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The best revenge is
massive success.
Frank Sinatra
quotefancy

WEDNESDAY
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Nation presents classic example of elements that signal a calamity
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Upbeat India takes on confident USA
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INSIDE

2 Indian recruits in Russian army killed, says govt.

NEW DELHI
Two Indian nationals, who were recruited by the Russian Army, were recently killed in the war between Russia and Ukraine, the External Affairs Ministry said on Tuesday. India has strongly taken up the matter with Russia, it said in a statement. » PAGE 4

Chinese PM greets Modi for third term

NEW DELHI
Chinese Prime Minister Li Qiang sent a congratulatory message to Prime Minister Narendra Modi after he was sworn into office on Sunday. The message conveyed that steady relations will help bring "positive energy into the region and the world". » PAGE 4

SC seeks NTA's response on NEET 'leak'

NEW DELHI
A Vacation Bench of the Supreme Court on Tuesday sought a response from the National Testing Agency in a plea alleging leak of the NEET question paper for admission to undergraduate medical courses. The court, however, declined to stay the counselling process. » PAGE 6

Conservatives in the U.K. try to win back voters

LONDON
With the Conservatives trailing the Labour Party in opinion polls, U.K. Prime Minister Rishi Sunak on Tuesday implored British voters to throw him a lifeline in the July 4 election, putting the promise of lower taxes at the heart of the Conservative Party's election manifesto. » PAGE 15

Mohan Majhi, BJP's tribal face, picked as Odisha Chief Minister

The four-time MLA of Keonjhar was party's chief whip earlier; BJP stakes claim to form govt. for the first time in the State; K.V. Singh Deo, six-time MLA from Patnagarh, and Pravati Parida, first-time MLA of Nimapara, to be Deputy Chief Ministers

Satyasundar Barik
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The week-long speculation surrounding the BJP's chief ministerial pick reached its pinnacle when Defence Minister Rajnath Singh and Union Environment Minister Bhupender Yadav, central observers of the BJP, landed in Bhubaneswar in the afternoon.

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Mr. Majhi was the BJP's chief whip in the 16th Odisha Legislative Assembly. Veteran BJP leaders — K.V. Singh Deo, six-time MLA from Patnagarh Assembly constituency, and Pravati Parida, first-time MLA from Nimapara Assembly segment — will serve as Deputy Chief Ministers.

Power point: Rajnath Singh, Mohan Charan Majhi and Governor Raghubar Das at the Raj Bhavan in Bhubaneswar. BISWARANJAN ROUT

'Fulfil all promises'

"A total of 4.5 crore people have voted BJP to power to bring transformation and fight corruption. I acknowledge their support. Prime Minister Narendra Modi, who is loved by all Odias, had exuded confidence that the government would change and the BJP would come to power. It has come true," said the CM-designate. Mr. Majhi said, "The new government will fulfil all promises made in party manifesto."

The Raj Bhavan, in a press communique, said, "After being satisfied that the BJP commands majority in the Odisha Legislative Assembly, the Governor extended invitation to Mohan Charan Majhi to form the new government."

The CM-designate accepted the invitation and communicated to the Governor that the Council of Ministers would like to be sworn in at 4.55 p.m. on Wednesday.

Preparations for the swearing-in of the Chief Minister and his Cabinet colleagues were in full swing. Prime Minister Narendra Modi will participate in the ceremony at Janata Maidan in Bhubaneswar.

Chief Ministers of several BJP-ruled States, Union Ministers and top BJP leaders are expected. The State government has cancelled leaves of all government officials till June 30 in view of possible new programmes that may be launched.

VOCAL LEADER
» PAGE 5

Coastal zip

Shrinking Mumbai: Cars zipping past on Phase 2 of the Coastal Road, which cuts the 45-minute drive during peak hour between Marine Drive and Haji Ali to a breezy five to seven minutes. EMMANUAL YOGINI

Biden's son convicted of all 3 charges in gun case

Agence France-Presse
WILMINGTON

A jury found Hunter Biden, son of U.S. President Joe Biden, guilty of federal gun charges on Tuesday, in a historic first criminal prosecution of the child of a sitting President. The 54-year-old was convicted on all three of the felony counts stemming from his 2018 purchase of a handgun while addicted to crack cocaine.

