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MINISTRY OF SCIENCE AND TECHNOLOGY



MK Yadav Sir

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THE HINDU Page 12

VIRUS LIKE PARTICLES (VLPS)

(Syllabus: GS Paper 3 – Sci and Tech)

In fight against Nipah, scientists find new way to generate virus-like particles in lab

C. Maya
THIRUVANANTHAPURAM

Scientists at the Institute of Advanced Virology (IAV) at Thonnakkal here have developed a novel way of generating non-infectious Nipah virus-like particles (VLPs) in the laboratory, which mimic the wild-type Nipah Virus (NiV).

This method offers a safe and effective alternative platform for developing neutralising antibodies against the NiV in a biosafety level-2 (BSL) laboratory. The IAV team has thus come one step closer to its mandate for developing monoclonal antibodies and anti-virals against the NiV and similar pathogens.

The zoonotic virus Nipah is a highly pathogenic paramyxovirus, with a fatality rate of up to 80% in affected humans. Yet, research studies have been limited because of the extreme level of biosafety precautions required for handling this BSL-4 pathogen.

Virus neutralisation assays are critical for the development and evaluation of vaccines and immunotherapeutics, and for conducting basic research into the immune response and pathogenesis of NiV. These tests, which traditionally require to be done in high-security labs with the infectious organism, can now be done safely in BSL-2 labs in the country using the NiV-VLPs, Director of IAV E. Sreekumar says.



This method by the scientists at the Institute of Advanced Virology offers an effective platform for developing neutralising antibodies.

The laboratory studies by the team of researchers led by Mohanan Valiyaveettil have been detailed in the manuscript which appeared on May 24 in the international journal *Heliyon* by Cell Press.

More sophisticated

The VLPs are molecules that closely resemble viruses, but are non-infectious. They have long been recognised as effective quantitative platforms for studying viral binding and entry kinetics of the virus. But the advent of NanoBiT technology and "HiBiT-tagged" VLP (HiBiT is an 11 amino acid peptide) makes it far more sophisticated. The genome of the NiV encodes six major proteins: glycoprotein (G), fusion protein (F), matrix (M), nucleocapsid (N), long polymerase (L) and phosphoprotein (P). IAV scientists generated "HiBiT-tagged" Nipah virus-like particles (NiV-VLPs) using plasmid-based expression systems, encoding the NiV structural proteins G, F, and M.

The VLPs thus produced were functionally identical to the native virus. The inclusion of a highly sensitive HiBiT tag on these VLPs accelerates their potential in antiviral drug screening and vaccine development.

The scientists say that the potential risks of using native viruses in virus-based assays could be alleviated with these HiBiT tagged VLPs.

This study is the first of its kind using HiBiT tagged NiV-VLPs, demonstrating their application in neutralisation assays.

However, extensive studies using multiple neutralising antibodies and anti-virals that block entry of the virus are needed to conclusively show the efficacy of these VLPs, they added.

Context: Scientists at the Institute of Advanced Virology (IAV), Thonnakkal, Thiruvananthapuram, have developed a novel way of generating **non-infectious Nipah virus-like particles (VLPs)** in the laboratory, which mimic the wild type Nipah virus (NiV).

Virus Like Particles (VLPs):

- **About:** They are molecules that closely resemble viruses, but are non-infectious because they contain no viral genetic material. They carry most of the characteristics of the virus, except their ability to replicate (because it lacks the viral genome).
  - They have long been recognised as effective quantitative platforms for studying viral binding and entry kinetics of the virus.
- **The study**: The new method offers an alternate, safe and effective platform for developing neutralizing antibodies against NiV.

Nipah Virus (NiV)

- **About**: It is a zoonotic virus, meaning it can be transmitted from animals to humans.
  - The zoonotic virus Nipah is a highly pathogenic paramyxovirus, with a fatality rate of up to 80% in affected humans.
- **Responsible:** RNA virus belonging to the Paramyxoviridae family, Henipavirus genus, and is closely related to the Hendra virus.
- **Initial occurrence of the outbreak**: Malaysia (1998) and Singapore (1999).
  - The estimated case fatality rate for the Nipah Virus ranges from 40% to 75%, which can vary depending on the outbreak's local epidemiological surveillance and clinical management capabilities.
- **Spread**: The virus can be transmitted to humans either through contact with infected animals, consumption of contaminated food, or through direct person-to-person transmission.
  - Fruit bats are recognized as the natural reservoir of the virus.
- **Symptoms**: Acute encephalitis and respiratory illnesses
- **Prevention**: Currently, there are no vaccines for both humans and animals.

DTE

June 2

CENTRAL WATER COMMISSION
(Syllabus GS Paper 3 – Env & Eco)

Water storage at just 23% in India's key reservoirs

Context: The Central Water Commission (CWC) recently reported that water shortages across the country are set to worsen, with the water level in the 150 main reservoirs having dropped to 23%, which is 77% less than last year's levels.

