

# My Notes....

## NATIONAL

### RAMAPPA TEMPLE CONFERRED UNESCO TAG

The **Ramappa temple at Palampet in Telangana's Warangal** has been conferred the tag of **UNESCO World Heritage site**, the Culture Ministry said on 25 July 2021. A consensus was reached in this regard during the **ongoing virtual meet of the World Heritage Committee**. While **Norway opposed the inscription**, Russia led an effort to have the temple recognised as a World Heritage Site. A consensus of **17 countries** supported the move.

#### A brief description

1. The **Rudreswara temple** was **constructed in 1213 AD** during the reign of the **Kakatiya Empire by Recharla Rudra**, a general of Kakatiya king **Ganapati Deva**.
2. The presiding deity is **Ramalingeswara Swamy**. It is also **known as the Ramappa temple**, after the sculptor who executed the work in the temple for 40 years.
3. The temple complexes of **Kakatiyas have a distinct style**, technology and decoration exhibiting the influence of the **Kakatiyan sculptor**.
4. The **Ramappa Temple** is a manifestation of this and often stands as a testimonial to the **Kakatiyan creative genius**.
5. The temple stands on a **6 feet high star-shaped platform** with walls, pillars and ceilings adorned with intricate carvings that attest to the unique skill of the Kakatiyan sculptors.
6. The sculptural art and decoration specific to the time and **Kakatiyan Empire have an outstanding universal value**.
7. The distinct style of Kakatiyas for the **gateways to temple complexes** unique only to this region confirms the highly evolved proportions of aesthetics in temple and town gateways in South India.
8. **European merchants and travelers** were mesmerized by the beauty of the temple and one such traveler had remarked that the temple was the "**brightest star in the galaxy of medieval temples of the Deccan**".

#### UNESCO WORLD HERITAGE STATUS

1. The "**Rudreshwara (Ramappa) Temple**" has been on the **UNESCO Tentative List** since 15 April 2014. The dossier was created by the Telangana state government.
2. The "**Rudreshwara (Ramappa) Temple**" dossier, along with the **dossier for Jaipur City**, was submitted to the World Heritage Centre in 2018.
3. The decision on the inscription was set to be announced at the **44th World Health Assembly meeting in Fuzhou**, China, in May 2020. However, the committee meeting was cancelled due to the sudden outbreak of Covid-19.
4. The decision will be made at the upcoming extended **44th Session in China** later this year.
5. The committee members generally base their decisions on the recommendations of the **International Council on Monuments and Sites (ICOMOS)** evaluation advisory body.

### DHOLAVIRA INSCRIBED ON WORLD HERITAGE LIST

**Dholavira**, a **Harappan-era metropolis**, in Gujarat has been **inscribed on the UNESCO World Heritage List**, the organisation said on 27 July 2021. The ongoing **44th session of the World Heritage Committee of the UNESCO** has already given **India a new world heritage site in the form of the Rudreswara/ Ramappa Temple in Telangana**, which dates back to the **13th century**.

### What

1. **Gujarat** so far has **three world heritage sites** — **Champaner near Pavagadh, Rani ki Vav in Patan** and the **historic city of Ahmedabad**.
2. This session of the World Heritage Committee is being **chaired from Fuzhou in China** and is **being held online**. It started on July 16 and will end on July 31.
3. The **44th session combines current work**, and **issues left outstanding** since last year, when the annual meeting was postponed due to Covid-19.
4. **Dholavira is now the 40th treasure in India** to be given **UNESCO's World Heritage Inscription**.
5. Another feather in India's cap as we now enter the **Super-40 club for World Heritage Site inscriptions**, Culture Minister said.
6. **Since 2014**, India has **added 10 new World Heritage sites - one fourth of our total sites**.

### EMISSIONS IN ALIGNMENT WITH SBTi

**Tata Power** on 26 July 2021 said it has **committed to reducing emissions** in alignment with the **Science Based Targets initiative (SBTi)**. **SBTi** is a project which **drives ambitious climate action in the private sector** by enabling companies to set science-based emissions reduction targets.

### What

1. It is a partnership between **CDP (Carbon Disclosure Project)**, the **United Nations Global Compact**, **World Resources Institute (WRI)**, the **World Wide Fund for Nature (WWF)** and **We Mean Business Coalition**.
2. The company's **commitment to the SBTi has been accepted** and published under the companies taking action category on the website.
3. **Mitigating the impact of global warming** requires swift and strong action. **Tata Power** has committed to **SBTi** and is **working on an ambitious plan** to drive the transition to **decarbonized energy models**, aiding the global climate action agenda.
4. The **latest climate science** sends a clear warning **to curb temperature rise** to avoid the catastrophic impacts of climate change.
5. The power sector will play a key role in **decarbonising the global economy** and meeting the goals of the Paris Agreement.
6. To lead reformation of the process for sustainable power, **Tata Power** has pledged to set **scientific targets as proposed by SBTi**.
7. It is the **first Indian power company** to commit to **carbon neutrality before 2050** and is accelerating the transition to a sustainable future.
8. **Tata Power** has already announced the planned **phase out of coal-based capacity**.

### ASSAM-MIZORAM BORDER ISSUE

The **decades-long Assam-Mizoram border dispute** took an ugly turn on 26 July 2021 as a firing between police personnel of the two states saw six Assam cops being killed and several more injured. The **border has long been a bone of contention between the two northeastern states** and multiple talks facilitated by the Centre as far **back as 1995** and as recent as 9 July 2021 this year made remained inconclusive.

