including MSMEs, by the Defence Research and Development Organization (DRDO) and Israel Aerospace Industries (IAI).

It is a high response, quick reaction, vertically launched supersonic missile that protects ground assets from a wide range of threats including fighter aircraft, unmanned aerial vehicles, helicopters, guided and unguided weapons, subsonic and supersonic

cruise missiles and more. In severe saturation conditions, it can engage numerous targets at ranges of up to 70 km.

## MAKE IN INDIA, MAKE FOR THE WORLD

Rajnath Singh highlighted the government's commitment to strengthening the technological foundation through indigenous research, design, and development, with a focus on "Make in India, Make for the World."

He emphasized that tight collaboration between technological partners and friendly countries has resulted in rapid progress toward fulfilling this ambition, with the creation of MRSAM serving as an excellent example. Air Chief Marshal R K S Bhaduria, praised the MRSAM (IAF) team's work and remarked that the system will improve the country's Air Defence capabilities.



# World's Highest Motorable Road in Ladakh

The world's highest motorable road was inaugurated on 31st August 2021 by Ladakh MP Jamyang Tsering Namgyal. It was constructed by the 58 Engineer Regiment of the Indian Army within a span of two months.

It will reduce 41-km of travel from Leh (Zingral to Tangtse) to the Pangong Lake crossing the Kela pass at an altitude of 18,000 feet and is considered as a significant roadway. The Khardungla Pass was previously the world's highest public motorable road.

The road aids in boosting the socio-economic status of local residents, especially the people of the Lalok region. It will enhance tourism in the near future and enable tourists to observe rare medicinal plants, participate in a variety of snow sports activities, witness nomadic cattle and visit lakes, among other key attractions.

The roadway highlights the seriousness of the Indian Army taking immense pains to improve border infrastructure, especially the roads and bridges.

## Two humped Camel



The camel with two humps is common in Ladakh. Bactrian camel safari is a common activity in the Nubra Valley region.

## Largest National Park in The Country



**Hemis National Park** is the largest in the country, covering 4,400 square km of wildlife. Located to the west of River Indus, this is famous for snow leopard, blue sheep, Tibetan sheep, Ladakhi urials and others.

## DO YOU KNOW ?

### Highest salt water Lake that Freezes



Pangong Tso (about 4,350m) is the world's highest salt water lake. Its water, which seems to be dyed a deep blue, stands in stark contrast to the arid mountains surrounding it. This is shared between India and China.

### Highest Battleground of the World



Siachen Glacier (6000 m) is an Indian military base. The Indo-Pakistan war of 1972 took place here.







# SIR M. VISVESVARAYA

- A Civil Engineer,

## Visionary and a Nation Builder

**A**lmost all of us know that 14th November is called Children's Day and 5th September is called Teachers' Day. An overwhelming majority of us also know in whose memory those are celebrated. But many of us might not know that **15th September is called Engineers' Day** and that is **celebrated in memory of a great man called Mokshagundam Visvesvaraya.**

Visvesvaraya, fondly referred to as Sir MV, was born in a poor Telugu Brahmin family in the year 1860 in Muddenahalli in the erstwhile Mysore

Kingdom (presently Chikkaballapur district). His father Sri. Srinivasa Sastry was a Sanskrit scholar and his mother Smt. Venkatalakshamma was a very religious woman. He lost his father when he was 15 years old.

After his primary schooling in Muddenahalli, he moved to Bangalore for his high school. Subsequently, he completed his Bachelor's in Arts from the Central College, Bangalore, which was then affiliated to the Madras University. He then joined Civil Engineering in the College of Engineering, Pune. He stood first in his course. In his early years he



He was appointed as the Chief Engineer of Mysore and he was the architect of the Krishnarajasagar Dam.

faced a lot of financial hardships and tutored children to make both ends meet. In 1884 he joined the Bombay Public Works Department as Assistant Engineer. From then till he breathed his last at the age of 102, he worked tirelessly.

His life was exemplary and he was a rare combination of intellect, punctuality, sincerity, hard work, integrity and dedication. Beyond being an engineer, he was an administrator, educationist and above all a visionary and a nation builder.

### Engineer

Visvesvaraya's **early contribution was the design of the automatic weir water flood gates** first installed in 1903 at Khadakvasla reservoir near Pune. He had patented this design. In 1909, he was appointed as the Chief Engineer of Mysore and he was **the architect of the Krishnarajasagar Dam**, one of the biggest dams in India irrigating 1,20,000 acres of land and also providing drinking water to Mysore and Bangalore. It had a tunnel that was nearly 3 km long, bored through a hill range.

It supplied power to Kolar gold fields and also led to the cultivation of sugar cane, giving rise to large sugar mills in the region. Sir MV's patented design of automatic sluice gates was implemented in Krishnarajasagar and the Tigma dam in Gwalior and many other dams.

He was also instrumental in designing the Laxmi Talav dam in Maharashtra (Kolhapur) and was one of the chief engineers in designing a flood protection system for the city of Hyderabad. Upon invitation he served the Indian Irrigation Commission.

He was instrumental in implementing a complex system of irrigation in the Deccan region.

He also introduced the block system of irrigation that helps improve the agricultural output. **He was involved in the system design for the prevention of erosion of the Vizag port.** He was the one who designed the Jayanagar area of Bangalore.

He also played a part in the design and development of the Tirumala Tirupati Ghat road.

Even at the age of 90, he gave technical advice for the location of







the Mokama bridge over the Ganga in Bihar. He visited the site on a wheelchair. He was the embodiment of commitment and dedication.

### Educationist

Sri.M.Visvesvaraya was invited to be the Dewan of Mysore by the then Maharaja Krishnaraja Wodeyar IV and he accepted the invitation.

He was the Dewan of Mysore for seven years, from 1912 to 1918. **He made education compulsory in Mysore.** This was much before the Indian constitution came into vogue. The Maharani's college in Mysore was the first to include degree courses for women. **He encouraged girls to attend schools.**

During his period as Dewan, the number of educational institutions in the state went up by a whopping two and half times - from just 4,568 to 11,294. Visvesvaraya also focused on technical education. **He started a number of engineering and agriculture colleges across the state.**

He was responsible for starting the Government Engineering College (renamed University Visvesvaraya College of Engineering), Bengaluru, Hebbal Agricultural School, that led to the formation of University of Agricultural Sciences and the Sri

Jayachamarajendra Occupations Institute in Bangalore with the funds he realized from rescuing the Bhadravati Iron works.