Key Highlights of CWC

- At **least 8 reservoirs** across Maharashtra, Karnataka, Telangana, Andhra Pradesh (AP), and Uttarakhand reported zero storage.
- 4 additional reservoirs, located in AP, Gujarat, Maharashtra, and Karnataka, had **less than 10% storage**.
- The southern region, encompassing AP, Telangana, Karnataka, Kerala, and Tamil Nadu, faced severe repercussions.
- Out of **42 reservoirs in this area, only 14% of their total capacity was filled,** compared to 25% last year and the normal 20%.
- The northern, eastern, and central regions exhibited storage **levels at 30%, 28%, and 29.1% respectively,** in comparison to their total reservoir capacities.
- Thirteen east-flowing rivers between the Mahanadi and Pennar remained dry for nine consecutive weeks, including Rushikulya, Bahuda, Vamsadhara, and others.
- **18 out of 19 river basins registered storage levels below 50%**, with only the Brahmaputra basin reporting 58.58% capacity.
- **Storage in the Ganga river basin stood at 31.99%** of its capacity, lower than last year but higher than the 'normal' average over the past ten years.

Central Water Commission (CWC)

- **About:** It operates as an attached office of the Ministry of Jal Shakti, falling under the Department of Water Resources, River Development, and Ganga Rejuvenation.
- **Headquarters**: New Delhi.
- Organizational Structure: Led by a Chairman holding the status of Ex-Officio Secretary to the
- **Divisional Authority**: Each wing is overseen by a full-time Member, carrying the status of Ex-Officio Additional Secretary to the Government of India.
- **Functions**:
  - **Coordination and Initiation**: Responsible for initiating, coordinating, and advancing schemes in consultation with State Governments for water resource control, conservation, and utilization nationwide.
  - **Scope of Operations:** Undertakes investigations, constructions, and execution of schemes related to flood control, irrigation, navigation, drinking water supply, and water power development.

NDTV June 2

WORLD HEALTH ASSEMBLY
(Syllabus: GS Paper 2 – Health)

"India Played Constructive Role": Centre On Historic World Health Assembly Move

Context: The World Health Assembly recently passed a resolution highlighting the increasing impact of climate change on health and called for radical measures to counter health risks.,

World Health Assembly

- **About**: This Assembly is the main decision-making body of WHO.
- **Members:** 194 Member States.
- **Annual Meeting:** Every year, generally in May.
- **Headquarter**: Geneva, Switzerland.
- **Health Goals and Strategies**: At the Health Assembly, country delegates make decisions on health goals and strategies that will guide their own public health work and the work of the WHO Secretariat to move the world towards better health and well-being for all.
- **Reporting and Implementation:** The Health Assembly also serves as a forum for reporting back on the implementation of the areas of work set, in order to determine what has been achieved and decide on strategies for addressing the gaps.

International Health Regulations (IHR 2005)

- **About:** The IHR are an instrument of international law that is legally-binding on 196 countries, including the 194 WHO Member States.
- **Entered into force on**: 15 June 2007
- **Basis of Amendments**: These amendments were based on 300 proposals made by member countries following the COVID-19 pandemic.
- **Negotiation Challenges:** The negotiation process for the amendments faced several deadlocks by various countries.
- **India's Role:** India played a constructive role in crafting the Instrument, which aims to operationalize equity for an equitable response by developing countries to Public Health Emergencies.
- **Objectives**: To improve countries' ability to prepare for and respond to Public Health Emergencies of International Concern (PHEIC) and Pandemic Emergencies (PE).
    - The amendments include provisions to facilitate equitable access to relevant health products during PHEIC and PE.
- **Financial Support**: They also target the mobilization of financial resources to support developing countries in building, strengthening, and maintaining the core capacities required under the IHR (2005).

INDIAN EXPRESS Page 12

JADES-GS-Z14-0

(Syllabus: GS Paper 3 – Sci and Tech)

JWST SPOTS EARLIEST-KNOWN GALAXY: WHAT A NEW STUDY SAYS



An infrared image of the JADES-GS-z14-0 *(shown in the pullout)* galaxy from James Webb Space Telescope. NASA

NASA'S JAMES Webb Space Telescope (JWST) has spotted the earliest-known galaxy, one that is surprisingly bright and big considering it formed during the universe's infancy — at only 2% its current age.

JWST, which by peering across vast cosmic distances is looking way back in time, observed the galaxy as it existed about 290 million years after the Big Bang event that initiated the universe roughly 13.8 billion years ago, the researchers said. This period spanning the universe's first few hundred million years is called cosmic dawn.

The discovery was made by an international team of astronomers, who used JWST to observe galaxies as part of the JWST Advanced Deep Extragalactic Survey (JADES) program. The study was published online last week ahead of formal peer review.

What do we know about the galaxy?

This galaxy, called JADES-GS-z14-0, measures about 1,700-light years across. A light year is the distance light travels in a year, which is 9.5 trillion km. The galaxy has a mass equivalent to 500 million stars the size of our Sun and is rapidly forming new stars — about 20 every year.

"The early universe has surprise after surprise for us," said astrophysicist Kevin Hainline of Steward Observatory at the University of Arizona, one of the authors of the study.

Until now, the earliest-known galaxy dated to about 320 million years after the Big Bang, as announced by the JADES team last year.