He could face up to 25 years in prison, although it is unlikely as a first-time offender. The date for sentencing has not been set.

FULL REPORT
» PAGE 14

Kannada film actor Darshan, associates held in murder case

Under scanner: Actor Darshan Thoogudeepa being taken for a medical examination in Bengaluru on Tuesday. K. MURALI KUMAR

The Hindu Bureau
BENGALURU

Kannada actor Darshan Thoogudeepa was taken into custody in connection with a murder case on Tuesday. Mr. Thoogudeepa and actor Pavithra Gowda have been named prime accused in the case.

The Bengaluru police are investigating the death of one Renukaswamy, a fan of the actor, who was allegedly tortured and murdered on the charge of harassing Ms. Gowda, a close friend of Mr. Thoogudeepa, online.

The police had taken nine persons for questioning and when Mr. Thoogudeepa's name was mentioned, he was also taken into custody.

He was brought to the city from a hotel in Mysuru and grilled for several hours before being taken to the Bowring Hospital for a medical examination.

Six-day custody

After seven hours of intense questioning, the Kamakshipalya police produced Mr. Thoogudeepa and his associates before the Additional Chief Metropolitan Magistrate court, after which they were taken into six-day police custody for further investigation.

The police, while submitting the remand application, told the court that Mr. Thoogudeepa, Ms. Gowda and others were required for spot *mahajar* and their call records details needed to be verified. Considering the application, the court ordered one week police custody.

'Tortured to death'

Mr. Thoogudeepa, along with 12 of his associates, has been accused of kidnapping 33-year-old Renukaswamy from Chitradurga and torturing him to death before dumping his body in a stormwater drain in Kamakshipalaya on June 8. A food delivery man noticed the body floating in the drain and alerted the police. The police found that the body had multiple injuries and concluded that it was murder.

Renukaswamy had allegedly commented on Ms. Gowda's social media account, accusing her of creating a rift between his favourite film star and his wife.

Renukaswamy allegedly used indecent comments, which miffed Ms. Gowda. She allegedly sought the help of the accused to "teach him a lesson". As per the plan, the accused had roped in Mr. Raghavendra to trace Renukaswamy.

The accused allegedly tortured and beat up Renukaswamy to death.

Lt. Gen. Upendra Dwivedi to take over as Army chief

The Hindu Bureau
NEW DELHI

The Union government on Tuesday announced the appointment of Lieutenant-General Upendra Dwivedi as the next Chief of the Army Staff. He is now the Vice-Chief and will take over from General Manoj Pande on June 30.

"The government has appointed Lt. General Upendra Dwivedi, presently serving as Vice Chief of the Army Staff, as the next Chief of the Army Staff with effect from the afternoon of June 30, 2024. The present Chief of the Army Staff, General Manoj C. Pande, demits office on June 30, 2024," the Defence Ministry said in a late-evening statement.

Lt. Gen. Upendra Dwivedi

General Pande, who was to retire on May 31, had been given a month's extension. The extension had created speculation in the military fraternity of a possible supersession and deviation from the seniority principle in the appointment of Service chiefs.

Lt. Gen. Dwivedi, born on July 1, 1964, was commissioned into the Infantry (Jammu & Kashmir Rifles) of the Army on December 15, 1984. His command roles include leading the 18 Jammu & Kashmir Rifles Regiment and the 26 Sector Assam Rifles Brigade.

In the rank of Lieutenant-General, he has held important positions, including that of Director-General, Infantry, and General Officer Commanding, Northern Command, from 2022 to 2024, before taking over as Vice-Chief.

UNSC endorses resolution to end war on Gaza

Associated Press
UNITED NATIONS

The Uniter Nations Security Council on Monday overwhelmingly approved its first resolution endorsing a ceasefire plan aimed at ending the eight-month war between Israel and Hamas in Gaza.

The U.S.-sponsored resolution welcomes a ceasefire proposal announced by President Joe Biden that the United States says Israel has accepted. It calls on the militant Palestinian group Hamas to accept the three-phase plan.