He asked "If Australia and Canada could have universities of their own for less than a million population, cannot Mysore with a population of over 6 million have a university of its own?" and started the Mysore university. **Public libraries were set up by him in Mysore and Bangalore.**

### Visionary and Nation Builder

His tenure as the Dewan of Mysore proved to be one of monumental achievements not only in the field of education but also from an overall industrialization and development perspective. He was called as the Father of the Modern Mysore state and rightly so. Sir MV was a strong advocate of industrialization. While Gandhiji was of the view that industrialization will lead to destruction and he propagated the slogan "Industrialize and perish". **Sir MV said, "Industrialize or perish."**

He established the Sandal Oil Factory, which is called the Mysore Soap Factory, the Metals Factory, the Chrome Tanning Factory. Later in 1923 he helped start the Mysore Iron and Steel Industries at Bhadravati, which was later renamed as Visvesvaraya Iron and Steel industries.

In August 1927 Mahatma Gandhi visited Mysore State and he said, "Bhadravati (Iron Works), like Krishnarajasagar Dam, is a tribute to the patriotism and constructive genius of Visvesvaraya, who has placed his talents, knowledge and industry and all his time and energy at the service of Mysore." Sir MV's orientation and encouragement towards industries attracted many

While Gandhiji was of the view that industrialization will lead to destruction and he propagated the slogan "Industrialize and perish". Sir MV said, **"Industrialize or perish."**



## DO YOU KNOW

- **Weir - a low dam built across a river to raise the level of water upstream or regulate its flow.**
- **Honoris causa – a degree conferred on someone as a mark of honour.**
- **Sir MV started the Century Club in 1913, when the Bangalore Club refused to permit him with his turban on. He was asked to remove the turban and wear a hat. Deeply disturbed, he decided to start a club that would allow Indians without such unreasonable conditions.**
- **MV was the one who started providing chairs for the Indian officers to watch the Mysore Dasara festivities. Prior to that, only the British officers could sit; the Indian officers had to either stand at the back or sit on the floor.**

industrialists towards the Mysore state and opened the gates of employment to lakhs of people.

His horizon was even wider. He set up The Bank of Mysore which later became the State Bank of Mysore. He started the Mysore Chamber of Commerce. As a Kannada enthusiast he also started the Kannada Sahitya Parishad. He had also authored many books, covering topics like industrialization in India, unemployment, nation building plan for provinces and the like. He has also written the memoirs of his working life.

It was his conviction that the two things which could alleviate poverty are education and employment and he did whatever he could to enhance both. He really was the Father of the Modern Mysore State.

### **Awards, Accolades and Recognition**

Sir M.V never chased fame or publicity. But recognition, awards and honour came to him unbidden. He was awarded the honorary membership of the London Institution of Civil Engineers for an unbroken period of 50 years. He was awarded the honorary fellowship of the Indian Institute of Science. Universities in India vied with one another to confer honoris causa. He was conferred Honoris causa by the universities of Allahabad, Andhra, Bombay, Calcutta, Jadhavpur, Mysore, Patna and Varanasi. Many colleges and universities have been named after him. In 1915 he was knighted by the British Empire and (Knight commander of the order of the Indian empire-KCIE). From then on, he was called Sir M.V. In 1955 one year after the award was instituted, Sir.M.Vivesvaraya was honoured with the Bharat Ratna, the highest

civilian award. Google honoured him with a Doodle in 2018 on the occasion of his birthday. It is impossible to list all his achievements, as there are few areas of Civil Engineering and nation building that he has not contributed to significantly. Two quotes succinctly bring out his qualities and contribution:

“Sir MV is a combination of endeavour, adventure, courage, intellect, capacity and strength and thereby enjoys God's grace,” remarked Jayachamarajendra Wadiyar.



**Dreamer, thinker  
and a man of  
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the past but always  
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people of India**

“Dreamer, thinker and a man of action, not lost in the past but always thinking of the future, living an integrated life, bringing into existence and giving shape to dreams not for himself but for India and the people of India.” This was Jawaharlal Nehru during the birth centenary celebrations of Sir.MV.

A study of his life makes us wonder as to whether one person can accomplish so much in one life time. Sir MV has indeed demonstrated what could be achieved in one janma. He is certainly a role model for all youngsters who would do well to emulate him in the service of our nation.







# GAGANYAAN

## ISRO CONDUCTS FIRST HOT TEST

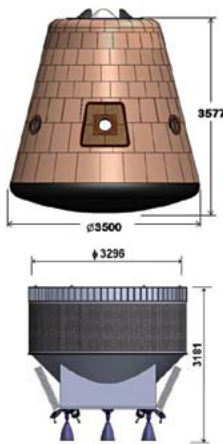
**O**n 28th August 2021, ISRO successfully conducted the first hot test to check the propulsion system of Gaganyaan's service module – located below the crew module in which the astronauts travel. The propulsion system demonstration model was fired for 450 seconds at the ISRO Propulsion Complex in Mahendragiri, Tamil Nadu. The system performance met the pre-test predictions.

### What is Gaganyaan?

Gaganyaan an Indian spacecraft designed to carry three people, will orbit the earth at 400 km altitude for up to seven days. The first crewed mission was originally planned to be launched in December 2021, but this has since been delayed to 2023.







**Orbital Module**  
3 Astronauts; 7 days in space

**Crew Module: Habitat of Astronaut**

**Service Module: Does on-orbit servicing**



**Human Rated Launch Vehicle**  
(GSLV MKIII derived)

## DO YOU KNOW ?

- The function of the propulsion system is to produce thrust. Thrust is the force which moves a rocket through the air and space.
- **Hot testing** - The testing of machinery
- **MON-3** - Mixed oxides of nitrogen (MON) used in rocket propulsion systems.
- **MMH** - Monomethyl hydrazine is a highly toxic chemical used as a rocket propellant in bipropellant rocket engines.
- **Bipropellant** consists of separate fuel and oxidizer that come together in a combustion chamber.