"It makes sense to call the galaxy big, because it's significantly larger than other galaxies that the JADES team has measured at these distances, and it's going to be challenging to understand just how something this large could form in only a few hundred million years," Hainline said.

"The fact that it's so bright is also fascinating, given that galaxies tend to grow larger as the universe evolves, implying that it would potentially get significantly brighter in the next many hundred million years," Hainline said.

The JADES team in the same study disclosed the discovery of the second oldest-known galaxy, from about 303 million years post-Big Bang.

This one, JADES-GS-z14-1, is smaller — with a mass equal to about 100 million sun-sized stars, measuring roughly 1,000 light years across and forming about two new stars per year.

Why is the galaxy so bright?

Three main hypotheses have been advanced to explain the luminosity of early galaxies. The first attributed it to supermassive black holes in these galaxies gobbling up material. That appears to have been ruled out by the new findings because the light observed is spread over an area wider than would be expected from black hole gluttony.

It remains to be seen whether the other hypotheses — that these galaxies are populated by more stars than expected or by stars that are brighter than those around today — will hold up, according to astrophysicist and study co-author Francesco D'Eugenio of the Kavli Institute for Cosmology at the University of Cambridge.

REUTERS

Context: NASA's James Webb Space Telescope (JWST) has spotted the earliest known galaxy, one that is surprisingly bright and big considering it formed during the universe's infancy at only 2% its current age.

JADES-GS-z14-0

- **About**: The galaxy, JADES-GS-z14-0, spans approximately 1,700 light-years across, with a light-year measuring 9.5 trillion kilometers.
- **Mass and Formation:** Its mass equates to 500 million stars the size of our Sun, with a rapid rate of star formation, generating around 20 new stars annually.
- **Origin**: JADES-GS-z14-0 represents the earliest-known galaxy, predating others by about 320 million years after the Big Bang, marking a significant milestone in cosmological understanding.
- **Size Challenge:** The galaxy's considerable size poses a puzzle regarding its rapid formation within a few hundred million years, prompting inquiries into galactic evolution in the early universe.
- **Brightness**: Its luminosity surpasses expectations, especially given the trend of galaxies growing brighter over time, raising questions about its future evolution.
- **Discovery:** Alongside JADES-GS-z14-0, the JADES team unveils another ancient galaxy, JADES-GS-z14-1, offering insights into the early cosmos with its smaller size and distinct characteristics.

Reason of Galaxy's Brightness

- **Supermassive Black Holes:** Initially considered as the cause of early galaxy brightness due to their voracious consumption of matter.
- **Observational Contradiction:** Recent findings suggest that the spread of light in early galaxies surpasses predictions based on black hole activity, casting doubt on this hypothesis.
    - Other proposed hypotheses include the presence of a higher number of stars or stars with greater luminosity compared to contemporary ones.

THE HINDU Pg 6/Jun 2

INTRUSION DETECTION SYSTEM (IDS)

(Syllabus: GS Paper 3 – Sci and Tech)

Railways to install optical fibre-based system to detect elephant crossing

Abdul Latheef Naha
PALAKKAD

The Railways will soon install an optical fibre-based intrusion detection system (IDS) along the elephant infested 33-km stretch between Kottekkad and Madukkarai to prevent elephant deaths on the tracks. The Southern Railway is installing the system for the first time after its successful implementation in the Northeast Frontier Railway (NFR).

Palakkad Divisional Railway Manager Arun Kumar Chaturvedi said the ₹15.4-crore work would be done on a war footing. "We expect to finish the work by this December," Mr. Chaturvedi told *The Hindu*.



A wild elephant crossing the railway track at Kottekad, where the Railway is planning to install intrusion detection system. FILE PHOTO

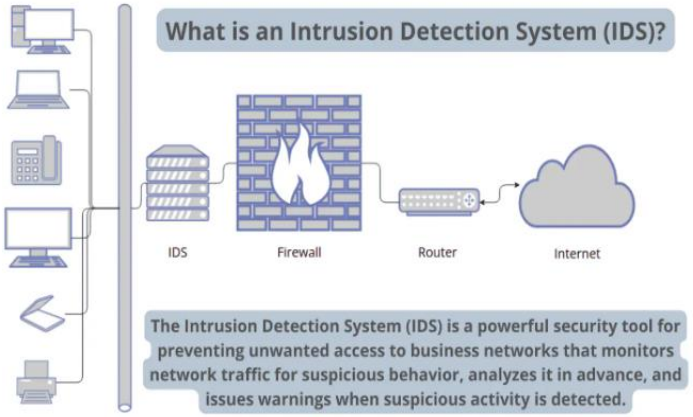
According to railway officials, the project is likely to be costlier as it involves laying of optical fibre cable along both sides of the A and B rail lines between Kottekkad and Madukkarai. In effect, the cable network has to be laid for about 130 km.

The optical fibre network will detect the presence of animals, big and small, through vibrations and send real-time alerts to the intrusion monitoring cell, stationmasters and loco pilots. "We will soon calibrate the signals for a variety of animals as well as vehicles. If it's a deer, the signals will say it. And if it's a jeep, it will be identified," Mr. Chaturvedi said.