The resolution — which was approved with 14 of the 15 Security Council members voting in favour and Russia abstaining — calls on Israel and Hamas "to fully implement its terms without delay and without condition."

Shot in the arm: U.S. Ambassador to UN Linda Thomas-Greenfield, centre, votes during the meeting on Tuesday in New York. AFP

Whether Israel and Hamas agree to go forward with the plan remains in question, but the resolution's strong support in the UN puts added pressure on both parties to approve the proposal.

U.S. Secretary of State Antony Blinken was in Israel on Monday, where he urged Prime Minister Benjamin Netanyahu to accept the plan. Mr. Netanyahu has been skeptical of the deal, saying that Israel is still committed to destroying Hamas.

Hamas's reaction

Hamas said it welcomed the adoption of the resolution and was ready to work with mediators in indirect negotiations with Israel to implement it.

The statement was among the strongest from Hamas to date, but it stressed the group would continue its struggle against Israeli occupation. "Efforts are continuing to study and clarify some matters to ensure implementation by the Israeli side," Hamas spokesperson Jihad Taha said on Tuesday.

He said Israel was "stalling and procrastinating in order to continue the aggression."

Russia's UN Ambassador Vassily Nebenzia said Moscow abstained because details of the plan haven't been disclosed and "we have a whole host of questions." "Hamas is called upon to accept this so-called deal, but still there is no clear clarity regarding official agreement from Israel," Mr. Nebenzia said. H

Algeria's UN Ambassador Amar Bendjama, the Arab representative on the council, said that while the text was not perfect, "it offers a glimmer of hope to the Palestinians, as the alternative is (the) continuing suffering."

POSSIBLE WAR CRIMES
» PAGE 14

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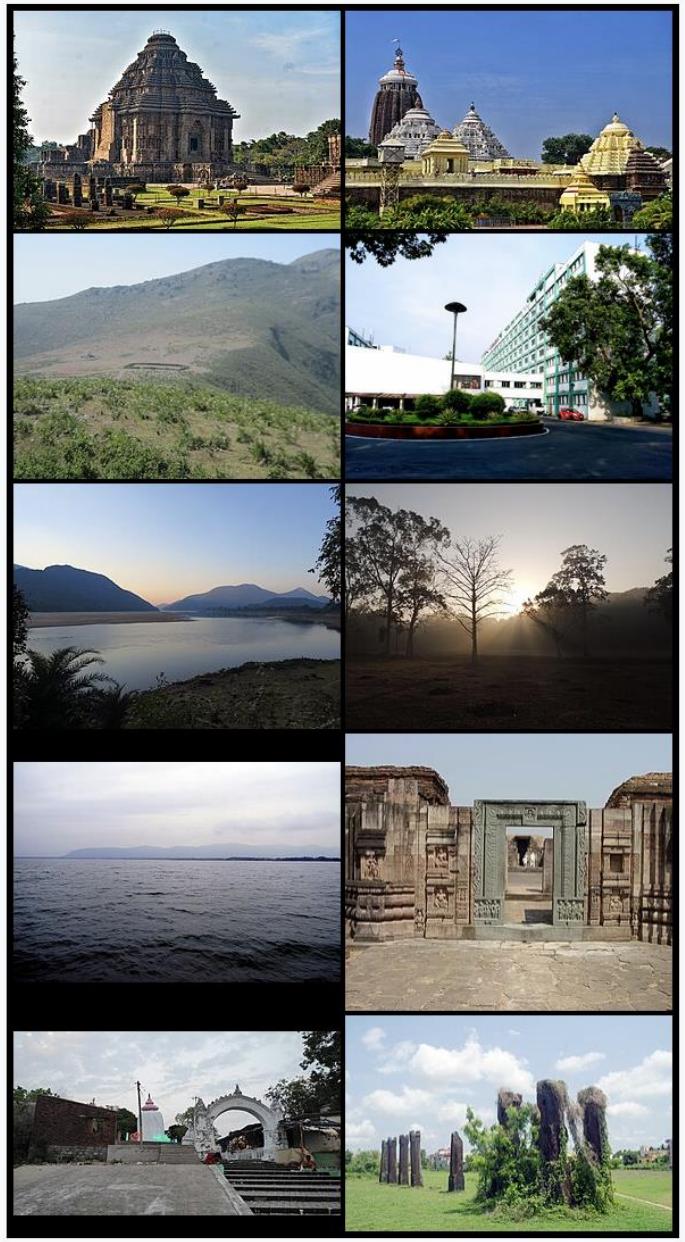
VOCAL LEADER

