

PRAJYA

MONTHLY NEWS MAGAZINE FOR CHILDREN

Volume: 03 Issue: 06 February 2024 Rs.85/-



Atal Setu

India's Longest Sea Bridge



"Louis Braille created the code of raised dots for reading and writing that bears his name and brings literacy, independence, and productivity to the blind." — Bob Ney

Braille is a tactile representation of alphabetic and numerical symbols using six dots to represent each letter and number and even musical, mathematical and scientific symbols.



Published by:

Arya Samaj Charitable Foundation

Editorial Board:

Smt Mali Nandakumar
Educational Consultant

Shri Nandakumar V
Educational Consultant

Smt Nandhini S
Principal | D.A.V. Sec School, Mogappair

Teacher Contributors:

Smt Ghana Saraswathy M
Smt Meenakshi S
Smt Ramamani N
Smt Sarada Devi Ravutu
Smt Silpa Nandakumar
Kum Shrivaiashnavi R
Smt Shubha T R

Independent Contributors:

Kum Anu Narayan
Smt Anuradha V R
Smt Archana Sundar
Shri Bharath
Kum Deepasri
Smt Gaayathiri G
Kum Kavya R
Shri Mrithyunjay GN
Shri Muralidharan R
Shri Neeladrinath Sarangi
Kum Pavithra S
Dr Preethy S P
Shri Ramaswamy R
Shri Sampath D
Col Shashidhar M V (Retd)
Smt Shyamala Viswanathan
Shri Sridhar P
Smt Sumathi Ramakrishnan
Kum Sunita D Behera
Smt Uthra Dorairajan
Smt Vaishnavi V
Smt Vanaja Shankar

Technical Editor :

Shri Guhaprasath Subramanian

Creative Design :

Shri Ram Manohar R
Sri Hari Digital Ventures P Ltd.
AVG Graphics

COMMENTS & SUGGESTIONS

prajya.magazine@davchennai.org

स्वस्तिप्रजाभ्यः परिपालयन्तां न्यायेन मार्गेण महीं महीशाः ।

गोब्राह्मणेभ्यः शुभमस्तु नित्यं लोकाः समस्ताः सुखिनो भवन्तु ॥

(Translation: "May the well-being of all people be protected by the powerful; and mighty leaders be with law and justice.

May the success be with all divinity and scholars, May all (*samastāh*) the worlds (*lokāh*) become (*bhavantu*) happy (*sukhino*).")

Uttar Pradesh has been ranked first for the third year in succession for recording the **highest entry rate on the Inter-Operable Criminal Justice System (ICJS)** platform, conceptualised by the Supreme Court's e-committee and implemented by the ministry of home affairs.

ICJS is an effective tool for the case and court management, as all the relevant information of a case are readily available in real-time for use by the courts. Compliance of judicial orders and summons can also be achieved quickly, ensuring effective time management. This will enhance the productivity of the criminal justice system both qualitatively and quantitatively.

'Justice delayed is justice denied', as the saying goes. While millions of undertrials await justice across India, the fact that UP government has been swift in doing its part in delivering timely justice is laudable.

India has spent ₹67 lakh crores infrastructure projects between 2017 and 2023 and the spending pays long term dividends in saving time and fuel in addition to high accessibility. Thus investment in **Atal Setu**, India's longest sea bridge, should bring comfort and happiness to many.

Right from the days of the mythological Icarus to now, *homo sapiens* have been fascinated with flying. After inventing flying machines, we added elements to the simple pleasure of flying and used the aircraft to carry people, cargo, arms and even do surveillance. We are **starting a series of the history of fighter planes**.

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.

<http://bit.ly/Prajya>

Happy Reading !

Watch out for the Monthly Prajya Quiz online

[Visit http://davchennai.org/publications/prajya-news-magazine/](http://davchennai.org/publications/prajya-news-magazine/)

Content



International Current Affairs

- 6 Digging deep to look into space
- 8 Updates on the global political landscape
- 10 First-ever rupee payment for UAE crude oil
- 11 'E-Soil' to accelerate plant growth
- 12 Online Schengen visas for Paris Olympics
- 13 Changi International Airport - World's Best in 2023

National Current Affairs

- 15 Indigenous high-speed flying-wing UAV
- 16 Barracuda - India's fastest solar electric boat

- 17 Bhashini AI translates to Indian languages
- 18 Haryana tops in inaugural Khelo India Para Games
- 19 'MedTech Mitra' launched
- 21 Gujarat sets Guinness Record for mass Surya Namaskar
- 22 India's first All-Girls Sainik School
- 23 J&K - First UT to implement PM Vishwakarma Yojana
- 24 UP leads in implementing ICJS
- 27 Engineered plant cells to increase production of anti-cancer drugs
- 28 Maharishi Valmiki International Airport



30 MoE launches PRERANA

31 Atal Setu-India's longest sea bridge

34 Kerala girl sings her way to Guinness Record

35 India's first hygienic Food Street 'Prasadam'

36 PAiSA Dashboard & PM SVANidhi portal launched

37 New initiatives for conservation

Defence Updates

38 'SAMAR' Air Defense Missile System tested

39 Assault Rifle 'Ugram' & Akash-NG Missile

41 Drishti 10 Starliner Drone for Indian Navy

42 History of the fighter jet - Part 1

General Knowledge

46 Financial literacy - Financial health - Part 2

50 Law in focus - Consumer protection

52 Women scientists of India - Shobhana Narasimhan

55 Living Naturally - Home remedies for skin problems

57 Curiosity Corner - Kolkata

58 Param Veer Vandana - Second Lieutenant Rama Raghoba Rane

61 Padma Awardee - Maguni Charan Kuanr | Rod puppetry

62 Geographical wonder : Gurudongmar Lake

64 Spotlight of the month : Divyakriti Singh Rathore

65 Fauna of India: Narcondam hornbill

Digging deep to look into space

China launches the deepest lab on Earth

The Deep Underground and Ultra-low Radiation Background Facility for Frontier Physics Experiments (DURF), is located 2400m beneath Jinping Mountain in Sichuan's Liangshan Yi Autonomous Prefecture.

In a literally groundbreaking achievement, China announced the completion of the world's deepest and largest underground laboratory. The Deep Underground and Ultra-low Radiation Background Facility for Frontier Physics Experiments (DURF), is located 2400m beneath Jinping Mountain in Sichuan's Liangshan Yi Autonomous Prefecture and will be headed by the China Jinping

Underground Laboratory (CJPL) team.

The completion marked the end of the second phase of CJPL. The construction process began in 2009. The 23-year construction project was beset by a lot of difficulties, because the walls of the lab had to be coated in a 10-centimetre-thick protective shield made from a mix of rubber, concrete and other materials that





block water and radioactive radon gas from the rocks surrounding it.

Why undertake such an arduous project?

To detect dark matter of course!

Dark matter makes up a staggering 85% of the universe's matter. But it remains hidden, impervious to light and many of our current detection instruments. We can only detect it by observing

its effects on galaxies. All galaxies spin very fast, and it is only the presence of dark matter that ensures that the stars remain close together without scattering apart.

Ongoing research with advanced telescopes, underground detectors and particle accelerators continues the quest to understand the nature and composition of dark matter. The only way to

detect it is underground, because the layers of rock shield detectors from background 'noise', such as cosmic rays and other forms of radiation.

Professor Yue Qian of Tsinghua University, whose team partnered with Yalong River Hydropower Development Company, Ltd. for construction of the dam, highlighted the fact that DURF is exposed to an incredibly small quantity of cosmic rays—merely one hundred-millionth of that on the Earth's surface, making it one of the best places to conduct experiments on dark matter.

Over the next decade, the CJPL team aims to improve the detectors with continued experiments and further our understanding of dark matter, thereby helping us decode the deepest buried secrets of the universe.



Updates on global politics

Recent elections and transitions



From Egypt to Taiwan, these elections and transitions illustrate diverse political landscapes, reflecting the dynamic evolution of global governance.

Recent political developments worldwide have initiated significant leadership changes, shaping the trajectories of nations and influencing global relations. From Egypt to Taiwan, these elections and transitions illustrate diverse political landscapes, reflecting the dynamic evolution of global governance.

EGYPT: Al-Sisi secures third term amid economic challenges

President Abdul Fattah al-Sisi has clinched a third consecutive six-year term, securing an impressive 89.6% of the vote. Despite the electoral triumph, there has been criticism of the country's economic challenges and extensive



investments in infrastructure projects, leading to concerns about the nation's financial stability. Al-Sisi, who assumed leadership in 2014 following the military's overthrow of Mohammed Morsi, is recognized for spearheading ambitious projects but faces scrutiny for the substantial economic debt incurred during his tenure. The recent electoral victory ensures Al-Sisi's presidency until 2030, adhering to constitutional limitations, prompting reflections on Egypt's economic resilience and the potential direction of political reforms.

CONGO: Tshisekedi's re-election amidst controversies

In the Democratic Republic of Congo, **President Felix Tshisekedi** has secured another term with a majority, receiving over 70% of the vote. However, the announcement of the results has ignited controversies,



leading opposition groups to call for a rerun due to logistical challenges that have cast doubt on the integrity of the electoral process. Tshisekedi, now serving his second term since assuming office in 2019, finds himself entangled in ongoing disputes regarding the legitimacy of the election. The controversies surrounding the credibility of the electoral procedures present challenges to the stability and governance of the nation as Tshisekedi navigates his second term.

BANGLADESH: Hasina's unprecedented fourth consecutive term

Prime Minister Sheikh Hasina has clinched yet another term in a landslide victory for her Awami League party, in the midst of opposition boycott and election violence. This solidifies her status as the **world's longest-serving female head of government**. Her triumph reflects enduring support for democratic principles. As she begins her fifth term, global



attention shifts to navigating political complexities, addressing human rights and sustaining economic growth.

FRANCE: Gabriel Attal is the youngest Prime Minister

In a notable move, President Emmanuel Macron appointed Gabriel Attal, 34, as France's next prime minister, marking a significant decision in the recent cabinet



reshuffle. Attal, the first openly gay official in this role, brings strategic communication skills and an inclusive approach. Despite unexpected policy decisions, like the abaya dress ban during his education minister tenure, Attal aligns with Macron's goal of national unity amid economic challenges.

DENMARK: Historic transition

Denmark experienced a momentous shift as **King Frederik X** succeeded Queen Margrethe II, who abdicated after an illustrious 52-year reign. The new monarch, alongside **Queen Mary**, steps into their roles amidst widespread public endorsement, marking a significant juncture in Danish history. The anticipation in the capital was palpable, and public surveys indicate substantial support



for the new monarchs. As Denmark embarks on a new era without the traditional coronation ceremony, King Frederik X and Queen Mary confront the task of upholding public confidence and navigating the path forward for the nation.

TAIWAN: Pro-Sovereignty William Lai's victory

In a ground breaking election, Taiwan's **William Lai Ching-te** became the **President**, emphasizing the cross-strait status quo and dialogue over conflict with China. The U.S. congratulates Lai, supporting Taiwan's democracy,



but President Joe Biden reaffirms non-support for independence, highlighting intricate geopolitical tensions. Lai's victory signifies a significant departure from China, setting the tone for Taiwan's relations and showcasing nuanced dynamics in the region.

Global political landscapes are witnessing dynamic shifts, with nations facing diverse challenges and opportunities. From economic struggles in Egypt and political disputes in Congo to Denmark's historic transitions and Taiwan's geopolitical complexities, the world is in a constant state of evolution. Whether dealing with economic issues, electoral controversies, transformative transitions or geopolitical tensions, these developments shape the global political narrative. As leaders assume their roles, the international community keenly watches, anticipating the impact on both domestic and global affairs.





First-ever Rupee payment for UAE crude oil

India, the world's third-largest energy consumer, recently made a significant move by conducting its first-ever payment in rupees for crude oil purchased from the United Arab Emirates (UAE). This move is seen as a paradigm shift in dollar denominated global trade transactions. This gives a game changing fillip to the booming two-way trade between India and UAE that is on its way to cross the USD 100 Billion mark in a couple of years.

India has adopted a multifaceted strategy to ensure energy security since it is heavily dependent on imports for over 85% of its oil needs. It is part of a broader strategy to diversify oil suppliers, reduce transaction costs and position the Indian rupee as a viable trade settlement currency. In July 2022, the Reserve Bank of India (RBI) decided to allow the settlement of India's international trade in Rupees.

By diversifying its oil suppliers, our country aims to

source from the cost-effective partners while ensuring its adherence to international obligations. The recent agreement with the UAE for rupee settlements is a positive step towards achieving this goal. The Indian Oil Corporation (IOC) made payments in rupees for one million barrels of crude oil from Abu Dhabi National Oil Company (Adnoc), marking a historic milestone. During PM Modi's visit to the UAE, the two nations also reached a consensus to establish a real-time payment link, simplifying cross-border money transfers.

Currency experts said that a rupee based settlement eliminates the need for conversion to another currency before paying for imports or exports which in turn would help save foreign exchange reserves. **The internationalisation of the Indian rupee may help reduce the cost of borrowing for India and make the rupee an accepted mode of payment for settlement of international trade.**

DO YOU KNOW ?

Most traded currencies in the world

- ◆ US dollar (USD)
- ◆ Euro (EUR)
- ◆ Japanese yen (JPY)
- ◆ Pound sterling (GBP)
- ◆ Australian dollar (AUD)
- ◆ Canadian dollar (CAD)
- ◆ Swiss franc (CHF)
- ◆ Chinese renminbi (CNH)





'E-Soil' that accelerates plant growth

A team of researchers from Linköping University in Sweden has created a 'bioelectronic soil' known as eSoil that can accelerate plant growth in hydroponic environments. Hydroponics involves growing plants without soil, primarily in water-based solutions. After integrating eSoil into the growth framework for seedlings, the researchers found that sending electrical signals through the soil increased plant growth by an average of 50%.

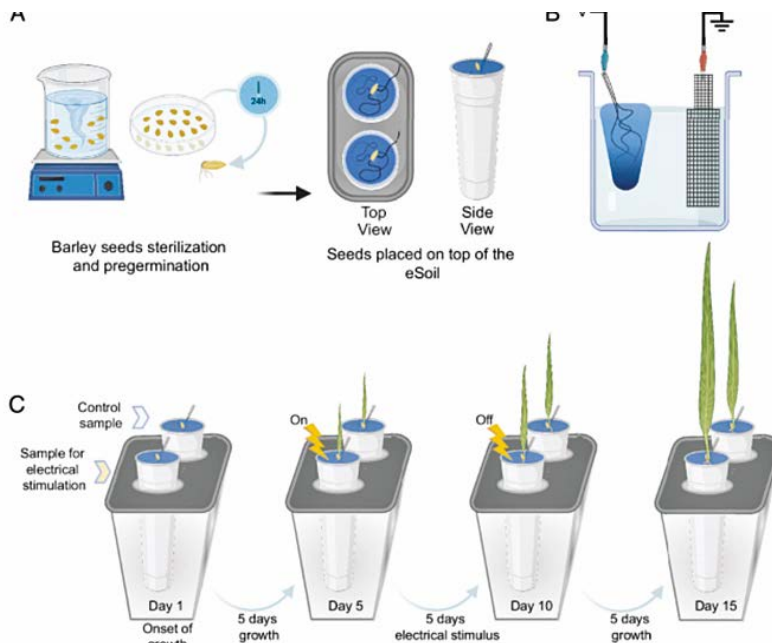
The eSoil is composed of organic substances combined with a conductive polymer called PEDOT, commonly found in sensors and OLED displays. The soil's conductivity is essential for stimulating plant roots.

