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# Prajya

A National Monthly Magazine for Children

MAY 2021 EDITION

## Editorial

These are the times of despondency, when hope seems to be overshadowed by the grim realities of life. When a Tsunami of tragedies strikes, optimism and purposeful action will be our straw to clutch and move ahead. Humble people like Kuppan and Karimul Haque never despaired in the worst of circumstances. They focused on what lies ahead, leaving behind the debris of yesterday's fruitlessness. They had the power to perceive the slightest glimmer of hope and magnified it to brighten others' path. Mayur Shelke acted at the right moment to save a life. Like true Karmaveers they maintained the focus on the now and made their world a better place. We draw strength from these real-life heroes.

Avalanches, forest fires, Naxal attacks and Covid may rage, but the collective Indian aspiration will be to rise above in unison and overcome barriers.

यथा चतुर्भिः कनकं परीक्ष्यते
निघर्षणच्छेदनतापताडनैः।
तथा चतुर्भिः पुरुषः परीक्ष्यते
त्यागेन शीलेन गुणेन कर्मणा॥ ०५-०२

This verse from Arthashastra means - As gold is tested in four ways by rubbing, cutting, heating and beating – so a man should be tested by these four things: his renunciation, his conduct, his qualities and his actions.

We Indians shall march ahead positively becoming better every day.

We shall expand our coverage of articles from this issue, adding new features, providing a wider canvas with deeper insights and also raising some thought-provoking questions. Read, reflect and revert with your thoughts and feelings.

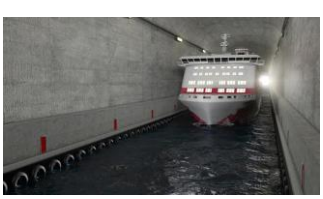
We look forward to your support and suggestions.

**Editorial Team**

## In this issue

### International Watch


NASA's MARS HELICOPTER



WORLD'S FIRST TUNNEL FOR SHIPS

### Defence Roundup


LIGHTEST BULLET PROOF JACKETS

SINGLE CRYSTAL BLADES FROM DRDO

### Financial Literacy

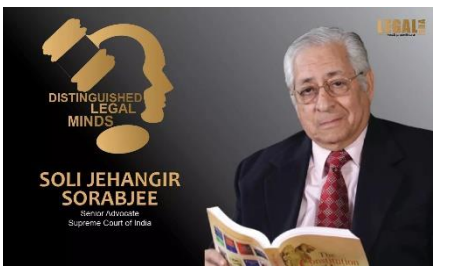
THE IMPORTANCE OF SAVING

Our New Series

## National Ringside



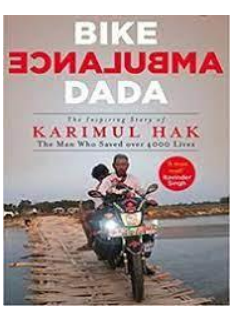




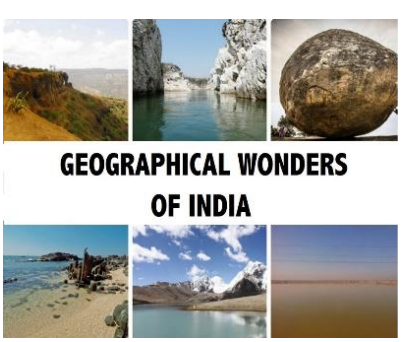


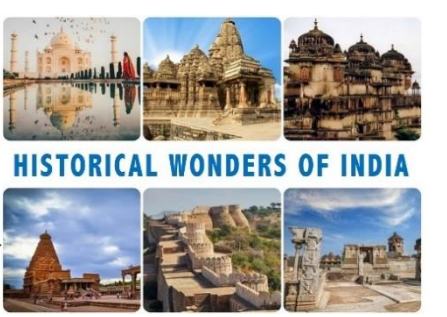
## Incredible India & Incredible Indians



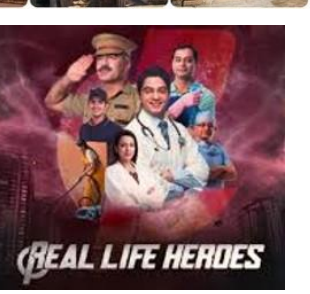



KUYILI
The Human Bomb





# NASA's Mars Helicopter Makes History

Shri Krishnakumar C S

**Mars**, the Red Planet, has been a dream destination for space explorers. Several successful missions have been launched to explore the surface of this mystery planet.

The latest in the list is the **Ingenuity,** the first ever helicopter to fly in the space.

Ingenuity is a small, autonomous aircraft that was carried to the surface of the Red Planet attached to the belly of the rover named **Perseverance**. *(Note: A car sized space vehicle designed to explore the Jezero crater on Mars)*. Its mission is experimental in nature. It has completed 4 successful flights in the thin Martian air.

Ingenuity's performance will help to develop small helicopters for future Mars missions, which can act as robotic scouts and survey terrain from above. Information about the geology of Mars can be collected. In the distant future, they might help astronauts explore Mars.

## Objectives

- Prove that powered flight in the thin atmosphere of Mars is possible.
- Demonstrate miniaturized flying technology.
- Operate autonomously by using solar batteries.

## Key Features

- Weighs 1.8 kg
- Solar-powered; recharges on its own
- Wireless communication system
- Counter-rotating blades spin about 2,400 rpm
- Equipped with computers, navigation sensors, and two cameras (one colour and one black-and-white).

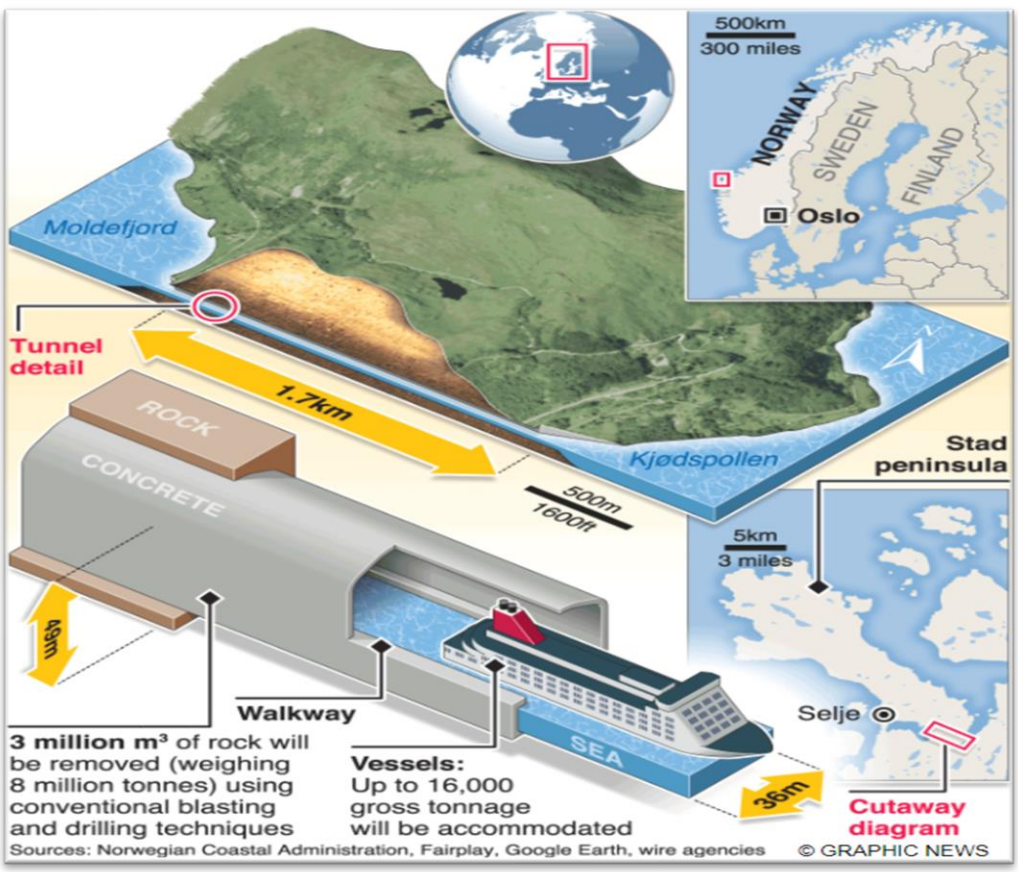
Ingenuity is managed by the Jet Propulsion Laboratory (JPL), Southern California.

# World's First Ship Tunnel

Smt Shubha T R

Norway is about to build the world's first ship tunnel burrowing through the mountainous Stadhavet Peninsula in the north-western region.

The coastline of the peninsula is stormy. An estimated 20% of ships are delayed due to bad weather conditions, hurricanes, rough tides and ocean currents. 46 accidents and near-accidents, and 33 deaths have occurred since 1945.




## Do You Know?

- The Stadhavet peninsula lies in the north western part of Norway and is the dividing point between Norwegian Sea and the North Sea.
- Scandinavian countries - Denmark, Norway and Sweden part of Scandinavian Peninsula.
- Nordic countries – Denmark, Sweden, Norway, Finland, Iceland, Greenland, Faroe Islands, Aland Islands.

## Highlights

- Can serve large ships; weather and tide would not impact the transit.
- Entry and exit to be controlled by traffic light system.
- Ship journey would be safer, smoother and faster.
- Will strengthen the industrial and commercial activities of Norway.

## Specifications

- Approved by: Norwegian Coastal Administration
- Estimated Cost: 330 Million USD
- Length: 1.7 Km
- Width: 36 m
- Project Duration: 3-4 Years
- Depth of water in the tunnel: 12 metres

# Lightest Bullet Proof Jackets for Indian Army

Smt Archana Sundar


Keeping safety of our security personnel first and in a boost to Atmanirbhar Bharat, Defence Research and Development Organisation (DRDO) with the help of new technology has developed a new light-weight Bullet Proof Jacket (BPJ) keeping the qualitative requirements of the Indian Army in mind.

It has been tested successfully.

The Front Hard Armour Panel (FHAP) of the jacket was tested at Terminal Ballistics Research Laboratory (TBRL), Chandigarh.

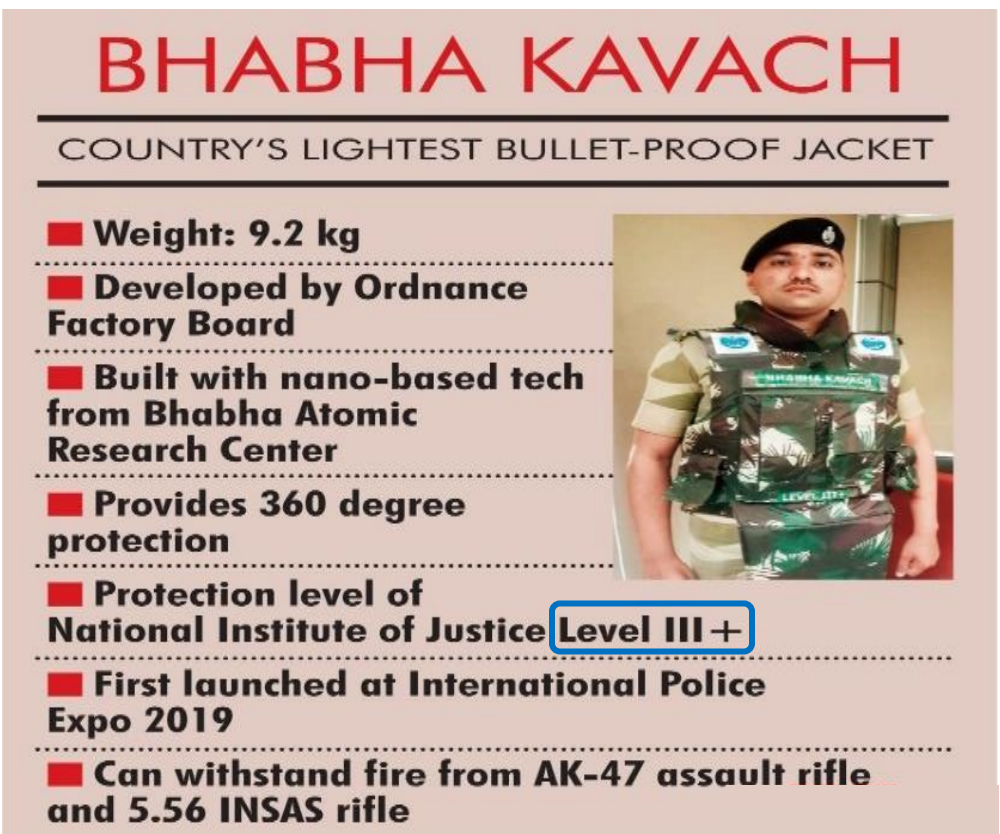
**Do You Know?**

### NIJ STANDARDS

The National Institute of Justice (US based evaluation agency) classifies body armour into 5 different threat levels: IIA, II, IIIA, III and IV, based on their ability to stop specified rounds of bullets at specified velocities.