Gaganyaan an Indian spacecraft designed to carry three people

### Objectives

- To demonstrate the indigenous capability to undertake human space flight mission to Low Earth Orbit (LEO).
- ISRO will perform 4 biological and 2 physical science experiments related to Micro-Gravity (Weightlessness or Zero-g).



- To motivate research and development within the country in science and technology domains.
- Progress towards sustained and affordable human and robotic programme to explore the solar system and beyond.

### What is the Service Module?

The Service Module (SM) is a part of the Gaganyaan Orbital module, located below the crew module and remains connected to it until re-entry.

The SM Propulsion System consists of a unified bipropellant system consisting of 5 thrust engines and 16 Reaction Control system (RCS) thrusters with MON-3 and MMH as Oxidizer and Fuel respectively.

It contains a variety of support systems such as electrical systems, environmental control and propellant tanks used for spacecraft operations. It is jettisoned (discarded) upon the completion of the mission and usually burns up during atmospheric re-entry.







# MASS IMMUNISATION PROGRAMMES

## – India, a success story

**W**orld Health Organization stated, “Considering the magnitude of the population 1.3 billion, 37 states and UTs, 770 districts and multiply the key public health actions into that, for that government of India has to be very proud of.” Dr Hotez, an internationally-recognised physician-scientist said, “India’s Covid vaccine rollout ‘rescued the world.’”

India’s universal immunization programme, according to UNICEF, is the **largest public health programme in the world**. India vaccinates 26.5 million infants per

year for a number of diseases, as well as annual tetanus shots for 29 million pregnant women.

How did India get such accolades from internal communities? It did not happen overnight; a lot of hard work by Indians have led to this success. Let us briefly trace the history of this achievement.

### **Vaccination History in India**

Vaccination is a proven and one of the most cost-effective child survival interventions. All countries have an immunization programme to deliver selected vaccines to the targeted beneficiaries, especially





## National Immunization Programme in India (1978 onwards)

Smallpox eradication left a legacy of an improved health system, trained vaccinators, cold chain equipment & system and a network for surveillance of vaccine-preventable diseases. Experts globally agreed to utilize this opportunity of trained workforce for better health and reduce child morbidities and mortality from other vaccine-preventable diseases.

focusing on pregnant women, infants and children, who are at a high risk of diseases. The first vaccine (smallpox) was discovered in 1798. In the early twentieth century, at least four vaccines (smallpox, cholera, plague and typhoid) were available in the country.

Tuberculosis was perceived as a major cause of morbidity and mortality. A BCG Vaccine Laboratory at King Institute, Guindy, Madras (Chennai), Tamil Nadu, was set up in 1948.

In August 1948, the first BCG vaccinations were conducted in India. In the 1970s, according to official statistics, there were nearly 19 vaccine manufacturing units in the public sector and 12 in the private sector in 1971. The majority of vaccines available in the global market had become available in the Indian market also.

The vaccine manufacturing units in India were producing not only smallpox vaccines but a few of these were also producing diphtheria, pertussis and tetanus (DPT), diphtheria and tetanus (DT), tetanus toxoid (TT), oral polio vaccine (OPV) and other vaccines except measles vaccine.

In the post-independence period, the BCG vaccine laboratory and other national institutes were

established; many private vaccine manufacturers came up, besides the continuation of smallpox eradication effort till the country became smallpox free in 1977.

“  
**In 2012, WHO removed India from polio-endemic countries**  
 ”

The WHO launched Expanded Programme on Immunization (EPI) in 1974. India worked with WHO to train medical staff, organize publicity campaigns, and vaccinate huge numbers of people.

In late 1974, 1,33,000 health workers visited 100 million households across 2,641 cities and more than half a million villages, isolating smallpox patients as well as their family members and neighbours and vaccinating all of them. The Expanded Programme of Immunization (EPI) (1978) and then Universal Immunization Programme (UIP) (1985) were launched in India.

The National Technology Mission on immunization helped in the modernization and up-gradation of vaccine facilities and by 1990-1991, the country became self-sufficient for all vaccines (including measles) except for OPV.

Till March 1991, maintenance of cold chain was under a contract between UNICEF and commercial agencies. From April 1991 onwards, states/union territories had taken the responsibility of the maintenance of cold chain. **In 2012, WHO removed India from polio-endemic countries.**

Mission Indradhanush (2014) aimed at increasing the full immunization coverage to children to 90%.

### Key milestones

- Over 110 million children under five years of age vaccinated against polio over three days in India following the Polio National Immunisation Day (NID) on 31st January 2021.
- 91 million children vaccinated at booths on this decade's first 'Polio Ravivar' (Polio Sunday) on 31st January across all states and UTs.
- Over 19 million vaccinated during house-to-house







vaccination drives over the next two days.

- 7 lakh booths staffed with around 1.2 mn vaccinators and 1,80,000 supervisors.
- Supported by technical partners and volunteers from WHO, UNICEF, Rotary and other civil society organizations.
- Children were also vaccinated at bus terminals, railway stations, airports and ferry crossing to ensure no child misses the life-saving dose of the polio vaccines.

Indian drug companies are major manufacturers of vaccines distributed worldwide, particularly those for low-income countries, supplying more than 60% of vaccines to the developing world. **The world's largest vaccine maker is the Serum Institute of India in Pune.**

### COVID Vaccination Strategy & Planning

In order to carry out a smooth and fool proof operation of such a large magnitude, the Government of India (GoI) has in the last few months trained around 1.7 lakh vaccinators and 3 lakh vaccination team members on the processes to be followed during the drive.

Some of these processes would entail verification of beneficiaries,

actual vaccination, cold chain and logistics management, bio-medical waste management, adverse event following immunisation (AEFI) management and updating on COVID-19 Vaccine Intelligence Network (CoWIN) system, the specially created digital platform to monitor and run the whole programme.