In the study, the researchers applied a voltage as low as 0.5V to the eSoil, electrically stimulating the roots. This resulted in a significant increase in biomass compared to non-stimulated seedlings.

The researchers focused on barley seedlings in this study, applying electrical signals over 15 days before harvesting them for analysis. The stimulation had a "steady" and "transient" effect, with nitrogen, a key nutrient for plant growth, being processed more efficiently in the stimulated plants.

Eleni Stavrinidou, the study supervisor, explained that while hydroponic techniques are commonly used for leafy greens and some vegetables, eSoil could offer a solution to increase crop yields in commercial settings, especially in environments where natural conditions affect plant growth. **This technology has the potential to reduce the need for fertilizers in farming.**

In addition to improving crop yields, the implementation of eSoil in hydroponic farms could enhance energy efficiency. Traditional hydroponic farms, while requiring less water, often demand more energy to operate. Stavrinidou noted that eSoil consumes very little power in the microwatt range. Before widespread application in large-scale agriculture and other crops, further studies are needed to understand how electrical stimulation impacts the entire plant growth cycle, and the team plans to explore its effects on different plant species.





Online Schengen visas

for Paris Olympics

DO YOU KNOW ?

The Schengen visa is a single visa that allows you to travel within the Schengen Area for a short stay of up to 90 days within a 180-day period. The Schengen Area comprises 27 European countries that have abolished passport and other types of border control at their mutual borders. It facilitates the free and unrestricted movement of people within its member states.

Member states: Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and Switzerland.

In a pioneering move, France became the first European country to issue digital Schengen visas to visitors for the upcoming Paris Olympics, aligning with the EU's digitalization plans. The initiative aims to streamline the visa application process, avoiding any mix-up with the surge of files currently undergoing processing at French visa centres worldwide.

Launched on 1st January 2024, the “Olympic Consulate” system operates through the France-Visas portal, streamlining the application process for 15,000 international athletes, 9,000 journalists and foreign delegations.

- ◆ Applications for almost 70,000 visas will be exclusively processed online, preventing



them from being mixed with other visa requests.

- ◆ In an innovative approach, approved visas will not be affixed to passports. Instead, they will be seamlessly integrated into accreditation cards, a move aimed at enhancing efficiency and convenience for participants.
- ◆ These strategic measures for security and efficiency are aimed at ensuring timely visa issuance, crucial for the smooth organization of the Games.



Singapore's *Changi* World's Best Airport for 2023



Changi Airport is the seventh busiest in the world and the second busiest in Asia.

Changi airport offering the best amenities, retail and dining options for travellers has been named the **best for the 12th year running.**

Global travelers representing more than 100 nationalities participated in the Skytrax survey, which also named Singapore's Changi Airport as the:

- ✦ Best Airport in Asia
- ✦ World's Best Airport — Dining
- ✦ World's Best Airport — Leisure Amenities

Customers rated airports according to many factors, including **shopping, check-in, arrivals, transfers, security and immigration.**

The airport is located within its namesake district of Changi, at the eastern end of Singapore, approximately 24 kilometres (15 miles) east from Singapore's Downtown Core at the Central Region.

Spread across 25-square-kilometres, Changi Airport has 4 terminals. Verdant nature and diverse entertainment meet a plethora of dining and retail options at Changi Airport, which is the seventh busiest in the world and the second busiest in Asia.

The **Butterfly Garden** at T3 Transit is one of the most popular among passengers - it is the **world's first butterfly garden in an airport with over a thousand tropical butterflies.**





Changi Airport has now won more than **660 “Best Airport” awards** since it opened in 1981. The airport plans to expand the capacity of its Terminal 2 building by 5 million passengers per year, and has begun upgrading works that are scheduled for completion by 2024.

Across its four terminals, Changi Airport features gym and shower facilities, napping areas, a 16-meter tall children’s play structure and a swimming pool that overlooks a runway.

The 10-storey retail complex **Jewel Changi Airport**, which has seven themed gardens, a forest valley of more than 2,000 trees and the world’s tallest indoor waterfall hub fuses artistry, architecture and nature into a single structure.

Chandelier at T4, a 16m-tall structure that brings fun to a whole new level.

The Kinetic Rain bronze droplets can form 16 different shapes collectively, with its fluid movements and choreography

The Arrival Garden at T1 welcomes visitors to Changi Airport and tropical Singapore with majestic palm trees that are 12m to 15m tall.





Indigenous high-speed flying-wing UAV

DO YOU KNOW



- ◆ **Abraham Karem** (born in Baghdad, 1937) a designer of fixed and rotary-wing unmanned aircraft is regarded as the founding father of UAV (drone) technology.
- ◆ **Types of UAV** in India include rotary wings, fixed wings, high-altitude long-endurance (HALE), medium-altitude long-endurance (MALE) and unmanned combat aerial vehicle (UCAV).
- ◆ **Prepreg** is the common term for a reinforcing fabric which has been pre-impregnated with a resin system. This resin system (typically epoxy) already includes the proper curing agent.

Defence and Development Organisation (DRDO) has successfully carried out a flight trial of Autonomous Flying Wing Technology Demonstrator, an indigenous high-speed flying-wing Unmanned Aerial Vehicle (UAV) from the Aeronautical Test Range, Chitradurga in Karnataka.

It is a testimony to maturity in the technology readiness levels in the country. With this flight in the tailless configuration, India has joined the elite club of countries to have mastered the controls for the flying wing technology.

This UAV is designed and developed by DRDO's Aeronautical Development Establishment. The maiden flight of this aircraft was demonstrated in July 2022, followed by six flight trials in various developmental configurations using two in-house manufactured prototypes. These flight-tests led to achievements in development of robust aerodynamic and control system; integrated real-time and

hardware-in-loop simulation, and state-of-the-art ground control station. The team had optimised the avionic systems, integration and flight operations towards the successful seventh flight in final configuration.

The aircraft prototype, with a complex arrowhead wing platform, is designed and manufactured with light-weight carbon prepreg composite material developed indigenously. Also, the composite structure, impregnated with fibre interrogators for health monitoring, is a showcase of 'Aatmanirbharta' in the aerospace technology.

The autonomous landing of this high-speed UAV, without the need for ground radars/infrastructure/pilot, showcased a unique capability demonstration, allowing take-off and landing from any runway with surveyed coordinates. This was possible using onboard sensor data fusion with indigenous satellite-based augmentation using GPS Aided GEO Augmented Navigation (GAGAN) receivers to improve the accuracy and integrity of GPS navigation.





BARRACUDA

India's fastest solar-electric boat

LFP battery (Lithium Ferro Phosphate) or lithium iron phosphate battery is a type of lithium-ion battery using lithium iron phosphate as the cathode material and a graphitic carbon electrode with a metallic backing as the anode. LFP batteries are cobalt-free.

Due to their low cost, high safety, low toxicity and long cycle life, LFP batteries are hailed to be the next big thing in EV batteries.

LFP batteries are finding a number of roles in vehicle use, utility-scale stationary applications and backup power.

Barracuda, named after the swift long fish, is India's fastest solar-electric boat. It was launched on 13th December 2023, at the yard of Navalt Solar and Electric Boats, located off Aroor in Alappuzha. In a move towards eco-friendly maritime transportation, this cutting-edge vessel was developed as a joint effort of Navalt and Mazagon Dock Shipbuilders.

The vessel has a speed of 12 knots and a range of 7 hours in a single charge. The 14m-long and 4.4m-wide vessel harnesses twin 50-kw electric motors, a marine-grade lithium iron phosphate (LFP) battery, and 6-kw solar power.

The vessel is IRS (Indian Registration of Shipping) certified and can accommodate up to 12 passengers. It is built to navigate through waves as tall as four metres and operates without noise, vibration and air pollution.



“We aim to continue to make significant contributions towards a cleaner and quieter ocean. Our environmentally friendly boats provide affordable substitutes for conventional fossil-fuelled boats,” Sandith Thandasherry, CEO of Navalt, said.

Mazagon Dock plans to use the entirely eco-friendly vessel for its needs at the Mumbai dock under the name **Saur Sakthi**. This is a great step ahead in India's efforts to become a carbon-neutral nation and cut down the consumption of non-renewable energy resources.



Bhashini AI

translates to Indian languages

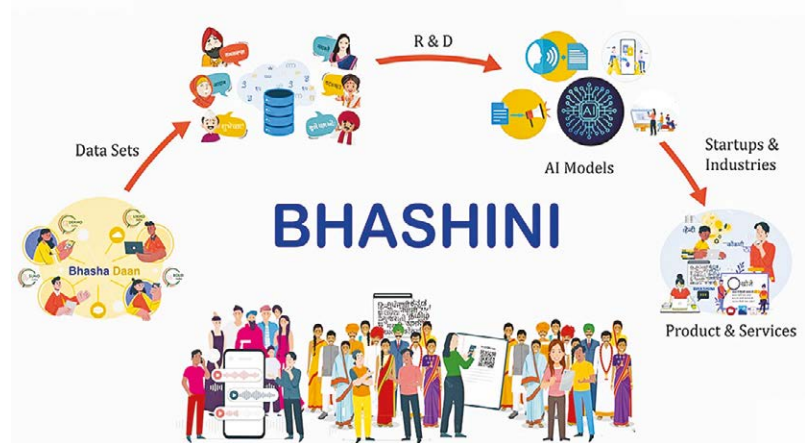
When PM Modi gave a speech in Hindi in Uttar Pradesh, during the Kashi Tamil Sangamam 2.0 inauguration, audience who knew only Tamil were able to put on a pair of earphones and listen to his speech in Tamil.

This was possible through one very special AI tool: Bhashini.

India is a country of many tongues, with over 22 official languages and countless dialects spread across multiple states. But, in an increasingly digital world where English is the most dominant language, millions who primarily speak other languages can feel cut off or excluded.

Bhashini is a government initiative that aims to demolish these language barriers. Using cutting-edge AI and Natural Language Processing, Bhashini can develop accurate, real-time translation systems between Indian languages.

Launched in 2022 by the Indian government's Ministry of Electronics and Information Technology, Bhashini is a multi-pronged initiative that uses AI language models like ChatGPT and



Neuro-Linguistic Programming to create data that can then be used for translation.

Bhashini is unique because it uses crowdsourcing to improve translation in real time. Through initiatives like **Suno India** (audio recording) and **Bolo India** (voice donation), anyone can contribute to improve the translation capabilities of their particular language or dialect. It is a platform that is constantly innovating by making AI tools and datasets available to developers and researchers. Its open source nature truly makes it a tool accessible to everyone.

In his speech, PM Modi praised the advances made by the team behind Bhashini. “Today, the use

of new technology has taken place here through Artificial Intelligence (AI). This is a new beginning and hopefully, it makes it easier for me to reach you,” he said at the event.

Imagine seamlessly reading news articles in your mother tongue, chatting with friends across linguistic borders or enjoying movies and songs without subtitles. This is the future Bhashini aims to create.

Bhashini's journey is just beginning, but its potential to transform India's digital landscape cannot be understated. Digital India's growth will truly become exponential as Bhashini bridges barriers and makes the internet an open and accessible resource to everyone in the nation.



Haryana tops in inaugural Para Games



The 1st edition of Khelo India Para Games 2023 organised by the Ministry of Youth Affairs and Sports was conducted from 10th to 17th December 2023 and the competition was spread across 3 venues in New Delhi.

Haryana bagged the top honours with 105 medals.

Over 1450 para-athletes from 32 states and Union Territories participated in 7 sports disciplines (Para Archery, Par Athletics, Para Badminton, Para Table Tennis, Para Powerlifting, CP Football, Para Shooting).

Among the standout performances was Pranav Soorma's exceptional achievement in the club throw event, where he not only won gold but also set a new Asian record with an impressive throw of 33.54



meters. Athletes like archer Sheetal Devi, discus thrower Yogesh Kathuniya, table tennis player Bhavina Patel, Parul Parmar and Nishad Kumar were among several performers who produced heart-warming performances to defy their physical limitations.

Khelo India Para Games 2023 is the latest edition to the Government of India's Khelo India Initiative, which provides a platform to talented athletes to showcase their sporting and competitive skills and also aims to nurture the sporting culture in the country at the grassroots level. So far, the initiative has conducted 8 editions of Khelo India Youth Games, Khelo India University Games and 3 editions of Khelo India Winter Games. The success of the programme, running since 2017, reflects its widespread acceptance and support from every corner of the country.



KHELO INDIA PARA GAMES 2023		GOLD	SILVER	BRONZE	SPORTS
MEDAL TALLY					TOTAL
HARYANA	40	39	26		105
UTTAR PRADESH	25	23	14		62
TAMIL NADU	20	8	14		42
GUJARAT	15	22	20		57





‘MedTech Mitra’ launched

MedTech Mitra is envisioned as a platform that provides support to young talents by guiding them through the final stages of their research.

Recently, Dr. Mansukh Mandaviya, Union Minister of Health and Family Welfare and Chemicals & Fertilizers, virtually launched 'MedTech Mitra,' a strategic initiative aimed at empowering MedTech innovators and advancing healthcare solutions in India.

The launch event witnessed the participation of key stakeholders including government officials and medical research experts, reflecting the broad support for this transformative initiative.

Med Tech, or Medical Technology, is a broad discipline. It accounts for technologies i.e. devices to the healthcare systems for diagnosis, patient care, treatment and improvement of a person's health. This sector in the healthcare

industry is used to connect patient care with technology.

Medical technologists test biological samples to diagnose and treat different diseases. Working closely with urine, blood and tissue samples, they prepare and examine specimen samples and communicate test results to medical professionals. The role requires great organization and multitasking abilities.

MedTech Mitra is envisioned as a platform that provides support to young talents by guiding them through the final stages of their research, knowledge application, logic development and assistance in obtaining regulatory approvals.

During the launch event, Dr. Mandaviya emphasized the crucial role of the medical devices sector in India's healthcare.

MedTech Mitra

Handholding MedTech Innovators for Clinical Evaluation, Regulatory Facilitation and Uptake of New Products

Home About Us Scope of MedTech Mitra Useful Information Stakeholders

UNDER THE GUIDANCE OF



Under the guidance of NITI Aayog, Indian Council of Medical Research in partnership with Central Drugs Standard Control Organization (CDSCO) aim to foster development of affordable and accessible indigenous Medical devices/ In-vitro diagnostics by providing strategic handholding support to MedTech innovators for clinical evaluation, regulatory facilitation and uptake of new products.