### DRDO

Formed in 1958, DRDO is a network of more than 50 laboratories which are engaged in developing defence technologies.




The jacket weight has been reduced from 10.4kg to 9.2 kg. Second-generation fibre reinforced plastic in the jackets make them lighter, safer and more comfortable.

**India exports bulletproof jackets to 18 countries**. Industrial licenses have been issued to 15 companies having production capacity of over 10 lakh per annum to meet the domestic and export requirement.


**View the specialties of the new bullet proof jacket**

https://www.youtube.com/watch?v=sJ8LKGODc4Y

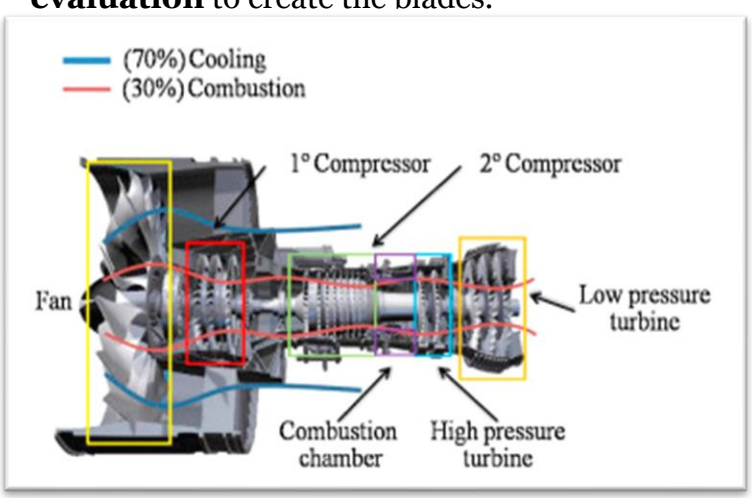
# DRDO Develops Single Crystal Blades

Smt Vaishnavi V


Defence Metallurgical Research Laboratory (DMRL), a premium laboratory of DRDO has developed single crystal blades technology as part of the indigenous helicopter development program for helicopter engine application. It planned to develop five sets of blades (300 in number) and supplied 60 of these blades to Hindustan Aeronautics Limited (HAL).

The remaining four sets will be completed in due course.

The laboratory has set up a full **vacuum investment casting process** which includes **die design**, **ceramic moulding**, heat treatment and dimensional measurement, actual casting of components, and **non-destructive evaluation** to create the blades.




## Why Crystal Blade technology?

Helicopters used in strategic and defence applications need compact and powerful aero-engines for reliable operation in extreme conditions. To achieve this, single crystal blades having complex shape and geometry are used, manufactured out of Nickel based super alloys capable of withstanding high temperatures.

The US, UK, Russia and France are among the few countries that can design and produce single-crystal components.

Single Crystal Turbine

## Do You Know?

- **Die** - A specialized machine tool used to cut material to a desired shape or profile.
- **Ceramic Moulding process** – A metal casting process, which uses ceramic as the mould material to achieve better structure and shape.
- **Vacuum Investment Casting process** – In this process a two-piece mould is placed in a vacuum chamber. The vacuum draws the molten metal into the mould. The casting is solidified in an oven and the mould is removed to release the final product. Vacuum is used because Nickel-based alloys are reactive with atmospheric oxygen or nitrogen.
- **Non-Destructive Evaluation (NDE)** - Methods employed in damage analysis and repair design of composite structures.

Smt Vanaja Shankar

# The Importance of Saving

Gita and Shravan were attending their online class in their bedroom.

They were distracted when a pleasant aroma wafted out from the kitchen.

“Mummy is preparing some sweet made of ghee” Gita clapped her hands.

“Yes, I love sweets and I can’t wait for lunch time.” Shravan’s mouth was watering.

“Mama, what is special?” They ran out as soon as their class was over.

“Today is your grandfather’s birthday. Take his blessings”.

Gita and Shravan fell at the feet of their grandfather.

“Happy birthday, Grandpa”.

“Here is my birthday present for you both” – Grandfather gave a currency note to each of them.

“Wow, Two thousand rupees. This is the first time we have received so much cash.” Gita’s eyes lit up.

“I couldn’t buy any gift for you because all the shops are closed.

I hope you both learn to handle and save money.”

**To spend or to save**

The children debated on what to do with the cash.

“What shall we buy with this cash?”

“Games?”

“New dress?”

“Chocolates?”

“Why don’t you save the money?” Grandfather asked.

“Save? Gita asked. “We want to enjoy your gift.”

“Why should we save?” Shravan asked.

**Why should we save?**

Grandfather smiled

“I am retired now. I do not earn any income. Yet I have enough money for all my needs and to give you gifts. That is because I always saved regularly when I was earning.”

*It is important to save money so that you can use it in future for things you need or in case of an emergency.*

“Grandpa, then did you not spend money on anything? Did you not enjoy your life when you were young?” Shravan looked worried.

“I did spend on things that my family and I needed. We also celebrated festivals and enjoyed our annual holiday travelling to different places. And I always ensured that out of every additional income or bonus, a part of it was saved.”

**Know the difference between needs and wants**

You already have lots of games, dresses, watches that you do not even use. You just want to buy something with the money.

*So, before you spend, think whether it is essential or non-essential - you must know the difference between “Needs” and “Wants.”*

*Tell me the things that you need.*

Food and water – Gita replied.

Clothes – Shravan said.

Books, notebooks, pens – Gita added.

*What are your wants?*

I Pad

Sports bicycle

Camera

These expenses can be postponed. You can save regularly, accumulate money and then buy something that you really want and can use.

“Where should we save our money?”

Now that you both are twelve years old, you can start saving your money in a bank account. That is better than keeping the money in a box at home.


Why should we save money in a bank? How will it help the economy?

"Grandpa, we know that our parents have bank accounts and use the ATM/debit card to withdraw and spend. But we are too small. We have little money.

How will it help us or the economy if we save in the bank? And what benefits will we get if we save in the bank?"

## Benefits to the savers

1. **Safety:** Your money is secure. If you have money at home, you might lose it or have the urge to spend it. Whereas in the bank, your money will be safe.

2. **Liquidity:** You can withdraw your money whenever you need it.

3. **Returns:** Banks pay interest on your savings. So, your money can earn more money.

## Benefit to the economy

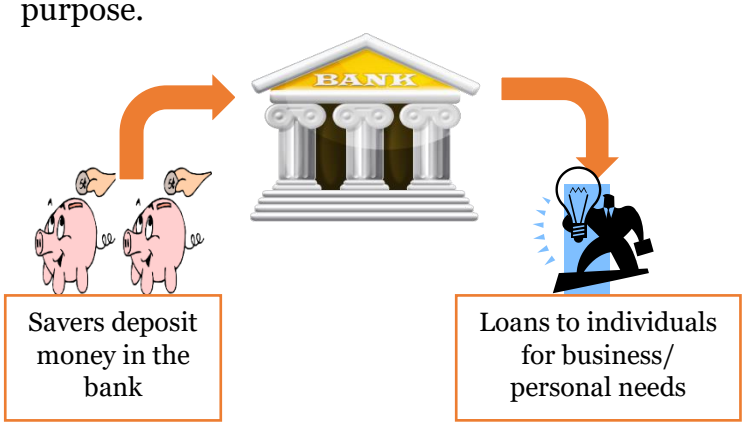
"Children, you think your money is too little, but have you not heard that little drops of water make an ocean?

There are millions of individuals across the county who deposit their money with banks.

Banks can use this money to give loans to individuals for their personal needs like buying a home, education or for business purposes."

"Now, how does this help the economy?"

"Your money, instead of lying idle at home is being lent by the bank for some productive purpose.




Let us take the example of our vegetable vendor. He lost his job during this pandemic and has started this business.

He needed money to buy the cart and vegetables.

He might have borrowed from a money lender, but the interest rates would be extremely high pushing him into a debt trap.

Instead, the bank has given a loan at a reasonable rate of interest to the vegetable vendor.

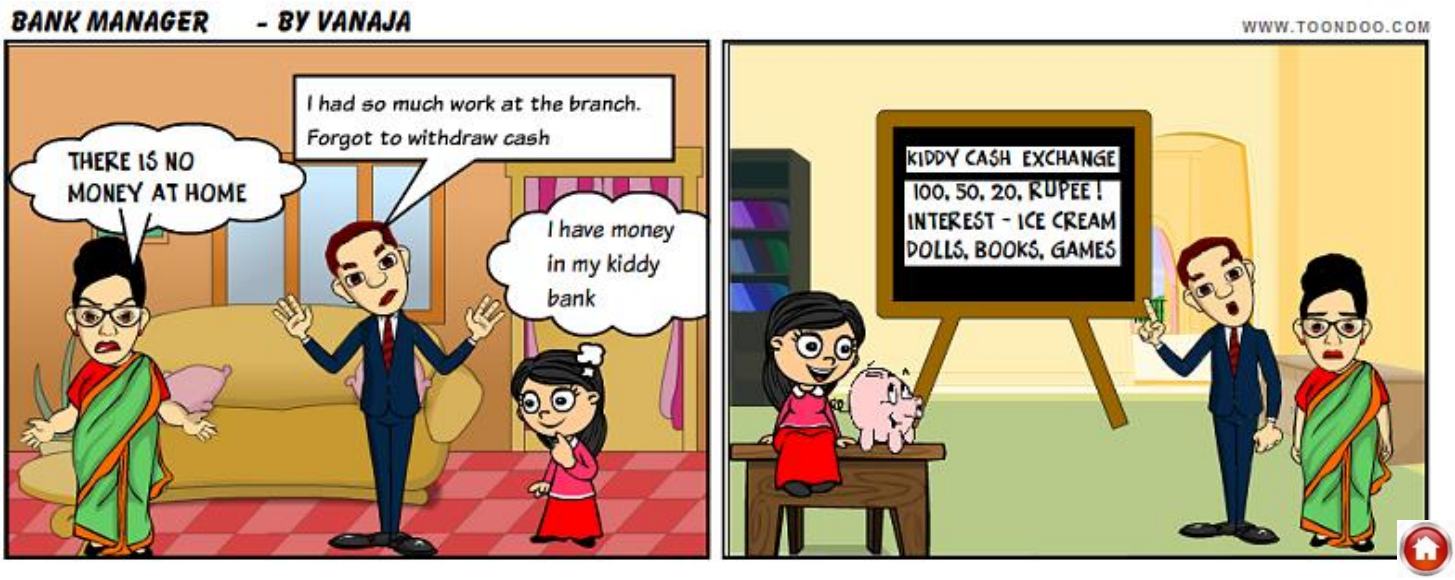
With this money, the vendor has been able to buy a cart and vegetables, sell the vegetables, earn income to provide food for his family.

He is also able to supply vegetables that our families need for our daily consumption.

Without the bank loan, the vendor would not have had the money to start this business."

"Grandpa, you said banks provide interest to the savers. What is interest? How much money do we get? How do we open a bank account?"

Grandfather smiled. "I am happy that you are curious. I will tell you later. "




# Elections 2021 - Who Won?

Shri Kaushik S

Elections to the Legislative Assemblies of 4 States and 1 Union Territory was held recently from March 27 to April 29. W

While the states of Tamil Nadu, Kerala and the Union Territory of Puducherry voted in a single phase on April 6, Assam and West Bengal voted in 3 phases and 8 phases respectively spread through the month-long period.

Along with these Assembly Elections, by-elections to Lok Sabha seats as well as Assembly seats in other states were also held during this period. The counting of votes for all these happened on May 2.