### What

1. The firing on 26 July 2021 was preceded by incidents of **bombing and encroaching** on either side of the border.
2. During the 9 July talks, Mizo miscreants were said to have conducted an IED explosion in **Assam's Cachar district** targeting a delegation of Assam government officials, including senior police officials, **who were on a visit to oversee the construction of a road along the border**, but no casualty was reported in the incident.
3. This was met in retaliation with **two back-to-back explosions** on the other side of the border on 10 July 2021.
4. Mizoram Home Minister **Lalchamliana** alleged that the **crops of Mizo farmers** were destroyed by Assam police personnel, who intruded into their territory.

5. He demanded the Assam government give compensation to the affected farmers. He also stated that **additional Mizoram police forces** have been deployed in the affected areas to remove public fear and ensure a sense of normalcy.

#### Flashback

1. **Three districts** of the southern Assam's Barak Valley - **Karimganj, Hailakandi and Cachar** - share a **123-km-long border** with Mizoram's **Mamit, Kolasib and Aizawl** districts.
2. The **border dispute between the two states** is a **long-standing issue**. Assam says the **boundary demarcated in 1933 notification** should be maintained while Mizoram insists that the same drawn in the **Bengal Eastern Frontier Regulation, 1875** should be the actual boundary.
3. Violence broke out in **October last year and in February this year**, in which some schools were even allegedly bombed by miscreants from Mizoram's side.
4. Mizoram, on the other hand, claimed that the schools were set up by Assam officials in their land.

## INDIAN ENTERPRISES IN UN'S BEST SMALL BUSINES

**Three India-based enterprises** are among the winners of a USD 100,000 **global competition of Best Small Businesses'** announced by the **United Nations** that are providing inspiring, diverse and impactful solutions in **improving access to healthy and sustainable food**. **Fifty small and medium-sized enterprises around the world** have been announced as the Best Small Businesses of the **Good Food for All competition**, held in conjunction with the **UN Food Systems Summit**.

#### What

1. **From India**, the winners are **Edible Routes Private Limited, Oorja Development Solutions India** and **Taru Naturals**.
2. Selected from nearly 2,000 applications from **135 countries**, the 50 winners showcase inspiring, diverse and impactful solutions in improving access to healthy, sustainable food.
3. **Edible Routes**, founded by **Kapil Mandawewala**, provides consumers **easy access to naturally and locally grown, fresh farm produce**. Its business model offers farm allotments to city dwellers, within an hour's reach, with the capacity to cater to **220 families**.
4. **Oorja** is a **farming-as-a-service (FaaS) company** that operates at the intersection between **sustainable agriculture and renewable energy**.
5. It **finances, installs and maintains solar energy systems** for agricultural use and sells affordable and reliable irrigation, milling and cooling services to farmers so they can **transition from diesel to solar**.
6. Founded and led by **Amit Saraogi** and **Dr Clementine Chambon**, Oorja has a team of 18 people in India and have **so far implemented 24 solar projects** reaching close to 2,000 beneficiaries and saving **30 tonnes of CO2**.
7. **TARU Naturals and Organics**, founded by **Ruchi Jain**, is a grassroots movement of 10,000 tribal and small-scale farmers across India; a fair trade network connecting farmers to markets, with **healthy, pure and organic produce**.
8. The enterprise said it **strives to build self-sufficiency across the value chain ecosystem** for farm produce, intervening with climate resilient agriculture, clean post harvest technology, value added products and market linkages.

## SEROSURVEYS AND SEROPREVALANCE

The **Indian Council of Medical Research (ICMR)** has conducted **four serosurveys** in India so far, the latest of which was done between **June 14 and July 6** and stated that **two-thirds of Indians have developed antibodies** against Covid-19, but 40 crore are still vulnerable. It also stated **67.6 per cent of India's population** aged above six years has **developed antibodies for Covid-19**.

### What are serology and seroprevalence?

1. **Serology is the study of antibodies in blood serum.** Antibodies are part of the human body's immune response to an infection or virus, like SARS-CoV-2. Covid-19's antibodies are detectable usually within the first few weeks after infection.
2. The **presence of antibodies in a person** means **they were infected with the virus**, irrespective of whether they had severe, mild, or no symptoms.
3. **Seroprevalence** is determined by a **study conducted to measure the extent of an infection**, measured by level of antibodies, in a population.
4. The **percentage of individuals in a population** who have antibodies to infection is called **seroprevalence**.
5. With a new virus, including Covid-19, **initial seroprevalence is assumed to be low** as the virus has not circulated before.
6. A positive result from a serology test may mean that a **person was previously infected with the virus**.
7. This testing helps determine the **size of the outbreak of a disease** or the extent to which a **certain population has been infected or exposed to an infection**.
8. It helps capture unrecognised cases not detected during routine surveillance.

### INDIA MISS UN DEADLINE FOR EMISSIONS

**China and India** have **missed a United Nations deadline** to submit **fresh targets** for cutting their **greenhouse gas emissions**, officials said on 31 July 2021. The **world's two most populous countries** are among dozens that **ignored the deadline of 30 July 2021** set by the **UN climate change agency** to provide an update on their plans for curbing the release of planet-warming gases.

#### What

1. **China** is the country with the **world's highest emissions**, while **India is third**. The **United States**, which submitted its **new target in April**, is the second-biggest global emitter.
2. **UN climate chief Patricia Espinosa** welcomed that **110 signatories of the United Nations Framework Convention on Climate Change** had met the cut-off date, which was extended from the **end of 2020 due to the pandemic**.
3. But she said it was far from satisfactory that **only 58% had submitted their new targets in time**.
4. **Saudi Arabia, South Africa, Syria** and **82 other nations** also failed to update their **nationally determined contributions**, or **NDCs**, for the UN to include in a report it is preparing for an **international climate change conference in November**.

### STONE AGE TOOLS DISCOVERED

**Prehistoric cave paintings** belonging to the **Paleolithic era**, and rock shelters as well as **tools and tool-making equipment**, presumably dating back to the **lower or early Paleolithic era** have been found hiding in plain sight in the **Aravallis**. Paleolithic era, or the **Old Stone Age**, dates back to **10,000 BC** when humans still lived as **hunters and gatherers**.