"India can achieve significant milestones in becoming self-reliant and realizing the vision of **Viksit Bharat**, which seeks to overhaul the healthcare system in the country by 2047."



He noted that the country is taking a holistic approach to health. Recognizing the high import dependency of India's MedTech sector, which stands at around 80%, the health minister highlighted the significant progress achieved through production-linked incentive schemes, investments in medical drug parks and the implementation of MedTech research policies.

Dr. Mandaviya also stated that collaborative initiatives like MedTech Mitra will contribute to the indigenous development of affordable, quality MedTech devices and diagnostics, ultimately reducing the import dependence in this critical sector. Expressing confidence in the sector's growth, he predicted that India could become a USD 50 billion industry by 2030.

The health minister acknowledged the rapid technological advancements in sectors such as Robotics, Artificial Intelligence, Big Data, Virtual Reality and Nano Technology, which are influencing the MedTech sector. He praised the innovators and start-up youth in the country, stating that with assistance at the approval stage, India can achieve significant milestones in becoming self-reliant and realizing the vision of **Viksit Bharat**, which seeks to overhaul the healthcare system in the country by 2047.

MedTech Mitra initiative was hailed as a catalyst for growth and collaboration, breaking silos in the medical devices sector and strengthening healthcare services' reach across the nation and becoming an integral aspect of Viksit Bharat.





Gujarat sets a world record for mass Surya Namaskar

Gujarat welcomed 2024 with a new Guinness World Record for the most people performing Surya Namaskar simultaneously. On 1st January 2024, more than 50,000 people performed the Surya Namaskar simultaneously at 108 venues statewide. 108 is a sacred number in our culture for various spiritual, scientific and mathematical reasons.

The main event was organised in the presence of Chief Minister

Bhupendra Patel at Modhera Sun Temple. This record-breaking event saw enthusiastic participation from diverse groups, including students, families, yoga enthusiasts and even senior citizens.

Swapnil Dangarikar, the adjudicator at Guinness World Records, reached here and officially announced that the attempt was successful. He further added that this is a new title as no one has attempted to break this record before.

Surya Namaskar or sun salutations is an ancient practice in Yoga where people pay respect to the rising sun comprising a series of postures or Asanas. Aside from the general benefits of Yoga, sun salutations are also well-known for improving mobility and cardiovascular health, and reducing stress. The sequential movement is rooted in deep breathing, akin to moving meditation.

PM Modi took to X, formerly known as Twitter, to address this remarkable feat. “This is indeed a true testament to our commitment to Yoga and our cultural heritage. I also urge you all to make Surya Namaskar a part of your daily routine. The benefits are immense,” he further added.

The ancient practice of Yoga, pranayama and Surya Namaskar not only helps a person attain good health through exercise but it also connects an individual with spirituality, the press release quoted CM Bhupendra Patel as saying.





India's first All Girls Sainik School

Nestled in the culturally rich city of Mathura, the Sainik School for Girls is a first of its kind. For decades, Sainik Schools have been pivotal in shaping the future of young men across India fostering discipline, patriotism and holistic development. Today, the call for gender-inclusive education have paved way for this great initiative. The admission process is designed to ensure equal opportunities for all deserving candidates.

Defence Minister Rajnath Singh on 1st January 2024 inaugurated the

all-girl Sainik School at Vrindavan, Mathura district in Uttar Pradesh and termed it as a “golden moment in the history of women empowerment”. CM Yogi Adityanath, also attended the inauguration ceremony and emphasised the importance of empowering women, their dignity and self-reliance. Hosting approximately 870 students, the inauguration of the **Samvid Gurukulam Girls Sainik School** marks a significant milestone.

Admission of girl children to Sainik Schools from academic session 2021-22 was done in a



phased manner. The decision was taken following the pilot project's success started by the defence ministry in Sainik School Chhingchhip in Mizoram.

This is the first step towards the broader initiative to establish 100 new Sainik Schools through collaboration with NGOs, private entities and state government schools across all states and Union territories. The primary objectives include offering students high-quality education and enhancing their career prospects, including opportunities to join the armed forces.

The institution would definitely become a torchbearer for girls aspiring to join the armed forces to serve the nation.



Jammu and Kashmir first UT to implement PM Vishwakarma Yojana



The scheme is committed to honour and empower the artisans of our country who immensely contribute towards the economy of our nation.

Jammu & Kashmir has become the first Union Territory (UT) to implement the PM Vishwakarma Yojana (PMVY), an initiative that aims to empower and enhance the skills of the craftsman community.

The inauguration of the training programme for the first batch of 30 trainees (Vishwakarmas) in 'darzi craft' was virtually conducted by Advisor to Lieutenant Governor, Rajeev Rai Bhatnagar, and Secretary of the Union Ministry of Skill Development and Entrepreneurship (MSDE), Atul Kumar Tiwari, at ITI Shopian.

Bhatnagar highlighted the administration's commitment to fostering a culture of skill development to create

employment opportunities for the youth and encouraged the craftsmen to make the most of this opportunity and become catalysts for change across Jammu and Kashmir.

The scheme, expected to be operationalised in all districts of J&K soon, is committed to honour and empower the artisans of our country who immensely contribute towards the economy of our nation.

PMVY, an initiative launched by the Central government in September 2023, recognises artisans and craftspeople through PM Vishwakarma certificates and ID cards.

The scheme includes basic training of five to seven days, advanced training of 15 days or more, a stipend of ₹500 per day and a free modern toolkit worth ₹15,000 for trained Vishwakarmas. Additionally, the yojana offers linkage with credit-based soft loans and marketing support to expand their businesses.





Uttar Pradesh leads in implementing ICJS

The conviction to convict criminals

Seamless transfer of data on crimes and criminals, between the various pillars of the Criminal Justice system across the nation is now possible.

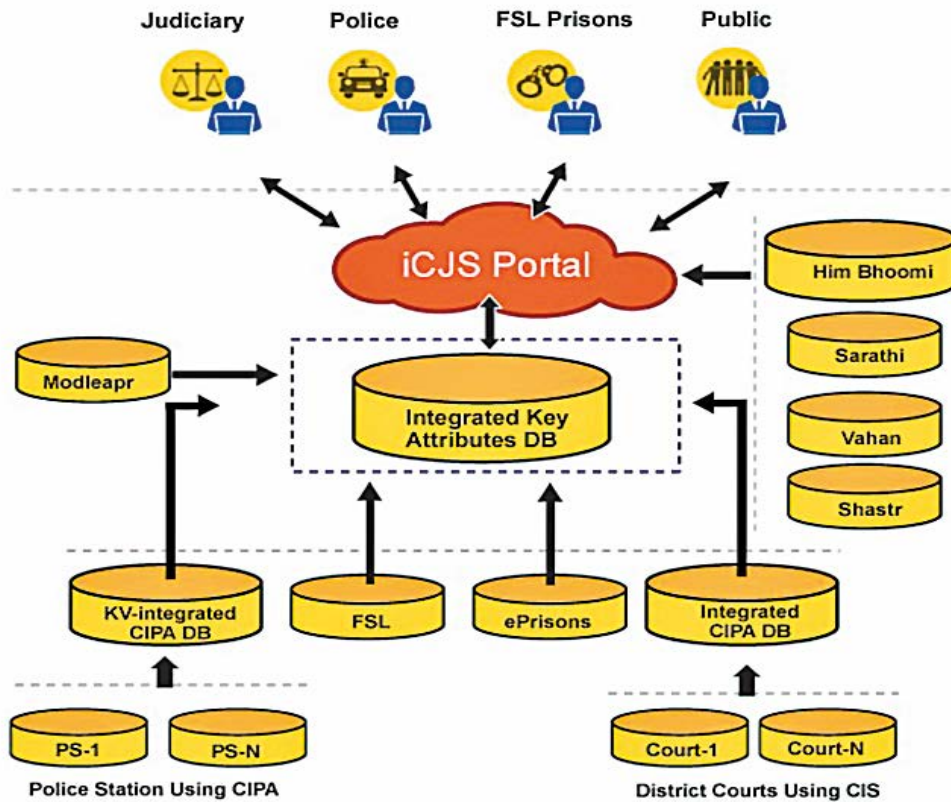
In the 1980s Ashish Bose a demographer coined an acronym BIMARU to denote the states of Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh that were backward in terms of economic, social and other demographic indicators. While these states might continue to be “BIMARU” still, today some of these states come out as the most improved ones in certain parameters.

The vision and approach of the governments in these states have undergone a sea change and a vast improvement, and a thirst for development is discernible. That is the reason why the headline that “Uttar Pradesh Leads in Implementing ICJS” is not as surprising as it used to be a couple of decades back.

What is Interoperable Criminal Justice System (ICJS)?

The criminal justice system in India has many pillars - The police, forensic labs, courts, prosecutors and prisons. ICJS is a pathbreaking concept initiated by the Supreme Court's e-committee and executed by the ministry of home affairs. It facilitates information exchange and analytics between and by these pillars. Seamless transfer of data on crimes and criminals, between the various pillars of the Criminal Justice system across the nation is now possible. It reduces errors and the time taken for sharing information between the various agencies. All the relevant information of a case will be available real time for use by the courts and all other pillars.





ICJS was initiated in 2013 as a continuation to CCTNS -Crime and Criminal Tracking and Network Systems that was launched in 2009.

This is a major driver for swift justice delivery and also crime prediction. ICJS is thus an effective tool for case and court management.

ICJS was initiated in 2013 as a continuation to CCTNS -Crime and Criminal Tracking and Network Systems that was launched in 2009. It comes under the domain of the Home Ministry. The National Crime Records Bureau (NCRB) along with the National Informatics Centre (NIC) is responsible for its implementation.

In phase I (2018-2022) of the ICJS project, individual IT systems have been implemented and stabilised. Search of records has also been enabled.

In phase II (2022-23 to 2025-26) the system is built on the basis of “One data One entry” which avoids duplication of work and improves transparency of data across the system.

The Uttar Pradesh success story

For the third consecutive year Uttar Pradesh ranked first in recording the highest number of entries in the ICJS platform. A whopping 1,56,22,514 entries have been made this year till December 2023.

A communique from the UP police said, “We have embarked on a futuristic strategy to evolve a better synergy between police, prison and prosecution through maximum use of technology to automate the criminal justice system to help the judiciary in expediting the trial leading to better convictions.”

The results are consistent with what has been stated in the communique. The conviction rate for crimes against women in 2022 was 70.8% as against the national average of 25.3%.

In cases under the POCSO act, trials in as many as 7991 cases were





completed which is the highest for the nation. Out of these 252 cases were concluded within one month and 231 cases, between one and three months.

Between 2020 and 2022, the conviction rates have gone up significantly – by 220% in Dowry death cases, by 475% in kidnapping cases and by 2075% in sexual harassment cases.

The overall crime rate has come down in UP as swift trials and conviction are powerful deterrents to crimes. **The crime rate of UP is 171.6% against the national average of 258.1%.**

To get a full perspective of this achievement of the UP government, let us look at some more data. While 16.8% of India lives in UP, the state’s contribution to crimes is 11.28%.

The crime rate due to murders in UP is 1.5% against the national average of 2.1% and that for rape is 3.3% against 4.7%. The crime rate against women is 58.4% while the national average is 66.4%.

UP’s commitment for ensuring law and order and Justice administration is exemplary and the state is leveraging technology to the hilt. As the top brass in the Police say this commitment is witnessed all through the hierarchy and hence the excellent results.

It is not without reason that the Chief Minister of UP Yogi Adityanath says UP is now **“Saksham (Able) Pradesh”**.



INTER-OPERABLE CRIMINAL JUSTICE SYSTEM
Government Approves Implementation Of Phase II Of ICJS Project



Engineered plant cells to increase production of anti-cancer drug



It is an undeniable fact that an impressive array of allopathic drugs can trace their origin to medicinal plants. The earliest known drugs were alkaloids that were extracted from medicinal plants. Even today in the era of synthetic formulations, extracts from medicinal plants are evident. The extracts need to be purified to obtain the raw materials, which are further modified chemically to produce drugs. So, drugs in every therapeutic area of modern medicine find their origin in medicinal plants.

However, we need huge quantities of plants for extraction. With growing population, incomes and longevity the demand often outstrips supply. With the increasing interaction and confluence of biological life sciences, computing power, biomedical engineering magic is now possible in labs. It was once the purview of the humble treasure trove of medicinal plants.

Camptothecin (CPT)

It was first discovered and extracted by **Metwall and Wani** in 1966 from the bark and stem of

Camptotheca acuminata, a tree native to China.

Camptothecin showed anti-cancer properties in a variety of cancers and is an important lead molecule for drugs like Topotecan and Irinotecan. Camptothecin is also extracted from the plant *Nathapodytes immoniana* that is native to India. However, there is concern regarding the dwindling population of this plant. The International Union for Conservation of Nature has red listed the plant species, noting a decline in its population by 20% in the past decade.

Role of IIT-Madras and IIT-Mandi in Camptothecin biosynthesis

Researchers at IIT-M and IIT-Mandi have metabolically engineered plant cells to increase production of CPT. The plant cell technology lab at IIT-M, using computational tools, developed a genome scale metabolic model for *Nathapodytes nimmoniana* plant cells which enabled this breakthrough.

Researchers at IIT Madras and Mandi have metabolically engineered *Nothapodytes nimmoniana* plant cells to increase production of anti-cancer drug CPT.



Nothapodytes Nimmoniana Plant

Research methodology

A metabolic model was reconstructed using experimental data and computational tools. These were used to target suitable enzymes for over expression of genes resulting in maximizing CPT production 5-fold.

Departments involved

Biotechnology department and computational systems lab of IIT-M and metabolic systems biology lab at IIT Mandi. Associate Prof. Shyam Kumar Masokapalli of IIT Mandi says that scientific strategies rationally adopted paved the way to engineer plant cells to behave like bio factories for producing high value phytochemicals.





Maharishi Valmiki International Airport

Maharishi Valmiki International Airport (MVIA), Ayodhya Dham is an ideal location for pilgrimage tours and increases connectivity to the recently consecrated Ram Mandir. Adjacent to NH-27 and NH-330, MVIA serves twin cities of Ayodhya and Faizabad and also the needs of Uttar Pradesh's 20 crore population.

Earlier, Ayodhya only had a small airstrip measuring 178 acres. This could receive only 9-seater Dornier aircraft. In December 2021 UP government first quickly acquired 500 acres without any dispute. The construction was then done in 3 phases. Runway length after the current first phase would be 2250 and later 3125 and 3700 metres respectively. In the 2nd phase, a new 50,000 sq.mt. terminal building will be built catering to 4000 passengers during peak hours and 60 lakh

annually. The apron will hold 18 additional aircraft.

