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MK Yadav Sir

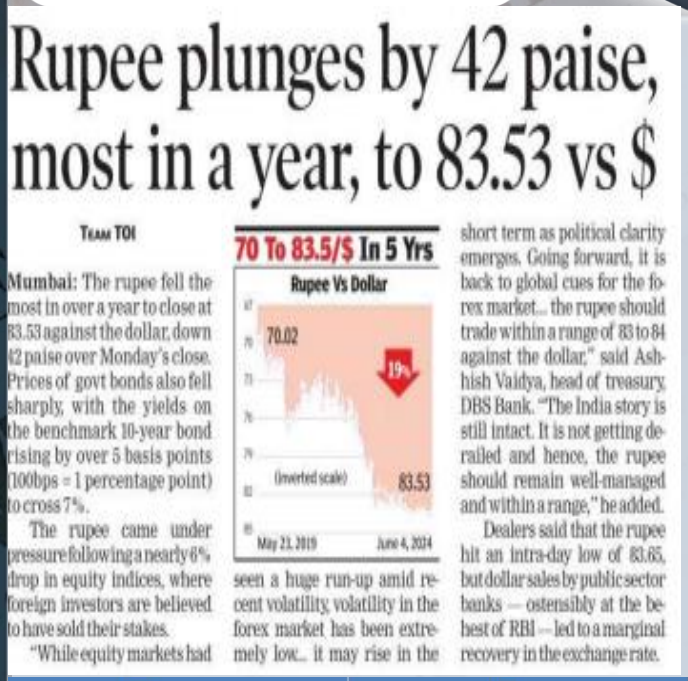
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TIMES OF INDIA Page 25

EXCHANGE RATES

(Syllabus: GS Paper 3 – Economy)



Rupee plunges by 42 paise, most in a year, to 83.53 vs $

TEAM TOI

Mumbai: The rupee fell the most in over a year to close at 83.53 against the dollar, down 42 paise over Monday's close. Prices of govt bonds also fell sharply, with the yields on the benchmark 10-year bond rising by over 5 basis points (100bps = 1 percentage point) to cross 7%.

The rupee came under pressure following a nearly 6% drop in equity indices, where foreign investors are believed to have sold their stakes.

"While equity markets had seen a huge run-up amid recent volatility, volatility in the forex market has been extremely low... it may rise in the short term as political clarity emerges. Going forward, it is back to global cues for the forex market... the rupee should trade within a range of 83 to 84 against the dollar," said Ashish Vaidya, head of treasury, DBS Bank. "The India story is still intact. It is not getting derailed and hence, the rupee should remain well-managed and within a range," he added.

Dealers said that the rupee hit an intra-day low of 83.65, but dollar sales by public sector banks — ostensibly at the behest of RBI — led to a marginal recovery in the exchange rate.

70 To 83.5/$ In 5 Yrs

Rupee Vs Dollar

70.02

19%

(Inverted scale)

83.53

May 23, 2019 — June 4, 2024

NEER	REER
• A nominal exchange rate is essentially the relative prices between two currencies.	• It is an indicator of the international competitiveness of a nation in comparison with its trade partners.
• It only describes whether a currency is weak or strong, or weakening or strengthening, compared to foreign currencies	• An increasing REER indicates that a country is losing its competitive edge.

Context: The Indian rupee hit low exchange rate of 42 paise to 83.53 against the US dollar in early trade, impacted by a strong American currency and elevated crude oil prices.

Exchange Rates

- **Definition:** It represents the rate at which one country's currency can be exchanged for another country's currency.
  - It is a pivotal factor influencing trade and financial transactions between nations.
- **Types of Rates**: Fixed Exchange Rate, Flexible exchange rate, and managed floating exchange rate.
- **Exchange Rate relation with other Index:**
- **Interest Rates:** Higher interest rates offer lenders in an economy a higher return relative to other countries. Therefore, higher interest rates attract foreign capital and **cause the exchange rate to rise.**
- **Trade Balance:** Exchange rate fluctuations affect the trade balance by influencing the competitiveness of exports and the cost of imports.
- **Differentials in Inflation:** Typically, a country with a consistently lower inflation rate exhibits a rising currency value, as its purchasing power increases relative to other currencies.