» PAGE 5



Zigzag from Top-left: Konark Sun Temple, Jagannath Temple, Deomali, Rourkela Steel Plant, Mahanadi, Simlipal National Park, Chilika Lake, Ratnagiri, Leaning Temple of Huma, Sisupalgarh

Capital and largest city	Bhubaneswar
Districts	30 (3 divisions)
Government	
• **Body**	Government of Odisha
• **Governor**	Raghubar Das
• **Chief minister**	Mohan Charan Majhi (BJP)
State Legislature	**Unicameral**
• **Assembly**	Odisha Legislative Assembly (147 seats)
National Parliament	**Parliament of India**
• **Rajya Sabha**	10 seats
• **Lok Sabha**	21 seats
High Court	Odisha High Court
Area	
• **Total**	155,707 km^2 (60,119 sq mi)
• **Rank**	8th
Dimensions	
• **Length**	1,030 km (640 mi)
• **Width**	500 km (300 mi)
Elevation[1]	900 m (3,000 ft)
Highest elevation (Deomali[2])	1,672 m (5,486 ft)
Lowest elevation (Bay of Bengal)	–1 m (–3 ft)
Population (2011)[3]	
• **Total**	▲ 41,974,218
• **Rank**	11th
• **Density**	269/km^2 (700/sq mi)
• **Urban**	16.69%
• **Rural**	83.31%
Demonym	Odia
Language	
• **Official**	Odia, English[4]
• **Official script**	Odia script
Language	
• **Official**	Odia, English[4]
• **Official script**	Odia script
GDP[6]	
• **Total** (2021–22)	▲₹5.86 trillion (US$70 billion)
• **Rank**	15th
• **Per capita**	₹150,676 (US$1,800) (2022-23)[5] ▲
Time zone	UTC+05:30 (IST)
ISO 3166 code	IN-OD[7]
Vehicle registration	OD[8]
HDI (2018)	▲0.649 Medium[9] (29th)
Literacy (2023)	▲ 75.15%[10] (25th)
Sex ratio (2023)	1063 ♀/1000 ♂[11] (18th)
Website	odisha.gov.in

Symbols of Odisha

Emblem of Odisha

Song	Bande Utkala Janani (I Adore Thee, O Mother Utkala)
Foundation day	Utkala Dibasa
Bird	Indian roller[13][14]
Fish	Mahanadi mahseer[15]
Flower	Asoka[12]
Mammal	Sambar[12]
Tree	Sacred Fig[12][16]

No	Portrait	Name	Constituency	Term of office			Assembly	Appointed by	Party
1		Krushna Chandra Gajapati	Paralakhemundi	1 April 1937	19 July 1937	109 days	1st Pre-Independent	Sir John Austen Hubback	Independent
2		Bishwanath Das	Ghumsur	19 July 1937	6 November 1939	2 years, 108 days			Indian National Congress
(1)		Krushna Chandra Gajapati	Paralakhemundi	24 November 1941	30 June 1944	2 years, 213 days		Sir Hawthorne Lewis	Independent
3		Harekrushna Mahatab	East Bhadrak	23 April 1946	26 January 1950	3 years, 278 days	2nd Pre-Independent	Chandulal Madhavlal Trivedi	Indian National Congress

List of Chief Minister of Odisha [edit]

Appearance

Text

No	Portrait	Name	Constituency	Tenure			Assembly (election)	Appointed by	Party[a]
1		Harekrushna Mahatab	East Bhadrak	26 January 1950	12 May 1950	107 days	2nd Pre-Independent (1946-1952)	Asaf Ali	Indian National Congress
2		Nabakrushna Choudhuri	Barchana	12 May 1950	20 February 1952	6 years, 160 days			
				20 February 1952	19 October 1956		1st (1952 election)	Fazal Ali	
(1)		Harekrushna Mahatab	Soro	19 October 1956	25 February 1961	4 years, 129 days		Bhim Sen Sachar	
				6 April 1957	25 February 1961		2nd		