UP currently has international airports in Lucknow, Varanasi and now at Ayodhya. Two other airports fully operational in the next few years will be at NOIDA and Kushinagar.

For the 1st phase, Airports Authority of India (AAI) did their part on pavement grading, design and construction of pre-engineered buildings in Engineering, Procurement & Construction (EPC) mode.

Passenger facilities include 9 check-in counters, 3 conveyor belts and 5 X-ray Baggage Inspection Systems (X-BIS) machines.

The façade of the terminal building depicts the architecture of the Shri Ram Mandir of Ayodhya. The interiors have been depicted with local art, paintings and murals from Ramayan.

Important tasks that



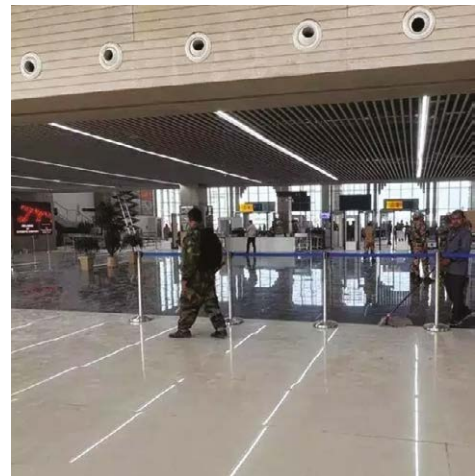


Apron (also flight line or ramp) is the area of an airport where aircraft are parked, unloaded or loaded, refueled, boarded or maintained.

Runway turn pad - A defined area on a land aerodrome adjacent to a runway for the purpose of completing a 180-degree turn on a runway.

A crash gate or beam is a barrier that opens and closes manually or automatically to permit entry and exit at high-security facilities such as airports, correctional facilities and military installations.

Isolation bay - Special parking space for aircraft facing emergency situations like hijack or bomb threat or in case of any technical fault in the aircraft.



required attention and completion were lighting arrangements, fire station, storm water drainage, widening of runway, re-carpeting and constructing taxi track, aprons for aircraft, isolation bays, taxiway strips, runway turn pads, crash gates and developing the terminal building in a single stretch on a 6000 sq. metres area.

All these were handled with speed and efficiency by the government that MVIA could acquire Green Rating for Integrated Habitat Assessment (GRIHA) 5-Star ratings. MVIA thus became a big international airport of 821 acres and was ready before the Pran Pratishtha ceremony at Ram Mandir, within a period of just 2 years.





Ministry of Education launches PRERANA



शिक्षा मंत्रालय
MINISTRY OF
EDUCATION

PRERANA, a Sanskrit word meaning “inspiration”, is also the acronym for **Program for Result Enhancement Resource Nurturing and Assessment**. This is a week-long experimental learning programme introduced by the Department of School Education & Literacy, MoE, GoI. Headquartered at the vernacular school established in 1888 in Vadnagar, Gujarat, the aim of the programme is to empower students with leadership qualities. PM Modi is alumnus of the school.

Aims and Objectives

Based on National Education Policy (NEP) 2020, it would inspire the youth, fostering deep respect for Bharat’s unity in diversity and the spirit of “*Vasudhaiva Kutumbakam*”.

The curriculum

Developed by IIT Gandhinagar, it has nine core value-based themes.

- ▶ *Swabhimān and Vinay* (Self-respect and humility)
- ▶ *Shaurya and Sahas* (Courage and determination)
- ▶ *Parishram and Samarpan* (Hard work and dedication)
- ▶ *Karuna and Sewa* (Compassion and service)
- ▶ *Vidhata and Ekta* (Diversity and unity)
- ▶ *Satyanishtha and Shuchita* (Truthfulness and cleanliness)
- ▶ *Navachar and Jigyasa* (Innovation and curiosity)
- ▶ *Shraddha and Vishwas* (Faith and trust)
- ▶ *Swatantra and Kartavya* (Independence and responsibility)

Activities

- ▶ Yoga and meditation.
- ▶ Experimental learning, thematic discussions and hands on educational endeavours.
- ▶ Visits to historical and heritage sites, inspirational film screenings and insights derived from inspirational figures.
- ▶ Creative activities related to mission life, talent shows, etc.
- ▶ Exposure to indigenous

knowledge systems and cutting-edge technologies.

Mentors from prestigious institutions will guide the participants.

Selection Process

Designed for students in Classes 9 to 12, the selection process has 3 stages.

1st stage: Online registration through Prerana.education.gov.in. After considering their special achievements, 200 students will be shortlisted in each district, 50% of them will be girls.

2nd stage: Candidates will exhibit their talent in multi-modal activities like creating a video, painting, caricature and writing on topics like “**Why should I be selected for Prerana**” or “**My Vision of India @ 2047**”.

3rd stage: Two students (boy and a girl) along with two for the reserve panel will be selected through personal interview and impromptu writing.

After the programme, the 20 participants are expected to carry the ethos of Prerana in their respective communities, become change makers and spark positive change to inspire others.





Atal Bihari Vajpayee Sewri Nhava Sheva Atal Setu

Recently inaugurated Mumbai Trans Harbour Link, the six-lane bridge Atal Setu is the picture of developed India.

PM Modi said: “The message of Atal Setu is a glimpse of what a developed India will look like

- ▶ Facilities for all
- ▶ Prosperity for all
- ▶ Speedy progress

Distances will be reduced and every corner of the country will be connected. Be it life or livelihood,

Orthotropic Steel Deck spans enhance load-carrying capacity more efficiently than a concrete superstructure. **Prefabrication** reduces on-site work, contributing to a shorter construction period and lower safety risks, minimising environmental impact.

everything will go on continuously, without interruption.”

The primary objective of the bridge is to provide expeditious connectivity to Mumbai International Airport and Navi Mumbai International Airport and reduce travel time from Mumbai to Pune, Goa and South India. It aims to enhance connectivity between Mumbai Port and Jawaharlal Nehru Port.

Features

Length : 21.8 km (16.5 km stretch over the sea and 5.5 km on the land)

Cost : ₹ 17,840 crore

Delays induced by the COVID-19 pandemic led to a cost escalation of ₹Rs 2,192 crore, equivalent to 14.9 %. The original cost of ₹ 14,712.70 crore increased to ₹ 16,904.43 crore due to setbacks caused by pandemic-induced lockdowns.

70,000 vehicles are expected to use the bridge every day. The maximum speed limit for four-wheelers on the bridge has been fixed at 100 kmph by the Mumbai Police. Motorbikes, auto rickshaws and tractors won't be allowed to run on it. **The bridge is poised to significantly cut the travel distance from South Mumbai to Chirle by approximately 30 km. The crossing, taking a mere 16 minutes, is expected to save commuters at least an hour of travel time.**

Once fully operational, the MTHL is anticipated to witness a daily traffic volume of 39,300 vehicles travelling between the Sewri and Shivaji Nagar interchange, with an additional 9,800 vehicles commuting between the Shivaji Nagar and Chirle interchange.

The positive environmental impact of the MTHL is noteworthy, with projections indicating the





potential saving of one crore litres of fuel annually and a significant reduction in pollution levels. This reduction is estimated to be approximately 25,680 metric tonnes less of CO₂ emissions, underscoring the bridge's contribution to sustainability and environmental well-being.

Described as a transformative initiative, its successful implementation has the potential to elevate the state's gross domestic product (GDP) by 5 % and contribute to 1% increase in the national GDP, as highlighted by Dr Sanjay Mukherjee, Commissioner of MMRDA.

HIGHLIGHTS

- ▶▶ The construction of the bridge began in 2018. It is the 12th longest sea bridge in the world. A marvel of engineering, steel equivalent to the weight of 500 Boeing aeroplanes and 17 times that of the Eiffel Tower's weight was used for its construction.
- ▶▶ 177,903 metric tonnes of steel and 504,253 metric tonnes of cement were used in its construction.

- ▶▶ The project boasts of a variety of progressive materials and advanced Japanese technology – the bridge has been constructed with corrosion-resistant material to withstand earthquakes, cyclones, high wind pressures and tides. Has a 100-year life span.

- ▶▶ The bridge's lighting poles are resilient to deep-sea challenges, featuring a corrosion-free polyurethane coating, galvanisation for rust prevention and a structural design capable of withstanding high winds.

Also equipped with a lightning protection system.

- ▶▶ Fitted with technology to oversee a smooth commute, including an **Intelligent Traffic Management system, Video Incident Detection system, Speed Enforcement system, emergency call boxes** and more.
- ▶▶ Monitored by a comprehensive surveillance system; incorporates Open Road Tolling to facilitate the

connection of tolls without interrupting the passage of vehicles.

- ▶▶ Introduced Orthotropic Steel Deck spans (OSD- An accelerated bridge construction solution), ranging from 65 to 180 metres — for the first time in India.
- ▶▶ **While building the bridge, preserving mangroves and mudflats and securing the natural habitat of migratory birds, was emphasised.** The privacy of sensitive areas including the Bhabha Atomic Research Centre and the oil terminals belonging to the Bharat Petroleum Corporation Limited has also been protected with the help of visual barriers.

How Atal Setu overcame cost escalation and other challenges

Constructing the bridge posed numerous challenges for the state, ranging from the impact of the Covid-19 pandemic to acquiring equipment and securing environmental clearances to protect



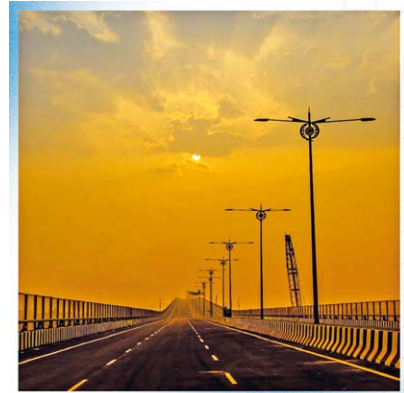


ATAL BIHARI VAJPAYEE SEWRI NHAVA SHEVA ATAL SETU

USER FEE

TYPE OF VEHICLES		SINGLE JOURNEY ₹	RETURN JOURNEY ₹	DAILY PASS ₹	MONTHLY PASS ₹
CAR		250/-	375/-	625/-	12500/-
LCV/MINIBUS		400/-	600/-	1000/-	20000/-
BUS/2-AXLE TRUCK		830/-	1245/-	2075/-	41500/-
MAV (3 AXLE)		905/-	1360/-	2265/-	45250/-
MAV (4 to 6 AXLE)		1300/-	1950/-	3250/-	65000/-
OVERSIZED		1580/-	2370/-	3950/-	79000/-

Effective From : 13/01/2024 to 31/12/2024



mangroves and the habitat of migratory flamingos.

Transporting massive girders weighing between 700 and 2,600 metric tonnes presented a significant challenge in the project.

To overcome this, a strategic sea-based cement batching plant was innovatively implemented, ensuring concrete quality and eliminating the need for lengthy land transportation, reducing travel time from 8-9 hours to minutes.

Engaging a workforce of over 5,000 individuals daily since mid-2018, the project witnessed relentless efforts to bring it to fruition.

Navigating the muddy waters of Thane Creek posed challenges in constructing tall pillars supporting the girders. To address this, engineers employed an unconventional approach, mapping soil conditions around each pillar and conducting thorough seabed investigations at both Sewri and Chirle ends.

Special drilling methods were utilised, cutting six times deeper into the bedrock to safeguard pillar strength and holding capacity. Facing tough rocks that chipped off drilling machine cutters, workers adopted a unique technique, digging ahead of a designated mudflat area to minimise soil collapse risks.

ATAL SETU: India's Longest Bridge

Also called Mumbai Trans-Harbour Link, bridge inaugurated on January 12 by PM Modi



Longest bridge and sea bridge in India

- 12th longest sea bridge in the world
- Hong Kong-Zhuhai-Macau Bridge in China is longest sea bridge at 55 km



Fare

One way: ₹250
Daily pass: ₹650
Monthly pass: ₹12,500



Max Speed

100 kmph



Restricted Vehicles

Motorcycle, autorickshaw and tractor

Length

21.8 km

(16.5 km on sea, 5.5 km on land)

Width

6 lanes



Connectivity

Connects South Mumbai and Navi Mumbai; reduces 2-hour journey to just 15-20 minutes



Building Cost

₹17,840 crore

Foundation stone laid on

December 2016





Kerala girl sings her way to Guinness World Record



Suchetha Satish, the teenager, sung in a total of 140 languages in less than 7 hours, making the whole country proud.

Walt Disney said, "All our dreams can come true if we have the courage to pursue them." A 16-year-old girl from Kerala, **Suchetha Satish**, has etched her name in the history of music by bagging the Guinness World Record title for the most languages sung in a concert.

Not one or two, the teenager sung in a total of 140 languages in less than 7 hours, making the whole country proud. This remarkable achievement took place at Indian Consulate Auditorium in Dubai, UAE, on 24th November 2023.

The concert, at the Indian Consulate Auditorium was aptly titled "**Concert for Climate**" to raise awareness about the alarming climate changes. The number 140, i.e., 29 Indian and 91 international languages, was chosen to represent the 140 nations who were attending the 28th session of the Conference of the Parties (COP28). The event also marked the 75th anniversary

celebrations of India's independence and the 50th formation of the UAE.

Suchetha started her unprecedented performance with a rendition of a Sanskrit song called "**Janaki Jane**" from the Malayalam movie **Dhwani** and ended with a Hindi song written by her mother, Sumitha Ayilliath, and composed by Bollywood Music Director Monty Sharma. She had earlier broken the record of another Indian who sang in 76 languages in 2008, at the event Music beyond Borders in Dubai on 19th August 2023.

Suchetha is a class XI student at the Indian High School, Dubai. She also holds the world record for the longest live singing concert by a child. She is the recipient of the '**Global Child Prodigy Award 2020**' and '**Ujwala Balyam Award 2020**' by the Kerala Government.

Suchetha Satish's extraordinary performance, which is now widely shared on social media platforms, captivates listeners with its diversity and musical excellence.



India's first hygienic Food Street “Prasadam”

Food will never go out of fashion. To convey our gratitude to all those who are behind the food on our plate is an intrinsic part of our daily lives of the devout. Offering food first to God and then consuming it is a practice in most of the Bharathiya house holds. The food offered to the deity is called *naivedya*, while the sacred food sanctified and returned by the deity as a blessing is called *prasadam*.

Keeping abreast with the changing times of having Food Streets and Eat Outs in every nook and corner of a place, the Union Health Minister Mansukh Mandaviya launched India's first health food street: **Prasadam**, in the city of Ujjain in Madhya Pradesh. The food street at Neelkanth Van, Mahakal Lok in Ujjain, will be the

first of 100 food streets that will come up in as many districts across the country.