Related Terms

- **Depreciation of Rupee:** It refers to the decline in the value of the Rupee compared to the dollar, indicating that the Rupee has decreased in worth and strength relative to the dollar.
- **Appreciation**: It refers to the increase in the worth of an asset, like currency or property, as opposed to depreciation, which diminishes the value of an asset throughout its lifespan.
- **Devaluation**: It refers to the decrease in the value of a country's domestic currency as determined by the government within a fixed exchange rate system.

INDIAN EXPRESS

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FOREIGN PORTFOLIO INVESTMENT

(Syllabus GS Paper 3 – Economy)

Foreign portfolio investors stepped up selling in the run-up to elections

GEORGE MATHEW
MUMBAI, JUNE 4

FOREIGN PORTFOLIO investors (FPIs) seemed to have some indication about the outcome of Lok Sabha elections as their selling in stocks intensified since January this year.

With China beckoning them again as an alternative investment destination, foreign players pulled out around Rs 125,000 crore from the cash market (excluding IPO investments) since January this year. However, domestic institutional investors, led by mutual funds and insurance companies, bought stocks worth Rs 300,000 crore during the five-month period, aiding benchmark indices to hit new peaks.

According to stock exchange data, FPIs sold stocks worth Rs 75,000 crore during the March-May period while DIIs propped up the market by investing Rs 150,000 crore in the stock market. The FPI action was contrary to the popular perception that NDA will better its 2019 tally, winning over 350 seats.

On Tuesday, FPIs sold a record Rs 12,436.22 crore worth of Indian equities on a net basis.

In fact, FPIs were sellers in the stock market in the last five years by pulling out Rs 3.94 lakh crore from stocks. However, domestic funds came to the rescue of the market by investing Rs 7.83 lakh crore during the five years, taking the market to new heights.

Market experts said that several classes of investors, including FPIs, had taken short positions in the market and after the exit polls predicted a win for the ruling BJP, the market witnessed short covering of those positions by investors and the Sensex surged 3.39 per cent on June 3.

While FPIs holding long position in the markets had taken some short position to hedge their risk in case of an adverse poll outcome, there were other group of investors who took short position in line with their expectation that the BJP may not come to power on their own and may need to cobble up an alliance to form the government, they said.

IIFL Securities Lead-Research Jayesh Bhanushali said foreign portfolio managers have been negative on India due to the emerging attractiveness of Chinese stocks and likely election uncertainties. However, the weekend exit polls result made short-sellers cover their positions.

"A trend which was witnessed in 5 months preceding the election results since 2009 was that the FII were net positive in the cash segment. However, in 2024, FIIs have sold around Rs 1.26 lakh crore worth of stock in the cash segment since January. We believe that the FIIs are likely to stage a comeback in the second half of calendar year 2024 in India due to steady economic growth, stable government, and a favourable macro-economic environment with the expected rate cuts by the central banks," he said.

The main trigger for the FPI selling has been the outperformance of the Chinese stocks. The Hang Seng index boomed 8 per cent in the first half of May triggering selling in India and buying in Chinese stocks, according to V K Vijayakumar, Chief Investment Strategist, Geojit Financial Services

Another reason was the spike in US bond yields. Whenever the US 10-year bond yields rose above 4.5 per cent, FPIs sold in emerging markets like India and moved money to bonds.

These two factors also prompted the selling of equity in India. FPI activity in June will be crucially influenced by the election results. If the election results ensure political stability, the market is likely to respond positively to that. However, in the medium term, US interest rates will exert more influence on FPI flows.