#### What

1. **Tools belonging to the Stone Age** have been found in **rock shelters** as well as in open-air sites, spread across **nearly 5,000 hectares**, Banani Bhattacharya, Deputy Director, Haryana Department of Archaeology and Museums said.
2. **Located in the Aravalli hills near Mangar Bani forest** along the Gurugram-Faridabad stretch in Delhi-NCR, the **discovery is monumental** as it changes the understanding of Haryana's history, pushing it back further by several thousand years than we currently know.
3. **Haryana** is known as the **cradle of Indian civilisation**. Earlier, **28 sites dating back to the Harappan and pre-Harappan era had been discovered** in the state.
4. However, **cave paintings and rock art** sprawling in such a large area have been discovered for the **first time**. This discovery suggests that the history here could be **1**

lakh years old.

- The **Aravalli range** is known for **housing pre-historic remains**, the latest discovery is the **first time rock paintings** have been found here.

## INTERNATIONAL

### FIRST-EVER DRAFT CONVENTION ON CYBERCRIME

Russia has proposed to the **United Nations** to expand the **number of internationally designated types of cybercrimes** from **nine to 23**, Deputy Prosecutor General Petr Gorodov said. Russia submitted the **world's first-ever draft convention on countering cybercrime** to the UN on 27 July 2021. The draft convention, presented by Gorodov in Vienna, "introduces **new elements of crimes** committed using **information and communication**".

#### What

- The draft **reflects 23 corpus delicti**, including **unauthorized access to personal data**, illegal distribution of **counterfeit medicines** and medical devices, **terrorism**, **extremism**, **rehabilitation of Nazism**, **illegal trafficking of drugs**, weapons, **involvement of minors in illegal activities** and much more -- all the most relevant in the world of cybercrime.
- The **Budapest Convention on Cybercrime** of the Council of Europe is outdated as it was **introduced in 2001** and determines "**only nine types**" of cybercrimes.
- The draft convention pays great attention to **procedural aspects**, as well as **emergency mechanisms of interaction**, which increase the speed and efficiency of law enforcement agencies in investigating cybercrimes "of a **cross-border nature** and **requiring an instant response**".

#### What are the existing designated cybercrimes?

- The **Budapest Treaty** (more commonly known as the **Convention on Cybercrime**) was **signed by South Africa, Canada, Japan and the United States** in 2001 and entered into force in July 2004.
- This is the **Internet and other computer networks**. However, since the **treaty was created in the early 2000s**, it only covered cybercrime that was recognized at the time.
- The **nine main crimes** specified in the treaty include: **illegal access, illegal interception, data interference, system interference, device misuse, computer-related counterfeiting, computer-related fraud, child pornography-related crimes**, copyright and Includes crimes related to infringement of related rights.

### NEW QUAD GROUPING

The **US, Afghanistan, Pakistan and Uzbekistan** have agreed in principle to establish a **new quadrilateral diplomatic platform** focused on **enhancing regional connectivity**, the Biden administration has said. The parties consider long-term peace and stability in Afghanistan critical to regional connectivity and agree that **peace and regional connectivity** are mutually reinforcing.

#### What

- Recognising the historic opportunity to open **flourishing interregional trade routes**, the parties intend to cooperate to expand **trade, build transit links**, and **strengthen business-to-business ties**.
- The parties agreed to meet in the coming months to determine the **modalities of this cooperation with mutual consensus**. Afghanistan's strategic location has for a long time been touted as a competitive advantage for the US.
- Afghanistan is bordered by Pakistan** to the east and south, **Iran to the west**, Turkmenistan, Uzbekistan, and Tajikistan to the north, and **China to the northeast**.
- Located at the **heart of the historic Silk Road**, Afghanistan was long the crossroads of

commerce between Asian countries connecting them to Europe, and **enhancing religious, cultural**, and commercial contacts.

5. The **formation of the new quad group is important** amid **China's desire to extend its Belt and Road Initiative to Afghanistan**.
6. By virtue of its location, **Afghanistan can provide China with a strategic base** to spread its influence across the world.

## G20 AGREES STATEMENT ON ENVIRONMENT

**Environment and energy ministers** from the **Group of 20 rich nations** were making little progress on 22 July 2021 on **how to reach climate goals**, officials said, with a cluster of countries resisting any firm commitments. The **G20 meeting in Naples** discussed **biodiversity and the natural environment** on 22 July 2021.

### What

1. **Italy**, which holds the **rotating G20 presidency this year**, said the environment communique had finally been agreed to the "**great joy**" of all 20 countries after "**weeks of negotiations and a two-day non-stop session**".
2. The **G20 meeting is seen as a key intermediate stage** ahead of global climate talks known as **COP 26** to be held in Glasgow in November.
3. The **urgency of climate action** has been brought home this month by deadly floods in Europe, fires in the United States and sweltering temperatures in Siberia, but countries remain at odds on how to pay for costly policies to reduce global warming.
4. **Developed countries** agreed at the **United Nations in 2009** to together contribute **\$100 billion each year by 2020 in climate finance to poorer countries**, many of whom are grappling with rising seas, storms and droughts made worse by climate change. However, that target has yet to be met.

## GLOBAL DEVELOPMENT PARTNERSHIP DEAL RENEWED

**India and the US** on 30 July 2021 renewed for **another five years** a **global development partnership agreement** that provides for **jointly offering assistance** to their partner countries in areas of **connectivity, trade and investments, healthcare and agriculture**. Both sides signed the **second amendment** to the **Statement of Guiding Principles (SGP) on Triangular Cooperation for Global Development**, the Ministry of External Affairs said.