The inauguration of “Prasadam” marks a significant step towards building a healthier and more vibrant nation, where pure and hygienic food is accessible to one and all. “Prasadam” will connect common citizens by having a dedicated kids’ play area, drinking water facility, CCTV surveillance, ample parking, public conveniences and spacious seating areas. These facilities are aimed at enhancing the overall experience for visitors and locals alike.

Though Food Streets may sound fancy, consistency in maintaining



hygiene will remain one of the biggest challenges. As a part of addressing issues related to hygiene, health units and labs have been installed.

Demonstrating a commitment to the overall well-being beyond just physical health, an app called **Mannhit app** that will enable mental health screening was also launched. The event showcased various innovations in the field of health and food safety. Food Safety and Standards Authority of India released “**The DART Book**” that gives an insight into at-home food adulteration tests emphasizing the importance of food safety.

Additionally, a mobile food testing van named “Food Safety on Wheels” was launched, taking safety measures to the streets. This initiative is seen as having the potential to boost tourism, preserve traditions and foster community engagement.





PAiSA dash board & PM SVANidhi portal launched

As the COVID-19 pandemic attacked unexpectedly, it affected the nation's commerce. It hit small businesses and street vendors the worst. In an effort to uplift these street vendors from their dire conditions, the government launched a scheme called the **PM SVANidhi Mission** scheme.

This scheme, launched by the Ministry of Housing and Urban Affairs (MoHUA), in 2020, was conceptualised to address the issues faced by the street vendors, and to also provide them with loans to help revive their trade.

The Street Vendors Act of 2014 aims to protect the rights of street vendors in the country and also attend to their affairs.

In connection to this, the Union Minister of MoHUA, Hardeep S. Puri, in a seminar at India Habitat Centre (in New Delhi), stressed on the importance of maintaining the economic condition and harmony of the street vendors.

Considering they are an important part of the country's economy, there is a need to provide adequate Grievance Redressal Committees (GRCs) to deal with the problems of street vendors, whether monetary or otherwise. The minister promised to advance the establishment of these GRCs.

In this connection, the Ministry has launched two portals: the PM SVANidhi Mission Monitoring Portal and the refurbished PAiSA portal. The former would work as a checkpoint to monitor the execution

of the PM SVANidhi scheme. Stakeholders of this scheme (like government officials, vendors, loan lenders, banks, etc.) would be able to view the progress of their scheme, recognise points of issue, and assure implementation. The latter would function by facilitation of real-time updates on loan and microloan application for the street vendors, helping them track the status of their funds.

The initiation of the GRC along with the establishment of the two portals is a welcome step for all the street vendors who are reliant on the government to address their disputes, whether among the vendors or those related to their financial troubles. This also ensures transparency at every step for these small business-persons.







PM Street Vendor's AtmaNirbhar Nidhi

(PM SVANidhi)

A SPECIAL MICRO-CREDIT FACILITY FOR STREET VENDORS

Apply for Loan

388489
Total Applications

53470
Sanctioned

Activate Windows





New initiatives for conservation

Biodiversity with its continued sustainability is an extremely crucial dipstick that tells us about the health of mother earth. It is also a known fact that a pristine environment with its unique flora and fauna can never be recreated in its original form. The elements that go into its making have evolved over



thousands of years with intricately woven relationship.

The next best alternative is creating an undisturbed reserve and let it evolve on its own. Today biodiversity monitoring and its maintenance is taken seriously. Climate change resilience is reflected in the health of biodiversity.

Atpadi Conservation Reserve

The Maharashtra government has declared a new wild life reserve in the forest land of Sangli district, connecting the Maini conservation area in the west and Maldhok bird sanctuary in the northeast over a 9 sq.km area. The corridor will help protect the wild life. **This diverse sanctuary has three distinct forest types – semi-evergreen, moist deciduous and dry deciduous.**

Rich flora and fauna

The new sanctuary hosts rich flora consisting of **33 species of trees, 15 species of shrubs, 14 species of vines 116 species of herbs and parasitic plants.**

Atpadi reserve will be a protected reserve for wild jackal, wolves, foxes, hyenas and other mammals. While a reserve forest sanctuary finds its feet in its splendid isolation it certainly helps if its buffer zone is also a protected reserve. That way Atpadi reserve is strategically located between two wild life corridors.

Pench Tiger Reserve (PTR)

It is named after the Pench river that straddles two states, Maharashtra and Madhya Pradesh. Covering an area of nearly 758 sq .km, it has an impressive array of wild animals. It is one of the most well managed in the country with nearly 80 tigers. It also supports leopard, jackals, Indian Gaur, barking deer, peafowl wild boar etc. **Pench has 325 species of birds, 50 species of fishes, amphibians etc.** This spectacular heterogeneity of animals makes Pench an important tourist attraction.

PTR has been marked as India's first **Dark Sky Park** and the fifth such park in Asia for protecting the night sky and preventing light pollution. This is ideal for astronomy enthusiasts.

The **International Union for Conservation of Nature (IUCN)** lays emphasis on the recognition of the intrinsic value of the night sky as a natural, cultural and historical resource.



SAMAR

AIR DEFENCE MISSILE SYSTEM

Rewind

- ▶ The Air Defence System SAMAR (Surface to Air Missile for Assured Retaliation), has been developed by a unit under IAF's Maintenance Command.
- ▶ First presentation held in March 2021 and mounted on a ZiL-131 wheeled 6x6 chassis later replaced with an Ashok Leyland vehicle.
- ▶ Aero India 2023 Expo (February 2023), Indian Air Force showcased its need to adopt SAMAR by displaying a launcher vehicle.
- ▶ Completed 17 test launches and ready to enter production phase by providing improvised anti-aircraft system capable of utilizing the available stockpile of approximately 4,700 expired R-73 anti-aircraft missiles.

- ▶ Final adoption process completed in ten months now.

Salient Features

SAMAR-1 is a quick reaction missile system developed by IAF's 7 Base Repair Depot and 11 Base Repair Depot in collaboration with two Indian private sector companies **Simran Flowtech Industries and Yamazuki Denki**.

The system consists of a twin-turret launch platform with the capability of launching two missiles in single and salvo mode, depending on the threat scenario and has a target engagement range of 10–12 km. The maximum target altitude however remains undisclosed. It can engage aerial threats with missiles operating at a speed range of 2 to 2.5 Mach by guiding them toward its target by a stationary electro-optical station integral to the system.

The old Russian-origin Vympel R-73 and R-27 air-to-air missiles inventory was successfully re-purposed in an innovative approach since they had gone beyond their flight shelf life for fighter jets.

Ashtrashakti Exercise 2023- Demonstration Trials

On 20th December 2023, IAF carried out successful firing trials of SAMAR during Astrashakti 2023 exercise at Suryalanka Air Force Station in Andhra Pradesh thus demonstrating its in-house design and development efforts in a strategic move that not only extended the utility of these missiles but also significantly contributing to sustainable defence practices. The SAMAR -1 system is believed to supplement the AKASH and SPYDER systems thus replacing the ageing improved Pechora and OSA-AK Russian systems.



Col Shashidhar M V (Retd)



UGRAM ASSAULT RIFLE & AKASH - NG MISSILE



On 8th January 2024, in a path breaking achievement, DRDO introduced the Ugram, a cutting-edge powerhouse assault rifle proudly designed and manufactured in India.

With a calibre of 7.62 x 51 mm, this state-of-the-art weapon is set to redefine the firepower capabilities of own Armed Forces, central and state police units.

Promising enhanced firepower with an effective range of 500 meters, Ugram allows security personnel to engage targets with precision from a safe distance, providing a strategic advantage and ensuring the safety of own forces.

Designed for agility and comfort, ensuring improved handling, faster reaction times and reduced fatigue of soldiers operating in challenging terrain and intense counter- insurgency/ terrorism operations.

Significance

The UGRAM Rifle is a milestone in India's quest for self-reliance in defence technology besides showcasing our nation's growing expertise and innovation in defence R&D by providing enhanced firepower and manoeuvrability for security personnel.



Beyond its immediate impact, its development is expected to contribute valuable insights and technologies for future defence projects and capabilities. This home grown rifle will ensure own security forces are equipped with a powerful and reliable weapon for any combat situation both during peace time and in operations.

Salient Features

UGRAM with its potent design outmatches its counterparts wielding 5.62mm calibre rounds widely used INSAS rifle in India's armed and central police forces.

It is developed in line with the Indian Army's General Staff Qualitative Requirements. It features an ergonomic design with an adjustable stock and a Picatinny rail, ensuring comfort and adaptability for users. The free-floating barrel contributes to improved accuracy.

Ugram has been developed in collaboration with **Dvipa Armour India Private Limited**. It will undergo a series of rigorous tests & assessments, acceptance trials and user evaluations to assess its firing capabilities for accuracy and consistency from high altitude to plains and desert terrain.

Physical Characteristics

- ✦ **Calibre:** 7.62 x 51 mm
- ✦ **Effective range:** 500 meters
- ✦ **Weight:** Less than 4 kg
- ✦ **Fire Modes:** Semi-automatic, burst, full-automatic (a 20-round magazine)

INSAS (Indian Small Arms System) is a family of infantry arms consisting of an assault rifle and a light machine gun (LMG).



AKASH – NG MISSILE FLIGHT TEST

DRDO conducted a successful flight test of the New Generation AKASH (AKASH-NG) missile on 12th January 2024 from the Integrated Test Range, Chandipur, off the coast of Odisha, against a high-speed unmanned aerial target at very low altitude. The target was successfully intercepted by the weapon system and destroyed during the test flight thus validating the functioning of the complete weapon system consisting of the missile with an indigenously developed radio frequency seeker, launcher, multi-function radar and command, control and communication system.

The AKASH-NG system is a high-tech missile system capable of intercepting high-speed, agile aerial threats. The successful flight test has paved the way for user trials.

The AKASH missile has been in service for over a decade now with Air Force and Army, with multiple advanced versions under development. Countries in the Middle-East and South East Asia have evinced interest in its capabilities as it is now being produced by defence public sector units along with other industries.

A successor to AKASH and AKASH -1S series of missiles with a dual-pulse solid rocket motor and canistered launcher with AESA radar to improve kill probability by leaving smaller logistic footprint it has a better deployability. Once deployed it will be a force multiplier for the air defence capability of the Armed Forces.

A **canister launch system** can be either **hot launch**, where the missile ignites in the cell, or **cold launch**, where the missile is expelled by gas produced by a gas generator which is not part of the missile itself, and then the missile ignites.

A **pulsed rocket motor** is a multiple-pulse solid-fuel rocket motor. This design overcomes the limitation of solid propellant motors being unable to be easily shut down and reignited. The pulse rocket motor allows the motor to be burned in segments (or pulses) that burn until completion of that segment. The next segment is ignited on command by either an onboard algorithm or in a pre-planned sequence. All of the segments are contained in a single rocket motor case, as opposed to staged rocket motors.





DRISHTI 10 STARLINER

Drone for Indian Navy

Self-reliance in defence took wings with **Adani Defence and Aerospace** unveiling and handing over its indigenously manufactured Drishti 10 Starliner Drone to the Indian Navy.

The India-manufactured Drishti 10 Starliner drone was unveiled by the Chief of India's Naval Staff, Admiral R Hari Kumar. It is set to be inducted into naval maritime operations and departed from Telangana's Hyderabad to Porbandar in Gujarat.

The Drishti 10 Starliner is an advanced **Intelligence, Surveillance and Reconnaissance (ISR)** platform boasting a 36-hour endurance, a 450 kg payload capacity and holds the distinction of being the sole all-weather military platform with STANAG 4671 certification and clearance to fly in both segregated and unsegregated airspace.

Admiral R Hari Kumar stated that the Indian Navy has been

operating UAVs for over two decades.

Indigenisation of drones like Drishti 10 will help us acquire these capabilities domestically. It is heartening to note that the private enterprises are aligning their roadmap with the requirements of the Indian Navy and establishing an ecosystem of partners and capabilities to enable Aatmanirbharta (self-reliance) in defence and security. Notably, the UAV is certified to operate in civilian airspace.

With multi-payload capabilities and persistent wide-area surveillance features, Drishti 10 is a technologically advanced and adaptable UAV.

As part of the agreement between Adani Defence & Aerospace and the Indian Navy, the first of two drones was officially handed over during the ceremony at their Group's facility in Hyderabad.

Further the commitment extends to delivering two similar drones to the Indian Army, emphasizing the widespread utility and demand for such advanced unmanned aerial systems.

The training of Indian Navy personnel is already in progress at the Hyderabad facility.,

With our neighbours (China and Pakistan) collectively holding a very large inventory of UAVs, it is only prudent that we, as a nation, and as armed forces, continue to harness our resident expertise in this domain, by remaining agile, adaptable, and ahead of the curve. This would help being proactive in countering emerging threats.

NATO STANAG 4671 is the NATO Standardized Agreement 4671 which is the UAV System Airworthiness Requirements (USAR). This is to allow military drones to operate in other NATO members airspace.



History of the Fighter Jet Part 1

The fighter jet is an air combat platform piloted by one or two crew members, powered by one or two engines.

The term 'fighter jet' often evokes images of dashing, sharp nosed speedy aircraft, sometimes with flames emanating from their tails. It is perhaps a good general characterization of this class of military equipment. Let us delve a little deeper into this interesting area in defence.

The fighter jet is an air combat platform piloted by one or two crew members, powered by one or two engines, carries between 2 and 12 tons of ordnance and has a combat range from a few hundred to several thousand kilometers (or nautical miles, the common scale of aviators). The need for such a platform arose, as is usually the case, from the evolving requirements of warfare and technology that attempts to keep pace and meet such requirements.

Reconnaissance, the first application of aircraft in war, was followed by relatively crude forms of surface attack from the air.

The former consisted of visual observation and photography from the air while the latter was by dropping of bombs by hand while approaching targets on ground. These missions were carried out on biplanes and sometimes triplanes with a pilot flying and a 'back seater' clicking pictures or standing up and gingerly throwing one or two bombs overboard in the hope that the bomb lands reasonably close to the intended target.

The need to intercept such aircraft was the primary objective of an emerging class of military aircraft called 'fighters'.

To do this, the **biplanes of that era (1910s-20s) were fitted with machine guns, also called 'cannons' or simply 'guns' in fighter speak.**

Fighters were to drive away hostile aircraft that were sighting positions of combat forces on the ground and in other cases, dropping bombs on such positions.



This required intercepting such hostile aircraft before they reach target positions and hence early fighters were deployed on patrols to loop around aerial circuits encompassing battle field positions on the surface. Observers on ground were also placed to try and sight hostile aircraft, first by the sound of their engines, followed by optical devices. **To be successful, early fighters had to be at least a tad faster than the hostiles with enough fuel and ammunition to pursue evading hostiles and shoot them down.**

To counter this, hostiles started to send their own fighters to attack fighters guarding airspace over their battle formations and the first air to air battles had commenced by the end of First World War (1914 to 1918). Air to air battles were a major escalation as previously fighters attacked airplanes on reconnaissance and ground attack missions which had no weapons for self defence. Hence the role of fighters was to protect airspace over battle fronts from hostiles seeking to attack forces on ground

while simultaneously parrying off hostile fighters.