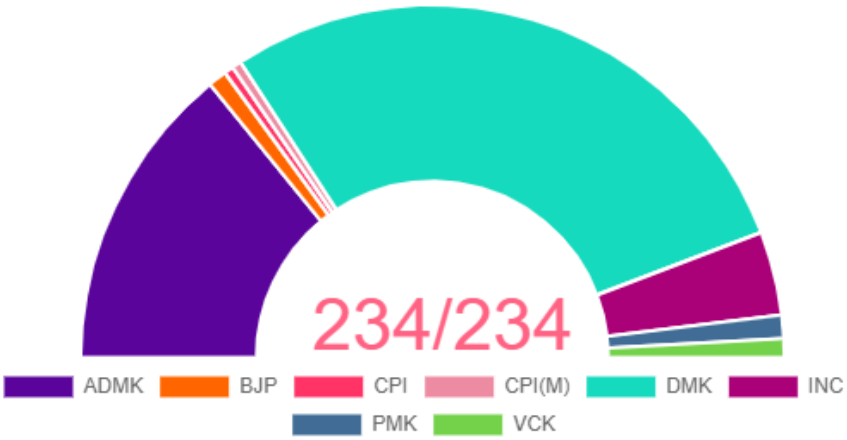
But before we look at the results, here is some information that you should know.

India follows the system of **First Past the Post System** where the candidate who receives the greatest number of votes wins. The party which gets more than half the seats of the Assembly can form the government.

Every state has an Assembly which has a number of seats proportional to its population. For example, a state with more population will have more seats in the Assembly than a state with less population.

| State | Total Seats | Majority Mark |
|---|---|---|
| Tamil Nadu | 234 | 117 |
| Kerala | 140 | 71 |
| West Bengal | 294 | 148 |
| Assam | 126 | 64 |
| Puducherry | 30 + 3 nominated members | 17 |

# TAMILNADU



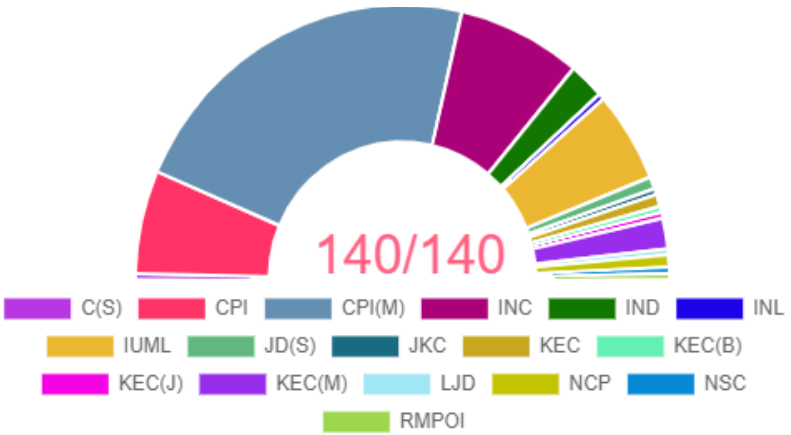

In Tamil Nadu, the electoral contest for the 234 seats was between the DMK led **Secular Progressive Alliance** and the **AIADMK** led **National Democratic Alliance**. The Secular Progressive Alliance comprises the Indian National Congress (INC), Viduthalai Chiruthaigal Katchi (VCK), Communist Party of India (CPI), and Communist Party of India – Marxist (CPI-M) with DMK chief M.K..Stalin as the Chief Minister candidate.

The major parties of the National Democratic Alliance are the Bharatiya Janata Party (BJP) and the Pattali Makkal Katchi (PMK) with Edappadi K. Palaniswami as the Chief Ministerial candidate.

The DMK won comfortably with a majority of 133 and the alliance won 159 seats in total. With this, it has come to power in the state after 10 years with **M.K Stalin** as the Chief Minister.

| Party | Won |
|---|---|
| All India Anna Dravida Munnetra Kazhagam | 66 |
| Bharatiya Janata Party | 4 |
| Communist Party of India | 2 |
| Communist Party of India (Marxist) | 2 |
| Dravida Munnetra Kazhagam | 133 |
| Indian National Congress | 18 |
| Pattali Makkal Katchi | 5 |
| Viduthalai Chiruthaigal Katchi | 4 |
| Total | 234 |

# KERALA




In Kerala, incumbent Chief Minister Pinarayi Vijayan belonging to the Communist Party of India (Marxist) of the **Left Democratic Front** (LDF) was seeking a second term in office. Opposing the LDF was INC led **United Democratic Front** (UDF) and BJP led NDA.

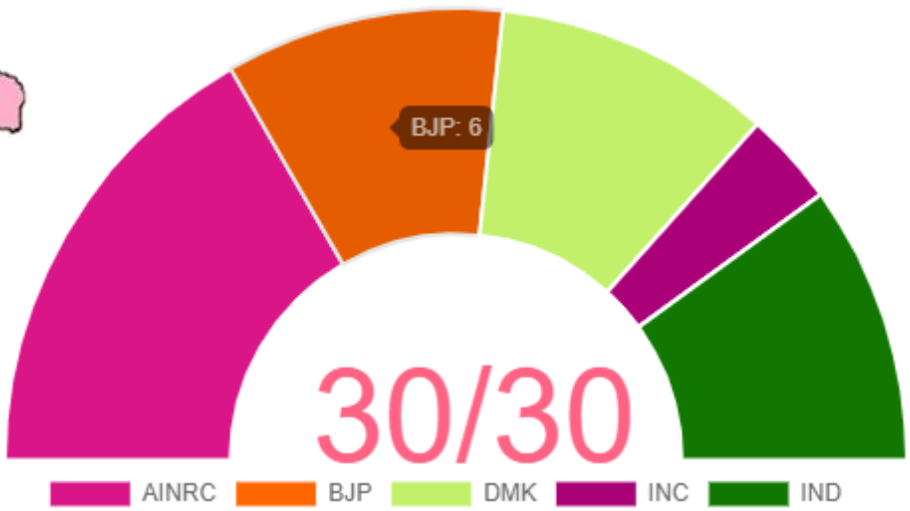
The incumbent LDF has retained power getting 8 seats more than the previous election. This is also the first time since 1982 that a party has won consecutive terms. **Pinarayi Vijayan** has once again become the Chief Minister of Kerala.

| Party | Won |
|---|---|
| Communist Party of India | 17 |
| Communist Party of India (Marxist) | 62 |
| Congress (Secular) | 1 |
| Independent | 6 |
| Indian National Congress | 21 |
| Indian National League | 1 |
| Indian Union Muslim League | 15 |
| Janadhipathiya Kerala Congress | 1 |
| Janata Dal (Secular) | 2 |
| Kerala Congress | 2 |
| Kerala Congress (Jacob) | 1 |
| Kerala Congress (M) | 5 |
| Kerala Congress (B) | 1 |
| Loktantrik Janta Dal | 1 |
| National Secular Conference | 1 |
| Nationalist Congress Party | 2 |
| Revolutionary Marxist Party of India | 1 |
| Total | 140 |

# PUDUCHERRY








Puducherry is the only Union Territory apart from Delhi to have an elected Legislative Assembly. Apart from the 30 seats, there are three seats for which the MLAs are nominated by the Central Government. In this election the **United Progressive Alliance** (UPA) comprising Congress, DMK, CPI, and VCK was pitted against the **National Democratic Alliance** (NDA) comprising the All India N.R. Congress (AINRC), BJP and the AIADMK.

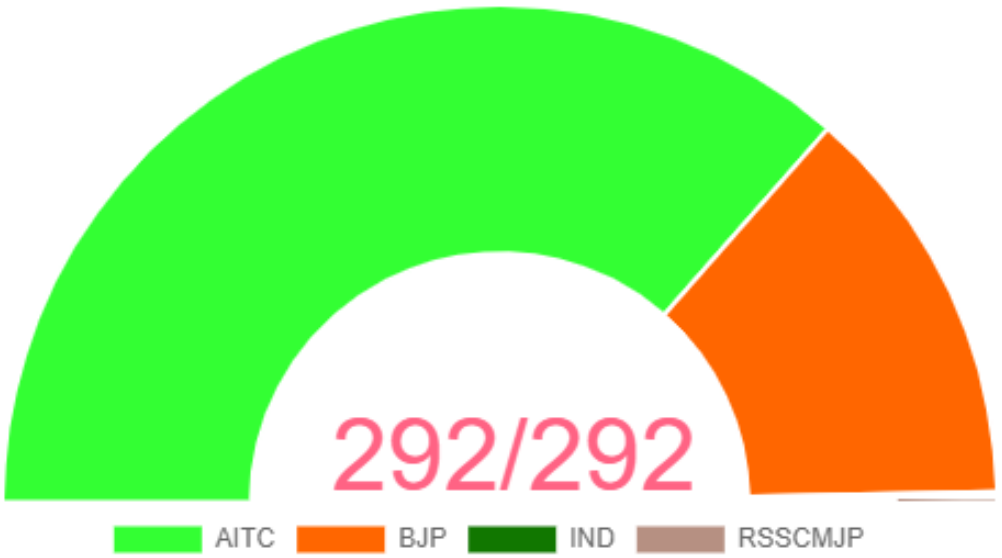
The Chief Ministerial candidate for the UPA was V. Narayanaswamy whose government collapsed, failing to prove majority in the house.

N. Rangaswamy of the AINRC was the Chief Ministerial candidate of the NDA.

With the AINRC led NDA getting the majority, Shri **N. Rangaswamy** is the Chief Minister of Puducherry.

| Party | Won |
|---|---|
| All India N.R. Congress | 10 |
| Bharatiya Janata Party | 6 |
| Dravida Munnetra Kazhagam | 6 |
| Independent | 6 |
| Indian National Congress | 2 |
| Total | 30 |

# WEST BENGAL


West Bengal saw one of the highest pitched electoral campaigns with the incumbent Trinamool Congress (AITC) led by Chief Minister Mamata Banerji facing off the BJP.

Though the BJP did not have a Chief Ministerial face, the party was focusing on coming to power riding on the welfare measures taken by Prime Minister Narendra Modi led Central Government.

The TMC got 2 seats more than what it got in 2016. This is the third consecutive time that the party has won with a thumping majority.

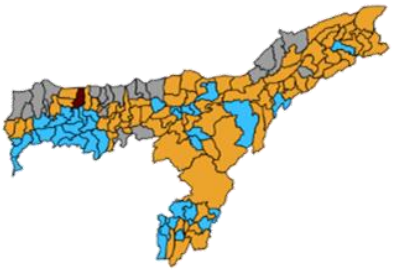
On the other hand, the BJP increased its seat count from 3 to 77.

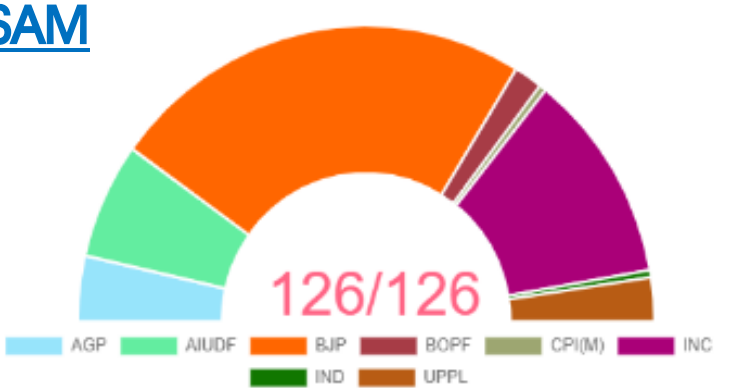
**Mamata Banerji,** who lost in Nandigram to her former aide and BJP leader Suvendu Adhikari, was sworn in as the Chief Minister. However, she will have to get herself elected within six months as per Article 164 (4) of the Constitution of India.

It must be noted that Nandigram is the venue of historic changes in West Bengal politics, ever since the Tata's were denied an opportunity to set up their **Tata Nano** plant which subsequently moved to Sanand, Gujarat.

| Party | Won |
|---|---|
| All India Trinamool Congress | 213 |
| Bharatiya Janata Party | 77 |
| Independent | 1 |
| Rashtriya Secular Majlis Party | 1 |
| Total | 292 |

# ASSAM






The election saw the incumbent BJP-led **National Democratic Alliance (NDA)** retaining power with 75 seats, which marks the first time a non-INC alliance has won consecutive terms in the state.