GoI was engaged through cascaded training involving different partners in the vaccination rollout, namely, healthcare personnel including state and district programme managers, medical officers (MOs), vaccinator officers and alternate vaccinator officers, Information Education and Communication (IEC) officer, cold chain handlers, supervisors, data managers, Accredited Social Health Activist (ASHA) coordinators, Mahila Arogya Samitis, Non-Government Organisations (NGOs), Civil Society Organisations (CSOs) and other frontline health workers from health and line ministries.

### COVID -19 Vaccine Rollout

India officially launched its COVID-19 vaccination drive on 16th January 2021, with two approved vaccines – Covishield and Covaxin. India administered over 2.5 crore Covid-19 vaccine doses on a single day on 17th September

2021, (almost the size of Australia) setting a new world record. The government is spending around \$5 billion to provide free doses at state-run clinics, public health centres and hospitals.

India's record as of 28th September 2021

- vaccinated more than 88 crores of people (more than the combined population of G7 countries),
- more than 57 crores samples tested for COVID
- the lowest death rate at 1.3%
- > 70 lakhs vaccinations /day
- > 42,000 vaccinations/minute or 700/second.
- > 30,000 cold-chain points offering precise temperature customization for the doses.

India's Co-WIN, the digital platform is shared with more than 20 countries interested in adopting the portal to run their own inoculation drives. Co-WIN will be the central IT system for strategizing, implementing, monitoring and evaluating Covid vaccination. More than 70 crore people have registered in the portal. **Through CoWIN, a person can download their vaccination certificate from a registered account soon after the vaccination, which is a unique feature and very few advanced nations in the world could do a similar thing.**

### Conclusion

India is known as the “*pharmacy of the world*” since it produces half the world's total vaccine supply. India's vaccine manufacturing ecosystem means that India is unlikely to suffer a shortage of essentials like glass vaccine vials, as the U.K. did. Unlike the U.S., India won't have to import such materials from other countries. India is playing a key role in controlling the pandemic worldwide.





# FUNDAMENTAL RIGHTS

## UNDER THE CONSTITUTION OF INDIA

One of the basic needs for all of us as humans, is to be treated at par with one another.

In the previous part of this series, we had discussed:

- The provisions regarding citizenship laid down in the Constitution;
- Some preliminary concepts pertaining to fundamental rights.

In this edition, we shall learn about some of the fundamental rights guaranteed under the Constitution.

### WHY ARE FUNDAMENTAL RIGHTS IMPORTANT?

As we had seen earlier, one of the major practical applications of constitutional law is the protection of the rights and interests of the people. The base for doing that, is the establishment of certain rights as 'fundamental' and 'basic' under the Constitution, the supreme law of the land. These are the rights that we all need, to live a life of quality and dignity. Since they are written

in the Constitution, anyone whose guaranteed rights are violated, can approach a court of law for remedy.

Now that we know the basic purpose of fundamental rights, let us begin to dive into the different categories of fundamental rights given in Part III of our Constitution.

### RIGHT TO EQUALITY

One of the basic needs for all of us as humans, is to be treated at par with one another. It does not feel fair when we are ignored or treated differently from others. To avoid such situations, Articles 14 - 18 guarantee the right to equality to every citizen of India. This right includes different aspects:

- Equality under law and equal protection (Art. 14)

This guarantee is a facet of the 'rule of law,' which states that no person is above the law and all are equal under the law. This particular provision applies to all persons





# DO YOU KNOW

## **Air India v. Nargesh Meerza**

### **Facts of the case:**

**Earlier, Air India Regulations provided that air hostesses would have to retire at the age of 35 years or if they were married within 4 years of appointment or if they were pregnant.**

**Legal issue: Did the regulation violate the right of women to equality under the Constitution?**

**Court's decision: The Supreme Court of India struck down the age and pregnancy bar as unconstitutional, since it interfered with their personal choices and was unreasonable.**

**By the powers under Article 35, the Parliament has enacted the Untouchability (Offences) Act, 1955, to ensure the removal of untouchability.**

and not only citizens. However, it is to be noted that this does not mean that persons who are not equal, can be treated equally in all circumstances. Thus, reasonable classification is allowed, if there is a reasonable basis for the distinction made. The right to equality has been upheld and reiterated in many court judgments including *Air India v. Nargesh Meerza*.

### **No discrimination on grounds only of religion, race, caste, etc. (Art. 15)**

This provision prohibits discrimination and restriction based only on the grounds of religion, race, caste, etc. This right is guaranteed only for citizens of India and not to all persons, unlike Article 14. The use of the term 'only on the grounds', indicates that a discrimination based on these grounds coupled with other grounds, would not be invalid.

An exception to this rule, under the same article, allows for special provisions for women, children and backward classes, as such special benefits would be for the advancement or progress of the distressed sections.

- Equality of opportunity and appointment in the realm of government/public posts, subject to certain restrictions/reservations (Article 16);
- Abolition of untouchability in any form (Art. 17);
- Abolition of titles, except military and academic distinctions (Art. 18). Awards such as Bharat Ratna and Padma Vibhushan are not prohibited, as such awards do not amount to 'titles.'

### **RIGHT TO FREEDOM**

Freedom and liberty are important for all of us, to different

extents, to lead a happy life. For example, most of us want to be free from unreasonable rules and do things as per our will, as long as our actions do not harm others. Articles 19-22 contain certain rights which enable freedom for all citizens of India. It is extremely important to remember that these rights come with reasonable restrictions, which are necessary to maintain peace and security in the society.

### **The rights under the umbrella of freedom include: Freedom of speech and expression**

This establishes our right to express our opinions freely by word of mouth, in writing, videos, etc. The right to vote and freedom of press are a part of this rule and are vital for a democratic country like India. The exceptions on this right are based on security of the State, public order, defamation, incitement of an offence, etc.

### **Is there a territorial limit on the freedom of expression?**

In the landmark case of *Maneka Gandhi v. Union of India*, the court held that the freedom of speech and expression has no geographical limitation and it carries with it the right of a citizen to gather information and to exchange thought with others not only in India but abroad also.

- Some of the other rights are freedom of peaceful and lawful assembly, freedom to form associations, freedom to move across the territory of India and reside in any part of India, freedom of profession, occupation, trade and business.

