

## UPSC Daily Current Affairs 20 Jul 2021

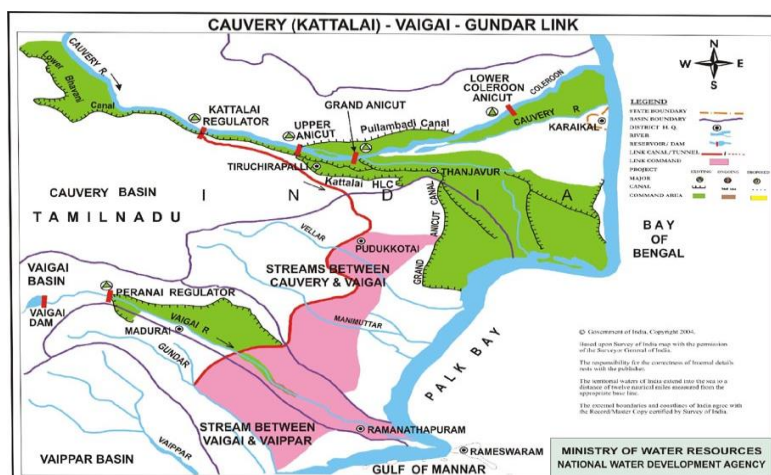
### Cauvery-Vaigai-Gundar (CVG) link project

(Topic- GS Paper I- Geography (Water Resources), Source- The Hindu)

#### Why in the news?

- Karnataka has recently approached the Supreme Court staking claim to 91 tmc ft of surplus water annually in the Cauvery Basin while opposing the Cauvery-Vaigai-Gundar (CVG) link project planned by Tamil Nadu for transferring 45 tmc ft of surplus water yearly.

#### About Cauvery–Vaigai Link Canal



- The Cauvery – Vaigai – Gundar link is an integral part of the Peninsular Rivers Development component under the **National Perspective Plan proposals**.
- It is a project envisioned by the Government of Tamil Nadu, **linking Kaveri and Vaigai rivers**.
- Tamil Nadu depends heavily on the rivers flowing from the neighboring states of Kerala and Karnataka.
- The project involves the construction of a 60-kilometre (158.82 mi) long canal from Mayanur in Karur district to link river Kaveri with Vaigai.
- **The Cauvery – Vaigai – Gundar link project lies entirely in Tamil Nadu State.**
- This link is an integral part of the Mahanadi – Godavari – Krishna -Pennar – Cauvery – Vaigai – Gundar link, which envisages the transfer of surplus Mahanadi and Godavari waters that would be brought into the Krishna river to Pennar and from there to Palar, Cauvery, Gundar etc.
- The command area of the link project lies in Karur, Tiruchchirappalli, Pudukottai, Sivaganga, Ramanathapuram, Virudhunagar and Thoothukudi districts of Tamil Nadu State.

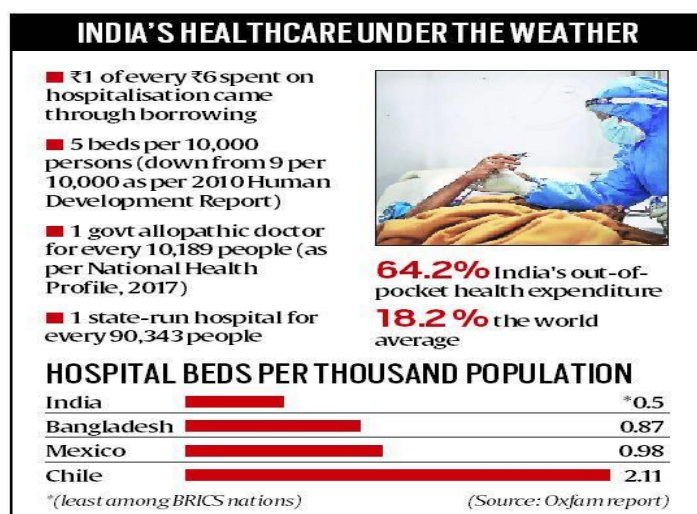
## India Inequality Report 2021

(Topic- GS Paper II- Governance, Source- The Hindu)

### Why in the news ?

- Recently the Oxfam India has released a report, titled “India Inequality Report 2021: India’s Unequal Healthcare Story.