The Mahajot led by INC won 50 seats, increasing its tally from 26 in 2016. **Shri Himanta Biswa Sarma** will succeed Sarbananda Sonowal as the 15th Chief Minister of Assam.

| Party | Won |
|---|---|
| All India United Democratic Front | 16 |
| Asom Gana Parishad | 9 |
| Bharatiya Janata Party | 60 |
| Bodoland Peoples Front | 4 |
| Communist Party of India (Marxist) | 1 |
| Independent | 1 |
| Indian National Congress | 29 |
| United People's Party, Liberal | 6 |
| Total | 126 |

**POINTS TO PONDER**

Over a few millennia, modern civilisation has experimented with various forms of governance before accepting democracy as the most preferred form to choose rulers. Electoral politics, an integral part of democracies, reflects some weaknesses rather forcefully. A case in point is the defeat of **Padma Vibhushan E Sreedharan**, popularly titled the **Metro Man**. He contested in the elections to the Kerala Assembly.

88-year-old Sreedharan is an engineer who changed the face of public transport in India with his leadership in building the Konkan Railway and the Delhi Metro. A recipient of many national and international awards, this awe-inspiring **public servant with a high reputation for honesty and efficiency** has other stellar contributions such as repairing the Pamban Bridge (Rameswaram) post 1964 cyclone damage in a record time of 3 months and revival of Cochin Shipyard to name just two.

**Some 66 years of blemish less record in professional and public life!** Why would the electorate of a nation not elect him to a state's legislature? A question that should baffle all right-thinking individuals.

# The New Chief Justice of India

Rithuvarna | Student (VIII)

On 24th April, 2021 the President appointed **Shri.Nuthapali Venkata Ramana,** senior most judge of the Supreme Court as the 48th Chief Justice of India.

CJI is appointed as per the recommendation of the outgoing CJI.

Hon'ble Venkata Ramana took oath at a brief ceremony held at Rashtrapati Bhavan in English in the name of God. Born in Andhra Pradesh on 27th August 1957, Justice Ramana has been the Chief Justice of Andhra Pradesh High Court, Delhi High Court and a Judge of the Supreme Court of India.

Justice is required for the provision and protection of the rights of every citizen in the country despite the differences. The Chief Justice of India is the chief judge of the Supreme Court.

Justice Ramana faces the challenge of running the Judicial Machinery amidst the challenge posed by Covid 19. Visual Court proceedings are already initiated.

Challenges before the new CJI includes evolving a system to dispose of 3.65+ crores of pending cases across India expeditiously.

# India's COVID Vaccination Drive

Shri Vikas Arya

India launched its much-awaited COVID-19 vaccination program on 16th January, 2021, with two vaccines - **Covaxin** and **Covishield**. Initially, vaccination was prioritised for the health care and front-line workers. It was gradually opened up for those above 60 and then the 45+ with specified co-morbid conditions.

The vaccination program got off to a slow start with many, especially in rural areas, being hesitant to take the vaccine. Lack of awareness coupled with irresponsible statements by certain politicians and other public celebrities did sow doubts in the minds of the general public. Wastage sadly touched more than 5% across many states.

Each vial contains 10 doses which have to be used within a span of four hours after opening. If enough people are not present at the vaccination centre, the excess doses in the vials get wasted.

| #IndiaFightsCorona | | |
|---|---|---|
| Vaccination Status as of 8th May 2021 | | |
| No. of Doses by type of Vaccine – In Crores | | |
| Covishield | Covaxin | Total |
| 15.15 | 1.62 | 16.77 |
| | | |
| No. of Doses by Dose (First vs Second) – In Crores | | |
| First Dose | Second Dose | Total |
| 13.35 | 3.42 | 16.77 |
| | | |
| ✓ 2.6% of the population is fully vaccinated | | |
| ✓ 7.6% of the population has been given only the first dose | | |

However, with the onslaught of the second Covid wave, people are now rushing to get vaccinated. As of 10th May, about 16.77 crore vaccine doses have been administered.

The current rate is about 25-30 lakhs doses every day.

Both Covaxin and Covishield require two doses over a span of 4-8 weeks. A quick calculation reveals that India will need 260 crore doses if it is to fully vaccinate its 130-crore population – children and adults.

**Now more about these two vaccines.**

## Covaxin – India's vaccine
## Developed and manufactured indigenously

Covaxin is developed by Hyderabad-based **Bharat Biotech International Ltd.** in association with the **Indian Council of Medical Research** (ICMR) and the **National Institute of Virology** (NIV).

It is rather commendable that India has been able to compete globally on the R&D front, an area often deemed to be India's weakness, a truly pioneering step towards Atmanirbhar Bharat.

## How Covaxin works

Using **Whole-Virion Inactivated Vero Cell-derived technology**, it contains inactivated viruses. The inactivated virus cannot infect people or replicate on its own inside the body of a person.

But the body reads its genetic makeup through the immune system and alerts the entire system to fight anything similar to it if it enters the body - thus in a way creating an army to fight the COVID-19 virus, should it enter the body at some stage until the immunity provided by the vaccine lasts.

Many other conventional vaccines for other diseases like Rabies, Polio etc. have been developed using the same concept.


Interestingly, Dr. Anthony Fauci, the Chief Medical Advisor at the White House and America's top pandemic expert remarked that Covaxin has been found to neutralise the deadly variant (B.1.617) spreading rapidly in India during the ongoing wave.

**Do You Know?**

BHARAT BIOTECH

Bharat Biotech, established in 1996, is a pioneering biotechnology company known for its world-class R&D and manufacturing capabilities.

**Dr. Krishna Ella,** Chairman & Managing Director of Bharat Biotech International Limited was born a farmer's son in Tamil Nadu.

A gold medallist at university, he was a research faculty at the Medical University of South Carolina, Charleston after earning his Ph.D. from the University of Wisconsin-Madison.

A Molecular Biologist, he strongly believes that innovative technology in vaccine development is essential to solve public healthcare problems caused by infectious diseases.

On launch of Covaxin, Dr Krishna remarked, "The approval of Covaxin is a giant leap for innovation and novel product development in India.

It is a proud moment for the nation and a great milestone in India's scientific capability, a kickstart to the innovation ecosystem in India."

## Covishield
### Developed by UK based Oxford-Astra Zeneca
### Manufactured in India

Covishield has been jointly developed by the University of Oxford and the UK-based global biopharmaceutical company AstraZeneca.

Serum Institute of India (SII), an Indian biotechnology company, which is also the world's largest vaccine manufacturer, entered into a partnership with Oxford-Astra Zeneca, under which SII would manufacture and supply 1 billion doses of the vaccine.

## How Covishield works


It is prepared using **the viral vector platform technology**.

A chimpanzee adenovirus that causes common cold infections in Chimps – ChAdOx1 – is modified to enable it to carry the COVID-19 spike protein into the cells of humans. This cold virus is basically incapable of infecting the receiver but can teach the immune system to fight against such viruses. This technology was used to prepare vaccines for the Ebola virus.

## Delivering the vaccine – Syringes


In 2020, a couple of Indian companies shrewdly anticipated the demand for syringes to deliver the vaccine.

The country's biggest manufacturer of syringes, **Hindustan Syringes and Medical Devices (HMD)**, Faridabad, Haryana, quickly ramped its production capacity to 8,200 syringes a minute, (approx. 5 lakh syringes every hour) and supplied to countries across the world.

Interestingly, these specialised syringes are typically sold for around Rs 2.00 including taxes.

### Do You Know?

A vaccine is a biological product. If it gets too hot or too cold (some must be protected from freezing), the active ingredients can degrade and become less effective.

Once a dose of vaccine is manufactured, it needs to be transported carefully to its destination.

**The vaccine cold chain** is a global network of cold rooms, freezers, refrigerators, cold boxes and carriers that keep vaccines at the right temperature during each link on the long journey.

Both Covaxin and Covishield vaccines need to be stored at 2-8 degrees Celsius.

**Phase 1** Covid vaccine distribution network in India - 29,000 cold chain points, 240 walk-in coolers, 70 walk-in freezers, 45,000 ice-lined refrigerators, 41,000 deep freezers and 300 solar refrigerators.

Only the last mile delivery happens in **'passive' equipment** (ice-boxes and vaccine carriers) without electricity. All other points run on electricity. There is a provision to check temperatures in ice-boxes and carriers as well.

# Forest Fires – Time to Act

Shri Pratik Kanodia

We have changed the world in many ways- man-made forest fires are among the worst.

2019 saw 'Pray for Amazon' messages flooding social media. By 2020, the world had moved on to praying for other things. Then there were the 9,639 fires in California forcing a declaration of a state of emergency. Through late 2019 and early 2020, Australia had burned too, with greater intensity to become one of the 'worst wildlife disasters in modern history'.

| Year | Where | Damage |
|---|---|---|
| **2019- 20** | Australia | 1.8 crore hectares of forest; 300 crore animals affected |
| **2020** | Amazon Forest | 13 lakh hectares of forest |
| **2020** | California | 17.7 lakh hectares of forest |
| **2020- 21** | Uttarakhand | 1,200 hectares of forest |

## Indian fires

Forests in Uttarakhand which cover 70% of its area began burning in October 2020. Between then and January 2021, 470 incidents of fires were recorded. It was 39 in the same period last year.

71 fires are still active, eight lives have been lost and two IAF helicopters were deployed into service, but the topography is making it extremely difficult to fight the fire.

Further, the chopper in Kumaon was unable to take off for days due to low visibility and smoke. Amplifying the problem was an avalanche on 25th April caused by a recent glacier burst. At least 8 have died and over 384 have been rescued since.

Odisha, another state that sees regular fires, admitted that 40% of such incidents received no response from the officials.

Chhattisgarh saw 6,520 fires from February to March 2021, its largest in three years. However, most of these were in Maoist affected areas where the forest department cannot reach.

Andhra Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Maharashtra, Bihar and Uttar Pradesh are **'highly prone'** to fires. Maharashtra, Chhattisgarh, Telangana and Andhra Pradesh are turning into **'extremely prone'** areas.

## Why is it happening?

The fires are called man-made for many reasons - **climate change, unsustainable forest activities, lack of attention and an inefficient disaster management system**.

In Uttarakhand, climate change has impacted rainfall patterns leading to drier winters and ultimately causing fires. The state received only 10.9 mm of rainfall between January and March 2021, which is a stark contrast to the 54.9 mm received at the same time last year. This is **rainfall deficit of nearly 80%**.

A study in Uttarakhand revealed that the moisture in the state's soil has continuously declined for 40 years. Changing wind patterns make things worse.

Other reasons include unsurprisingly foolish human behaviour—two men were recently arrested in Odisha for trying to start a forest fire, simply so they could hunt wild animals and smuggle timber into the black market. The **Simlipal** fires were started by burning Mahua trees, the flowers of which are used to brew a drink.

With the luxury of hindsight and the power of big data, many dots stand connected. As opposed to popular opinion, **social media activism and on-ground awareness** can go a long way in improving human behaviour and attitude towards climate change. However, the major responsibility lies with the corporates and the governments.

## Do You Know?

A **wildfire (peat fire)** is an uncontrolled fire. Wildfires often occur in wild, unpopulated areas, but they can occur anywhere and harm homes, agriculture, humans, and animals in their path. Firefighters also refer to these disasters as surface fires, dependent crown fires, spot fires, and ground fires.

**"Crown fires"** are spread by wind moving quickly across the tops of trees. **"Running crown fires"** are even more dangerous because they burn extremely hot, travel rapidly, and can change direction quickly.