BSE on Tuesday. PTI

EXPLAINED

FPIs sold, DIIs bought

FOREIGN PORTFOLIO investors (FPIs) sold stocks worth Rs 75,000 crore during the March-May period while domestic institutional investors (DIIs) propped up the market by investing Rs 150,000 crore in the stock market, according to stock exchange data. The FPI action was contrary to the popular perception that NDA will better its 2019 tally, winning over 350 seats.



Context: Foreign portfolio investors (FPIs) seemed to have some indication about the outcome of Lok Sabha elections as their selling in stocks intensified since January this year.

Foreign Portfolio Investment (FPI)

- **Definition**: FPI involves investors purchasing and holding various foreign financial assets outside their home country's borders.
- **Investment Instruments:** Foreign portfolio investors can choose from a variety of financial instruments including stocks, bonds, mutual funds, derivatives, and fixed deposits.
- **Objective:** To inject funds into foreign stock markets with the expectation of generating rapid returns on investment.
    - Management of venture Not for obtaining significant control over managerial operations of the enterprise.
- **Regulatory body:** Security and Exchange Board of India (**SEB**I).
- **Impact on economy**: Impacts the liquidity in the market, often lead to volatility in stock market.
- **FPIs Advantages:** Diversification, liquidity, access to growth, no management control, and foreign exchange earnings.
- **FPI Disadvantages:** Market volatility, short-term focus, lack of control, currency risk, and market distortions.

Foreign Direct Investment

- **About**: FDI involves acquiring a significant ownership stake (usually more than 10%) in a foreign company, indicating a **long-term interest**.
- FDI is the investment through capital instruments by a person resident outside India (a) in **an unlisted Indian company**; or (b) **in 10% or more** of the post issue paid-up equity capital on a fully diluted basis of a listed Indian company.

DTE June 4

HT BASMATI RICE VARIETIES
(Syllabus: GS Paper 3 – Agriculture)

ICAR's herbicide-tolerant rice is not farmer-friendly and is a threat to national food security

Context: The Indian Council of Agricultural Research (ICAR) has commercialised herbicide-tolerant (Ht) basmati rice varieties, claiming they can control weeds in rice crops while also promoting water-saving direct seeded rice (DSR).

Herbicide-tolerant (Ht) Basmati Rice Varieties

- **About**: Two rice varieties–Pusa basmati (PB) 1979 and PB 1985–can be grown using direct seeding of rice (DSR) method, which significantly reduces water and labour use compared with traditional transplantation methods.
- The new rice varieties could help mitigate climate change by reducing methane emissions associated with traditional rice cultivation methods.
- **Developed by**: Indian Agricultural Research Institute (IARI), affiliated to the Indian Council for Agricultural Research.
- **Increased Productivity**: These varieties may lead to higher crop yields by minimizing yield losses due to weeds, a major biological constraint in rice production.
- **Concerns Regarding Herbicide Resistance**
- **Herbicide Resistance**: While the ALS gene mutation allows for targeted weed control using Imazethapyr herbicide, continuous use of the same herbicide can lead to weed resistance over time.
    - This could necessitate stronger herbicides and potentially select for more aggressive weed strains.
- **Genetic Diversity**: Promotion of Ht rice varieties (varieties containing the ALS gene) may decrease genetic diversity in Indian rice.
- **Traditional DSR System:** The North Western Plains Zone historically used the Direct Seeding Rice (DSR) system, which is more water-efficient than the Transplanted Rice System (TRS).
    - DSR allows farmers to grow the crop directly from seeds sown in the field, bypassing the traditional technique of transplanting seedlings from the nursery.
- **Impact of Green Revolution**: The introduction of high-yielding, water-intensive dwarf rice varieties during the Green Revolution led to a shift away from the DSR system towards the more water-demanding TRS. This negatively affected groundwater levels.