There will be no cameras for the IDS. It will rather be depending on acoustics and optics. The exact location of the encroaching elephants will be passed to loco pilots and stationmasters.

Ideally the cable has to be laid about 100 metres wide of the tracks on both sides. However, officials are worried about the lack of enough railway land. "If the fibre is laid close to the tracks, then loco pilots may not get enough time to respond to an alarm. Elephants sometimes step on to the tracks out of nowhere," said Mr. Chaturvedi.

How IDS Works



Context: The Railways will install an optical fiber-based intrusion detection system (IDS) along a 33-km elephant-infested stretch between Kottekkad and Madukkarai to prevent elephant deaths on the tracks.

Intrusion Detection System (IDS)

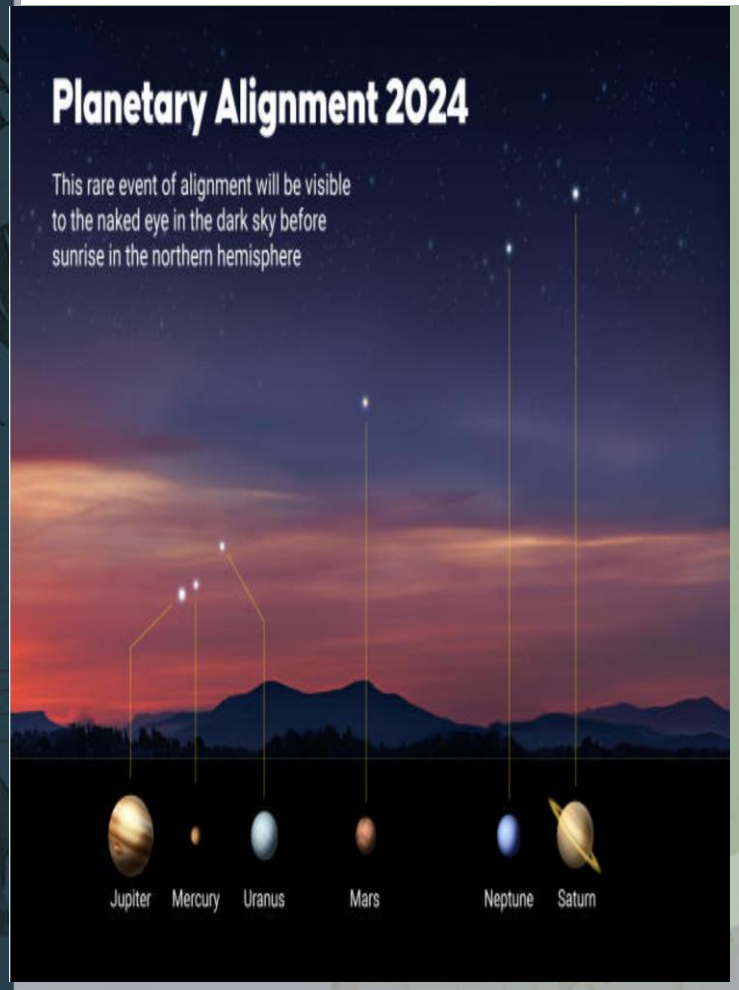
- **About:** An IDS observes network traffic for malicious transactions and sends immediate alerts when it is observed.
  - It is software that checks a network or system for malicious activities or policy violations.
- **Types of IDS:** Network Intrusion Detection System
  - Host Intrusion Detection System
  - Protocol-Based Intrusion Detection System
  - Application Protocol-Based Intrusion Detection System
  - Hybrid-Based Intrusion Detectio
- **Alert Mechanism:** Each illegal activity or violation is often recorded either centrally using an SIEM system or notified to an administration.
- **Security Role**: IDS monitors a network or system for malicious activity and protects a computer network from unauthorized access from users, including perhaps insiders.
- **Learning Task**: The intrusion detector learning task is to build a predictive model capable of distinguishing between 'bad connections' (intrusion/attacks) and 'good (normal) connections'.
- **Functionality of IDS**: The optical fiber network will detect the presence of animals through vibrations, sending real-time alerts to the intrusion monitoring cell, stationmasters, and loco pilots.

INDIA TODAY June 2

PLANETARY ALIGNMENT

(Syllabus: GS Paper 1 – Geography)

Six planets to align in skies: These Indian cities to witness rare cosmic event



Context: Recently, a Parade of Planets occurred as Saturn, Mars, Uranus, Neptune, Jupiter, and Mercury aligned in the sky.

Planetary Alignment

- **Definition**: It refers to the rare positioning of planets within the solar system, creating an illusion of alignment in a straight line.
  - According to NASA, planetary alignment occurs when two or more planets appear close together in the sky, forming a conjunction.
- **Optical Illusion vs. Actual Event:** It's crucial to recognize that planetary alignment is primarily an optical illusion rather than a tangible occurrence.
- **Causes of Planetary Alignments**:
  - Planets orbit the Sun at varying speeds and distances, leading to frequent movements relative to each other in the night sky.
  - Occasionally, the orbital paths of planets intersect, resulting in apparent alignments or conjunctions.
- **Next planetary alignment:** August 28, involving the same six planets.
- **Anticipated Events**: NASA projects three similar planetary alignment events in 2025, indicating the periodic nature of this phenomenon.