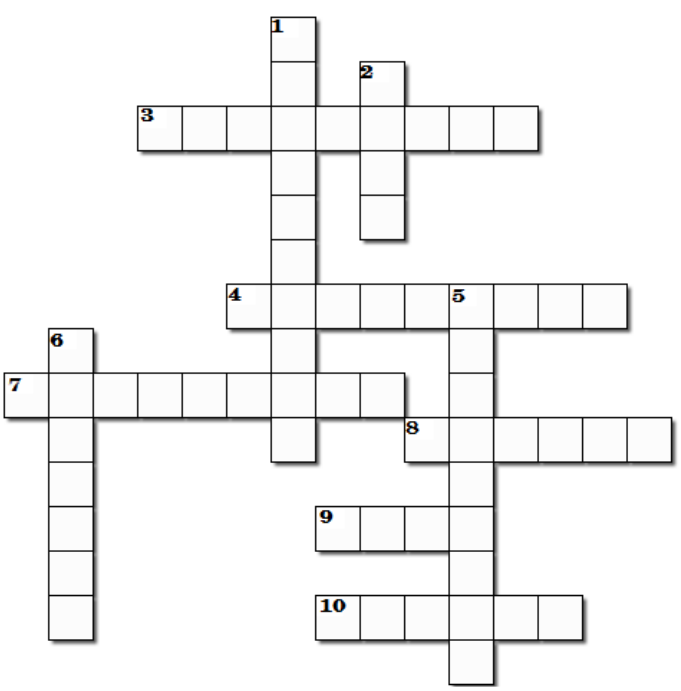
Weather conditions can directly contribute to the occurrence of wildfires through lightning strikes or indirectly by an extended dry spell or drought.

Lightning strikes the earth over 100,000 times a day. 10 to 20% of these lightning strikes can cause fire.

Man-made combustions from arson, human carelessness or lack of fire safety cause wildfire disasters every year.

## CURIOSITY corner

Shri Krishnakumar C S




**ACROSS**

**3. NASA's helicopter that flies over Mars**

**4. Place that receives the highest rainfall in India**

**7. Largest coffee producing state**

**8. Army operation to save flood victims in Kerala (2018)**

**9.highest altitude tunnel in the world**

**10. Core module of the space station that China launched in April 2021**

**DOWN**

**1. Metro Man of India**

**2. River found in Thar Desert**

**5. Oscar award for best film (2021)**

**6. First COVID vaccine developed for animals**

ANSWERS

# India's Biggest Floating Solar Power Plant

K Miruthula | Student (XII)

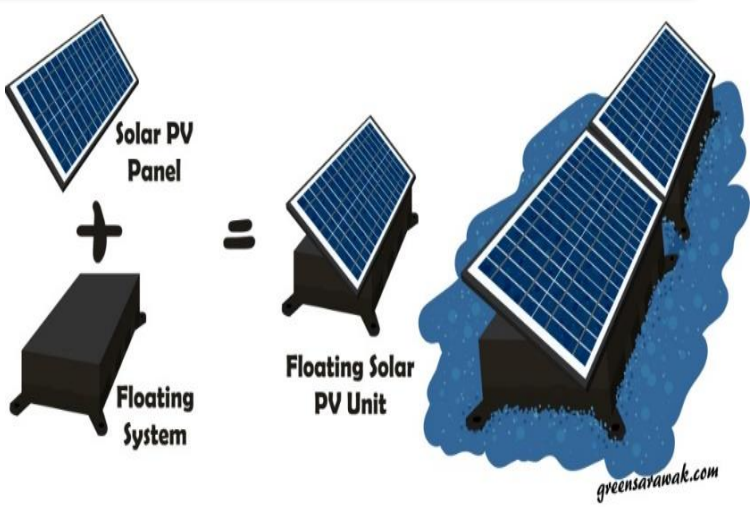
India's biggest floating Solar Power Plant (100MW) will be operational in May 2021.

Set up by NTPC within its Ramagundam plant (Telangana) after successful pilot projects at Kayamkulam (100KWH; Kerala) and KAWAS (1MW; Gujarat).

Floating solar panels are better than land panels because of the cooling effect of water which maintains the optimum temperature for maximum power output.

This minimizes land occupancy and supports maintaining the quantitative and qualitative aspects of the water body by checking the rate of evaporation and algal blooming.

This can produce electricity to about 110,000 homes annually and reduce dependence on conventional sources of energy.




But some challenges exist :

(i) degradation and corrosion,
(ii) safety issues and
(iii) increased cost of construction plus maintenance.

The to-be-constructed 600 MW floating plant (Omkareshwar dam on Narmada in Madhya Pradesh) will be the world's largest and likely to begin power generation by 2022- 23.

# The Crusader of Constitutional Rights

Shri Bharath


**Shri Soli Jehangir Sorabjee** (1930 -2021) has departed.

His was a life full of contribution to free speech, freedom of the press, liberty and human rights.

He was a doyen of the Indian Bar for decades and has contributed to Indian and international jurisprudence in many ways.

He was a multifaceted personality with good mimicking skills. His colleagues fondly recall that he used to mimic his colleagues at the Bar and some judges.

He was also a jazz enthusiast. Studying his life, we can see that he had been a champion of press freedom, free speech and civil liberties all through his life.

In the year **1975**, the then Prime Minister **Indira Gandhi imposed the Emergency in India**. This meant that all civil liberties would remain suspended till the Emergency was revoked.

During that period, Soli Sorabjee fiercely fought for Civil liberties and Human rights, and appeared ***pro bono*** (without charging a fee) for those arrested by the government; and in several other matters involving the liberties of citizens.

He was **in the forefront of the fight against the Emergency** and had organised several legal conferences and demonstrations in the Bar.

He was part of the Citizen's Justice Committee which represented the **1984 Anti-Sikh riot victims**, *pro bono*.

Some of the landmark cases he had appeared in:

1. ***Kesavananda Bharati v. State of Kerala***, where he ably assisted his senior, Nani Palkhivala. This was on the Fundamental rights of citizens and **it is out of this case that we got the 'basic structure doctrine' of the Indian Constitution**.
2. ***Maneka Gandhi v. Union of India***, in which he appeared as the Additional Solicitor-General of India, alongside the Attorney-General. The judges placed on record their appreciation for the law officers of the Government for the 'commendable grace and perceptive and progressive realism' in agreeing to 'the happy resolution of the dispute.'
3. ***S. R. Bommai v. Union of India***, which till today is the **guiding benchmark for the imposition of President's rule in a state**. Soli Sorabjee's contribution in establishing this benchmark is immense.

Trained by the legal luminary Nani Palkhiwala, he had nurtured a lot of talent in the legal fraternity. His juniors Harish Salve, Gopal Subramaniam (both of whom went on to become Solicitors General of India) and many others are themselves legal stalwarts today.

Supreme Court judge, Justice Uday Lalit, is also from his chambers.

Soli Sorabjee had a keen interest in media-related issues. He was an ombudsman for a popular English news channel.

Interestingly, this author had once made a complaint to the channel on one of the programmes that was telecast.

While it elicited no response from the channel itself, Mr. Soli Sorabjee promptly replied on escalation of the complaint. This demonstrates his interest and commitment to the responsibilities he had undertaken.

Soli Sorabjee had once written "We are all in God's departure lounge, waiting for our flights to be called."

His flight was called on 30th April 2021 and he made his final journey. His demise certainly leaves a void difficult to fill. But as one distinguished colleague rightly said, "**We must celebrate the diversities of his life rather than mourn his loss**." Om Shanti!

**Life in brief**

**1953** – Law degree from Government Law College, Mumbai; enrolled at the Mumbai Bar
**1971** - Senior Advocate of Bombay High Court
**1979-80** - Solicitor General of India
**1989-90**; **1998-2004** - Attorney General of India
**2002** - Awarded Padma Vibhushan for defending free speech and protecting human rights.

Special Rapporteur for Nigeria, a member of the United Nations (UN) Sub-Commission on Prevention of Discrimination and Protection of Minorities

Chairman of the UN Sub-Commission on the Promotion and Protection of Human Rights and the Permanent Court of Arbitration at The Hague, among several other international affiliations.

**Do You Know?**

**Attorney General (AG)** - is the Indian government's chief legal advisor; primary lawyer in the Supreme Court of India, from government's side.

**Solicitor General** - Second law officer of the country assisting the AG

**Ombudsman** - a public authority appointed to investigate individuals' complaints against a company or organization.

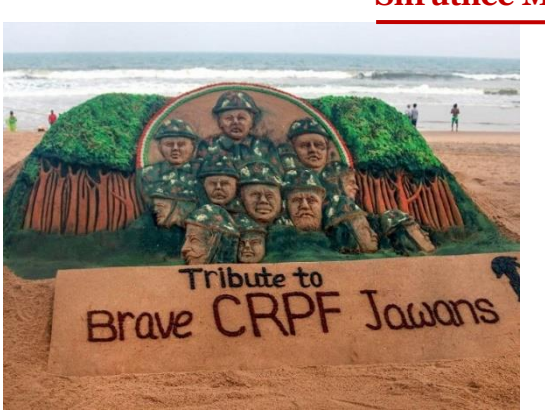
**Special rapporteur** - works on behalf of various regional and international organizations to investigate, monitor and recommend solutions to specific human rights problems.

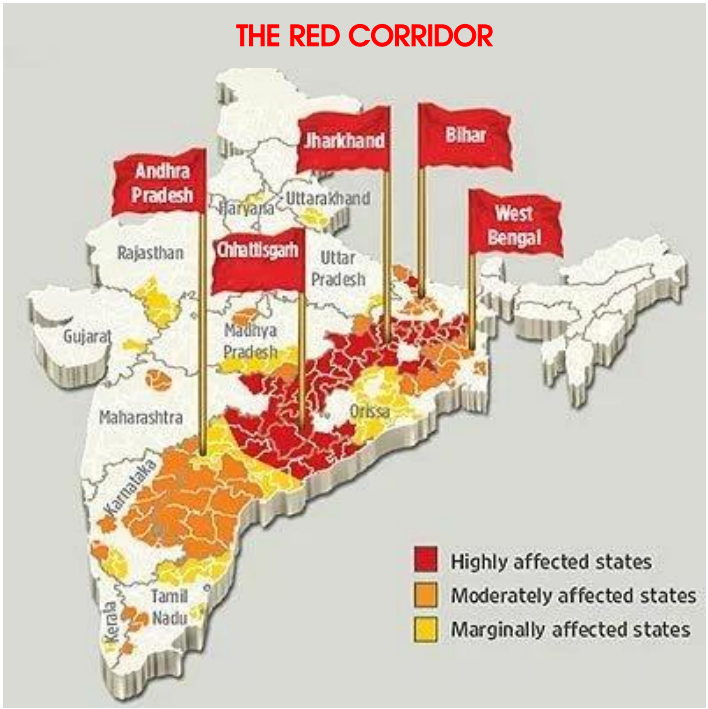
# The Thorn in India's Flesh

**Shruthee M S**

The biggest internal security threat to India is Left Wing Extremism or Naxalism which got its name from the movement's roots in Naxalbari village in West Bengal (1967) starting as a small-scale peasant rebellion.

By 2000s, they spread across 220 districts approximately in twenty states. The region affected by these extremists is known as **Red Corridor**.






The Naxalites show allegiance to the ideology of **Mao Tse Tung** and hence are also called **Maoists.** Chairman Mao as he was popularly called was a Chinese communist revolutionary and the founder of the People's Republic of China.

They believe that the existing socio-economic and political conditions can be overwhelmed only by capturing political power and by overthrowing the democratically elected governments.

They not only use violence to kill civilians and security forces, but also resist development activities in their region. The state of Chhattisgarh has been the worst affected.

Anti-Naxal Operations in the past have shown significant success despite the loss of many security personnel.

Considering the strong presence of Maoist forces in those areas, it is a routine for a joint team of security forces to be sent for combing operations.

On **3rd April 2021**, around 2000 security personnel belonging to DRG, Cobra force, STF and CRPF were conducting combing operations along Chattisgarh's **Sukma- Bijapur border,** based on a tip-off that top Maoist Commander Hidma was hiding there.

One part of the security personnel team with 400 soldiers got surrounded by Maoists of the People's Liberation Guerrilla Army (PLGA), drawing the security forces into a U-shaped ambush.

Exchange of fire followed. In the 5-hour long encounter **,15 Naxals were killed and 20 injured**; additionally, 22 security personnel died (8 -CRPF, 1 -Bastriya Battalion, 8 -DRG; 5 – STF) and 31 were injured.

In what can be described as a psychological game, the Naxals held captive one soldier named Rakeshwar Singh Manhas from CRPF and complicated the situation for security forces who were planning to launch a retaliatory attack.

He was later released on 8th April. The hostage tactic has been used by the Naxalites earlier to get negotiations done in their favour.

This gruesome attack by Naxalites shook the entire country. France and Turkey also condoled the death of 22 jawans.