### Key highlights



- The findings are primarily based on secondary analysis from rounds 3 and 4 of the National Family Health Survey and various rounds of National Sample Survey.
- The reports show that the "general category is better off than SCs and STs, Hindus are better off than Muslims, the rich are better off than the poor, men are better off than women, and the urban population is better off than the rural population" on most health determinants, interventions and indicators.

### Women Literacy

- The report shows that while women’s literacy has improved across social groups over the years, SC and ST women lag behind the general category by 18.6% and 27.9% respectively.
- There exists a gap of 55.1% between the top and bottom 20% of the population in 2015-16.
- Though the female literacy rate among Muslims (64.3%) is lower than all religious groups, inequality has reduced over time.

### Sanitation

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- As far as sanitation is concerned, 65.7% of households have access to improved, non-shared sanitation facilities in the general category while SC households are 28.5% behind them and ST are 39.8% behind them.

### **Institutional deliveries in India**

- The share of institutional deliveries in India has increased from 38.7% in 2005-06 to 78.9% in 2015-16, but inequalities persist, with ST households 15% below the general category, Muslims 12% behind Hindus and a 35% gap between the poorest and richest 20% of the population.

### **Hospital beds per thousand populations**

- India also ranks the lowest in the number of hospital beds per thousand populations among the BRICS nations at 0.5 — it is lower than lesser developed countries such as Bangladesh (0.87), Chile (2.11) and Mexico (0.98).
- Rural India houses 70 per cent of the population, while it has 40 per cent of hospital beds.

### **About Oxfam India**

- It is a registered Non-profit under Section 8 of the Indian Companies Act, 2013.
- It has been working to support child education, empowering women & fighting against inequality in India.
- Oxfam India is a movement of people and grassroots organisations working together to stop the rising inequality in the country that keeps wealth concentrated in the hands of a few.
- They work to ensure equitable distribution of wealth and resources.

## **OPEC+**

**(Topic- GS Paper II- International Organisation, Source- The Hindu)**

### **Why in the news?**

- Recently, OPEC (Organisation of Petroleum Exporting Countries) and its allies led by Russia have agreed to gradually withdraw Covid-related production cuts by September 2022, leading to crude oil prices falling to about \$72 per barrel.
- OPEC+ has decided to increase overall production by 4,00,000 barrels per day every month till the remaining portion of the group's 10 million barrel per day production cut, announced in April 2020, is completely phased out.
- The decision also ends a standoff between the UAE and other OPEC+ countries on tying an extension of the supply agreement to increases in production.

### **Background**

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- The OPEC+ group of countries had in April 2020, entered into a two-year agreement which entailed steep cuts in crude oil production to deal with a sharp fall in the price of crude oil as a result of the Covid-19 pandemic.
- The price of Brent crude hit an 18-year low of under \$20 per barrel in April 2020 as economic activity around the world crashed as countries dealt with the Covid-19 pandemic.
- Crude oil prices have, however, since recovered to well above the pre-Covid-19 levels leading to India and other developing countries calling for a withdrawal of production cuts.
- The current price of Brent crude is about 39 percent higher than the price of crude at the beginning of the year.
- The sharp increase in crude oil prices has contributed to petrol and diesel prices hitting all-time highs across India.