By the Second World War (1939-1945), improvements in wing design, production methods for mass manufacturing of complex surfaces and shapes with high precision meant that two or three parallel planes could be done away with for a single plane wing which could deliver the lift and control characteristics required for flying the airframe, which by this time, had increased in weight to accommodate larger, much more powerful powerplants (engines), more guns and more fuel. **More fuel was needed as the more powerful engines had higher rates of consumption and the combat range of the aircraft was also increased to cover areas beyond the frontline or battle front which was the line of armed conflict where opposing armies clashed.**

As speeds, rates of climb and turn had increased, the windows of opportunity to place gunfire on the opposing aircraft during aerial duels had narrowed, driving weapons designers to put more

cannons thereby increasing the number of rounds fired within such narrow windows thereby raising the probability of kill shots. The use of armour or armour- like materials to protect vital areas of combat planes also raised the calibre of weapons installed on fighters, making the cannons and magazines heavier.

Fighter aircraft also made their way to the maritime domain with the emergence of the aircraft carrier as a major component of naval power by the outbreak of WW II. The effectiveness and impact of carrier-based aircraft would become evident over the course of the war, particularly in the Pacific.

Also, by this time, it was becoming increasingly evident that fighter aircraft can be good platforms for surface attack as the traditional primary combat aircraft for ground attack in the land domain, the large lumbering bomber was vulnerable to flak (AAA fire – Anti Aircraft Artillery) at low altitudes. To reduce such vulnerabilities, bombers flew higher (beyond the range of AAA), but soon ran into a new problem – enemy fighters intercepting them at altitude.





To counter this, **bomber designs began incorporating gun turrets at various points around the fuselage**, but this while enhancing protection, significantly increased the weight of bombers, reducing the weight capacity remaining for bombs. Evolving tactics by the intercepting fighters also made fuselage mounted guns less effective.

Most combat aircraft for surface attack in the maritime domain, particularly those which are carrier-based had physical characteristics and layout comparable to fighter aircraft. The targets for surface attack in this domain were ships and submarines of the other side. The first few



Reconnaissance - Military observation of a region to locate an enemy or ascertain strategic features.

Biplane - an early type of aircraft with two pairs of wings, one above the other.

A triplane has three pairs of wings.



generations of aircraft carriers were much smaller than the supersized carriers most of us are familiar with now. Hence **the aircraft typically tended to be single-engined, single-seaters weighing a few tons and a few hundred nautical miles of range**, with depth charges, torpedoes and bombs for armament. Some of these aircraft types had a modest level of air-to-air combat capability, i.e., their cannons can be used for shooting at other aircraft flying besides strafing surface level targets. They had decent maneuvering characteristics, which is essential in aerial duels. But they were not fighters in the true sense.

Given the challenges faced by the traditional bombers in





the land theatre, fighters began being assigned protection duties – they escorted the bombers while breaking into hostile airspace to reach targets deep inside enemy territory and engaged with any intercepting hostile fighters. In such missions, the fighters, being smaller aircraft with lesser fuel and consequently range, were based closer to the hostile airspace. As the bomber formations approached, escort fighters would take off and join them. **The range of fighter aircraft increased with fuel drop tanks and greater internal storage on some dedicated escort fighter designs** that started coming into the battlespace in the last few years of WWII.

For the Navies, the role of fighter was more monochrome

and closer to the original baseline role – intercept hostile attackers before they reach their target and either deter them from proceeding further or destroy them. The target would typically be the fleet the fighter is protecting from aerial attack via bombs and torpedoes and occasionally naval or military assets on the coast/island.

WWII accelerated latent trends and precipitated new trends in fighter evolution. Among other things, one trend that emerged is the splintering of performance and physical characteristics of the fighter (not jet yet) from design responses to different roles and expectations from each party in the war.

North American designs have generally emphasized

range, payload, technological sophistication and survivability. This reflects the nature of missions envisaged during both the prewar decade of 1930s and more importantly, wartime action. With no land bordering adversaries and large geographical areas as the scale of reference, North American forces foresaw their fighters flying great distances and high speed to deliver a considerable payload, be it cannon fire (Air to Air) or bombs (Air to Surface).

This meant that their fighter planes were relatively larger, heavier and consequently had more powerful engines and offered armour shielding for critical parts of the aircraft.

Contrarily, designs of North Asia and the Far East, tended to be much lighter, smaller with lesser range and payload. Military forces in North Asia and the Far East tended to view and use air power for bombardment of enemy positions at or near the battle front.

Hence their bomber aircraft typically did not fly too deep into adversary airspace which meant that range was a less vital factor for escorting fighters.





Financial health - Part 2



The government has come up with many initiatives to promote the building of affordable homes to make the dream come true for as many people as possible.

On a cold Saturday morning, Shravan and Gita sat on a bench near the lake watching the birds. The usually quiet landscape was filled with the sound of chirping of birds. Grandpa sat next to them, his eyes closed in meditation.

Gita watched in wonder as the ducks glided on the lake in a seemingly effortless movement.

Shravan gasped as he saw a kingfisher sitting on a tree suddenly dive into the lake and come up with a fish in its beak. The ripples caused by the bird in the lake presented a beautiful visual.

The flow of water in the lake was so slow and soothing, the sun rise at the other end of the lake was a scene to behold – the children sat immersed in the beauty of Nature.

Grandpa opened his eyes and lifted his hands in prayer to the Sun. He then called the children. “You both want to stay here?”

Gita answered. “It is fascinating to watch the birds. Look Grandpa, I can see a bird building a nest on the tree. Oh, here is another bird bringing in sticks.”

Shravan added. “It is amazing how birds build their own nests wherever they go.”

Grandpa nodded. “True. The birds know the importance of a secure place for the mother bird to hatch the eggs, feed the little ones and help them fly. Most of the animals and birds are protective about their home.”

As they walked home, they saw a huge poster. “Buy your dream home. Affordable houses starting at 30 lakhs.”

Back home at breakfast, Gita asked. “Grandpa, did you see the poster for houses on sale? Why do they call it a dream home?”

Grandpa answered. “An own house gives a sense of security and stability to human beings. It is a dream for people in the lower and middle income group as well as for young people starting a family to purchase their own home.”

The government has come up with many initiatives to promote the building of affordable homes to make the dream come true for as many people as possible. Many construction companies also have



If we buy a house in a developing locality, it will definitely appreciate and give huge returns compared to all other investments.

affordable home projects alongside premium residency projects.

Shravan asked. “Buying a house property is an emotional decision. Is it not?”

Grandpa shook his head. “If you are already living in your own house and feel settled, then the decision to buy another property will be driven by financial planning and management.”

Mom handed over cups of tea to everyone and sat at the table sipping her cup of tea.

Mom said, “I have been wanting to buy a small flat for investment purpose. I was thinking of applying for a home loan.”

Shravan asked, “Another house? That was not in our financial goals.”

Gita said. “Didn’t we learn that our financial goals can change?”

Dad said, “For once, I agree with Mom. We’ve already invested in fixed deposits, mutual funds, shares and gold. If we buy a house in a developing locality, it will definitely appreciate and give huge returns compared to all other investments.”

Grandpa nodded. “Investing

in a second house will add strength to your asset portfolio. It is also a major decision because the investment is not liquid and you have to lock your funds for a long term.”

Shravan asked, “Can you explain, Grandpa. Why do you say funds will be locked?”

Grandpa: “You cannot take out the money easily if you change your mind or have an emergency. It is not easy to buy or sell a house as and when you want.”

Grandpa continued, “It’s good to check your financial health before taking any major decision. We explored the concept of financial health in the last session. Do you remember what are the parameters?”

The children answered.

Parameters of financial health

1. Savings and investments aligned towards achieving financial goals
2. Availability of emergency funds
3. Diversification of risks
4. Adequate insurance
5. Positive net worth
6. Debt to income ratio

Mom commented, “Dad and I have already checked the first four parameters and are comfortable.”

Grandpa nodded. “Yes. The last two points that we will discuss today are very relevant for our current investment idea.”

Gita: “What do you mean by net worth grandpa?”

Grandpa explained.

POSITIVE NETWORTH

Net worth = Assets minus liabilities.



Assets

Vs

Liabilities



Positive net worth means we have more assets than our liabilities.

He asked the children. “Can you list down what are our assets?”

The children put their heads together, checked with Mom and came up with a list.

What are our assets?

- Cash in hand
- Bank balance in savings accounts
- Fixed deposits
- Investments in mutual funds
- Investments in shares
- Stock of gold
- Movable assets like car, two wheeler, furniture
- Immovable asset – the house we live in.

What are our liabilities?

Outstanding amount of

- home loans, car loans, personal loans and other type of loans.
- credit card bills

Grandpa: “People have accounts and deposits with three or more banks. They also have mutual funds purchased through brokers that are

not reflected in their online trading accounts. It is important to track all the investments and consolidate the records in one place – preferably online. Some people maintain a physical register of their assets.”

Dad commented, “It’s a good idea to review the net-worth at least once in a year and write it down.”

Mom: “I’ve written down the first five assets and their value. It’s easy. I took the market value of shares and mutual funds as shown in the last statement.”

Dad asked, “What about gold?”

Mom responded, “I just remember what jewels I have in the locker. I really don’t have a list or a record of the number of grams of gold.”

Grandpa: “It is good to prepare a list and estimate the value. You will have peace of mind that you have some assets for back up.”

He continued, “You have to take the depreciated value of car and other assets and the current market value of the house.”

He explained to the children. “**Depreciation is the reduction**

in the value of assets like car due to usage, wear and tear. So, every year, you have to reduce a percentage from the cost to estimate the current value.”

Mom nodded. “Will get it compiled this week.”

Grandpa : “The next parameter, which is important especially if you are going for a home loan is debt to income ratio.

“What is this ratio, grandpa? Why is this important?” Gita asked. Grandpa explained.

Debt to Income ratio

It measures the amount of monthly debt repayments due as against the monthly income of the individual. It is expressed as a percentage.

Debt to income ratio is calculated as: $\text{outflow} \times 100 / \text{inflow}$

A debt-to-income ratio of 20% to 36 % is preferred by bankers when you apply for a fresh loan.

For e.g., Monthly income ₹ 2 lakhs.

EMI for car loan ₹ 30,000.

EMI for personal loan – ₹ 10,000.





Asset Types

Personal:

- Jewelry
- Art
- Cash
- Vehicles
- Real estate
- Bonds
- Treasury bills

Business:

- Leased equipment
- Bank accounts
- Stocks
- Royalties
- Raw materials
- Office furniture
- Property

Personal Assets	Personal Liabilities
Cash (Checking/Savings)	Loans
Investments	Credit Cards
Insurance Cash Value	Personal Debts
Real Estate	Currently Monthly Bills
Personal Property	Real Estate Mortgages
Loans Receivable	Unpaid Taxes
Automobiles	Automobile Loans

Total Assets	=	Total Liabilities	=	Net Worth
---------------------	---	--------------------------	---	------------------

Total outflow for loan repayment each month = ₹ 40,000.

In the above case - $40,000 \times 100 / 2,00,000 = 20\%$

Gita asked. "Why is this 20% considered a good ratio?"

Grandpa answered. "This means that the borrower has enough income to repay his current loan liabilities and can be given some more loan which he can comfortably repay."

Let us take another example.

Monthly Income: ₹ 1,00,000.

EMI payment every month. Rs.45,000.

Debt income ratio is 45%

"In this case, the borrower is already using a large portion of his income for repayment of loan. If he takes further loan, will he not struggle to make repayment as well as manage household expenses?"

Gita said, "I understand, Grandpa. A lower debt to income ratio shows better financial health."

Mom jotted down. "I think we are fine in this parameter. Our financial health seems sound."



ARE YOU FINANCIALLY HEALTHY?



Debt to Income Ratio Formula



$$\frac{\text{Recurring Monthly Debt}}{\text{Gross Monthly Income}}$$



Consumer Protection Law in India



Historical Background

Ethical business practices have been promoted in the Indian economic system from ancient times. For instance, *Kautilya's Arthashastra* laid emphasis on the rights and duties of various economic stakeholders and the role of the state in ensuring ethical trade, amongst other aspects. In fact, evidence suggests that around 300-400 BC, there was a 'director of trade' who was in charge of monitoring the market and ensuring fair trade.

Such importance given to ethical trade continued in various forms throughout our history. One vital aspect of business ethics is consumer welfare.



Consumer welfare can be an indicator of social and business health in a society and it must be a check on business and the market.

Consumer Protection Law in Independent India

When India became independent in 1947, the Sale of Goods Act, 1930 brought in during the British regime, continued to be the legislation governing consumer protection. Subsequently, other legislations were introduced, including the Essential Commodities Act, 1955 and the Standard of Weights and Measures Act, 1976. Consumer protection was also provided for under tort law and criminal law. However, the general orientation was still towards the principle of '*caveat emptor*' or 'buyer beware.'

Consumer Protection Act, 1986

The Consumer Protection Act, 1986 brought in a major shift in the perspective, from '*caveat emptor*' to '*caveat vendor*,' or 'seller beware.' The Act provided for more direct protections for consumers.

It laid out rights of consumers including the right to safety, right to information, right to consumer education, right to choose, right to be heard and right to seek redressal.

The Act also established a mechanism for consumer relief in case of defects and deficiencies in products or services. Consumer fora for adjudication of consumer disputes were set up at the district, state and national levels.

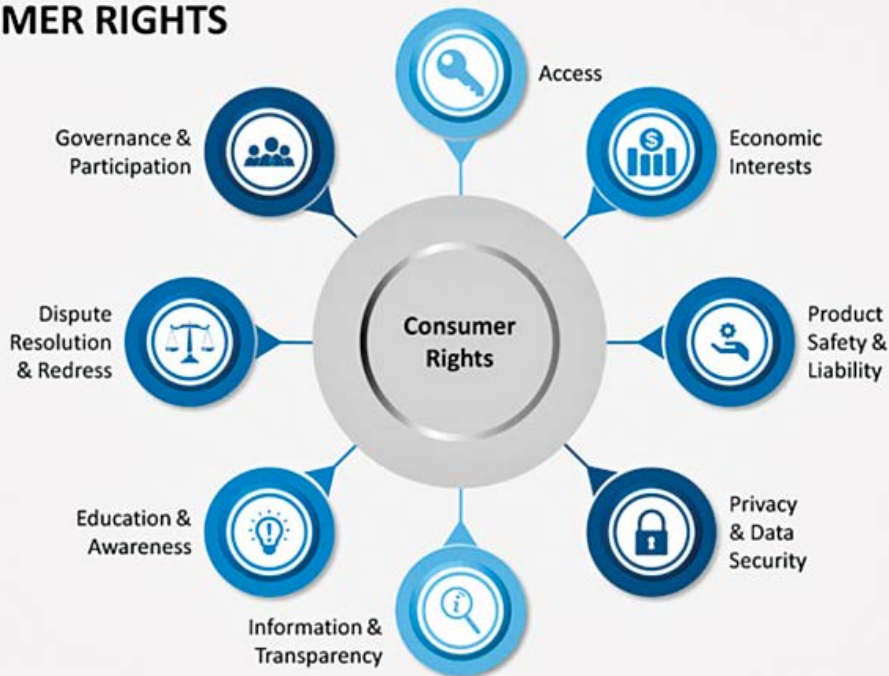
Such aspects made it easier for consumers to understand their rights, protect their interests and advocate for relief in case of exploitation.