INDIAN EXPRESS Page 13

MONETARY POLICY COMMITTEE

(Syllabus: GS Paper 3 – Economy)

Why is Monetary Policy Committee likely to leave repo rate unchanged?

HITESH VYAS
MUMBAI, JUNE 2

THE RESERVE Bank of India's Monetary Policy Committee (MPC), which is scheduled to meet from June 5 to 7, is expected to keep the repo rate steady at 6.5 per cent as sticky food inflation continues to remain a threat to the inflation. The rate setting panel may also leave the monetary policy stance unchanged at 'withdrawal of accommodation'. Some market experts are of the opinion that the RBI may change the FY25 gross domestic product (GDP) growth projection but will leave inflation forecast unchanged.



File

What is expected?

In the policy scheduled to be announced on June 7, the six-member rate-setting panel of the RBI is likely to maintain status-quo for the eighth time in a row, market experts said. The repo rate - the rate at which the RBI lends money to banks to meet their short-term funding needs — is expected to remain unchanged at 6.5 per cent.

"RBI is expected to remain on pause in the June meeting, as inflation remains above the 4 per cent target. The policy space to remain on pause is provided by strong growth conditions," said Gaura Sen Gupta, Chief Economist, IDFC FIRST Bank. The overall tone of the policy will remain cautious with upside risk to food inflation from current heat wave conditions. Daily retail food prices indicate rise in food inflation pressures in the month of May 2024, she said.

Under the flexible inflation targeting regime, the RBI has to maintain consumer price-based inflation (CPI) in the 2-6 per cent range. The RBI has been targeting to bring inflation down to 4 per cent on a durable basis. In April, headline inflation moderated to 4.8 per cent from 4.9 per cent. In 2023-24, food inflation surged to 7 per cent from 6.7 per cent a year ago, impacted by sustained pressures from prices of cereals, pulses, spices and vegetables due to overlapping supply shocks.

"The MPC members from the RBI have sounded cautious on sticky food inflation owing to supply side disruptions due to the ongoing hot weather conditions in many parts of India. In our view, they may want to see progress of the monsoons and sowing of the summer (Kharif) crop to assess the food inflation trajectory in the second half of calendar year 2024, before pivoting towards monetary policy easing," Goldman Sachs said in its research report.

EXPLAINED E.

Will there be any change?

Analysts said the monetary policy stance of 'withdrawal of accommodation' is also likely to remain unchanged in the June policy. On an average, liquidity remained in deficit in May 2024 (till May 30) at Rs 1.42 lakh crore, compared with a surplus of Rs 20,240 crore in April. A part of the reason for pressure on liquidity is limited government spending during the general elections, said Sonal Badhan, Economist Bank of Baroda. "We expect RBI to maintain tight liquidity in the coming months as well, to maintain pressure on short-term yields, which may in turn support the rupee. Thus, we expect RBI to keep its stance—"withdrawal of accommodation"—unchanged in the June policy," she said.

IDFC FIRST Bank's Sen Gupta said the status quo on stance will signal that RBI is not in a hurry to cut interest rates anytime soon given the uncertainty on food inflation and Fed policy outlook.

What happens to lending rates?

With the RBI expected to leave the repo rate steady at 6.5 per cent, all external benchmark lending rates (EBLR) that are linked to the repo rate will not rise, providing a relief to borrowers as their equated monthly instalments (EMIs) will not increase.

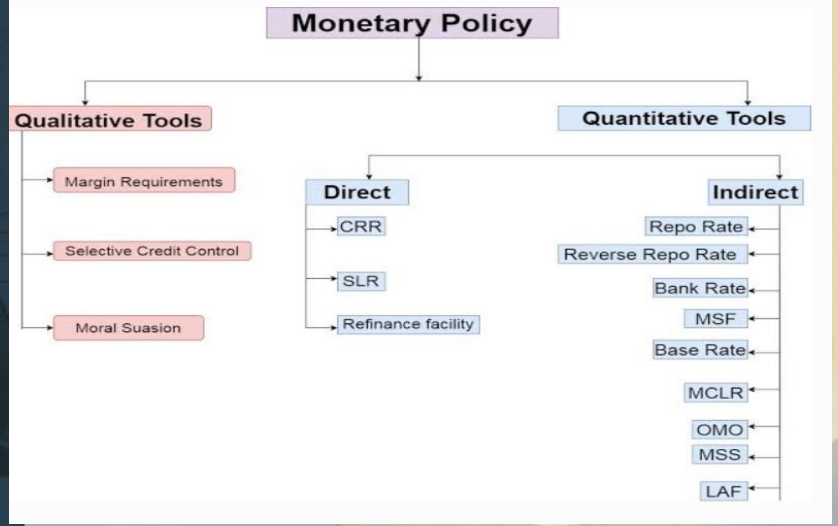
However, lenders may raise interest rates on loans that are linked to the marginal cost of fund-based lending rate (MCLR), where the full transmission of a 250 bps hike in the repo rate between May 2022 and February 2023 has not happened.