### What

1. The **SGP agreement was signed in November 2014** and the fresh amendment extended the **pact's validity up to 2026**.
2. Under the agreement, **India and US** will continue to offer **capacity building assistance to partner countries in multiple sectors**, focusing primarily on **agriculture, regional connectivity, trade and investments, nutrition, health, clean and renewable energy**, women empowerment, disaster preparedness, water, sanitation, education and institution building.
3. The SGP between the **US and India** leverages the combined capacities of the two sides to **address global development challenges** facing countries in the wider region and the world, particularly in **Asia and Africa**.
4. The US-India partnership is a significant contributor **to regional and global stability and prosperity**. Today the two countries reiterated their commitment, signing a **five-year extension to the Statement of Guiding Principles on Triangular Cooperation for Global Development (SGP)**, it said in a release.
5. The MEA said the second amendment expands the **scope of capacity building activities** undertaken **jointly by India and the US** and also provides for a **consultative mechanism** for biannual monitoring and review of activities undertaken under the SGP.
6. The agreement helps **fulfil the joint commitment of both nations** to work together and leverage their combined capacities to provide demand-driven development partnership, the MEA said.
7. This **triangular cooperation with the US** will complement **India's other ongoing and**

future development partnerships, capacity building and technical assistance with countries globally.

## WORLD'S FIRST 3D-PRINTED STEEL FOOTBRIDGE

Dutch Queen Maxima teamed up with a **small robot** 16 July 2021 to unveil a **steel 3D-printed pedestrian bridge** over a canal in the heart of **Amsterdam's red light district**. Maxima pushed a green button that **set the robot's arm in motion** to cut a ribbon across the bridge with a pair of scissors.

### What is 3D Printing?

1. **3D printing** or **additive manufacturing** is a process of making **three dimensional solid objects** from a digital file.
2. The creation of a 3D printed object is achieved using additive processes. In an additive process an **object is created by laying down successive layers of material** until the object is created. Each of these layers can be seen as a thinly sliced cross-section of the object.
3. 3D printing is the opposite of **subtractive manufacturing** which is cutting out / hollowing out a piece of metal or plastic with for instance a milling machine.
4. 3D printing enables you to produce **complex shapes using less material** than traditional manufacturing methods.

## ECONOMY

### INDIA IMPROVES RANKING IN TRADE FACILITATION

India has **significantly improved its ranking** in terms of **trade facilitation** due to various reforms undertaken by various departments especially customs under the **Central Board of Indirect Taxes (CBIC)**. India has **scored 90.32 per cent** in **United Nation's Economic and Social Commission for Asia Pacific's (UNESCAP)** latest **Global Survey on Digital and Sustainable Trade Facilitation**, a finance ministry statement said. The survey hails this as a **remarkable jump** from 78.49 per cent in 2019.

#### What

1. The **Global Survey on Digital and Sustainable Trade Facilitation** is conducted **every two years by UNESCAP**.
2. The 2021 survey includes an assessment of **58 trade facilitation measures** covered by the **WTO's Trade Facilitation Agreement**.
3. After evaluation of 143 economies, the 2021 survey has highlighted **India's significant improvement** in the scores on **all five key indicators...**
4. **Transparency improved to 100 per cent** in 2021 from 93.33 per cent in 2019, **formalities rose to 95.83 per cent** in 2021 from 87.5 per cent in 2019.
5. **Institutional arrangement and cooperation** jumped improved to 88.89 per cent in 2021 from 66.67 per cent in 2019.
6. Other parameters like **paperless trade improved to 96.3 per cent** in 2021 from 81.48 per cent in 2019 while **cross-border paperless trade improved** to 66.67 per cent in 2021 from 55.56 per cent in 2019.
7. The survey notes that **India is the best performing country** when compared to south and south west Asia region (63.12 per cent) and Asia Pacific region (65.85 per cent), it said.
8. The **overall score of India** has also been found to be greater than many **Organisation for Economic Co-operation and Development (OECD) countries** including France, the UK, Canada, Norway, Finland etc. and the **overall score is greater than the average score of EU**.
9. **India has achieved a 100 per cent score** for the **Transparency index** and **66 per cent** in the **Women in trade component**.

## 100% FDI IN OIL PSUS APPROVED

The government on 29 July 2021 **permitted 100 per cent foreign investment** under the **automatic route in oil and gas PSUs** which have received **in-principle approval** for strategic disinvestment. The move would facilitate privatisation of India's second biggest oil refiner **Bharat Petroleum Corp Ltd (BPCL)**. The government is **privatising BPCL** and selling its **entire 52.98 per cent stake in the company**.

### What

1. According to a press note of the **Department for Promotion of Industry and Internal Trade (DPIIT)**, a new clause has been **added to the FDI policy for oil and natural gas sector**.
2. **Foreign investment up to 100 per cent** under the automatic route is allowed in case an 'in-principle' approval for strategic disinvestment of a PSU has been granted by the government".
3. **Two out of the three companies** that have put in an initial **expression of interest (EoI)** for buying out the government's entire 52.98 per cent stake in BPCL are foreign entities.
4. The **FDI limit in PSU-promoted oil refineries will continue at 49 per cent** -- a limit that was set in March 2008.
5. As of now, the government is **selling the stake in only BPCL**. **Indian Oil Corporation (IOC)**, the nation's largest, is the only other oil refining and marketing company under direct government control.
6. **Hindustan Petroleum Corporation Ltd (HPCL)** is now a **subsidiary of state-owned Oil and Natural Gas Corporation (ONGC)**.
7. The government had in March 2008 **raised the FDI limit in oil refineries** promoted by public sector companies **from 26 per cent to 49 per cent**.
8. The firm acquiring the **government's 52.98 per cent stake in BPCL** will also have to make an open offer to buy an additional 26 per cent stake from other stakeholders at the same price, as per the takeover rules.