No	Portrait	Name	State/Union territory	Term of office			Political party
				Assumed office	Left office	Time in office	
1[3]		Pawan Kumar Chamling	Sikkim	12 December 1994	26 May 2019	24 years, 165 days	Sikkim Democratic Front
2[4]		Naveen Patnaik	Odisha	5 March 2000	11 June 2024	24 years, 98 days	Biju Janata Dal
3[5]		Jyoti Basu	West Bengal	21 June 1977	5 November 2000	23 years, 137 days	Communist Party of India (Marxist)
4		Gegong Apang	Arunachal Pradesh	18 January 1980	19 January 1999	22 years, 250 days	Indian National Congress
							Arunachal Congress
				3 August 2003	9 April 2007		United Democratic Front
							Bharatiya Janata Party

Lt. Gen. Upendra Dwivedi to take over as Army chief

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Member of	Defence Acquisition Council Defence Planning Committee National Security Council
Reports to	President of India Prime Minister of India Minister of Defence Chief of Defence Staff
Seat	Integrated HQ of MoD (Army), South Block, Central Secretariat, New Delhi
Appointer	Appointments Committee of the Cabinet (ACC) President of India
Term length	3 years or at the age of 62, whichever is earlier.
Constituting instrument	Army Act, 1950 (Act No. 46 of 1950)
Precursor	Chief of the Army Staff and Commander-in-Chief, Indian Army
Formation	21 June 1948; 75 years ago
First holder	General Rob Lockhart
Deputy	Vice Chief of the Army Staff (VCOAS)
Salary	₹250,000 (US$3,000) monthly[1][2]

INBRIEF

Sarod maestro Pandit Rajeev Taranath passes away

Sarod maestro Pandit Rajeev Taranath, 92, who was undergoing treatment at a private hospital in Mysuru, passed away on Tuesday. Pandit Taranath was honoured with Padma Shri in 2019 and the Sangeet Natak Akademi award in 2000. In Karnataka, he was bestowed with the Rajyotsava Award in 1996, Chowdaiah Memorial Award in 1998, Sangeet Vidwan Award in 2018, and the Nadoja Award in 2019. He had composed music for a number of Kannada films, including *Samskara* and *Agunthaka*, besides Malayalam films such as *Kadavu* and *Kanchanaseetha*.

ED likely to grill producers of *Manjummel Boys*

The Directorate of Enforcement (ED) is likely to summon actor Saubin Shahir and other producers of the movie *Manjummel Boys*. The agency is understood to have issued summons to the producers to the movie. Earlier, a police complaint was filed against the producers for allegedly cheating a person who had invested money in the production of the movie.

SpiceJet discontinues Hyderabad-Ayodhya flight

Within two months of the launch of a direct flight from Hyderabad to Ayodhya, SpiceJet has discontinued it. The airline was operating an Airbus A320 on this route. "Usually, when an airline discontinues a route, it indicates poor ticket sales. Initially, there was significant enthusiasm for visiting Ayodhya, but it gradually declined," said an airline representative. It had earlier terminated direct flights to Ayodhya from Chennai, Bengaluru, Jaipur and Patna.

All set for Naidu to take oath as A.P. Chief Minister today

TDP president elected leader of National Democratic Alliance in the Andhra Pradesh Legislative Assembly by alliance partners; Prime Minister Narendra Modi to attend swearing-in ceremony

The Hindu Bureau
VIJAYAWADA

Andhra Pradesh Governor S. Abdul Nazeer on Tuesday invited Telugu Desam Party national president N. Chandrababu Naidu to form the government in the State.

The swearing-in ceremony will be held at Kesarapalle, near Vijayawada, at 11.27 a.m. on Wednesday. Prime Minister Narendra Modi and a host of national leaders are scheduled to attend.