When is RBI expected to cut repo rate?

"We push our RBI rate cut call back by one quarter to Q4 (October-December) of calendar year 2024 (CY24) vs Q3 (July-September), with the first cut most likely in the December 2024 meeting," Goldman Sachs report said.

It expects a shallow easing cycle of total 50 basis points (bps) rate cuts from the RBI, with 25 bps rate cuts each in Q4 CY24 and Q1 CY25. One basis point is one-hundredth of a percentage point.

FULL REPORT ON www.indianexpress.com



Context: The Reserve Bank of India's Monetary Policy Committee (MPC) is anticipated to maintain the repo rate at 6.5% amidst persistent concerns over sticky food inflation.

Monetary Policy Committee (MPC)

- **About**: It was established based on the **recommendation of the Urjit Patel** Committee.
- **Set up**: Under Section 45ZB of the RBI Act of 1934 by the Union government.
- **Composition:** It is a 6 member committee. There are in total three internal members and three external experts. The RBI **Governor and Deputy Governor are also members** of the MPC Committee.
- **Objectives:** To improve the repo rate, reverse repo rate, liquidity, etc.
- **Instruments of Committee**: Repo rate, Reverse Repo rate, Marginal Standing Facility (MSF), Bank Rate, Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), Open Market Operations (OMOs)
- **Repo rate:** The Repo Rate is the interest rate at which the Reserve Bank of India (RBI) loans money to commercial banks.
- **Reverse repo rate**: Reverse repo is the inverse contract to the repo rate. The reverse repo rate is the rate at which the RBI borrows funds from the country's commercial banks.

THE HINDU Pg 12/Jun 2

TWO-STATE SOLUTION

(Syllabus: GS Paper 2 – IR)

Is a future Palestine state possible?

What are the hurdles to a two-state solution? With Palestinian territories under Israeli occupation since 1967, how will a Jewish and Arab state be demarcated? Why does Israel want to hold on to the status quo of occupation? Will war lead to peace in the region or is it a far-fetched idea?

Stanly Johny

The story so far:

Hamas's October 7, 2023 attack in Israel and the latter's continuing war on Gaza have brought the Palestine question back to the fore of West Asia. As the war has destroyed much of Gaza and killed 36,000 of its people, the world has also seen more countries voicing strong support for a future Palestine state. Recently, three European countries, Spain, Ireland and Norway, recognised the Palestine state. Arab countries, including Saudi Arabia and Jordan, say there wouldn't be lasting peace in the region unless the Palestine question is resolved. An internationally recognised solution to the crisis is what's called the two-state solution.

What's the two-state solution?

The short answer is simple: divide historical Palestine, the land between the Jordan River on the east and the Mediterranean Sea in the west, into an Arab state and a Jewish state. But the long answer is complicated. Israel, a Jewish state, was created in Palestine in 1948. But a Palestine state is not yet a reality. Palestinian territories have been under Israeli occupation since 1967. So, a two-state solution today means the creation of a legitimate, sovereign Palestine state, which enjoys the full rights like any other nation state under the UN Charter.

What are the origins?

The roots of the two-state solution go back to the 1930s when the British ruled over Palestine. In 1936, the British government appointed a commission headed by Lord William Robert Peel (known as the Peel Commission) to investigate the causes of Arab-Jewish clashes in Palestine. A year later, the commission proposed a partition of Palestine into a Jewish and an Arab state. At that time, Jews accounted for some 28% of Palestine's population. According to the Peel Commission proposal, the West Bank, Gaza and Negev desert would make up the Arab state, while much of Palestine's coast and the fertile Galilee region would be part of the Jewish state. Arabs rejected the proposal.

After the Second World War, the UN Special Commission on Palestine (UNSCOP) put forward another partition plan. It proposed that Palestine be divided into three territories – a Jewish state, an Arab state and an international territory (Jerusalem). Jews, who made up roughly 32% of Palestine's population, were to have 56% of the Palestine land as per the UNSCOP plan. The partition plan was adopted in the UN General Assembly (Resolution 181). Arabs rejected the plan (India voted against it), while the Zionist leadership of Israeli settlers in Palestine accepted it. And on May 14, 1948, Zionists unilaterally declared the state of Israel. This triggered the first Arab-Israeli war. And by the time an armistice agreement was achieved in 1949, Israel had captured some 22% more territories than what the UN had proposed.

How did it get international legitimacy?

In the 1967 Six-Day War, Israel captured the West Bank and East Jerusalem from Jordan, the Gaza Strip and the Sinai Peninsula from Egypt and the Golan Heights from Syria (Israel continues to control all territories except the Sinai which it returned to Egypt after the 1978 Camp David Accords). Palestine nationalism emerged stronger in the 1960s, under the leadership of the Palestine Liberation Organization (PLO).