## SCIENCE AND TECHNOLOGY

### RUSSIA LAUNCHES NAUKA TO ISS

**Russia** on 21 July 2021 successfully launched a **long-delayed lab module** for the **International Space Station** that is intended to provide **more room for scientific experiments and space for the crew**. A **Proton-M booster rocket** carrying the **Nauka module** lifted off from the Russian space launch facility in **Baikonur, Kazakhstan**.

### What

1. The **navigational antennas and solar arrays** deployed properly after a flawless launch that set the module on an **eight-day journey** to the orbiting outpost.
2. After a series of maneuvers, the **20-metric-ton (22-ton) module** is set to dock at the International Space Station in automatic mode on 29 July 2021.
3. The **launch of Nauka**, also called the **Multipurpose Laboratory Module**, had been repeatedly delayed because of technical problems. It was initially scheduled to go up in 2007.

### Flashback

1. The **International Space Station** is currently operated by **NASA astronauts Mark Vande Hei, Shane Kimbrough and Megan McArthur**; **Oleg Novitsky and Pyotr Dubrov of Russia's Roscosmos space corporation**; **Japan Aerospace Exploration Agency astronaut Akihiko Hoshide and European Space Agency astronaut Thomas Pesquet**.
2. **In 1998**, Russia launched the station's **first module, Zarya**, which was followed in 2000 by another big module, **Zvezda**, and three smaller modules in the following years. The last of them, **Rassvet**, arrived at the station in 2010.



4. In 2013, experts found **contamination in its fuel system**, resulting in a long and costly replacement. Other Nauka systems also underwent modernization or repairs.
5. Before **Nauka docks at the station**, one of the older Russian modules, **the Pirs spacewalking compartment**, will need to be removed and scrapped to free up room for the new module.
6. Russian space controllers plan to perform the maneuver after they check and confirm that **Nauka's systems operate properly** and the module is ready for docking.
7. Russian crewmembers on the station have done two spacewalks to connect cables in preparation for **Nauka's arrival**.
8. Once **Nauka docks at the station**, it will require a long series of maneuvers, including up to 11 spacewalks beginning in early September, to prepare it for operation.

## INDIA'S FIRST GREEN HYDROGEN PLANT

**India's largest oil firm IOC** will build the **nation's first 'green hydrogen' plant** at its **Mathura refinery**, as it aims to prepare for a future catering to the growing demand for both oil and cleaner forms of energy. **Indian Oil Corporation (IOC)** has drawn a **strategic growth path** that aims to maintain focus on **its core refining and fuel marketing businesses** while making bigger inroads into **petrochemicals, hydrogen and electric mobility** over the **next 10 years**.

### What

1. The company will not set **captive power plants** at all its future refinery and petrochemical expansion projects and instead use the **250 MW of electricity** it produces from renewable sources like solar power.
2. This will be the **nation's first green hydrogen unit**. Previously, projects have been announced to produce 'grey hydrogen' using **fossil fuels** such as natural gas.
3. **Hydrogen is the latest buzz for meeting the world's energy needs**. Hydrogen, in itself, is a clean fuel **but manufacturing it is energy-intensive** and has **carbon byproducts**.
4. **Brown hydrogen is created through coal gasification** while the process of **producing grey hydrogen throws off carbon waste**.
5. **Blue hydrogen uses carbon capture and storage** for the **greenhouse gases produced in the creation of grey hydrogen**.
6. **Green hydrogen production** - the ultimate clean hydrogen resource - **uses renewable energy to create hydrogen fuel**.
7. **IOC's refinery expansion plans** include raising the capacity of units at **Panipat in Haryana** and **Barauni in Bihar** and setting up a new unit near Chennai.

## WORLD'S FIRST RE-PROGRAMMABLE SATELLITE

The **world's first commercial fully reprogrammable satellite** has been launched on 31 July 2021, **ushering in a new era of more flexible communications**. Unlike conventional models that are designed and "**hard-wired**" on Earth and **cannot be repurposed once in orbit**, the **Eutelsat Quantum** is based on so-called **software-defined technology** that allows users **to tailor the communications to their needs** -- almost in real-time.

### What

1. Because it can be **reprogrammed** while orbiting in a **fixed position 35,000km** (22,000 miles) above the Earth, the **Quantum can respond to changing demands for data transmission and secure communications** during its **15-year lifetime**.
2. The **3.5 tonne Quantum model** has **eight communications beams**, each of which can be modified to change its area of coverage and also the power of the signal it emits.
3. Using software made available to the customer, these changes can be made "**in a matter of minutes**", according to Eutelsat.
4. This means the **satellite can be used to provide mobile coverage** for moving objects such as **aircraft and oceangoing vessels**, or coverage after a **natural disaster** or for one-off events.

5. And at a time of growing concern over **digital security** – as well as the possible **weaponising of space** – Quantum is able to pinpoint the **origin of signals emitted with or without malicious intent** and take action to remedy any interference.
6. The Quantum will cover a **large area from west Africa to Asia**.

## JEFF BEZOS COMPLETES NEW MISSION IN SPACE

**Jeff Bezos** fulfilled his longtime dream of going into space 20 July 2021 and **potentially opening a door to space tourism** -- possibly the next mission for the man who built one of **Earth's biggest business empires**. The Amazon founder spent a few minutes in space on **reusable rocket built** by his firm **Blue Origin** as part of a four-member crew, in a small step toward his stated goal of building floating space colonies.