### Impact on India

- India is currently facing record-high prices of petrol and diesel, with pump prices of the former exceeding more than Rs 100 per litre in 13 states and Union Territories.
- The price of Brent crude had risen to over \$77 per barrel earlier in July over a potential deadlock in OPEC+ negotiations on production levels.
- India has already seen a 21.7 per cent increase in the price of petrol and diesel since the beginning of the year.
- India is the world's third-biggest oil importer and consumers stated that the delay in the decision can threaten the consumption-led recovery in some countries.
- India imports about 84 per cent of its overall crude needs with over 60 per cent of that coming from Middle Eastern countries, which are typically cheaper than those from the West.

### Posing fiscal challenges for India

- Rising oil prices are posing fiscal challenges for India, where heavily-taxed retail fuel prices have touched record highs in some parts of the country, threatening the demand-driven recovery.
- The announcement of an increase in production levels coupled with fears of increased mobility restrictions following an increase in Covid-19 cases has led to a pause in the relentless rise of crude oil prices.

### Related Information

#### About OPEC+



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- OPEC+ refers to the alliance of crude producers, who have been undertaking corrections in supply in the oil markets since 2017.
- OPEC plus countries include Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan and Sudan.
- The OPEC and non-OPEC producers first allied a historic meeting in Algiers in 2016.
- The aim was to undertake production restrictions to help revive a swinging market.

## Pegasus spyware

(Topic- GS Paper III- Science and Technology, Source- The Hindu)

### Why in the news?

- Recently, over 300 mobile phone numbers in India have been targeted by Pegasus.

### About Pegasus spyware

**Decoding Pegasus**

Pegasus is a spyware, developed and licensed by an Israeli company, NSO Group. It can be used to infiltrate smartphones that run on both iOS and Android operating systems, and turn them into surveillance devices. A low down:

- Pegasus's method of attack is called zero-click attacks, which do not require any action by the user. The spyware can hack a device simply by giving a **missed WhatsApp call**
- It will **alter call logs** so that the user has no knowledge of what happened
- Once the spyware enters the device, it installs a module to track call logs, read messages, emails, calendars, Internet history, and gather location data to send the information to the attacker
- It can also be **installed manually** on a device or over a wireless transceiver
- If it fails to connect with its command-and-control server for more than 60 days, it **self-destructs and removes all traces**
- If it detects that it was installed on the wrong device or SIM card, it will **self-destruct**
- Amnesty International noted that despite issuing security updates, Android and iOS devices were **breached**
- To stay safe, users need to ensure that software in devices is updated and all apps are installed directly through the official stores. **No suspicious email or text should be clicked**

- It is Israeli-origin spyware that got into the phones of activists and journalists via WhatsApp.

### Who developed it?

- It has been developed by the Israeli cyber arms firm, NSO Group.
- The NSO Group is a Tel Aviv-based cybersecurity company that specialises in “surveillance technology” and claims to help governments and law enforcement agencies across the world fight crime and terrorism.

### Transmission

- The code is transmitted via WhatsApp call.

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- The code enters the phone even if the call is not answered.

### Who was targeted?

- According to reports, over 100 activists, lawyers, and journalists were targeted.
- Among them were several Indian lawyers and journalists

### What does it do?

- It sends the target's contacts, calls and messages to its controller.
- It can also turn the phone into a spy device by switching on the camera or microphone

### What kind of devices is vulnerable?

- All devices, practically, iPhones have been widely targeted with Pegasus through Apple's default iMessage app and the Push Notification Service (APNs) protocol upon which it is based.
- The spyware can impersonate an application downloaded to an iPhone and transmit itself as push notifications via Apple's servers.
- One of the worrying aspects of the Pegasus spyware is how it has evolved from its earlier spear-phishing methods using text links or messages to **'zero-click attacks which do not require any action from the phone's user'**

### Related Information

#### About Zero-click attacks

- A zero-click attack helps spyware like Pegasus gain control over a device without human interaction or human error.
- So all awareness about how to avoid a phishing attack or which links not to click are pointless if the target is the system itself.
- Most of these attacks exploit software that receive data even before it can determine whether what is coming in is trustworthy or not, like an email client.