INDIAN EXPRESS

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FAST-MOVING CONSUMER GOODS

(Syllabus: GS Paper 3 – Economy)



Amid markets bloodbath, FMCG stocks log gains on consumption boost hopes

AGGAM WALIA
NEW DELHI, JUNE 4

ON A day when both the Sensex and the Nifty 50 tanked by nearly 6 per cent, key FMCG stocks including Dabur, Hindustan Unilever, and Colgate-Palmolive stood out with significant gains.

The incumbent NDA's expected return to power with a slimmer majority than before, coupled with the BJP losing its majority in the Lok Sabha, could force the new government to step up welfare policies that could, in turn, boost consumption, analysts said on the trend.

Among FMCG stocks, Dabur Ltd's share price recorded the highest jump of 6.46 per cent to Rs 580, its highest since July last year. The Hindustan Unilever Ltd's (HUL) stock surged by 5.78 per cent to Rs 2,492.15 and Colgate-Palmolive India Ltd's by 4.53 per cent to Rs 2,809. Britannia Ltd and Nestle India Ltd also closed at over 3 per cent higher than yesterday. Overall, the Nifty FMCG index jumped by 0.95 per cent. ITC Ltd, which carries a weightage of nearly 33 per cent in the index, dropped slightly by 0.71 per cent to Rs 419.85 when markets closed on June 4.

Retail giant Avenue Supermarts Ltd, which operates a chain of supermarkets under DMart, also closed 4 per cent higher to Rs 4,525.

In a report released last month, Bernstein Research forecasted that in the event of the Opposition-led INDIA alliance gaining seats in the recently concluded general elections, consumption stocks could gain in the short-term.

"The role of Government in facilitating orderly capex is high; hence, a return of NDA is favourable for that, while a change will likely deliver haphazard growth with the risk of a shorter upcycle with structural challenges after that for those linked to capex. Conversely, consumption may be more favourable in the case of opposition gaining strength, at least in the near term. The downsides to that will be high inflation and fiscal discipline going off-target," the report said.

Among its four possible scenarios depicting election results, one pegged the BJP to between 240-260 seats and the NDA to 270-290 seats, similar to results released by the ECI today. Under the current scenario, Bernstein expects a shift in focus to "freebies and possibly tax breaks". It also expects private consumption growth to accelerate in the near term.

In recent quarters, rising inflation has affected consumption, especially in rural areas, and the margins of FMCG majors. "The focus shift to freebies or tax breaks will not have a major bearing on inflation, as the government is likely to be prudent in its policies. Any surging food inflation will continue being clamped down by export bans, opening of buffer stocks, etc," the report added.

"Now with election results not being one-sided, we are witnessing profit booking. We believe this profit booking may continue for some more time. Spaces like FMCG and IT may see less damage as defensive buying along with valuation comfort may keep them immune to this correction," said Siddarth Bhamre, head of research at Asit C Mehta Investment Intermediates.

A shift in focus to boosting consumption can bring respite to FMCG majors, which have recently complained of sluggish consumption growth. Rohit Jawa, MD and CEO of Hindustan Unilever, said that while GDP growth has been driven largely by government capex, it has not yet led to a recovery in consumer demand in rural areas.

"The GDP growth is driven ... lot by government capex, but also ... — and that trickle down effect will take time. But if we — if all of those jobs and livelihoods that get created, there is — I mean that money should end up going back to the households more in the mass end and that should democratise consumption. And we should, in my view, start to see that. And how long it takes? I do not have the ability to forecast, but I think we do see gradual recovery in rural," Jawa told analysts in the Q4FY24 earnings call on April 24.

During the call, Jawa also clarified that the consumer good... major is "not waiting for the macro to shift one way or the other... we are focusing on transforming our business to go where the growth is, to go where the people are, go where the money is". For Hindustan Unilever, the focus will be on "urban consumption (which) has been more resilient especially at the premium end" until the macro picture improves.