Consumer Protection Act, 2019

The new Consumer Protection Act was introduced to revise and update the consumer protection regime in India. The Act provides for expansion of the scope of 'consumer,' applicability of the provisions to e-commerce

Tort - a wrongful act other than a breach of contract that injures another and for which the law imposes civil liability.

CONSUMER RIGHTS



sellers, settlements through mediation and revised thresholds for initiation of a complaint in different consumer dispute resolution fora and revised penalties, among other changes. These provisions primarily favour the consumer and enable a check on the business practices adopted by sellers.

The way forward

With a strong consumer protection legislation and framework in place, focus must now be on swift redressal of disputes and grievances brought before the consumer fora. **Promotion of alternative methods of resolving such issues could also be coupled with these efforts, to balance the load of the consumer courts and uphold the object and effectiveness of the Act.**





Shobana Narasimhan

**A scientist on a mission
to address gender gap
(16 .8.1963)**



Shobana imbibed her love for reading, appreciating art forms, exploring languages and expressing thoughts boldly from her parents who facilitated conversations on various subjects.

Professor Shobana Narasimhan said, "Women find it difficult balancing their roles as a scientist, wife, mother and daughter. Find the strength not to give up within yourself. Talk to other people to help you find that strength. There is a need to create a platform where women could connect, share their challenges, and empower each other. External factors may make you feel that you are not good enough, but do remember you are not lacking anything. Once you realise this, you can achieve anything you dream of." She has been organising career development workshops for women in Physics for more than a decade at **International Centre for Theoretical Physics (ICTP), Italy**. For conceiving and organising such workshops and programmes that has a transformative effect on the trajectories of female physicists and recognising her significant contributions towards promoting diversity, combating discrimination in the physics community, American Physics Society has recognised her as a fellow recently.

Shobhana earned her B.Sc. in Physics from St. Xavier's College, Mumbai in 1983 and later joined MSc at IIT Bombay, where she was a silver medallist. With her passion for physics, she pursued PhD at Harvard University under the guidance Prof. David Vanderbilt. She did postdoctoral work at Brookhaven National Laboratory, USA and the Fritz Haber Institut, Berlin, Germany.

Her father Prof.M.S. Narasimhan, a world-renowned mathematician and her mother Shakunthala, an accomplished singer gave courage to their children to explore and follow their dreams. Shobana imbibed her love for reading, appreciating art forms, exploring languages and expressing thoughts boldly from her parents who facilitated conversations on various subjects.

"I was born prematurely and was very tiny, and my father used to call me epsilon. One of my earliest memories of my father is related to mathematics. I must have been about four years old; I was in his





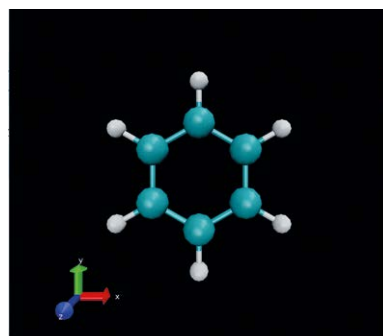
ICTP—East African Institute for Fundamental Research

DO YOU KNOW ?

- ◆ **Quantum ESPRESSO** -The integrated suite of Open-Source computer codes for electronic-structure calculations and materials modelling at the nanoscale.
- ◆ **ASESMA (African School on Electronic Structure Methods and Applications)** introduces young African researchers to the theory of electronic structure and other atomistic simulation methods, with an emphasis on the computational methods for practical calculations.
- ◆ **ICTP-EAIFR (International Centre for Theoretical Physics – East African Institute for Fundamental Research)** is an international hub of advanced education and research institutes in Africa. It is a Category 2 UNESCO institute.

office at TIFR, and, standing on a chair, was writing numbers on his blackboard. I wrote, ‘0, 1, 2, 3,...’ and then turned and asked him, ‘Appa, what number comes before zero?’ He got tremendously excited by this question, explained to me about negative numbers, and kept boasting about my precocity to everyone. ‘I knew then,’ he was to tell my students, many years later, ‘that she would one day become a mathematician ...’ There was then a small pause, before he continued, a little sadly, ‘Or ... maybe ... a physicist’”, recalls Shobana about how confident her father was about his little daughter becoming a notable woman in STEM someday. She became one and now mentors and guides many more women who actively work to bridge the gender gap in science.

Matter behaves differently at nanoscale level. In other words, when one or more dimensions of a material have nanoscale dimensions, novel properties emerge that are different from those of the corresponding bulk material. Prof. Shobana uses computational techniques to understand the properties of matter at nanoscale. She uses the techniques of density functional theory for understanding these which is then leveraged to design novel nanomaterials for suitable applications like



nano catalysts for clean energy, spintronics of magnetic materials for memory storage and many such. She is a scientist in computational nanoscience in the field of condensed matter physics.

Women in science have a tough time everywhere and those in developing countries have even more constraints. Lack of resources and a dearth of trained teachers act as deterrents, though there is a great urge and thirst for learning. **Shobana helps people overcome this by being a part of many open science initiatives and collaborative platforms helping scientists of developing countries from Asia and Africa.**

Shobhana teaches physics and mentors students from these countries through initiatives like Quantum ESPRESSO, ASESMA, ICTP-EAIFR. She gets into the field, understands the challenges through interactions, thinks through case by case and acts as a solution provider. **She gets to the core of the problem and advises the government on how policy should be changed to promote the cause of women scientists.** She has been on several national and international committees to promote women in science, including **National Task Force on Women in Science**, and the Standing Committee on Women in Science of our government, as well as the working group on **Women in Physics** of IUPAP.





QUANTUM ESPRESSO
FOUNDATION



The Abdus Salam
International Centre
for Theoretical Physics

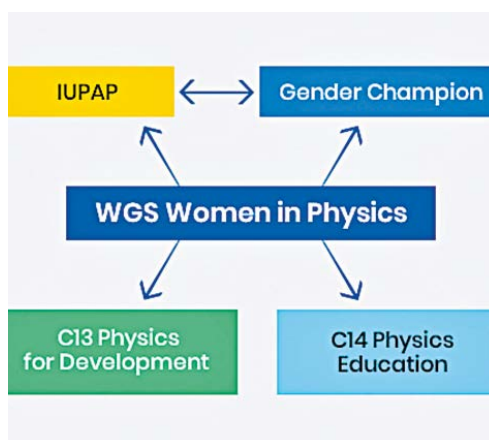
Shobana stands tall through her exemplary efforts, with the mission to provide a safe and bias-free environment where women in science can share their experiences, gain self-confidence and acquire the skills they need to become successful in their professions.

She has also been teaching solid state physics and density functional theory worldwide, with a special focus on Africa. She is a visiting professor at many institutions, including the University of Cambridge and the Universite de Paris-Diderot and held the Marshak lectureship of the American Physical Society. She is currently an Anna Boyksen Fellow at the Institute for Advanced Study, Technical University Munich, Germany. Recognising her contribution towards research in materials science, innovations and teaching, she has been elected as a fellow of Indian Academy of Sciences and National Academy of Sciences of India. She was honoured with the **Stree Sakthi Samman** award for

her original contribution to science through high quality research which is relevant and beneficial to society. Her popular science articles take research to the public and the series 'A (mostly) scientific crossword' in the Resonance journal of science education is something every science student and teacher would cherish!

She has not confined herself within the four walls of her laboratory as a researcher. She stands tall through her exemplary efforts, with the mission to provide a safe and bias-free environment where women in science can share their experiences, gain self-confidence and acquire the skills they need to become successful in their professions. **For her unstinted efforts in this direction, she has been elected as an international honorary member of American Academy of Arts and Sciences.**

"Women need to strive that they are not stuck with imposter syndrome. The same applies to men as well at times," says Prof. Shobana who is on a mission creating platforms to help them achieve what they are capable of.

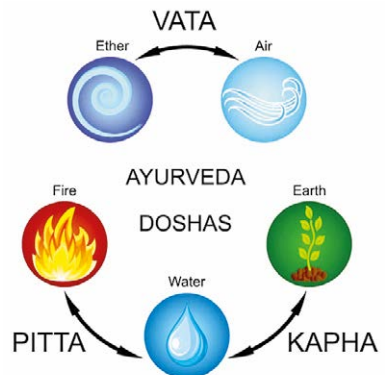




10 benefits of using Neem paste for skin

1. Heals Scars
2. Fights Acne
3. Treats Pigmentation
4. Oil-control
5. Moisturizer
6. Exfoliation
7. Clear And Glowing Skin
8. Treats Skin Infections
9. Anti-aging
10. Treats Scalp Infections

Indian naturopathy and Ayurveda have stood the test of time, offering holistic approaches to health and well-being. In the realm of skincare, these ancient systems provide a treasure trove of natural remedies for alleviating skin allergy, itching and various dermatological issues. The integration of these practices into contemporary lifestyles reflects a profound understanding of the interconnectedness of mind, body, and nature.



balance and promote overall well-being.

BENEFITS OF TURMERIC FOR SKIN:

- Adds Natural Glow
- Helps With Atopic Dermatitis
- Help Psoriasis
- Reduces Dark Circles
- Treats Acne Breakouts
- Slows Down Skin Aging
- Heal Wounds
- Moisturise Dry Skin
- Help With Acne Scarring
- Reducing Stretch Marks



Ayurvedic Wisdom

Ayurveda, the traditional Indian system of medicine, recognizes the importance of balance in maintaining optimal health. According to Ayurveda, skin issues, including itching, are often manifestations of imbalances in the doshas – vata, pitta, and kapha. Ayurvedic remedies emphasize the use of natural ingredients to restore

1. Neem: Well-known for its antibacterial and antifungal properties, it is a cornerstone of Ayurvedic skincare. Applying neem paste or oil on affected areas helps combat itching and addresses underlying skin problems.

2. Turmeric: The golden spice, turmeric, possesses potent anti-inflammatory and antioxidant properties. A mixture of turmeric and



FOR FACE, BODY & HAIR



Face

- Helps tighten pores, to reduce pimples
- Anti-aging properties help keep wrinkles at bay
- An excellent moisturizer, Aloe Vera helps heal dryness



Body

- Aloe Vera Gel softens & smoothens rough, dry skin
- Calming & healing properties help repair skin from deep within
- Skin is nourished, hydrated and radiant!



Hair

- Apply on scalp and leave overnight, to reduce dandruff & promote hair growth
- Apply on hair, post shampoo, as a conditioner & reduce frizz, making hair soft & shiny!

Suitable for all skin & hair types



warm bath with added natural ingredients like baking soda or oatmeal can provide relief from itching.



3. Mind-body techniques:

Stress is often a contributing factor to skin issues. Naturopathy encourages the practice of relaxation techniques, such as deep breathing and meditation, to manage stress levels and promote overall well-being.

honey can be applied topically to soothe irritated skin and promote healing.

3. **Aloe Vera:** The cooling and soothing properties of Aloe Vera make it an effective remedy for various skin ailments. Applying Aloe Vera gel on itchy skin provides relief and accelerates the healing process.

of natural remedies to support the body's innate healing mechanisms.



1. Dietary Changes

Naturopathy emphasizes the impact of diet on skin health. Incorporating foods rich in vitamins, minerals and antioxidants can enhance skin resilience and alleviate itching.



Naturopathic approaches

Naturopathy, a system that emphasizes the body's self-healing abilities, complements Ayurveda in addressing skin issues. Naturopathic practitioners advocate lifestyle modifications and the use



2. Hydrotherapy

Water therapy, a key element of naturopathy, involves the therapeutic use of water in various forms. Soaking in a



Indian naturopathy and Ayurvedic home remedies offer a holistic approach to skin health, addressing not only the symptoms but also the underlying imbalances. As we navigate the complexities of modern life, the wisdom of these ancient systems continues to guide us towards natural and sustainable solutions for skin care.



Cities in India

Kolkata



How much do you know?



- The old name of Kolkata.
- Kolkata is also known as the 'City of _____'.
- Located in the Botanical Gardens, this tree is one of the largest in the world. It is also over 250 years old.
- This type of transport can be only seen in this city in India.
- This port is India's only riverine port.
- This city, a UNESCO World Heritage site located near Kolkata is famous for art, literature and education was established by a Nobel Prize Laureate who was born in Kolkata. Name the city and the person.
- Constructed in 1854, this is India's oldest and busiest railway station with 23 functioning platforms.
- This famous delicacy of West Bengal received a GI tag for its Banglar version.

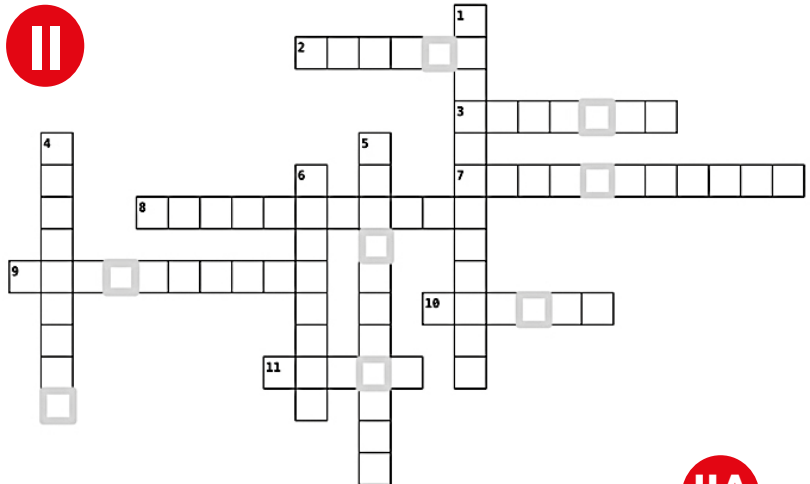
All About Kolkata!

Across

- Also known as Rabindra Setu, this bridge is the Gateway of Calcutta.
- Kolkata lies on the banks of this river.
- Third largest cricket stadium in the world.
- Famous building in Kolkata known for its British architecture located on the Chowringhee road.
- Known as the 'Street that never sleeps' or the 'Food Street' of Kolkata.
- The _____ museum of Kolkata is the largest and the oldest one in India.
- First Planetarium to be set up in India.