### What

1. The journey comes just two weeks after he stepped aside as chief executive of Amazon, which grew from a garage startup into one of the **world's most formidable businesses**.
2. **Bezos, 57**, remains executive chair at the technology and e-commerce colossus he founded 27 years ago.
3. He **founded Blue Origin in 2000**, and has poured in billions of his money into the venture.
4. With a **fortune worth more than \$200 billion**, Bezos has been at or near the top of the world's richest people, even after his divorce settlement.
5. He owns some **10 percent of Amazon**, a behemoth with a presence in dozens of countries and some 1.3 million employees.
6. Today, **Amazon has a market value of some \$1.8 trillion**. It posted 2020 annual revenues of \$386 billion from operations in **e-commerce, cloud computing, groceries, artificial intelligence, streaming media and more**.

## AKAMAI SUFFERS OUTAGE

**Global internet infrastructure company Akamai** suffered an outage 22 July 2021 night that lasted over an hour, **taking down several online applications across India and overseas**. This was the **second major outage** involving a delivery network in as many months that affected **internet usage on a global scale**.

### What is Akamai?

1. **Akamai is a global content delivery network (CDN) and cloud services platform** that is rented by online content and commerce services apps.
2. On 22 July 2021, **Akamai faced a disruption on its Edge DNS service** that took down platforms such as **Zomato, Paytm, parts of Amazon, Airbnb, PlayStation Network, Steam, Disney+Hotstar**, etc for a short while.
3. **Edge DNS** as a technology provides a shorter route for DNS, or domain name services, between a company's servers and its users, thereby drastically decreasing resolution times and providing low latencies.
4. In June, a major issue with the content delivery network of **American cloud computing services** provider **Fastly** caused several large websites to go down globally for about half an hour.
5. Just like Akamai, **Fastly is a cloud computing services provider**, which offers **CDN, edge computing, cloud storage services**.

## FIRST EVIDENCE OF WATER VAPOUR ON GANYMEDE

Astronomers have uncovered the **first evidence of water vapour** in the **atmosphere of Jupiter's moon Ganymede** by using new and archival datasets from **NASA's Hubble Space Telescope**. According to the study published in the journal Nature Astronomy on 26 July 2021, the **water vapour forms when ice from the moon's surface turns from solid to gas**.

### What

1. Previous studies have offered **circumstantial evidence** that Ganymede, **the largest moon in the solar system**, contains **more water than all of Earth's oceans**. However,

- temperatures there are so cold that water on the surface is frozen solid.
2. **Ganymede's ocean would reside roughly 160 kilometres below the crust**, therefore, the water vapour would not represent the evaporation of this ocean.
  3. Astronomers **re-examined Hubble observations** from the last two decades to find this evidence of water vapour.
  4. **In 1998, Hubble's Space Telescope Imaging Spectrograph took the first ultraviolet (UV) images of Ganymede**, which revealed colourful ribbons of electrified gas called **auroral bands**, and provided further evidence that **Ganymede has a weak magnetic field**.
  5. The similarities in these UV observations were explained by the **presence of molecular oxygen (O<sub>2</sub>)**. However, some observed features did not match the **expected emissions from a pure O<sub>2</sub> atmosphere**.
  6. At the same time, scientists concluded this discrepancy was likely related to **higher concentrations of atomic oxygen (O)**.
  7. **Ganymede's surface temperature varies** strongly throughout the day, and around noon near the equator it may become sufficiently warm that the ice surface releases some small amounts of water molecules.
  8. The perceived differences in the UV images are **directly correlated with where water would be expected** in the moon's atmosphere. So far only the **molecular oxygen had been observed**.

#### Flashback

1. The finding adds anticipation to **European Space Agency (ESA)**'s upcoming mission **JUpiter ICy moons Explorer (JUICE)**.
2. **Planned for launch in 2022 and arrival at Jupiter in 2029**, JUICE will spend at least three years making detailed observations of Jupiter and three of its largest moons, with **particular emphasis on Ganymede** as a planetary body and potential habitat.

## MISCELLANEOUS

### BIOTECH-PRIDE GUIDELINE RELEASED

**Science and Technology Minister Jitendra Singh** on 30 July 2021 released a **set of guidelines** to provide a **well-defined framework and guiding principle** to facilitate sharing of **biological information and data** generated by research groups in the country.

#### What

1. The **Biotech-PRIDE (Promotion of Research and Innovation through Data Exchange) Guidelines** will facilitate this and **enable exchange of information** to promote research and innovation in different research groups across the country. Singh also launched the website of the **Indian Biological Data Centre (IBDC)**.
2. The guidelines are aimed at providing a **well-defined framework and guiding principle** to facilitate and enable sharing and exchange of biological knowledge, information and data and is **specifically applicable to high-throughput**, high-volume data generated by research groups across the country, the statement said.
3. These guidelines **do not deal with generation of biological data** but are a mechanism to share and exchange information and knowledge generated according to existing **laws, rules, regulations and norms** of the country.
4. They will ensure **data sharing benefits, maximise use, avoid duplication**, maximise integration, ownership information, better decision-making and equity of access.
5. These guidelines are a **mechanism for sharing data publicly and within a reasonable period of time** after data-generation. Thus, the **utility of the data will be maximum**, it said.
6. Resultantly, accrual of **benefit of public investment for data generation** will not be compromised.
7. Minister Singh said initially these guidelines **will be implemented through the IBDC** at the **Regional Centre for Biotechnology** supported by the **Department of Biotechnology (DBT)**.
8. Other existing datasets and data centres will be **bridged to this IBDC** which will be

called **bio-grid**.

#### Flashback

1. This **bio-grid will be a national repository for biological knowledge, information and data** and will be responsible for **enabling its exchange, developing measures for safety**, standards and quality for datasets and establishing detailed modalities for accessing data.
2. The guidelines will be helpful **to harmonise, synergise and encourage data sharing** for research and analysis in the country and **to promote scientific work** and foster progress by building on previous work.
3. Describing the release of **Biotech-PRIDE** as the **first of its kind by the DBT**, Minister said **India's rank is four among the top 20 countries** contributing biological databases.
4. The government **invests a large amount of public funds** to generate data in various sectors, including in **biosciences for knowledge generation**, to gain deep insights into intricate biological mechanisms and other processes and for translation, he added.