For Varun Berry, MD of Britannia Industries Ltd, the impact of GDP growth on consume... demand will be visible in FY25. "India is doing much better than all the other countries from a GDP growth standpoint. However, the only point to be made is that private consumption is down. The GDP numbers are looking good because of the gross fixed capital formation that's happening in the country. However, we are confident that as we go through this year, things will change on the private consumption side as well," Berry told analysts on May 6.

WITH A SLIMMER MAJORITY, GOVT MAY STEP UP WELFARE

■ The incumbent NDA's expected return to power with a slimmer majority than before, coupled with the BJP losing its majority in the Lok Sabha, could force the new government to step up welfare policies that could, in turn, boost consumption, analysts said on the trend

Context: Shares of fast moving consumer goods (FMCG) companies are trading higher by up to 5 per cent amid heavy volumes in otherwise a weak market on expectation of healthy outlook.

Fast-Moving Consumer Goods (FMCG)

- **About:** Also known as Consumer Packaged Goods (CPG), are products sold quickly and at a relatively low cost.
- **Factors**: Population growth, urbanization, rising disposable incomes, technological advancements, and changing consumer
- **Characteristics of the FMCG Industry**: The FMCG industry is characterized by high-volume sales, quick inventory turnover, and various products catering to consumer needs.
- **Range of Products**: These goods include essential everyday items such as food and beverages, toiletries, cleaning supplies, and other low-cost household items.
- **Importance of FMCG in the Economy:** The FMCG industry is a vital component of the global economy, contributing significantly to a country's Gross Domestic Product (GDP) and job creation.
- **Generating Demand**: FMCG generates demand for a range of products and services, further stimulating economic activity and growth.

FMCG Industry in India

- **About**: The FMCG sector is the fourth-largest sector in the Indian economy.
- **Urban vs. Rural Contribution**: In 2022, the urban sector accounted for 65% of the overall annual FMCG sales, while rural India contributed over 35%.
- **Product Category Breakdown**: Household and personal care products make up 50% of the industry's sales, healthcare claims 31-32%, and food and beverage products account for the remaining 18-19%.
- **Employment Statistics**: It provides employment to around 3 million people, accounting for approximately 5% of the total factory employment in India.

INITIAL PUBLIC OFFERING (IPO)

(Syllabus: GS Paper 3 – Economy)



IPO wave in India has no reason to stop, say analysts

TEAM TOI

Mumbai: India, which has emerged as the second-largest IPO market on the world league table, has raised $4 billion so far this year. With NDA returning to form the next govt, hopes of policy continuity should extend the IPO boom throughout the rest of 2024.

The $4 billion raised by India is about 45% less than what it collected in all of 2023, LSEG data shows, but outperforms China ($3 billion) and Saudi Arabia ($2.1 billion). The number is also higher than the combined amount raised in Turkey, Hong Kong and South Korea. The US is the largest IPO market, having raised $14 billion so far in 2024, according to LSEG. From number 11 in 2019, India secured the third place globally in terms of IPO proceeds after the US and China in 2023.

India has hosted 113 IPOs between Jan this year and now. "Amidst general elections, the primary market remained vibrant with the solid response to certain IPOs like Awfis Space Solutions. Confidence can be gauged by these offerings that have been launched amidst elections... Looking ahead, the market is set to witness a flurry of IPOs, from new-age business as well as from conventional business segments," said Mahavir Lunawat, MD at investment bank Pantomath Capital Advisors.

Several companies such as Hyundai Motor India, Tata Capital, Ola Electric Mobility, and Swiggy, and NSDL are looking at launching their IPOs.

Ahead Of China...

IPO mop-up ($ bn)

	2023	2024*
China	44.1	14.4
US	20.5	4.1
India	7.4	2.9

(Source: LSEG; till May)

Context: India, which has emerged as the second-largest PO market on the world league cable, has raised $4 billion so far this year.