Again, all of these freedoms come with reasonable restrictions in the interest of the nation and the common public.



# LOANS AND CREDIT CARDS



“Thank God it is Saturday”, Gita’s mom exclaimed as she sat down to relax. Dad was reading the newspaper while Grandpa was in the balcony watching the birds. Gita and Shravan served tea and biscuits to everyone and sat down near their mom.

“Yes mom. You relax. We both will prepare breakfast today.”

They heard some voices at the door. Two men were calling out, “Sir!”

Gita’s dad opened the door. “Yes?”

“We are from Bank of Baroda. We wanted to meet Mr. Pavan Kumar.”

“Oh, he lives next door.”

“How long has he been living here? Do you know his family?”

“We have been neighbours for over 15 years. Pavan is a good boy.” Gita’s father smiled.

“Thanks so much.” The men rang the bell next door. “Dad, why did bank people ask about Pavan bhaiya?” Shravan was curious.

Dad answered. “Pavan is going abroad for doing his Masters. He told me last week that he is taking an education loan from the bank. The loan officers have come for home verification.”

That afternoon Shravan and Gita had lots of questions for Grandpa.

“We are surprised that bank is giving loan to Pavan bhaiya for going abroad. We thought banks give loans for business on one hand and to the poor people on the other.”

Grandpa smiled. “Banks give loans to individuals for different purposes. Education loan is a boon for youngsters to pursue their dreams.”

## Education Loan

“Grandpa, what is an education loan?”

“Banks give loans to applicants for pursuing higher education. The candidate must have got an admission into the listed universities or institutes in order to be eligible for the loan.”

“Grandpa, you said we should borrow only for productive purpose and we should be able to repay. How will banks give loan to Pavan bhaiya – he has to study for two years and will not have any earnings to repay?” Gita was curious.

“Good question, Gita. Education is an investment that will give returns in future. That is why banks give a moratorium for repayment.”

“What is a moratorium?” Shravan wondered aloud.

“A delayed repayment schedule where banks allow applicants to start repayment after two years. However, the interest on the loan amount has to be paid at regular intervals.”

“That’s great. Then Pavan bhaiya can get a job after two years and start repayment.”

“Yes. Banks also ask for some guarantee or security if the loan amount is huge. See how the bankers visit the house to verify if the borrower is genuine?”

“You think they came to us on purpose to verify about Pavan bhaiya?”

“I am hundred per cent sure that they wanted to verify with us. See how discreetly they spoke without telling us that Pavan is taking a loan?” Bankers verify all the details before disbursing the loan. That is why we trust banks.

Is this loan available only for study abroad?”

“Banks give education loans for higher education in premier institutes in India. Now some banks have started giving education loan for even school education. Here the loan is given in the name of the parent as the student is a minor.”





“Dad, have you taken any loans from banks?” Shravan asked as his Dad looked up from his newspaper.

“Shravan.” Gita tried to stop him.

### Home Loan

Dad smiled at Gita. “You both are learning a lot about financial management. I don’t have a problem sharing this information with you. I have taken a home loan from the bank ten years back for buying this house. The EMI is paid from my salary account every month.”

### EMI

“What is EMI?”

“Equated monthly instalments – the monthly instalment is fixed at the time of loan sanction. It includes both principal and interest. We pay a fixed amount every month as repayment. This is easier for salaried people who have a fixed income every month.”

Without the home loan from the bank, I could not have purchased this flat. It would have taken years for me to save up to buy a house. And I have a car loan going with the bank.

Gita looked worried, “Dad, you have two loans – Home Loan and Car Loan?”

Dad smiled. “Don’t worry. I have borrowed small amounts. The interest rate is also low. And my salary is four times the EMI, so I have no problem making the loan repayment.”

Grandpa added. “Yes. **It is important to ensure that you can pay the EMI and still meet your household expenses, savings and emergency needs without any financial strain.**”

Dad nodded. “I also have a credit card which is a convenient way of making payments, but I pay the entire bill on due date.”

### Credit card

“Grandpa, is credit card a loan? How is it different from a debit card?” Shravan asked.

“When you use a debit card, the amount is taken from the balance in your savings account so you can spend only if you have money in your account. In a credit card the bank gives you a limit up to which you can spend and pay back later.

Suppose the credit limit on your card is ₹1 lakh and you spend ₹40,000, the bank gives a credit period between 30 and 45 days to pay the bill. If you pay the entire due of ₹40,000 on the due date, you don’t have to pay any interest.

Banks allow you to pay a minimum amount due, say ₹5,000 but they charge interest at a high rate from the date of spend. You could get into a debt trap because it is so tempting to spend on non-essential things with your credit card.

The interest rate on credit card is quoted as 2.5% to 2.95%. This is per month, so the annual rate is around 30% to 36%.

So, if you owe ₹30,000 on credit card, the interest would be as high as ₹10,000 in a year, because banks charge interest on interest on credit card dues. In contrast, interest rate on home loan ranges at 6.5% to 7% p.a.”

“Oh My God. I will never use a credit card,” Gita said.

Grandpa smiled, “I too have never used a credit card or taken a



loan. However, these days, people do borrow for their needs. In such cases, it is advisable to borrow from banks.” Grandpa showed them a picture. “Look at the different types of loans that banks offer to customers.”

“Banks offer loans to individuals, small business owners, traders, professionals, industries and for agriculture. Do you remember why it is advisable to borrow from banks?”

“Yes. Banks are transparent. They assess our needs and repayment capacity and grant loans. The interest rates are reasonable.” Gita answered.

Grandpa turned to Shravan. “Do you remember what responsible borrowing is?”

“**Borrow for productive purposes, borrow for your needs not your wants, borrow within your repayment capacity and pay your dues on time.**” Shravan replied.

“Good. This is a mantra that you should always remember. **Responsible borrowing.**” Grandpa signed off.







# Padma Shri at 105 PAPPAMMAL

**I**t's not every day that we get to hear about an agriculturist Padma Shri awardee at the ripe age of 105.

Pappammal comes from a generation of farmers who believe in hard work. There were no formal schools when Pappammal grew up. She learnt counting and arithmetic all through games like Pallanghuzi (traditional ancient South Indian board game) and spent time learning farming.