**Do You Know?**

- Naxal violence has killed 15,000 people in the last 25 years.
- The **Chintalnar massacre (2010)** - killed 75 CRPF men.
- **2017 -** Government of India created a new policy **SAMADHAN** to deal with left wing extremism.
- **Combing operation** – military/ police raid to search for a hiding suspect.
- **CRPF –** Central Reserve Police Force
- **DRG -** District Reserve Guard
- **STF** - Special Task Force
- **CoBRA** - Commando Battalion for Resolute Action
- **Ambush** - a surprise attack by people waiting from a hidden position

# COVID 19 – The Oxygen Crisis

Shri Kaushik S

Human beings require a steady supply of oxygen for the body to carry out various functions. The oxygen is supplied to various parts of the body through the respiratory system in which the lungs are the primary organs.

When we inhale, the oxygen from the air enters the blood stream through alveoli (tiny air sacs) present inside the lungs.

The corona virus disease (COVID-19) caused by the Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) strain affects the lungs primarily.

When the disease becomes severe, it causes widespread inflammation of the lungs which leads to difficulty in breathing and thereby affecting the supply of oxygenated blood in the body.

If the oxygen saturation in the blood (indicated by an instrument called **pulse oximeter**) is 94-100 it indicates healthy level oxygen in the blood. When the oxygen saturation falls below 92, then the patient may need an external oxygen support.

The deadly second Covid-19 wave, which has hit the country, has led to hospitals in many parts of the country being overloaded with patients requiring external oxygen support. As a result, the demand for oxygen shot up.

To put this in context, the average requirement of hospitals was 50-60 tonnes per day during pre-Covid days which has shot up to 250 tonnes.

There have been multiple cases of patients dying in hospitals due to lack of oxygen. To diffuse the crisis, industrial oxygen is being diverted for medical purposes after removing impurities.

## Oxygen – Medical & Industrial

Oxygen is produced for two key purposes – industrial and medical. As an important element, oxygen is used in steel manufacturing, fabrication, pharmaceutical and water purification industries.

Industrial oxygen is used for cutting and chemical reactions like combustion, oxidation etc. The purity levels of industrial oxygen are inappropriate for human use whereas medical oxygen is highly pure.

## Methods of Oxygen Production

There are mainly three types of oxygen sources in India at present. See table below to know more:

| | Air separation units (ASU) | Pressure swing adsorption (PSAs) plants | Oxygen concentrators |
|---|---|---|---|
| Scale | Large | Medium | Small |
| Suitability | for industrial use | within a hospital premises | for home use |
| Investment | hundreds of crores | Rs. 50 lakhs | Rs. 50,000 to 1 lakh |

## Did the government not foresee the crisis? What was/ is done to resolve it?

Sensing that India could see a second wave leading to demand for oxygen, the Central Government did these:

**April 2020** - asked all State Governments to allow manufacturers of industrial oxygen to supply medical oxygen too.

**October 2020** - sanctioned **Rs 200 crore** from the **PM CARES fund** for **installation of 162 PSA** medical oxygen plants across the country; tenders were also called for. Unfortunately, only 33 of them have been established till date.

State Governments were asked to install these plants to reduce dependency on tankers. Many states like Tamil Nadu had already installed plants in key government hospitals in July 2020.

When cases touched a minimum by February 2021, people let down their guard paying no heed to COVID-appropriate behaviour. Travel restrictions were eased. Political parties held huge rallies in the states facing elections. With the virus mutating, what resulted was a tsunami - the new strain from a carrier infecting not 5 but 30 people in just 72 hours and more complications and higher need for oxygen.

The Union Home Ministry banned the industrial use of oxygen in both private and public sector and asked it to be diverted to medical purposes.

Interestingly, there is no 'shortage' of oxygen in India.

The problem is not of production but transportation in time because these producers are located in various industrial zones spread across the country in remote areas.

Prior planning is needed to ensure timely deliveries even during normalcy. As many private hospitals did not plan stocks for contingent needs and saved on costs by not building PSA plants, the system gasped with the rising demand.

The Central Government is now resolving this logistical issue on a war footing. Oxygen Express trains are carrying oxygen tankers.

Green corridors have been created for their free movement. At the Deendayal port of Kandla, a special cylinder iron has been imported by ships to make oxygen cylinders.

From the Globemaster of the Indian Air Force to all the big goods carrier planes, aircrafts have been deployed to serve the needy states.

Big private groups like TATA, Reliance, Adani and Jindal Steel are buying cryogenic liquid oxygen tankers from foreign countries or sending oxygen tankers from their plants all over India.

Delhivery and Zoho too are chartering planes to import oxygen compressors.

Central funds have been allocated for installation of PSA plants in every district of the country.

Countries have been returning India's favour by extending help. Singapore has sent flights with oxygen tankers.

Portable oxygen generators are being imported from France.

The UK has sent ventilators, oxygen concentrators and other vital medical equipment.

All these efforts will help reduce the stress on hospitals in the next few weeks.

**How does an oximeter measure the amount of oxygen in our blood?**

During a pulse oximetry reading, a small clamp-like device is placed on a finger, earlobe or toe. Small beams of light pass through the blood in the finger, measuring the amount of oxygen.

It does this by measuring changes of light absorption in oxygenated or deoxygenated blood. This is a painless process.

A PSA plant uses a "clean technology" that absorbs nitrogen from the air and extracts oxygen for supply to specific facilities.

Atmospheric air has 78 % nitrogen, 21 % oxygen and 1% other gases.

Separating various components from a mixture of gases is the main motive of a PSA oxygen plant.

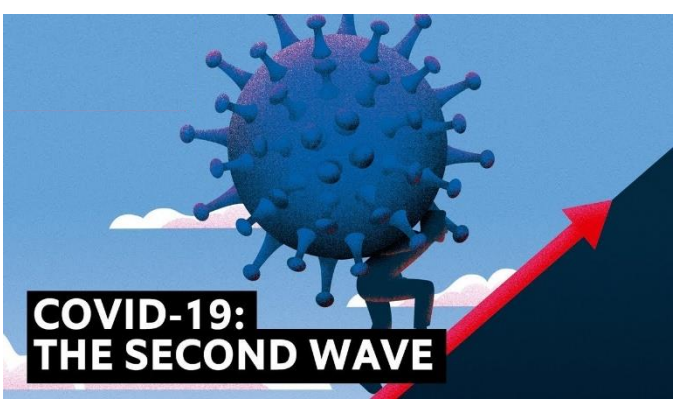
**Do You Know?**

- Oxygen levels in blood:
  - 94-100 – healthy
  - <92 - patient needs external support.
- India produces 1,00,000 tonnes of oxygen daily; only 1% is medical oxygen.

An oxygen concentrator takes in air and removes nitrogen from it, leaving an oxygen enriched gas for use by people requiring medical oxygen due to low oxygen levels in their blood.

# COVID 19 – Second Wave in India

**Smt Janani Sampath**




The second wave of COVID-19 in India has led to a huge surge in cases and deaths.

By the end of April, the average caseload stood at over 3.5 lakh and over 3,000 deaths per day.

The wave that began rising in April has resulted in a higher number of cases in cities like Delhi, Mumbai, Pune, Lucknow, and Bengaluru.

States like Maharashtra, Kerala, Karnataka and Uttar Pradesh are seeing spikes in infections.

While the first wave was considered to be less devastating, the second has been chaotic as it has led to a new set of health crises with oxygen shortage being reported across states.

With an increasing load, many states have struggled to meet the spiralling demands for admissions and have had to ramp up facilities tying up with corporates and NGOs.

## Why is the second wave severe?

The steep rise has been attributed to the new UK strain detected in the population, for instance, from Delhi and Punjab during genome surveillance with a 50 percent higher transmission.

The L452R mutation present in variant B1.671, first detected in India, has higher infectivity. Moreover, asymptomatic carriers who constitute over 80%, spread infections in indoor settings.

Soon after the cases began to drop in most places in the country late from last year to the beginning of 2021, a common observation has been that the public went easy on social distancing and wearing masks.

Local authorities across cities also minimised containment strategies.

While the new wave of infections has affected people across age groups, the mortality rate has been higher in the population above 70 years.

## Oxygen support and requests

Social media has been abuzz with requests for oxygen requirements, drugs, and beds. Several cases needed oxygen support.

The increase in hospital facilities has helped resolve shortage. With oxygen plants being set up on a war footing across cities amid the SOSs for oxygen, the surge in demand may seem mindboggling.

Curiously, the requirement for oxygen is only 13% higher than the demand for oxygen in the first wave.

## The vaccine drive

At the beginning of 2021, India launched its vaccine drive with a phase-wise approach ahead of the second wave.

After vaccinating frontline workers, senior citizens, and those above 45 years of age, on April 28, the vaccine registration opened for 18 and above.

In addition to Covaxin and Covishield, Sputnik from Russia has reached India and the government is importing vaccines produced by Pfizer and Johnson & Johnson.

Getting vaccinated doesn't mean 100 percent protection from the virus, but infections among the vaccinated population have been rare in India.

Recently, the Indian Council of Medical Research (ICMR) released data showing an incidence rate of less than 0.05% among the vaccinated population. It also means one has to continue observing safety precautions after being vaccinated.

One reassuring fact is that the country has been witnessing over **three lakh recoveries every day** from the beginning of May, which means that the active caseload will decline.

## How the world helped

The oxygen shortage across the country sent state governments into a tizzy. The Centre has been meeting the rising demands for medical oxygen in states with higher admissions. Over 40 countries have helped in various forms since the second wave struck. See picture for details.

## A lesson in humanity

Amid gloomy stories of human struggle, profiteering, VIPs blocking beds, leaving the needy ones in the lurch, the case of an RSS man from Nagpur stands out demonstrating true humanity in testing times.

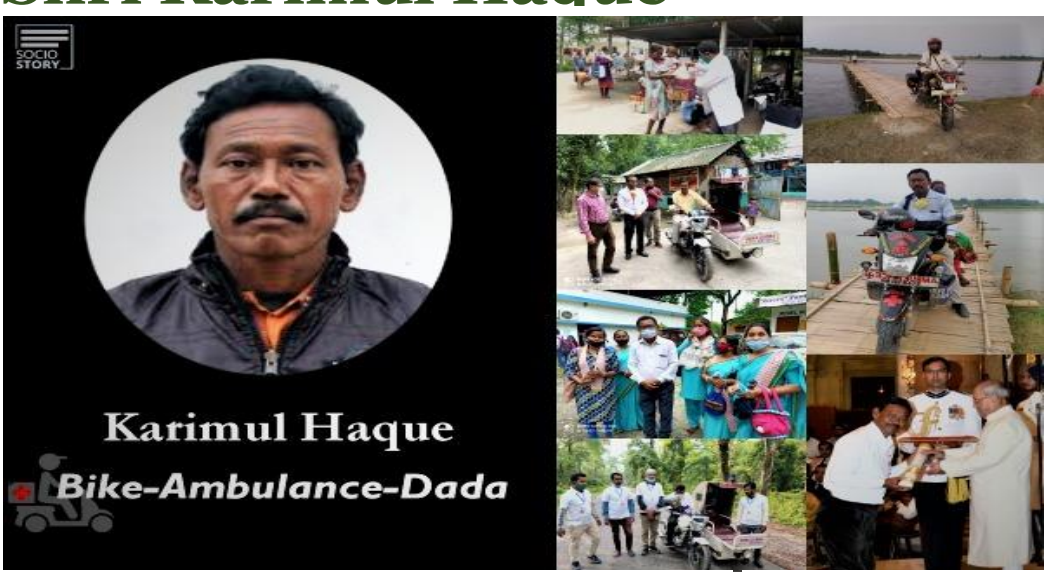

85-year-old Narayan Dhabhalkar chose to give up his bed for a 40-year-old man, after seeing the latter's wife pleading with doctors at the Indira Gandhi Government Hospital, desperate to get her husband admitted.

His own condition was not stable and his oxygen levels were dipping too. But reasoning that he had lived his life and that the younger man needed it more, Dhahalkar decided to get discharged against doctors' advice. He died at his residence three days later. The story of his selfless sacrifice, which went viral on social media, sends a ray of hope during a pandemic that has unveiled the ugly side of human behaviour.

# Know your Padma Awardees

## Shri Karimul Haque

**Smt Archana Sundar**




**Karimul Haque,** son of a daily wage labourer, is a school drop-out who works at a tea garden in West Bengal and a philanthropist.