Initial Public Offering (IPO)

- **About:** An IPO or initial public offering is the process by which a privately held company, or a company owned by the government such as LIC, raises funds by offering shares to the public or to new investors.
- Following the IPO, the company is listed on the stock exchange.
- **Purpose**: IPOs are generally used by new and medium-sized firms that are looking for funds to grow and expand their business.
- **Categories of IPO Investors:**
  - **Qualified Institutional Buyers (QIBs)**: It is a category of investors that includes foreign portfolio investors (FPIs), mutual funds, commercial banks, insurance companies, pension funds, etc.
  - **Retail Investors**: All individuals who invest up to Rs 2 lakh in an issue are classified as retail investors.
    - ✓ Retail investors investing above Rs 2 lakh are classified as high net worth individuals.
  - **Age Requirement:** You have to be 18 years of age to become an investor.
- **Companies Eligible for an IPO:**
  - **SEBI Rules for IPOs**: In order to protect investors, SEBI has laid down rules that require companies to meet certain criteria before they can go to the public to raise funds.
  - **Net Tangible Assets Requirement**: The company must have net tangible assets of at least Rs 3 crore.
  - **Net Worth Requirement**: The company must have a net worth of Rs 1 crore in each of the preceding three full years.
  - **Pre-tax Profit Requirement**: The company must have a minimum average pre-tax profit of Rs 15 crore in at least three of the immediately preceding five years.

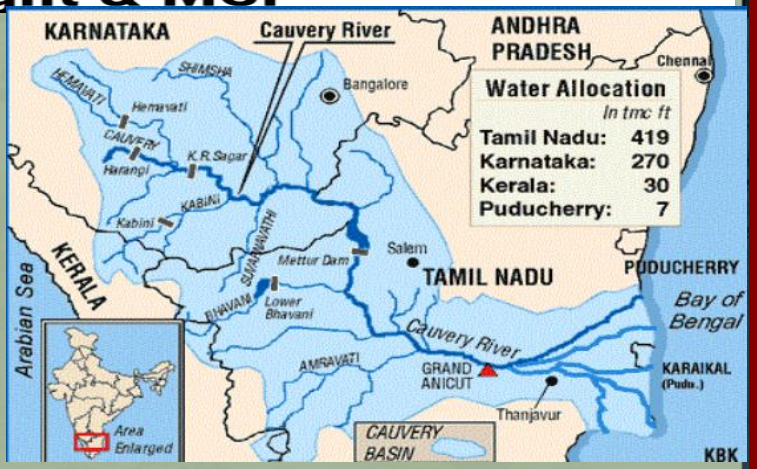
DTE June 4

CAUVERY RIVER

(Syllabus: GS Paper 1 – Geography)

Verdict 2024: Farmers in Tamil Nadu's Thanjavur vote in INDIA bloc over Cauvery water scarcity, drought & MSP

Context: The mostly rural electorate in Thanjavur, located in the delta of the Cauvery river in Tamil Nadu, have voted in the opposition alliance over concerns and hardships they have faced in recent years regarding agrarian issues, according to experts.



Cauvery River

- **About:** It is the largest river in the Karnatka state.
- **Known as**: Dakshina Ganga (the Ganges of the South) and considered one of the sacred rivers of India.
- **Origin**: Bramahagiri Hills near Madikeri in Coorg.
- **Tributaries**: Harangi, Hemavathi, Lakshmanatirtha, Kabini, Shimsha, Arkavati, Suvarnavathi or Honnuholé, Bhavani, Lokapavani, Noyyal.
- **Dams**: Mettur dam and Cauvery delta system in Tamil Nadu.

Cauvery River Disputes

- **Background:** Coursing through Karnataka and Tamil Nadu before eventually merging into the Bay of Bengal, the Cauvery is a significant river in southern India. The origin of the dispute traces back to the late 1800s, when agreements were reached between the princely state of Mysore (now part of Karnataka) and the Madras Presidency (now Tamil Nadu).
- **Key problems:** Primarily, the dispute pertains to the allocation of water resources during periods of water scarcity, the distribution of water during regular years, and the establishment of reservoirs and dams along the river's course.