The PLO initially demanded the "liberation" of the whole of Palestine, but later recognised the two-state solution based on the 1967 border. Israel initially rejected any Palestinian claim to the land and continued to term the PLO as a "terrorist" organisation. But in the Camp David Accords, which followed the 1973 Yom Kippur War in which Egypt and Syria surprised Israel with an attack, it agreed to the Framework for Peace in the Middle East agreement. As part of the Framework, Israel agreed to establish an autonomous self-governing Palestinian authority in the West Bank and Gaza Strip and implement the UN Resolution 242, which has demanded Israel pull back from all the territories it captured in 1967. The Framework laid the foundation for the Oslo Accords, which, signed in 1993 and 1995, formalised the two-state solution. As part of the Oslo process, a Palestinian National Authority, a self-governing body, was formed in the West Bank and Gaza and the PLO was internationally recognised as a representative body of the Palestinians. The promise of Oslo was the creation of a sovereign Palestinian state which would live next to the Israeli state in peace. However, this promise has never been materialised.

What are the hurdles to achieving the two-state solution?

The first setback for the Oslo process was the assassination of Yitzhak Rabin, the Israeli Prime Minister who signed the accords, in November 1995 by a Jewish extremist. Rabin's Labour party was defeated in the subsequent elections and the right-wing Likud, under Benjamin Netanyahu's leadership, came to power. The rise of Hamas, the Islamist militant group that opposed the Oslo Accords saying the PLO made huge concessions to the Israelis, also contributed to the derailment of the peace process. After the collapse of the Oslo process in the 1990s, there were multiple diplomatic efforts to revive the two-state plan, but none of these made progress towards achieving the goal.

Multiple reasons could be identified for this failure. But there are specific structural factors that make the two-state solution unachievable, at least for now. One is the boundary. Israel doesn't have a clearly demarcated border. It is essentially an expansionist state. In 1948, it captured more territories than it was promised by the UN. In 1967, it expanded further by taking the whole of historical Palestine under its control. From the 1970s, Israel has been building illegal Jewish settlements in Palestinian territories. While Palestinians say their future state should be based on the 1967 border, Israel is not willing to make any commitments.

Two, the status of settlers. Roughly 700,000 Jewish settlers are now living in the West Bank and East Jerusalem. If Israel is to withdraw to the 1967 border, they will have to pull back the settlers. The settlers are now a powerful political class in Israeli society and no Prime Minister can pull them back without facing political consequences. Three, the status of Jerusalem. Palestinians say East Jerusalem, which hosts Al Aqsa, Islam's third holiest mosque, should be the capital of their future Palestinian state, while Israel says the whole of Jerusalem, which hosts the Western Wall, the holiest place in Judaism, is Israel's "eternal capital". Four, the right of refugees to return to their homes. Some 7,00,000 Palestinians were displaced from their homes in 1948 when the state of Israel was declared. According to international law, they have a right to return to their homes. Israel says it won't allow the Palestinian refugees to return.

While these are the structural factors that make the two-state solution complicated, on the ground, Israel's rightwing leadership shows no willingness to make any concessions. Israel wants to continue the status quo – the status quo of occupation. The Palestinians want to break that status quo.

There are several structural factors that make the two-state solution complicated



No peace in sight: Israeli Prime Minister Yitzhak Rabin, and Palestinian leader Yasser Arafat at the signing of the Oslo accords in Washington, in 1993. AP



Context: Recently, India said that it was one of the first countries to recognise Palestine and has long supported the two-state solution to end the Israel-Palestine conflict.

Two-State Solution

- **About:** It proposes dividing historical Palestine into an Arab state and a Jewish state.
- **Israel-Palestine Conflict**: The two-state solution envisions the creation of independent Israel and Palestine, representing the mainstream approach to conflict resolution.
- **Historical Context:** Israel, established in 1948, is a Jewish state within Palestine, while a Palestinian state remains unrealized.
- **Vision:** The two-state solution envisions a legitimate, sovereign Palestine state, enjoying full rights as any other nation under the UN Charter.
- **Six-Day War**: In the 1967 conflict, Israel gained control of the West Bank (including East Jerusalem) from Jordan and Gaza from Egypt.
    - This victory solidified Israel's dominion over the entire territory stretching from the Mediterranean to the Jordan Valley.
- **1993 Oslo Accords**: The 1993 Oslo Accords were a historic moment as they marked the first formal recognition **between the State of Israel and the Palestine Liberation** Organization (PLO).
    - Both parties **publicly committed to negotiating a solution** to their long-standing conflict, paving the way for further discussions.
- **Israel's Recognition of Palestinian Claims**: The realization of the two-state vision necessitates that Israel abandons its opposition to Palestinian claims for national sovereignty.
- **Palestinian Statehood**: Since the signing of the Oslo Accords, granting statehood to the Palestinians has remained a **fundamental element of any proposal aimed at resolving the conflict**, as it is widely recognized as the internationally endorsed solution.

INDIA TODAY June 2

PARAPARATRECHINA NEELA
(Syllabus: GS Paper 3 – Env and Eco)

New ant species discovered in Arunachal's Siang Valley after 121 years



Context: Indian researchers recently discovered a new ant species named Paraparatrechina neela from Arunachal Pradesh's remote Siang Valley.