A proponent of organic farming for more than seven decades, she

started working on a 10-acre plot she had bought when she was in her 30s from her savings while running a store in the village. She still tends to 2.5 acres where she cultivates a variety of crops including millets, bananas and okra. Her day begins at 5.30 am and she is in the fields by 6.00 am.

**The centenarian is also a part of the TN Agricultural University's advisory committee** and keeps abreast of the latest developments in organic farming by taking part in conferences.

She dabbled in politics as well and was a former ward member of Thekkampatti panchayat and elected as a councillor in Karamadai panchayat union.

There is so much to learn from this centenarian:

- Not to waste time by sleeping beyond necessity.
- Eating local and fresh produce.
- Excellence - even if the task was something as mundane as de-weeding, she would insist on doing it perfectly.
- Keeping abreast of the latest developments in one's own field.

When today's generation is contemplating retiring by the age of 50, Pappammal is not just an example but an inspiration. She remains a great crusader of organic farming.

"Age cannot be the barrier for anything and always remember that there can never be a substitute for hard work," she says.

Coming from a 105-year-old, it's an advice we cannot ignore.







# KUMBHALGARH FORT RAJASTHAN



Rana Kumbha (Reign 1433 – 1468)

With thirty-six-kilometre-long walls, seven fortified gateways and three hundred and sixty temples within, the Kumbhalgarh stands on top of the Aravalli ranges in the Rajsamand district of Udaipur. The fort is an architectural marvel, a world heritage site and a testament to the rich history of the Rajputs of India.

## History

While the fort in its current form was designed and constructed under the patronage of king Rana Kumbha, historical records show that foundations of the fort existed long before 6th Century AD. The fort is said to have originated as a

mud fort built by King Samprati of the local Maurya dynasty. Until the 13th century AD, the fort had little significance in the history of the region.

All this however changed when Rana Kumbha of the Sisodia clan of Rajputs ascended the throne of the Mewar region.

Made up of modern-day south-central Rajasthan, some districts of Madhya Pradesh and Gujarat, the Mewar region was ruled for centuries by the Rajputs, the warrior kings.

Rana Kumbha himself ascended the throne and ruled from 1433 AD to 1468 AD as the fifth ruler of Mewar. Known for his military prowess and patronage of





# HARSHAVARDHANA

## AND THE

# PUSHYABHUTI DYNASTY



Sasanka,  
the Gauda  
king killed  
Grahavarman  
and kept  
Rajyashri  
prisoner.

The Pushyabhuti or Vardhana Dynasty rose after the downfall of the Gupta Empire in the 6th century AD in northern India. The kingdom was situated in the present-day state of Haryana and expanded further. The most notable was the last ruler, Emperor Harshavardhana under whom the dynasty gained political supremacy.

### Pushyabhuti Dynasty

Reign: Around 500 - 647 AD

Capital City : Thanesvara  
(Haryana);

Later : Kanyakubja  
(Kannauj, UP)

### Notable rulers

Prabhakaravardhana  
Harshavardhana

### Evidences

- Inscriptions
- “Si-yu-ki”, an account by Xuanzang(a Chinese buddhist monk) includes details of Harsha’s court, life, economic, social and religious conditions.

- Harshacharita - biography of Harsha written by his court poet Banabhatta.

Constantly fought battles with Maukhari, Huna dynasties.

### Harshavardhana

Reign: 606 -647 AD

Predecessor - Rajyavardhana  
( Brother)

Successor - Arjuna, Harsha’s chief  
minister

Family : Wife - Durgavati;

Children : 1 daughter and 2 sons

Religion : Hinduism and Buddhism

### Harsha’s Ascension

After Prabhakara Vardhana died, Harsha’s elder brother Rajyavardhana became the king of Thanesar. Harsha’s sister, Rajyashri was married to king Grahavarman of Kannauj.

Sasanka, the Gauda king killed Grahavarman and kept Rajyashri prisoner. Rajyavardhana led an army against Sasanka, but was killed in the battle. This led the 16-year-old Harshavardhana to ascend the throne of Thanesar. To avenge his





After the fall of the Guptas, all the divided small kingdoms were united by Harsha

### Harshavardhana's signature



brother's murder and rescue his sister, he forged an alliance with Bhaskaravarman, the Kamarupa king and marched against Sasanka. Sasanka left for Bengal out of fear and Harsha rescued his sister and became the king of Kannauj also.

### Harsha's Conquests

On acquiring Kannauj, Harsha united the two kingdoms of Thanesar and Kannauj.

After the fall of the Guptas, all the divided small kingdoms were united by Harsha. He had Punjab and central India under his control. After Sasanka's death, he annexed Bengal, Bihar and Odisha.

He also defeated the Vallabhi king in Gujarat and it came under his control by a marriage alliance between Harsha's daughter and the Vallabhi king Dhruvabhata. However, Harsha's plans to conquer lands to the south were hampered when the Chalukya king,

Pulakesin II defeated Harsha in 618-619 A.D. This sealed Harsha's southern territorial limit as the Narmada River.

### Administration

There were two types of territories under Harsha. One was directly under him and the other was those that were feudatories, also under tight command of Harsha.

**Direct territories:** Central Provinces, Bengal, Kalinga, Rajputana and Gujarat.

**Feudatories:** (a political system in which the king provides land to chiefs in exchange for their loyalty and service) Jalandhar, Kashmir, Kamarupa, Sind and Nepal. Harsha's reign marked the beginning of feudalism in India.