Down

- Formerly known as the Ochterlony Monument, this



- was erected to honour the British commander's victory in the Nepal war.
- This festival is celebrated with grandeur during the month of September/ October.
- This fort was built after the Battle of Plassey in 1757.
- A British monarch after whom the world's largest memorial is set up.



What Am I?

Unscramble the highlighted boxes to find me.

Hint: A unique genre of painting developed in the 19th century Kolkata, evolved to depict contemporary events with satirical humour.

ANSWERS ON PAGE 60



Second Lieutenant Rama Raghoba Rane



2nd Lieutenant Rama Raghoba Rane was born on 26th June 1918, in Chendia, Karnataka. He was commissioned in the Corps of Engineers on 15th December 1947, and retired as a Major in 1968. During his 21 years of service with the Army, he earned five M-in-D (Mentioned-in-Dispatches).

He served during the 1947-48 Jammu & Kashmir operations with distinction. On 18th March 1948, the Indian Army recaptured Jhangar, which the enemy had taken in December 1947. Indian troops planned to advance from Naushahra to Rajouri to protect natives from the raiders' atrocities.

The 4 Dogra commenced the advance to Rajauri on 8th April 1948. It attacked the Barwali ridge, 11 km north of Naushahra and captured it after driving out the enemy from well-prepared positions. But beyond Barwali, the increasing number of roadblocks and minefields obstructed the battalion's progress.

During this critical phase, Second Lt. Rane and his section of 37 Assault Field Company, attached to 4 Dogra, performed yeoman service. As the section started clearing a minefield on 8th April two sappers were killed, and five others, including Rane, were injured in enemy mortar fire. However, Rane and his men completed the work by the evening, enabling the tanks to push forward.



DO YOU KNOW ?

Mentioned in Dispatches (or despatches, MiD) describes a member of the armed forces whose name appears in an official report written by a superior officer and sent to the high command, in which their gallant or meritorious action in the face of the enemy is described.

2nd Lieutenant Rane worked tirelessly to prepare a safe lane for tanks to advance. Despite facing enemy artillery and mortar fire, he and his men worked for 12 hours straight to clear mines and remove roadblocks, making diversions where necessary.

On 10th April, he woke up early to resume work on the roadblock, which could not be cleared the previous night. He cleared this huge roadblock of five big pine trees, surrounded by mines and covered by intensive machine-gun fire, within two hours. The Army advanced another 13 km on this day before they encountered another major roadblock. The enemy pickets perched on the adjoining hills were guarding all approaches to this roadblock. 2nd Lieutenant Rane drove to the roadblock in a tank and crouching under it, blasted the block with mines. He thus opened the road before the end of the night. On 11th April, they worked for 17 hours to open the road to Chingas and beyond.

2nd Lt. Rane made a substantial contribution in facilitating the Indian advance on Rajouri. It left the enemy with about 500 dead and many more wounded. It also helped save many innocent lives in Chingas and Rajauri.

The citation reads, "**But for the grim determination and tireless diligence of 2nd Lieutenant Rane, who worked ceaselessly, our column could not have reached Chingas - an important feature that secured for us a vantage position to advance further.**"

The gallant effort made by 2nd Lieutenant Rama Raghoba Rane during this critical advance to Rajauri earned him the highest wartime gallantry medal, Param Vir Chakra.

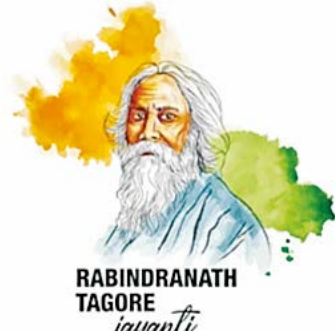


How much do you know about Kolkata?



ANSWERS OF PAGE 57

1. Calcutta
2. Joy
3. The Great Banyan tree.
4. Tram
5. Kidderpore Port
6. Shantiniketan, Rabindranath Tagore
7. The Howrah Junction Railway Station
8. Rosogolla



								1S							
				2H o w r a h				a							
								3H o o g h l y							
								e							
								4D		5F		7E d e n g a r d e n s			
								u		o					
								r		G r a n d					
				8O b e r o i				c		M					
				9P a r k s t r e e t				t		W					
								o		i		10I n d i a n			
								r		l					
								j		a					
								a		B i r l a					
										a					
										i					
										a					
										m					



What Am I ? Hidden word :

Kalighat





Maguni Charan Kuanr

Maguni Charan Kuanr, a renowned puppeteer from Keonjhar, Odisha, is very popular for his enchanting puppet shows. He learnt this art form from Guru Makardhwaja Behera at the age of 15 and formed a cultural party named '*Utkal Biswakarma Kalakunja*' for puppet dance and performed throughout the nation.

Born on 12th February 1937, Kuanr faced several financial challenges from the beginning till today. He lost his wife as he was

unable to provide medical treatment while she was suffering from a heart disease. He faced many problems and sacrificed a lot but kept this art form alive.

When Late Dhiren Pattnaik was the Secretary of Odisha Sangeet Natak Akademi, Kuanr arranged his first official show '*Ravan Baddha*' at Rabindra Mandap, Bhubaneswar in the 80s. Since then, he has been consistently performing across the state and other parts of India under the

aegis of State and Central Sangeet Natak Akademi. He staged, Darti, Mumivate programme, at places like New Delhi, Mumbai, Kolkata, Guwahati, Meghalaya, Sikkim, Agartala, Cooch Behar, Bhopal, Shantiniketan and Asiad-1972, Bangalore (International Puppet Show) etc.

Kuanr is a versatile artiste. He prepares puppets of different characters and writes scripts and dialogue. He is also a wood carver, painter, scriptwriter, clay image maker and actor. He also performed on '*Geeti-natya of Baishnab Pani and Ramayan of Biswanath Khuntia*'. Even today in his late 80s, he never sits idle. Apart from puppet making, he is still performing at different places providing entertainment to the people and promoting and propagating this traditional puppet dance with all its pristine glory.

Other accolades

1984 - Odisha Sangeet Natak Akademi Award

2004 - Central Sangeet Natak Akademi Award

2012 - The State's highest award on Culture Kabi Samrat Upendra Bhanja Samman

 A photograph showing Maguni Charan Kuanr (right) in a red and white sari receiving a Padma Shri award from a man in a white uniform (left). A third man in a white uniform stands in the middle. The background is a red and gold geometric pattern.



MAGUNI CHARAN KUANR

'Rod Puppeteer'

Padma Shri

Art | Odisha

Promoted & preserved rod puppetry or '*Kathi Kandhei Nach*' beyond Odisha

Developed **20+** productions with **300+** characters based on stories from **Mahabharata & Ramayana**

Narrated **500+** plays performed nationally





Gurudongmar Lake

A marvel in the mountains

DO YOU KNOW ?

It is believed that Guru Padmasambhava touched and blessed the lake. A small part of the lake never freezes, even during the extreme winter temperatures at such an altitude.

Nestled amidst the towering peaks of the Himalayas in the mesmerizing state of Sikkim, Gurudongmar Lake emerges as an extraordinary natural wonder, sitting majestically at an elevation of 17,800 feet. This geographical gem, named after Guru Padmasambhava (also known as Guru Rinpoche—founder of Tibetan Buddhism) has become a significant pilgrimage site for both Buddhists and Hindus, drawing adventurers and seekers alike to explore its scenic grandeur.

The expedition to the lake begins in the charming town of Lachen, situated in North Sikkim.

As you ascend through the bending mountain roads, the landscape transforms into a pristine winter spectacle, adorned with snow-draped peaks and picturesque villages clinging to the hillsides. This geographical journey is not just a means to reach a destination but a captivating adventure in itself.

Upon reaching the lake, the sheer magnificence unfolds before your eyes. The crystal-clear waters reflect the snow-clad peaks, creating a breath-taking panorama that showcases the geographical beauty of this high-altitude region. During the winter months, the lake undergoes a fascinating



Gurudongmar Lake



transformation, embracing a frozen serenity that adds an extra layer of allure to the surroundings.

However, the ascent to the lake comes with its challenges, primarily due to the high altitude. Visitors are advised to adjust gradually to the thin air to prevent altitude-related discomfort. Despite the demands, the experience rewards the adventurous traveller with a profound connection to the geographical wonders of Sikkim and an intimate glimpse into the cultural fabric of the region.

Gurudongmar Lake serves as more than just a scenic attraction; it is a testament to the harmonious blend of natural beauty and cultural significance. Whether you are an avid explorer fascinated by geographical marvels, a nature enthusiast seeking stunning landscapes, or a curious mind interested in the cultural heritage of Sikkim, this lake promises an unforgettable journey into the heart of this geographical masterpiece. So, gear up for an adventure that unveils not just the lake but the captivating geography that defines this enchanting corner of the Himalayas.





Divyakriti Singh Rathore

Women's participation in sports in India has been traditionally low due to cultural and societal attitudes. But, in recent times, the participation of women in sports has increased tremendously.

Divyakriti Singh's journey in the sports world is a beacon of hope, especially for young girls in India who often face societal stigmas attached to equestrian sports. Divyakriti Singh (born 22nd October 1999) is an Indian equestrienne from Jaipur, Rajasthan. She is the first Indian woman to be conferred the Arjuna Award in Equestrian for outstanding performance in Sports and Games 2023 by the Ministry of Youth Affairs & Sports, Government of India.

Early career

Divyakriti Singh, who hails

from a family deeply rooted in equestrian tradition, was first introduced to the world of horses at the tender age of five by her father, an ex- army officer.

The scorching desert became her training ground, the rhythmic clatter of hooves her soundtrack. With utmost dedication and perseverance, Divyakriti mastered the art of dressage.

Divyakriti went to Mayo College Girls' School. While in Class VII, she was asked to choose one sport and her choice was horse-riding. She gushes "I fell in love with the sport on the very first day." She later studied in Jesus and Mary College, Delhi.

**Equestrian dressage:
Competition for female
horse riders.**

The crowning moment

She participated in the 2022 Asian Games in Hangzhou, China, riding her beloved mare, Juju, Divyakriti led the Indian team to win a gold medal in the team dressage event – the first for the country in 41 years. Her performance, a mesmerising display of horsemanship, earned her a personal bronze.

Her success has brought equestrian into the spotlight and inspired a new generation to discover the magic of horses and the thrill of dressage.

She moved to Denmark for her sport and has been taking complete care of her three horses which are her "lifeline and integral part" of her life. Soon she will be leaving for Germany to prepare for the upcoming sports events. 2028 Olympics is high on her priority list.





Narcondam Hornbill



Narcondam hornbills are also seen as harbingers of good luck by many of the ethnic groups and regarded as sacred figure traditional beliefs and folklore.

Situated 240 km northeast of Port Blair in the Andaman Islands, Narcondam is a mystical island and a hidden gem of India. Standing at 710m above the sea level, this small dormant volcanic island of 6.8 sq.km has an exuberant biodiversity of flora and fauna. This secluded island covers tropical evergreen, deciduous and mangrove forest and has been the home to a variety of endemic species.

The Narcondam hornbill (*Rhyticeros narcondami*), an exotic species is found exclusively on this island. This is a fairly small hornbill species with black body and distinct short, white tail.

Also known as Narcondam Wreathed hornbill, this non-migratory resident bird measures 45-50cm in length. The male has rufous (reddish-brown) plumage on

the head and neck, while the female has blackish feathers.

The hornbill has ridges on its beak through which one can determine its age. The calls of the bird include short, wavering notes as well as barks and grunts. This frugivorous bird prefers to eat fruits particularly figs.

Hornbills, also known as “Farmers of the forest” are dominant seed dispersers. They help in maintaining the plant diversity on the island and play a vital role in forest regeneration. They are also seen as harbingers of good luck and regarded as a sacred figure by many of the ethnic groups, traditional beliefs and folklore.

Narcondam hornbills are hunted for their casques- upper beak and feathers for adorning in head gear. They are also poached for their meat and medicinal value of their body parts.

NARCONDAM HORNBILL

Rhyticeros narcondami



FOOD HABITS

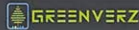
It primarily feeds on berries and fruits, supplementing their diet with insects and small reptiles.



Berries

Seeds

Insects



Habitat

Primary and secondary forests on Narcondam Island

Weight

700-750 Kg

Population

They are considered Vulnerable by the IUCN with a population of 300-650.

Length

60 cm

Did you Know?

Their most eye-catching feature, however, is the fiery orange-red patch of bare skin on its throat known as the gular pouch.

Generation Length

7.2 years

Distribution



The Narcondam Hornbill is a species that is endemic to the Narcondam Island, which is located in the Andaman and Nicobar Islands archipelago in the Bay of Bengal.

FEATURES

This striking bill is offset by the bird's iridescent black feathers, which have a glossy sheen that shimmers in the sunlight.

Its body is relatively stocky, with broad shoulders and a short tail. The bird's feet are also adapted to its arboreal lifestyle.

This patch is particularly vibrant in males and is used to attract mates during breeding season.

As a frugivorous bird, the Narcondam Hornbill primarily feeds on fruits, with figs being a particular favorite.

IUCN Status



THREATS

1. Climate change
2. Biological Resource Use
3. Energy production



They are classified as endangered on the IUCN (International Union for Conservation of Nature) Red List and protected under the Wildlife Protection Act. About 1000 of this endangered species live on this island.

Narcondam island is designated as a protected zone by the Bird Life International and the Bombay National History Society (BNHS). This island is also notified as sanctuary to protect the endemic species. This island is accessible only for research purposes with prior permission from the A&N Administration and cannot be accessed by travellers and civilians.

DO YOU KNOW ?

- ◆ As Narcondam Island is remote and difficult to reach, there have been only seven to eight visits by ornithologists till date.
- ◆ Ornithology is a branch of zoology that deals with the study of birds.
- ◆ India is home to 9 different species of hornbill namely - The Great Hornbill, Rufous-necked Hornbill, Wreathed Hornbill, Narcondam Hornbill, Malabar Pied Hornbill, Oriental Pied Hornbill, Austen's Brown Hornbill, Malabar Grey Hornbill and Indian Grey Hornbill.
- ◆ The "Hornbill festival", celebrated in Nagaland is named after the bird and is the most revered and admired bird for the Naga tribes. They are also the cultural symbols of the ethnic groups of North East particularly, the Nyishi of Arunachal Pradesh.



NATIONAL

ROAD SAFETY

WEEK



11th to 17th January

SPEED THRILLS BUT KILLS!

- Use helmets while driving
- use seatbelts



- never go overspeed
- never drink and drive
- Obey road safety rules



A graphic for Vijay Diwas featuring a black silhouette of a helmet and a rifle against a background of orange and green brushstrokes. The text "VIJAY DIWAS" is written in large, bold, black letters, with a small figure of a person in the letter 'Y'.

VIJAY DIWAS

16th DECEMBER



VIJAY DIWAS

May the victories of the past continue to illuminate our path to a strong and united nation.