He lives with his wife Anjuya Begum and his four children.

In 1995, his mother died of a cardiac arrest due to the lack of ambulance services in his village.

A few years later, when one of his colleagues collapsed on the field while working, Karimul tied him to his back and rushed to the hospital on a motorcycle.

Then he decided to start a motorcycle ambulance in 1998 and bought one on loan. This ambulance was upgraded with waterproof stretcher and ports of oxygen cylinder by Bajaj Auto limited in 2018.

Karimul has provided **ambulance service in more than 20 villages** nearby since 1998.

https://www.youtube.com/watch?v=lDJrMD42VGA

He has helped **more than 5500 people (as of 2020)** in case of medical emergencies and provided first aid services with the assistance of doctors. He has also donated funds and clothes to the needy during the coronavirus pandemic.

### Honours

- Padma Shri Award (2017)
- Guest speaker in TEDx talks (2018)
- His biography 'Bike-Ambulance Dada' by Biswajit Jha published (2019)
- Ananya Samman from Zee Group's 24 Ghanta news channel (2021)

Smt Vaishnavi V

# The President of India

**The President** is

- the head of the state; also called the first citizen of India.
- is a symbol of solidarity, unity and integrity of the nation.
- is a part of Union Executive along with the Vice-President, Prime Minister, Council of Ministers and Attorney-General of India.

## Qualifications

He/ She must

- be a citizen of India
- have completed 35 years of age
- be eligible to be a member of Lok Sabha
- not hold any office of profit under the central government, state government, or any public authority.
- must be **proposed and seconded by** at least **50 MPs/ MLAs**.

However, the candidate may be President / Vice-President /Governor of any State / Minister of the Union or State, and shall be eligible to contest elections.

## Who elects the President?

The President is elected by an Electoral College, comprising elected MPs and MLAs of all the States and Union Territories.

## Election Procedure

- The value of the vote of a State's MLA depends on its population as per 1971 census.
- For a state with 119 seats and a population of 1.57 crore, the formula is :
  - Value of the vote of each MLA =
    1.57 crore / 119 X 1000 = 132
  - Total value of all the MLAs in the state =
    119 X 132 = 15,708
- The value of an MP's vote =

$$\frac{\text{Total value of votes of all MLAs}}{\text{Total number of MPs}}$$

**Example in 2017 (the most recent Presidential election)**

- Total value of all MLA votes = 5,49,495
- Total number of MPs =
  543 (LS) + 233 (RS) = 776
- Value of each MP vote =
  5,49,495 / 776 = 708
- Total value of all MPs =
  776 X 708 = 5,49,408

As per the **Single Transferable Vote system,** each voter marks out her preference for the presidential candidate.

If there are five candidates, the voter will give five preferences.

**It is mandatory to give a first preference for a vote to be valid**.

However, if the voter doesn't give other preferences, the vote will still be valid.

## Vote Quota

The total number of valid votes decides the winner.

For example, if there are **50,000 valid votes**, then the **candidate would require (50,000/2)+1 = 25,001 votes**.

Should any candidate fail to reach the vote quota, the candidate with least votes is eliminated and her votes are transferred to the others on the basis of the second preference.

If the vote quota is achieved, a winner emerges but if it doesn't, the candidate with the least number of votes is eliminated again and others get her votes on the basis of the third preference.

Once the vote quota is achieved by one candidate, the winner is announced.

Consider this example of four candidates, **A, B, C**, and **D**. The results of the **first preference counting** are:

A: 19,000

B: 8,000

C: 13,000

D: 10,000

Now **B** will be eliminated and her votes distributed to the others on the basis of the **second preference**.

Post this, suppose, **A** gets 3000, **C** gets 2000 and **D** gets 3000, the new results are:

A: 22,000

C: 15,000

D: 13, 000

Now, **D** gets eliminated with, suppose, **A** getting 2,000 votes and **C** getting 11,000 votes.

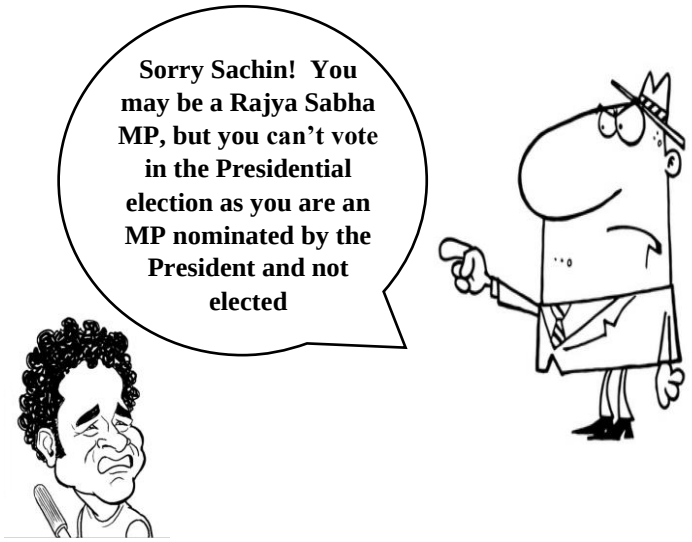
A: 24,000

C: 26,000

Exceeding the vote quota, **C** will be the winner.

## Who does not take part in the President's élections?

1. Nominated members of Lok Sabha (2) and Rajya Sabha (12)
2. Nominated members of State Legislative Assemblies including Delhi and Puducherry.
3. All **MLC**s.




## What is the term of the office of the President?

Five years. President shall continue to hold office until the successor takes over.

## Can the President's office be vacant?

Yes, as follows:

1. Completion of the five- year term.
2. President puts forth his resignation to the Vice-President of India.
3. Parliament executes a valid impeachment order (for violation of the constitution).
4. Death during the term of office.
5. Supreme Court declaring Presidential election invalid.

## Do You Know?

**PRESIDENTS OF INDIA**

| No | Name of the President | From | To |
|---|---|---|---|
| 1 | Dr Rajendra Prasad | 26.01.1950 | 12.05.1962 |
| 2 | Sarvepalli Radhakrishnan | 13.05.1962 | 12.05.1967 |
| 3 | Zakir Husain | 13.05.1967 | 03.05.1969 |
| 4 | Varahagiri Venkata Giri | 24.08.1969 | 24.08.1974 |
| 5 | Fakhruddin Ali Ahmed | 24.08.1974 | 11.02.1977 |
| 6 | Neelam Sanjeevan Reddy | 25.07.1977 | 24.07.1982 |
| 7 | Giani Zail Singh | 25.07.1982 | 24.07.1987 |

| No | Name of the President | From | To |
|---|---|---|---|
| 8 | Ramaswamy Venkataraman | 25.07.1987 | 24.07.1992 |
| 9 | Shankar Dayal Sharma | 25.07.1992 | 24.07.1997 |
| 10 | Kocheril Raman Narayanan | 25.07.1997 | 24.07.2002 |
| 11 | A P J Abdul Kalam | 25.07.2002 | 24.07.2007 |
| 12 | Pratibha Devisingh Patil | 25.07.2007 | 24.07.2012 |
| 13 | Pranab Kumar Mukherjee | 25.07.2012 | 24.07.2017 |
| 14 | Ram Nath Kovind | 25.07.2017 | |

Smt Sarada Devi Ravutu

# Kuyili – The Human Bomb

Kuyili was an army commander of **Velu Nachiyar** (1730-96), **the Queen of Sivagangai**, who participated in campaigns against the East India Company. Fondly addressed by some as ***Veerathalapathy*** (The Brave Commander) or ***Veeramangai*** (The Brave Woman), Kuyili, an Arunthathiyar by birth, was a valiant warrior.

Kuyili was born to farm labourers Periyamuthan and Raku. Her mother Raku, well-known for her bravery, died while saving the fields from a wild bull. Devastated, Periyamuthan then moved near Sivagangai and raised Kuyili by inspiring her with courageous acts of her mother.

Soon employed as a spy for Velu Nachiyar, who was then in hiding, he also fought alongside Kuyili and the Queen during the war. Kuyili and her father were allowed unrestricted access to Velu Nachiyar.

She saved the Queen's life on many occasions. When an intruder tried to murder Velu Nachiyar in her sleep, Kuyili saved her and was badly injured in the process. Witnessing this, Velu Nachiyar immediately tore a piece of her saree to bandage Kuyili's wounds.

On another instance, discovering that her own *Silambam* (a martial art) teacher was a spy working against the Queen, Kuyili ended his life. The Queen made Kuyili her personal bodyguard.

The British tried in vain to coerce Kuyili into revealing Velu Nachiyar's plans. Velu Nachiyaar made her the **Commander-in-Chief** of the **women's army**.

To reclaim her kingdom, Velu Nachiyar allied with Maruthu Pandiyars, Hyder Ali and Tipu Sultan and fought the British.

Though her well-trained armies won a few battles, they were no match for the advanced weapons of the British. This is when Kuyili formulated her strategy for a surprise attack.

She gathered information that women were allowed inside the Sivagangai Fort to participate in the ***Vijayadasami*** celebrations at the *Rajarajeswari Amman* temple.

Dressed as civilians, hiding weapons inside the flower and fruit-baskets, she and her army entered the fort, and on the Queen's cue, attacked the British. Stunned, the British army were forced into a battle underprepared.

Knowing the location of the weapon godown, Kuyili devised another plan. She drenched herself with ghee and oil, entered the storage area and set herself on fire.

With all their weapons destroyed, the British army was overwhelmed. Kuyili's bravery and sacrifice helped Velu Nachiyar win the battle, regain her fort and kingdom.

**KUYILI's MEMORIAL** in Sivagangai district stands testimony to her valour as the first suicide bomber in Indian history.

# Geographical Wonders

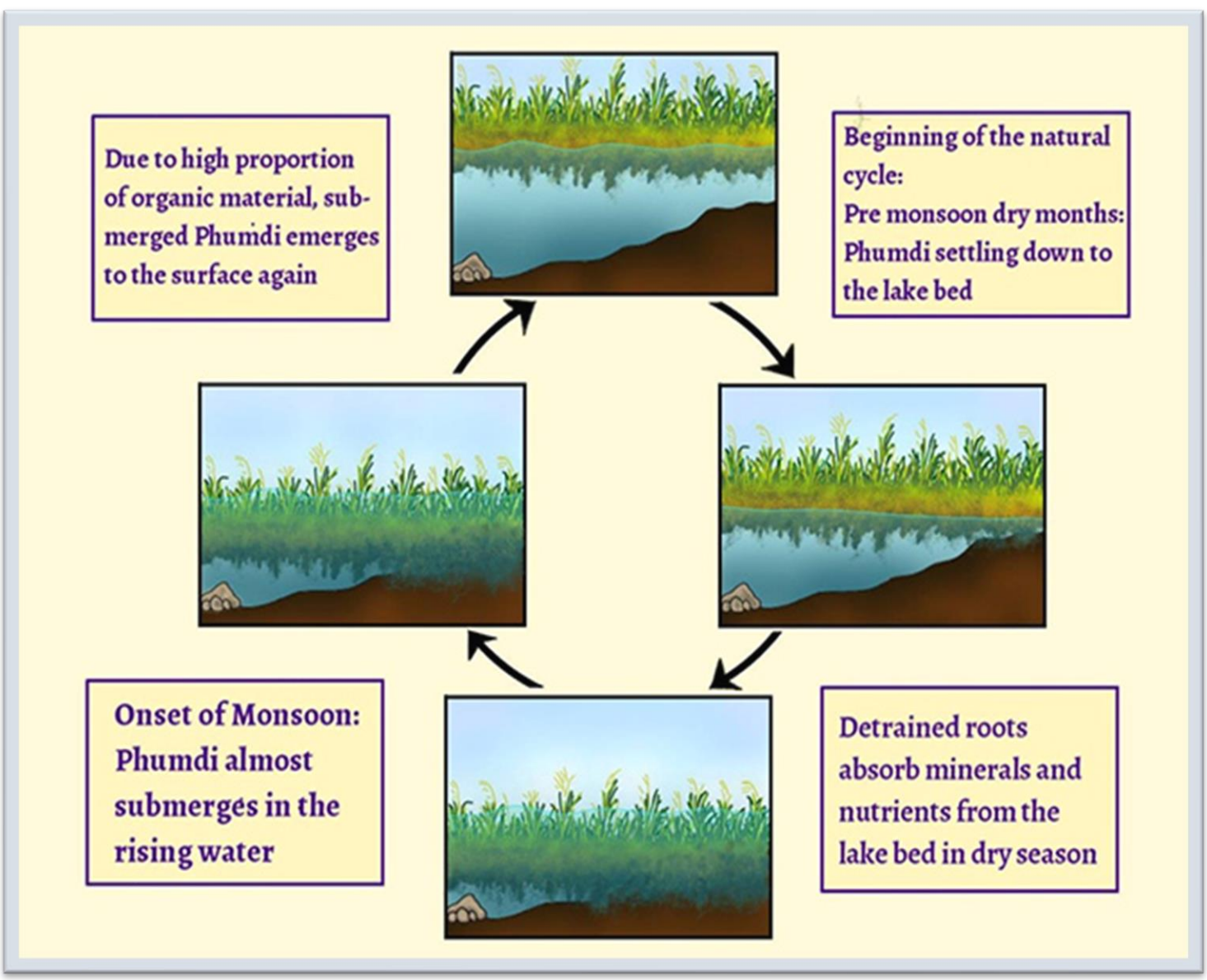
Smt Sandhya Nair

# The World's only Floating Lake

The largest freshwater lake in Northeast India, Loktak Lake is one of the most popular tourist attractions in Manipur.