## FIRST HUMAN DEATH OF MONKEY B VIRUS

China has reported the **first human infection case with Monkey B virus (BV)** after a Beijing-based veterinarian was confirmed with the same a month after he dissected two dead monkeys in early March. The **53-year-old male vet**, who worked for an institution researching on **non-human primates**, started showing **early-onset symptoms of nausea** and vomiting in April. The vet died in May raising concerns amid the existing coronavirus pandemic.

#### What is Monkey B virus?

1. The virus, **initially isolated in 1932**, is an **alphaherpesvirus** enzootic in macaques of the genus *Macaca*.
2. **B virus is the only identified old-world-monkey herpesvirus** that displays severe **pathogenicity** in humans.
3. The **infection can be transmitted via direct contact** and exchange of bodily secretions of monkeys and has a **fatality rate of 70 per cent to 80 per cent**.
4. According to the Centre for Disease Control and Prevention, **Macaque monkeys commonly have this virus**, and it can be found in **their saliva, feces (poop), urine (pee)**, or brain or spinal cord tissue.
5. The **virus may also be found in cells** coming from an infected monkey in a lab. B virus can survive for hours on surfaces, particularly when moist.
6. **Humans can get infected** if they are **bitten or scratched by an infected monkey**; get an infected monkey's tissue or fluid on broken skin or in eyes, nose, or mouth; scratch or cut oneself on a contaminated cage or other sharp-edged surface or get exposed to the brain (especially), spinal cord, or skull of an infected monkey.
7. **Symptoms** typically start within one month of being exposed to B virus, but could appear in as little as three to seven days.

## PEGASUS SPYWARE

**Pegasus is a spyware**, manufactured by **Israel's NSO Group**. The software is reportedly **marketed to governments** across the world. **First discovered in 2016**, the spyware has been catapulted into the limelight again after an investigation by The Guardian unearthed a **list of potential targets**, which included at least 180 journalists across the world.

#### How does it work?

1. **Pegasus is installed on phones without the knowledge of the user**, via an innocuous link that downloads the malware onto the device.
2. According to The Guardian, the **presence of the spyware** cannot be ascertained for sure until a thorough forensic examination of the phone is done.

- Affected devices** will end up giving total control to the person spying on their user, with virtually all data accessible, from **texts to emails to WhatsApp chats** and even the ability to turn on the **device's microphone and listen in**.
- In 2019**, messaging major WhatsApp revealed that the **Israeli technology had been used to infect close to 1,400 phones** with the application installed.

### FIRST BIRD FLU DEATH IN INDIA

On 21 July 2021, an 11-year-old boy died of **H5N1 avian influenza** in Delhi. This is the **first recorded death** due to the **bird flu in India this year**. In January, bird flu was confirmed in several states with thousands of birds, including migratory species, being found dead.

#### What is bird flu?

- Bird flu or avian influenza** is a disease **caused by avian influenza Type A viruses** found naturally in **wild birds worldwide**.
- The virus can infect **domestic poultry** including chickens, ducks, turkeys and there have been reports of **H5N1 infection among pigs**, cats, and even tigers in **Thailand zoos**.
- Avian Influenza type A viruses** are classified based on **two proteins** on their surfaces – **Hemagglutinin(HA)** and **Neuraminidase(NA)**.
- There are **about 18 HA subtypes** and **11 NA subtypes**. Several combinations of these two proteins are possible e.g., **H5N1, H7N2, H9N6, H17N10**, etc.
- There have been reports of avian and swine influenza infections in humans including **A(H1N1), A(H1N2), A(H5N1), A(H7N9)**, etc.

### FIRST REGIONAL REPORT ON DROWNING PREVENTION

Nearly two-thirds of global drowning deaths occur in the **Asia Pacific**, said a **World Health Organization (WHO)** report. WHO on 23 July 2021 launched its **first Regional Status Report on Drowning Prevention** in the South-East Asia and Western Pacific regions.

#### What

- Drowning is the third leading cause of unintentional injury death** worldwide, accounting for 7 per cent of all injury-related deaths.
- Low and middle-income countries** account for more than 90 per cent of unintentional drowning deaths, and over half of the world's drownings occur in the **South-East Asia and Western Pacific regions**.
- In 48 of the 85 countries with serviceable data on drowning**, drowning is among the top five causes of death for children under the age of 15 years.
- Drowning accounts for 75 per cent of all deaths in flood disasters**, which many countries in the South-East Asia and Western Pacific regions are particularly vulnerable to, the report says.
- For the first time ever**, these reports **provide knowledge on the status of drowning prevention and water safety** in each of the regions, giving a snapshot of the scale of the problem,

#### Flashback

- In 2019**, over 1,44,000 people drowned in the Asia Pacific region, accounting for **61 per cent of global drowning deaths**, according to the **first World Health Organization (WHO) regional assessments on drowning prevention** released on 23 July 2021 ahead of **World Drowning Prevention Day**.
- The **two WHO reports, Regional Status Report on Drowning in the Western Pacific and Regional Status Report on Drowning in South-East Asia**, also warn that climate change, to which the Asia Pacific region is particularly vulnerable, places already vulnerable communities and individuals at increased drowning risk.
- More frequent and **extreme weather events** can lead to more regular and intense floods, increasing populations' exposure to potentially hazardous interactions with water.

efforts that are underway to take action, and opportunities to address what is an entirely preventable cause of mortality and morbidity.