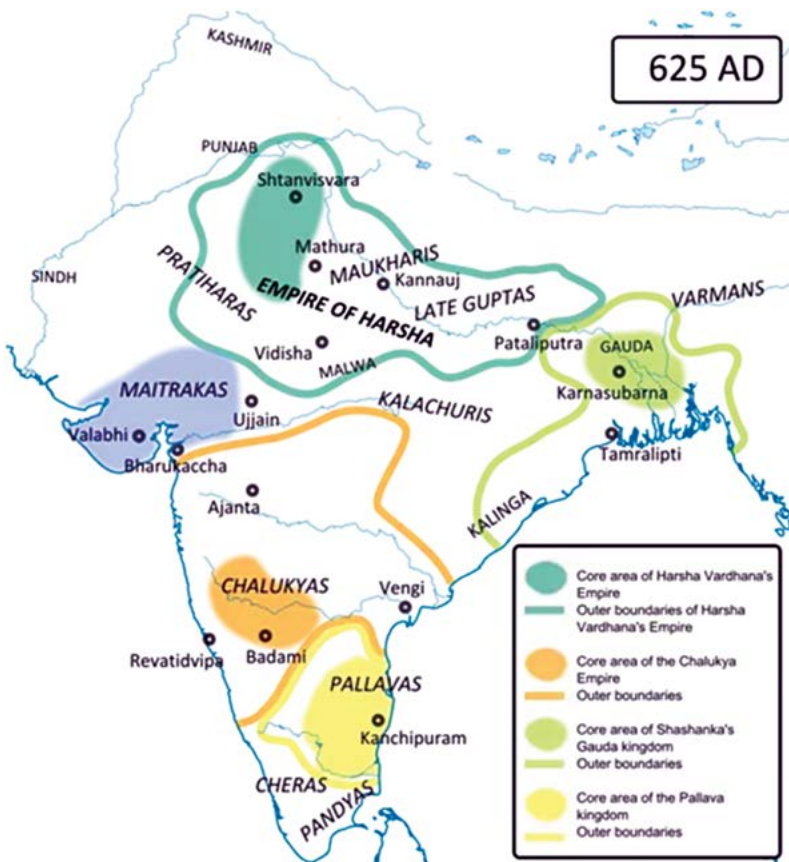
### A multifaceted king

Apart from being a competent military conqueror and an able administrator, Harsha was known for his generosity, justice and patronage of the arts. He was an accomplished writer credited with the Sanskrit works Ratnavali, Priyadarshika and Nagananda. Harsha generously supported the Nalanda University. He had a good tax structure. One fourth of all the taxes collected were used for charity and for cultural purposes.

### Harsha's death

Harsha's sons were killed by a minister in his court. Harsha died in 647 AD after ruling for 41 years. Arjuna, one of the chief ministers occupied the throne. Later in 648 AD, he was captured and imprisoned by the Tibetians.

Since Harshavardhana died without any heirs, his empire disintegrated completely after his death. Harsha was the last king to rule over a vast empire in India before the Muslim invasions.



# Madan Lal Dhingra: Lion-heart from Punjab



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He was an inspiration for revolutionaries like Bhagat Singh and Chandra Shekhar Azad.

India won freedom due to the blood and tears shed by hundreds of nameless revolutionaries and their families who braved British barbarity and faced death, deportation, imprisonment and forfeiture of property. Freedom was certainly not won by pleas, prayers and petitions. In the illustrious list of fiery patriots, Madan Lal Dhingra stands out for his sheer courage and supreme sacrifice.

## Early life

If he had desired, he could have lived a life of luxury. But he chose to be a martyr for India's freedom struggle. He was born on 18th September 1883 in Hindu Punjabi khatri family, Amritsar as the sixth of seven children of Shri Gita Mall who was a civil surgeon at Amritsar.

Dhingra studied in Amritsar's MB Intermediate College until 1900 and later went to Lahore to study at the Government College University. In 1904, Dhingra led a student protest against the order to have a college blazer made out of cloth imported from England. Heavily influenced by the Swadeshi movement, Dhingra encouraged Indian industry and entrepreneurship while boycotting British goods.

## Revolutionary

In 1906 Dhingra went to University College, London to study Mechanical Engineering. There he met Vinayak Damodar

Savarkar at Shyamaji Krishna Varma's **India House – a meeting place for Indian radicals** located in Highgate. He became a regular member of India House. Dhingra's perseverance and patriotism prompted them to provide him arms training. He was also spotted regularly at a shooting range on Tottenham Court Road. He was said to be a member of **Abhinav Bharat Mandal**, a secretive society founded by Savarkar and his brother Ganesh.

While he was studying in England, he assassinated William Hutt Curzon Wylie who was a British official. This was among the first actions of armed revolution during the Indian freedom struggle. Dhingra was disowned for his activities by his father who published his decision in newspaper advertisements.

Madan Lal Dhingra was hanged on 17th August 1909. His body was denied Hindu rites after his execution and was buried by the British government. His coffin was accidentally found when the authorities were searching for the remains of Shaheed Udham Singh. His remains were repatriated to India in 1976 and kept in one of the city squares of Akola, (Maharashtra), which was named after him.

He was an inspiration for revolutionaries like Bhagat Singh and Chandra shekhar Azad. His family may continue to ignore his sacrifice, but he will live on in the hearts of millions.





# THE TREE OF LIFE

**N**ational tree of India, the banyan tree represents eternal life because of its ever-expanding branches. The country's unity is symbolized by the tree's huge structure and its deep roots.

Scientific Name : *Ficus benghalensis*,  
Thimmamma Marrimanu





A small temple dedicated to Thimmamma is beneath the tree and people in and around the region drop in to offer their prayers

- The world's largest living single – tree canopy is in the Ananthapur district of Andhra Pradesh and finds mention in the Guinness Book of World Records.
- This Thimmamma's banyan tree stands tall and large, covering an area of 19,107 sq.m (4.721 acres).
- This tree is said to be more than 550 years old.
- Located about 25 kilometres from Kadiri.
- In Telugu language, 'marri' denotes 'banyan' and 'manu' denotes 'trunk'.