#### Preventive measures

- Zero-click attacks are hard to detect given their nature and hence even harder to prevent.
- Detection becomes even harder in encrypted environments where there is no visibility on the data packets being sent or received.

#### Updation

- One of the things users can do is to ensure all operating systems and software are up to date so that they would have the patches for at least vulnerabilities that have been spotted.
- Also, it would make sense to not sideload any app and to download only via Google Play or Apple's App Store.

### Monkey B virus

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(Topic- GS Paper III- Science and Technology, Source- Indian Express)

### Why in the news?

- Recently, China has reported the first human infection case with Monkey B virus (BV).

### About Monkey B virus



- The virus, initially isolated in 1932, is an alphaherpesvirus enzootic in macaques of the genus *Macaca*.
- B virus is the only identified old-world-monkey herpes virus that displays severe pathogenicity in humans.

### Transmission

- The infection can be transmitted via direct contact and the exchange of bodily secretions of monkeys.
- According to the Centre for Disease Control and Prevention, Macaque monkeys commonly have this virus, and it can be found in their saliva, faeces (poop), urine (pee), or brain or spinal cord tissue.
- 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.

### Human-to-human transmission

- Till date, only one case has been documented of an infected person spreading B virus to another person.

### Fatality

- It has a fatality rate of 70 per cent to 80 per cent.

### Symptoms

- Symptoms typically start within one month of being exposed to B virus, but could appear in as little as three to seven days.
- The first indications of B virus infection are typically flu-like symptoms such as fever and chills, muscle ache, fatigue and headache, following which an infected person may

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develop small blisters in the wound or area on the body that came in contact with the monkey.

- Some other symptoms of the infection include shortness of breath, nausea and vomiting, abdominal pain and hiccups.

### Near-Earth Asteroid Scout : NASA's new spacecraft

(Topic- GS Paper III- Science and Technology, Source- The Hindu)

#### Why in the news?

- Recently, NASA announced that its new spacecraft, named NEA Scout, has completed all required tests and has been safely tucked inside the Space Launch System (SLS) rocket.
- NEA Scout is one of several payloads that will hitch a ride on Artemis I, which is expected to be launched in November 2021.

#### About NEA Scout

- Near-Earth Asteroid Scout, or NEA Scout, is a small spacecraft, about the size of a big shoebox.
- Its main mission is to fly by and collect data from a near-Earth asteroid.
- **It will also be America's first interplanetary mission using special solar sail propulsion.**
- NEA Scout will use stainless steel alloy booms and deploy an aluminium-coated sail measuring 925 square feet.
- The spacecraft will take about two years to cruise to the asteroid and will be about 93 million miles away from Earth during the asteroid encounter.

#### How will it study the asteroid?

- NEA Scout is equipped with special cameras and can take pictures ranging from 50 cm/pixels to 10 cm/pixels.
- It can also process the image and reduce the file sizes before sending them to the earth-based Deep Space Network via its medium-gain antenna.
- "The images gathered by NEA Scout will provide critical information on the asteroid's physical properties such as orbit, shape, volume, rotation, the dust and debris field surrounding it, plus its surface properties," said Julie Castillo-Rogez, the mission's principal science investigator at NASA's Jet Propulsion Laboratory (JPL).

#### Related Information

##### Artemis I mission

- It will be launched in November 2021.
- It will be an uncrewed test flight of the Orion spacecraft and SLS rocket.

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- Under the Artemis programme, NASA has aimed to land the first woman on the Moon in 2024 and also establish sustainable lunar exploration programs by 2030.

### **ISRO's Moon Exploration**

#### **About Chandrayaan – 3**

- It is the successor to the Chandrayaan-2 mission which will likely attempt another soft-landing on the lunar surface.
- It will be almost a repetition of the July 2019 Chandrayaan-2 mission in the configuration of spacecraft, the landing spot on the moon and the experiments to be conducted on the lunar surface.