Paraparatrechina neela

- **About:** It is a newly discovered ant species found in the Siang Valley of Arunachal Pradesh.
- **Taxonomy:** It belongs to the rare genus Paraparatrechina and has been formally named Paraparatrechina neela.
- **Significance of the Name**: The name "neela" symbolizes the color blue in many Indian languages, reflecting the unique blue hue of this ant species.
- **Historical Context:** This discovery marks the first addition to the Paraparatrechina genus in 121 years since the identification of the sole previously known species, P. aseta (Forel, 1902), in the Indian subcontinent.
- **Features of Paraparatrechina neela:**
  - It is a diminutive ant, measuring less than 2 mm in total length.
  - The body of Paraparatrechina neela exhibits a predominantly metallic blue coloration, except for its antennae, mandibles, and legs.
  - Its head is sub-triangular, featuring large eyes and a triangular mouthpart (mandible) with five teeth.
  - Paraparatrechina neela is distinguished by its unique metallic blue coloration, setting it apart from other species within its genus.

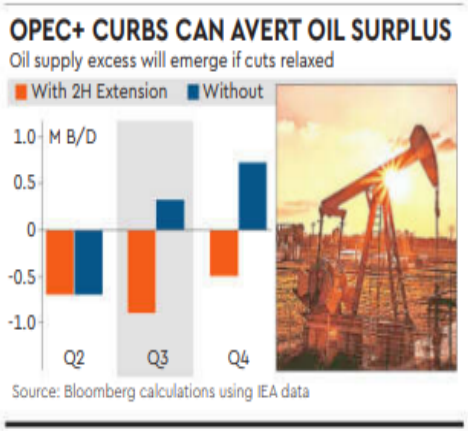
FINANCIAL EXPRESS

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OPEC+
(Syllabus: GS Paper 2 – IR)

OPEC+ agrees to extend output cuts

GRANT SMITH, SALMA EL WARDANY & ANTHONY DI PAOLA
June 2



OPEC+ AGREED TO extend its oil supply cuts, delegates said, as the group continues its efforts to avert a global surplus and shore up prices.

The so-called "voluntary" cuts from key members including Saudi Arabia and Russia, which total roughly 2 million barrels a day and were set to expire at the end of June, will continue until the end of 2024, delegates said, asking not to be named because the talks were private.

Those curbs were in addition to an earlier group-wide agreement capping crude output that runs until the end of this year. The alliance also agreed to prolong that accord to the end of 2025, according to a statement on the OPEC website. The United Arab Emirates, which has invested heavily in new oil projects in recent years, was given a 300,000 barrel-a-day boost to its production target for next year.

OPEC+ ministers gathered on Sunday for a meeting to decide oil policy, with some attending in-person talks at the Ritz hotel in Riyadh and others participating online. Traders and analysts had widely expected the extension of the group's voluntary cuts, seeing it as necessary to offset soaring production from several of OPEC+'s rivals — most notably US shale drillers — and a fragile economic outlook in top consumer, China. The agreement to prolong the group-wide cuts for a further 12 months does go a little further than OPEC-watchers had been expecting.

While crude prices briefly soared above $90 a barrel in April as conflict in the Middle East threatened regional exports, they've since declined. Brent futures settled at $81.62 a barrel on May 31, a drop of 7.1% for the month.

Lower oil prices have offered some relief to central banks grappling with persistent inflation, but threaten revenue for producers like Saudi Arabia.

The kingdom needs prices close to $100 a barrel to fund the ambitious spending plans of Crown Prince Mohammed bin Salman, the International Monetary Fund (IMF) estimates. —BLOOMBERG

Context: OPEC+ extended its production cuts as it seeks to bolster a fragile market, but also set a date to begin bringing some oil back online later this year.

Organization of the Oil Exporting Countries Plus (OPEC+)

- **About:** It is a group of 22 oil-exporting countries which meets regularly to decide how much crude oil to sell on the world market.
- **Aim:** To work together on adjusting crude oil production to bring stability to the oil market.
- OPEC+ crude output represents about 41% of global oil production.
- At the core of this group are the 12 members of OPEC (the Organization of the Oil Exporting Countries), which are mainly Middle Eastern and African countries.
- **Members:** 12 members of OPEC (Saudi Arabia, the UAE, Iran, Iraq, Kuwait, Algeria, Equatorial Guinea, Gabon, Libya, Nigeria, the Republic of the Congo, and Venezuela) and 10 other oil-producing countries (Russia, Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, South Sudan and Sudan).
    - Russia, a major oil producer surpassing even Saudi Arabia, holds a pivotal position alongside OPEC in shaping worldwide crude oil price trends.

OPEC

- **About**: It is a permanent, intergovernmental organization, created at the Baghdad Conference in 1960, by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.
- **Headquarters:** Vienna, Austria.
- **Aim**: To regulate oil supply with the aim of stabilizing the global oil price, thus preventing volatility that could negatively impact the economies of both oil-producing and oil-importing nations.
- **Members**: 12 as mentioned above. Angola left the grouping effective from 1st Jan, 2024

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