## DO YOU KNOW ?

- **Canopy -** Something that spreads out and covers an area, for example the branches and leaves that spread out at the top of trees in a forest.
- **Giant Banyan – Chennai :** The 450-year-old giant banyan tree located at Adyar in Chennai is one of the biggest banyan trees in the world and the oldest existing tree in Chennai.
- **Leaves, bark and aerial roots of the banyan tree cure ulcers, painful skin diseases, inflammation and toothache.**



### LEGEND

- According to a local myth, the tree was named after Thimmamma, a woman who committed suicide by throwing herself on the funeral pyre of her husband's dead body and this tree is said to have originated from one of the poles used in the funeral pyre.
- A small temple dedicated to Thimmamma is beneath the tree and people in and around the region drop in to offer their prayers.
- This tree was first noticed and revealed to the world by Sathyanarayana Iyer, a freelance journalist and photographer from Bengaluru.
- *Sree Veeraiah Nayakuni Charitra* (Thimmamma Marrimanu Katha) was written and published by Dr. S. S. Giridhara Prasad Roy in 1989 and was translated and published in English by him with the title '*The Story of Thimmamma marrimanu*' in 2012.

Such splendours are very rare in this world. It is our duty to preserve such nature's bounties.



Chennai, Adyar 450-year-old biggest banyan tree



# Anil Basak

## THE POWER OF PERSISTENCE



I used to think if I am able to put even 10 percent of effort that my father puts in every day, I would be able to get through the civil services.

A river cuts through rock, not because of its power but because of its persistence. The success of Anil Basak from Kishangarh Bihar is a shining example of what unrelenting efforts can achieve. He has secured 45th Rank in the Union Public Service Commission (UPSC) Civil Services Examination (CSE) 2020.

A graduate from IIT Delhi, he started preparing for these exams from his third year in college in 2016.

He could not clear his preliminary exams in his first attempt in 2018. He was shattered. He says, “I had put a lot of effort and energy between 2016 and 2018. And yet I couldn’t clear the prelims. Possibly because my strategy was wrong and **I had become arrogant that if I can clear IIT Delhi, I can get through any exam.**”



With renewed spirit, determination and focus, he made his second attempt. This time he got through and secured the 616<sup>th</sup> rank in the IRS (Indian Revenue Services). Anil was still not satisfied. His third attempt proved fruitful. Anil is now all set to serve the Bihar cadre, having secured the 45th rank.

Anil Basak gives the credit for his success, to the unstinting support his father had always given despite the difficult circumstances in the family. He also goes on to share how his father was the reason his entire family members are avid news buffs watching various news channels to stay informed about the latest developments.

Anil gushes spiritedly, “My father is my biggest inspiration. He single-handedly used to run the business, cook food for us and manage the daily chores. I used to think if I am able to put even 10 percent of effort that my father puts in every day, I would be able to get through the civil services.”

The success of Anil Basak only goes on to prove that “**Great things come from hard work and perseverance. No Excuses.**” Kobe Bryant.



Educate the  
**GIRL CHILD**



**बेटी बचाओ**  
**बेटी पढ़ाओ**



Every Child has a  
Right to Education,  
a Life free from  
Poverty & Protection.



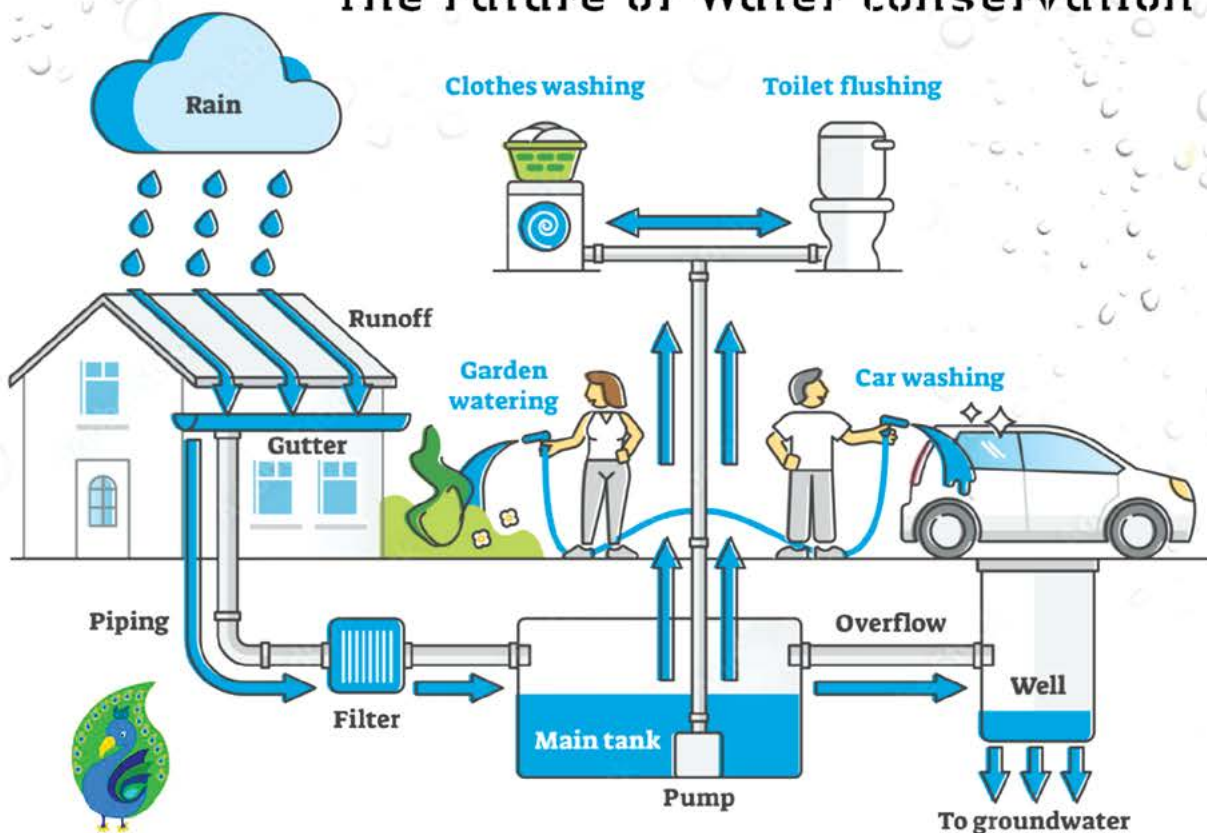
# Catch the Rain

Where it falls, When it falls



## RAIN WATER HARVESTING

The Future of Water Conservation



National Water Mission