Cauvery Water Regulation Authority CWRA

- **About**: It has been created as per the Cauvery Management Scheme earlier framed by the Centre and approved by the Supreme Court.
- **Functions**: To ensure the enforcement and adherence to the directives of the Supreme Court concerning the "storage, allocation, management, and oversight of **Cauvery waters."**
- **The Cauvery Water Disputes Tribunal (CWDT):** It was formed in 1990 and was aimed at addressing water disputes involving Tamil Nadu, Karnataka, Kerala, and Puducherry.

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FIVE EYES ALLIANCE

(Syllabus: GS Paper 2 – IR)

Short on troops, Australia opens military to non-citizen residents from Five Eyes

Agence France-Presse
SYDNEY

Australia will allow non-citizens to join its armed forces, the government said on Tuesday, as the sparsely populated nation struggles to meet recruitment targets.

Defence Minister Richard Marles said that from July, looser eligibility criteria would allow "permanent residents who have been living in Australia for 12 months" to serve.

Citizens from Britain, Canada, New Zealand and the United States are being favoured, he added.



Thinly stretched: The Australian Defence Forces can today count on about 90,000 personnel, including reservists. AP

Australia has a coastline that would stretch one-and-a-bit times around the Earth, but a population of just 26 million.

Canberra has surged defence spending in recent years, buying fleets of submarines, jets and scores of fighting vehicles to meet mounting regional tensions. But it has struggled to find enough pilots, mariners and troops to operate and maintain them.

Experts warn too few Australians don a uniform to meet even current requirements, much less a beefier military of tomorrow.

The Australian Defence Forces can today count on about 90,000 personnel, including reservists, according to the Australian Strategic Policy Institute.

Context: The Australian military will recently begin recruiting noncitizens, but only those from the Five Eyes intelligence-sharing partnership who hold Australian permanent residency will be eligible, according to the Australian government.

Five Eyes Alliance

- **About**: Five Eyes is a secret agreement between Australia, Canada, New Zealand, the United Kingdom and the USA. This secret agreement allows the intelligence agencies of these five nations to spy on the world.
- **Founded**: In 1946
- **Formation**:
  - Origin can be traced back the to the Second World War. The UK and the US decided to share intelligence after successfully breaking German and Japanese codes, respectively.
  - In 1943, the Britain-USA (BRUSA) agreement laid the foundations for what would become the UK-USA (UKUSA) agreement.
  - UKUSA was signed in 1946. Canada joined it in 1949, and New Zealand and Australia did so in 1956, forming the alliance.
  - The Agreement was not officially acknowledged though its existence was known about from the 1980s. But in 2010, the UKUSA agreement files were released.
- **Member Countries**: Australia, Canada, New Zealand, the United Kingdom and the US.
- **Function:** It is both **surveillance-based and signals intelligence (SIGINT).**
  - **Intelligence documents** shared between the member countries are classified 'Secret—AUS/CAN/NZ/UK/US Eyes Only,' which gave the group its title 'Five Eyes.'

THE GUARDIAN

June 4

LignoSat Wooden Satellite
(Syllabus: GS Paper 3 – Sci and Tech)

Japan to launch world's first wooden satellite to combat space pollution

Context: Recently scientists have developed the satellite named LignoSat.

LignoSat Wooden Satellite

- **About:** It is the world's first wooden satellite.
- **Developed by**: Japan through a collaboration between Kyoto University and the logging company Sumitomo Forestry.
- **Aim**: The aim is to test the idea of using wood as an eco-friendly alternative to metal-based satellites, as wood would burn completely upon re-entry into Earth's atmosphere.
- **Measuring Deformation**: The satellite is designed to measure the deformation of the wooden structure in space.
- **Size:** LignoSat is a cube that measures 10 centimetres on each side.
- **Material**: The satellite is made from timber, specifically magnolia wood.
    - Magnolia wood is highly sought-after for its striking coloration and fine grain.
- **Significance**: Laboratory tests found magnolia wood to be particularly stable and resistant to cracking.
- **Space Durability**: In space, there is no oxygen to cause the wood to burn and no living creatures to cause it to rot.