6. In both regions, **communities and individuals interact with water** on a daily basis: when swimming at beaches or in pools; when travelling long distances over water in boats; when using rivers and ponds for collecting water and sustaining livelihoods; and when facing exposure to floodwaters caused by seasonal weather events such as monsoons, or extreme weather events such as cyclones and typhoons, the report specifies.
7. To reduce the **risk of each of these hazards** and more, policymakers can leverage a range of **evidence-based and low-cost interventions**, which should be integrated into regional and national agendas, including on mitigating the health impacts of climate change.

## MISSION TO JUPITER'S MOON EUROPA

Elon Musk's private rocket company **SpaceX** was awarded a **\$178 million launch services** contract for **NASA's first mission focusing on Jupiter's icy moon Europa** and whether **it may host conditions suitable for life**, the space agency said on 23 July 2021. The **Europa Clipper mission** is due for blastoff in **October 2024** on a Falcon Heavy rocket owned by Musk's company, Space Exploration Technologies Corp, from NASA's Kennedy Space Center in Florida, NASA said.

### What

1. The contract marked NASA's latest vote of confidence in the **Hawthorne**, California-based company, which has carried several cargo payloads and astronauts to the **International Space Station** for NASA in recent years.
2. In April, SpaceX was awarded a \$2.9 billion contract to build the **lunar lander spacecraft** for the **planned Artemis program** that would carry NASA astronauts back to the moon for the **first time since 1972**.
3. But that contract was suspended after two rival space companies, **Jeff Bezos's Blue Origin** and **defense contractor Dynetics Inc**, protested against the SpaceX selection.
4. The company's partly **reusable 23-story Falcon Heavy**, currently the most powerful operational space launch vehicle in the world, flew its first commercial payload into orbit in 2019. NASA did not say what other companies may have bid on the **Europa Clipper launch contract**.
5. The probe is to conduct a **detailed survey of the ice-covered Jovian satellite**, which is a bit smaller than Earth's moon and is a leading candidate in the search for life elsewhere in the solar system.
6. A **bend in Europa's magnetic field observed by NASA's Galileo spacecraft** in 1997 appeared to have been caused by a geyser gushing through the moon's frozen crust from a vast subsurface ocean, researchers concluded in 2018. Those findings supported other **evidence of Europa plumes**.
7. Among the **Clipper mission's objectives** are to produce **high-resolution images of Europa's surface**, determine its composition, look for signs of geologic activity, measure the thickness of its icy shell and determine the depth and salinity of its ocean.

## KARGIL VIJAY DIWAS

It was on this day **22 years ago** on 26 July that the **Indian Army recaptured all the Indian posts in Kargil** that had been occupied by Pakistan's army. Since then, 26 July has been observed annually to commemorate the **sacrifices made by soldiers in this war** and celebrated as **Kargil Vijay Diwas**.

### What

1. The war took place between **May and July of 1999 in Jammu and Kashmir's Kargil district**.
2. The conflict is believed to have been orchestrated by the then Pakistan army chief **General Pervez Musharraf** without the knowledge of the then Pakistan Prime Minister Nawaz Sharif.
3. It began with the **infiltration of both regular Pakistani troops and terrorists into**

### Indian Territory.

4. The infiltrators positioned themselves in key locations that gave them a **strategic advantage** during the start of the conflict.
5. Based on information from local shepherds, the Indian Army was able to ascertain the points of incursion and launch "**Operation Vijay**".
6. The Army declared the mission successful on **26 July 1999**; since then the day has been celebrated **annually as Kargil Vijay Diwas**.

## UN FOOD SYSTEM SUMMIT

**India** on 27 July 2021 assured the United Nations (UN) that it will continue with its efforts in **transforming into sustainable agri-food systems** and to achieve the targets set in the **2030 Sustainable Development Goals (SDGs)** at virtual ministerial roundtable of the **UN Food Systems Summit on 'Transforming Food Systems for Achieving the SDGs: Rising to the Challenge'** and India has taken various steps to transform its **agri-food systems** into sustainable systems.

### What

1. Not only to **transform agri-food systems into sustainable systems**, India has taken measures to provide **income support to farmers**, **improve rural incomes**, as well as address the **issues of under-nutrition and malnutrition** in the country.
2. Emphasizing the **importance of the agriculture sector**, India has a strong conviction that agriculture has to play a vital role in **socio-economic transformation** in developing countries and in securing a sustainable future for the planet.
3. India is now **focusing to enhance productivity**, make post-harvest management robust, and give farmers and buyers a unified national market for optimizing benefits to both.
4. India has embarked on very ambitious reforms in the agriculture sector **to double the income of farmers** in coming years.
5. India has created a dedicated **Agriculture Infrastructure Fund** worth USD 14 billion which aims **to create farm gate and agriculture marketing infrastructure** in rural areas by providing **interest subventions** and **credit guarantee** to entrepreneurs which will greatly help in reducing the post-harvest losses thereby directly benefiting the farmers.
6. India has launched a scheme for the **formation and promotion of Farmer Producers Organizations** to provide scale advantage to small and marginal farmers.
7. The **agricultural marketing reforms** have been undertaken which removed barriers to the interstate marketing of agricultural produce.
8. India is running the **National Rural Employment Guarantee Scheme** that provides a constitutional right to every rural household to work for 100 days a year on a voluntary basis.
9. Further, India is actively **promoting organic farming** for ensuring sustainable productivity, food security, and soil health. India has developed **262 abiotic stress-tolerant varieties of different crops**.

### Flashback

1. The **Sustainable Development Goals (SDGs)**, also known as the **Global Goals**, were adopted by the **UN body in 2015** as a universal call to action to **end poverty, protect the planet**, and ensure that by 2030 all people enjoy peace and prosperity.
2. According to the UN body, sustainable food systems don't just help to end hunger, but can help the world achieve critical progress on all **17 SDGs**.