#### **About Chandrayaan- 2 Mission**

- ISRO has launched the Chandrayaan-2 mission to the Moon in July, but its lander failed to reach the lunar surface.
- It is a completely indigenous mission, is India's second lunar exploration mission which the following basic components.

#### **These are**

##### **Orbiter**

- It will observe the lunar surface and relay communication between Earth and Chandrayaan 2's Lander.

##### **Lander (called Vikram)**

- It has been designed to execute India's first soft landing on the lunar surface.

##### **Rover (called Pragyan)**

- It is a 6-wheeled, AI powered vehicle, which will move on the lunar surface and perform on-site chemical analysis.

##### **Launcher**

It was launched by Geosynchronous Satellite Launch Vehicle GSLV MkIII-M1.

It is India's most powerful launcher to date and has been completely designed and fabricated from within the country

#### **History of Moon exploration in the world**

- In 1959, the **Soviet Union's uncrewed Luna 1 and 2** became the first rover to visit the Moon.
- Since then, seven nations have followed suit.

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- Before the US sent the **Apollo 11 mission to the Moon**, it sent three classes of robotic missions between 1961 and 1968. After July 1969, 12 American astronauts walked on the surface of the Moon until 1972.
- Then in the 1990s, the US resumed lunar exploration with robotic **missions Clementine and Lunar Prospector**.
- In 2009, it began a new series of robotic lunar missions with the launch of the **Lunar Reconnaissance Orbiter (LRO) and the Lunar Crater Observation and Sensing Satellite (LCROSS)**.
- In 2011, NASA began the **ARTEMIS (Acceleration, Reconnection, Turbulence, and Electrodynamic of the Moon's Interaction with the Sun)** mission using a pair of repurposed spacecraft.
- In 2012, the **Gravity Recovery and Interior Laboratory (GRAIL)** spacecraft studied the Moon's gravity.
- Apart from the US, the European Space Agency, Japan, China, and India have sent missions to explore the Moon.
- China landed two rovers on the surface, which includes the first-ever landing on the Moon's far side in 2019.

### NBDriver (neighbourhood driver)

(Topic- GS Paper III- Science and Technology, Source- The Hindu)

#### Why in the news?

- Researchers at IIT Madras have recently developed an **AI tool called NBDriver (neighbourhood driver)**.

#### About NBDriver (neighbourhood driver)

- It is used in analysing cancer-causing mutations in cells.
- The algorithm of NBDriver studies the DNA structures and characterizes the genetic changes which are responsible for causing cancer.
- By looking at the neighbourhood, or context, of a mutation in the genome, it can look at harmful “driver” mutations and distinguish them from neutral “passenger” mutations.

#### Related Information

##### About Cancer

- Cancer is caused due to the uncontrolled growth of cells driven mainly by genetic alterations.
- In recent years, high-throughput DNA Sequencing has revolutionized the area of cancer research by enabling the measurement of these alterations

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## Project Loon

(Topic- GS Paper III- Science and Technology, Source- The Hindu)

### Why in the news?

- Recently, Florida has requested the USA to greenlight a plan to transmit the Internet to people in Cuba via high-altitude balloons.

### About Project Loon



- It is a search engine project by **Google for providing internet access to rural and remote areas using high-altitude helium-filled balloons.**
- It aims to develop an aerial wireless network with upto **4G LTE speeds.**
- **Project Loon began as a research and development project by Google X, but later spun out into a separate company in July 2018**
- The Loon balloons are effectively cell towers the size of a tennis court.
- They float 60,000 to 75,000 feet (18,000- 23,000 meters) above the Earth, well above commercial jetliner routes.
- **These are made of the commonplace plastic polyethene and use solar panels for electricity.**
- These can deliver service to smartphones in partnership with local telecom and each balloon can serve thousands of people.
- However, they have to be replaced every five months or so because of the harsh conditions in the stratosphere.

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