- **Future Prospects**: If LignoSat succeeds in orbit, wood could become a material for future satellites, with over 2,000 spacecraft expected to launch annually.

PIB June 4

PHENOME INDIA' PROJECT

(Syllabus: GS Paper 3 – Sci and Tech)

CSIR's 'Phenome India' Project Hits Target with 10,000 Samples Collected, Aims for New Era in Precision Medicine

Context: Recently, CSIR concluded the first phase of its longitudinal health monitoring project, Phenome India, and organised a special event, Phenome India Unboxing 1.0.

Phenome India' Project

- **About**: Phenome India-CSIR Health Cohort Knowledgebase (PI-CheCK) is an initiative by the Council of Scientific and Industrial Research (CSIR), launched on 7th December 2023.
- **Objective**: The project aims to develop India-specific risk prediction models for cardio-metabolic diseases, including diabetes, liver diseases, and cardiac diseases.
- **Scope**: This is the first-ever pan-India longitudinal health monitoring study focused on cardio-metabolic diseases.
- **Participants**: Nearly 10,000 participants, including CSIR employees, pensioners, and their spouses from across 17 states and 24 cities, have contributed to the study.
- **Data Collection**: The collected data includes clinical questionnaires, lifestyle and dietary habits, anthropometric measurements, imaging/scanning data, and extensive biochemical and molecular data.
- **Importance:** The study is crucial for understanding the risk and incidence of cardio-metabolic disorders in the Indian population, which may differ from those in Western populations due to ethnic diversity and varied lifestyle patterns.
    - Through this project, CSIR is promoting Predictive, Personalised, Participatory, and Preventive (P4) healthcare, tailored specifically to the Indian phenotypic and genetic profiles.

INDIAN EXPRESS

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CHANG'E 6

(Syllabus: GS Paper 3 – Sci and Tech)



Chinese lunar probe lifts off Moon with rock samples from far side

REUTERS
BEIJING, JUNE 4

CHINA'S CHANG'E-6 probe has lifted off from the far side of the moon, starting its journey back towards Earth, China's space agency announced Tuesday.

The probe's successful departure from the moon brings China closer to becoming the first country to return samples from the far side of the moon, which permanently faces away from Earth.

The probe, which departed the moon at 7:38 am local time (2338 GMT) successfully completed its sample collection from June 2-3. China National Space Administration (CNSA) said in a statement that Chang'e-6 "withstood the test of high temperature on the far side of the moon".

Compared with its predecessor Chang'e-5, which retrieved samples from the near side of the moon, Chang'e-6 faced an additional technical challenge of operating without direct communications with ground stations on Earth, according to CNSA

Context: China's national space agency recently announced that the Chang'e-6 probe has lifted off from the far side of the moon, beginning its journey back to Earth.

Chang'e-6

- **About:** It is a lunar lander and sample return mission that landed on the far side of the Moon within the South Pole Aitken Basin.
- **Launched by**: China's National Space Administration spearheads the Chang'e 6 mission.
- **Carried by:** The mission is propelled into space by the Long March-5 Y8 rocket from the Wenchang Space Launch Site in Hainan.
- **Components**: The spacecraft comprises four modules, a service module, lander, ascent vehicle, and reentry capsule.
- **Objective**: To collect about 2 kg of material from the far side of the Moon within about two days of landing and bring it back to Earth.
- **Significance**: This mission marks the first attempt in human lunar exploration history to collect and return samples from the moon's surface.
- **Chang'e 4**: Landed in the Von Karman crater in the South Pole-Aitken Basin in 2019, making history with the Yutu-2 rover's successful soft landing on the moon's far side.
- **Chang'e 5**: Its descender and lander touched down on Mons Rumker, a vast volcanic plain on the moon.

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