The floating circular swamps called **phumdis** look like islands and are a mass of soil, organic matter and vegetation.

**Keibul Lamjao National Park** is the world's only floating national park and a visual treat for birdwatchers with its black kite, East Himalayan pied kingfisher, northern hill myna, lesser eastern jungle crow, Burmese pied myna and lesser skylark among many others.

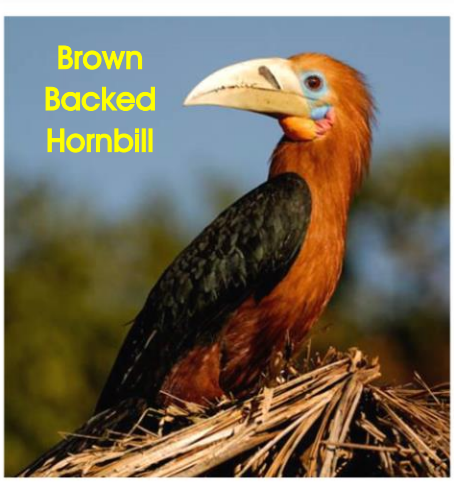


**Loktak Multipurpose Project** was built in 1983 to generate 105 MW power for supply to NE states. The downstream Loktak Power Project for further power generation of 90 MW is proposed.

## Biodiversity

The important vegetation of the phumdis includes tall reed, paddy, Manchurian wild rice, Bermuda grass, swamp potato, sugarcane, swamp rice grass etc.

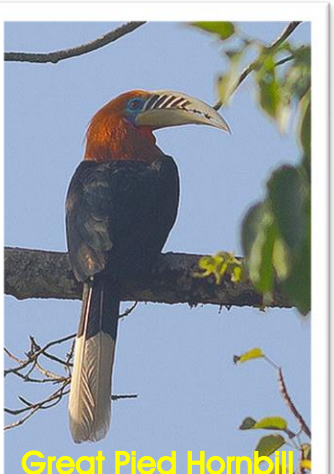
Endangered sangai species of Eld's deer; 57 species of waterbirds; 14 species of wetland associated birds and 28 species of migratory waterfowl, mostly from the northern hemisphere beyond the Himalayas. Also recorded were 425 species of animals—249 vertebrates and 176 invertebrates). The list includes rare animals such as the Indian python, sambhar and barking deer.




The brown-backed hornbill, rufous-necked hornbill, wreathed hornbill, the pied hornbill and the great pied hornbill are also found.

Fish yield is about 1,500 tonnes every year.

The State Fisheries Department has introduced millions of fingerlings of Indian and exotic major carps.



# Historical Wonders

Smt Sandhya Nair

# Siddavatam Fort (Sidhout)

**Siddavatam Fort**, one of the architectural marvels of the fourteenth century is situated in Cuddapah District, Andhra Pradesh. Rising amidst 30 acres of land on the banks of River Pennar at the foot of Lankamala Hills, surrounded by natural canyons, it is a standing testimony to the architectural skills, military strategy and aesthetics of medieval India.

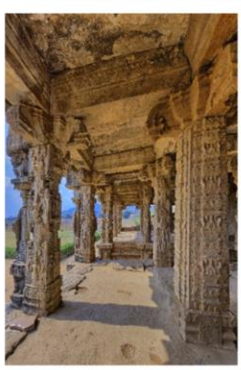
Earlier it was part of Udayagiri Kingdom and given to Matti Yellama Raju as a gift along with some other places (1605) in return for his support to Venkatapathi Rayalu II in many wars. It was just a mud fort when ruled by "Matti Rajulu". Anantha Raju remodelled the fort as a rock fort. When it came under the control of King Varadha Raju, son-in-law of Sri Krishna Deva Raya, it was developed further.

In the course of its chequered history in later years, this fort has passed through the hands of many including Aurangzeb, Nawabs, Kings of Mysore and the British who used it as district headquarters from 1808-1812. It was finally taken over by Archaeological Survey of India in 1956.

Though in ruins, many gateways are still visible amidst the partly destroyed seventeen bastions. There are many temples built for Goddess Durga, Sri Ranganathaswamy, Siddesvara and Bala Bramha. It is considered as the gate to Dakshina Kashi.

**Do You Know?**

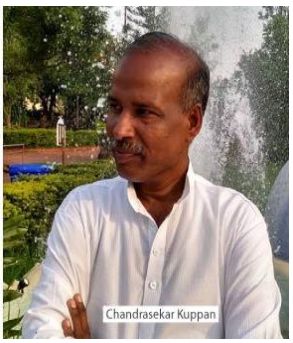
***Ascetic "Siddhas" were living in this area under "vata"s (Indian Banyan tree) which were plenty in this area then. Hence the name "Sidhas" + "Vata" = Sidhavata, or simply Sidhout.***



## Spotlight of the Month

# The River Man of India

Smt Sudipta Sinha




When our PM spoke reverentially about this man, he became instantly famous. He started his career as an electrician in a school in Chennai.

Let's meet **Chandrashekar Kuppan**, the River Man of India.

Once gushing through the plains mightily, river Naganadhi was the lifeline of Vellore district. But the rainwater ran off the land, depriving her of the water. The groundwater condition was no better. Farmers were suffering, villagers were migrating and people in some parts of the district had no water to drink. Naganadhi was virtually dead! And then Kuppan arrived on the scene.

Having learned about the River Rejuvenation projects in Maharashtra and Karnataka, he understood that dry-for-decades rivers could be revived, and farmers, who once had no water for irrigation were growing two crops. He started working on revitalising Naganadhi.

"Reviving a river isn't just about its flow, but letting rainwater infiltrate the soil by slowing it down. Once it rains this year, the river will be in full spate," said Chandrasekaran Kuppan, Director of Naganadhi Rejuvenation Project.

The real problem was arranging manpower. During his survey, he saw the plight of the womenfolk and asked them to join. Some were skeptical, others were apprehensive of this ambitious project. But this true leader motivated them.

With government approval, the project had women registered as Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) workers.

This central government scheme facilitates unskilled rural people 100 days of guaranteed wage employment.

**Kuppan and the women - together built 349 recharge wells and 200 boulder checks spread over 20 Grama Panchayats over the course of a year.** They also constructed huge cement rings and inserted them inside the well.

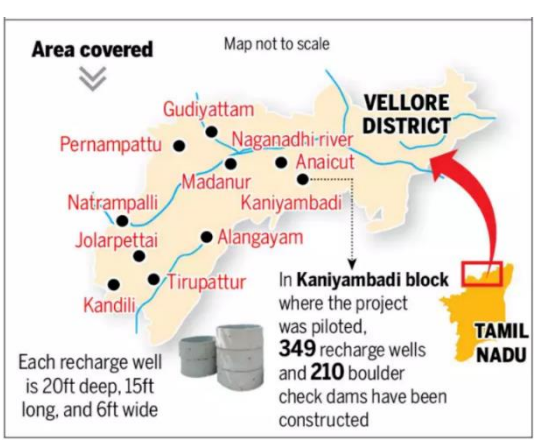
In 2016, the hard work of the 1,000 women who had joined Kuppan paid off, when the groundwater levels rose and would later run into the Naganadhi. The news spread and Kuppan went all over Vellore, travelling 100–200 miles daily to meet villagers, government officials, volunteers and technical experts. He would urge them to see the grim condition and act. Soon, there were 20,000 women working all over Vellore to revive Naganadhi.

Over the next three years, the women built 3,700 recharge wells and several boulder checks all over the district. Finally, Kuppan witnessed the flow of the beautiful Naganadhi!

Kuppan is now working in eight districts of Tamil Nadu with the help of 40,000 villagers, 99.9% of whom are women. This inspirational man has replenished the groundwater and fulfilled his obligation to Mother India, empowering women.

**DID YOU KNOW?**

**NAGANADHI RIVER RESTORATION PROJECT**




**WORLD WATER DAY** is observed on **22nd March** every year with a special theme to highlight the importance of access to safe drinking water, hygiene facilities and sanitation. The theme for **2021 - "Valuing Water".**

# Real Life Heroes

# Mayur Shelke - Pointsman

Srimayi K |Student (VII)

Mayur Shelke is a **pointsman** at the Vangani Railway Station, near Mumbai. On 17th April 2021, a six-year-old boy, strolling along with his blind mother on the railway platform accidentally fell on the track.

The helpless mother couldn't do anything. The young child tried in vain to scramble up. The train was rushing closer.

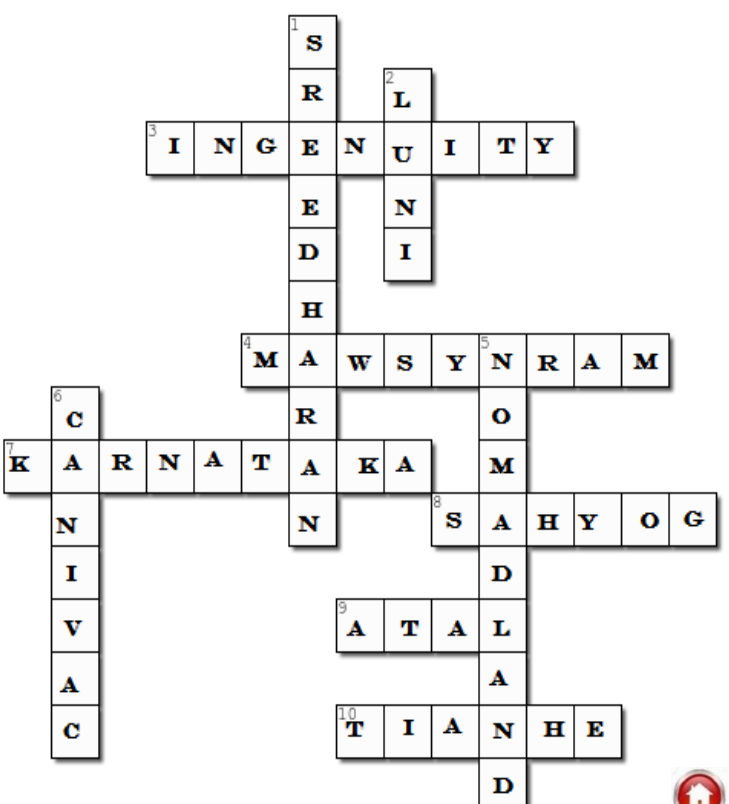
In a flash, Shelke, rescued the child just in the nick of time before the train sped by.

The CCTV footage of this breath-taking act went viral on social media platforms. Shelke risked his life just to save the poor child.

He was felicitated with a sum of Rs. 50,000 and a motorcycle for his humanity and presence of mind. He donated half of his reward money to the child. Heroes are not those who act in films, but those who help others in times of distress in a selfless manner. Real heroes like Shelke should be glorified rather than those who perform stage managed stunts on the screen.

CURIOSITY corner

## ANSWERS




## The Prajya Team



**COMMENTS? SUGGESTIONS?**
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