Earlier in the day, at a meeting in the city, Mr. Naidu was unanimously elected leader of the National Democratic Alliance (NDA) in the Andhra Pradesh Legislative Assembly by the alliance partners — Janasena Party and the Bharatiya Janata Party.

All smiles: TDP chief N. Chandrababu Naidu meeting Governor S. Abdul Nazeer in Vijayawada on Tuesday. ANI

The MLAs-elect from the NDA constituent parties attended the meeting besides Mr. Naidu, Janasena president Pawan Kalyan and BJP State president Daggubati Purandeswari.

Mr. Pawan Kalyan proposed the name of Mr. Naidu as the leader of the NDA in the Assembly, which was unanimously approved by all partners.

Later, representatives of the NDA met the Governor and staked claim to form the government in Andhra Pradesh. TDP State president K. Atchannaidu, Ms. Purandeswari, and Janasena Parliamentary Affairs Committee chairman Nadendla Manohar met the Governor and submitted the letter.

Meanwhile, the MLAs-elect of the Janasena elected Pawan Kalyan as their floor leader. The hot topic of discussion among the political circles currently is that Mr. Pawan Kalyan might be proposed as Deputy Chief Minister and that the Janasena might get five berths in the Andhra Pradesh Cabinet. The BJP is being tipped to get two Cabinet posts.

Come clear on privatisation of steel plants, Congress urges Kumaraswamy

The Hindu Bureau
NEW DELHI

The Congress on Tuesday posed a series of questions to the new Steel Minister, H.D. Kumaraswamy, on the issue of disinvestment and privatisation of steel plants, including the ones at Visakhapatnam and Salem.

In a statement, Congress general secretary (communications) Jairam Ramesh said Mr. Kumaraswamy is the new Steel Minister in a "trusted" government, and posed a set of five questions relating to steel plants in Visakhapatnam, Salem, Nagarnar, Bhadrawati and Durgapur.

'Deliberate negligence'

Mr. Ramesh said the previous Modi government had proposed the sale of Rashtriya Ispat Nigam Limited (RINL), commonly known as the Vizag Steel Plant, to the "Prime Minister's friends". He said more than one lakh people rely on it for their livelihoods. The RINL unions had been peacefully protesting since January 2021, when the Cabinet Committee on Economic Affairs gave its approval for 100 per cent privatisation of RINL, its joint ventures, and subsidiaries. Employees report that deliberate government negligence is pushing the once-thriving steel plant into losses, he added.

"Will Mr. Kumaraswamy provide a written commitment that he will not sell the Vizag Steel Plant to the 'one-third' Pradhan Mantri's Industrialist friends," Mr. Ramesh asked. The issue is an important one as the BJP's key ally, the Telugu Desam Party, had strongly opposed the Vizag plant divestment proposal.

Movement of drugs in T.N. restricted to a large extent, but it's not sufficient: Stalin

Situation review: Tamil Nadu Chief Minister M.K. Stalin chairing a meeting with the Collectors and Superintendents of Police in Chennai on Tuesday. SPECIAL ARRANGEMENT

The Hindu Bureau
CHENNAI

Tamil Nadu Chief Minister M.K. Stalin on Tuesday instructed District Collectors., Superintendents of Police and other officials to coordinate efficiently to eradicate the menace of illegal drugs in the State.

Chairing a meeting of District Collectors of 24 districts in the Secretariat, Mr. Stalin said: "The movement of illegal drugs in Tamil Nadu has been restricted to a large extent. However, it is not sufficient. The menace of illegal drugs is not only a law and order issue but a social issue."

He called for better coordination of various other government agencies to curb the menace of illegal drugs. He wanted them to maintain vigil on areas prone to circulation of illegal drugs. It had to be eradicated completely, he underlined.

He instructed them to focus on the implementation of 'Tamil Pudhalvan' scheme, which is to be rolled out soon. The next two years are quite significant for Tamil Nadu's development and hence the welfare programmes had to be implemented efficiently, he said.

Maintaining the law and order, implementing social welfare programmes, creating necessary infrastructure and ensuring various government services to the people were essential for successful governance, he said.

He also instructed them to give priority to *pattа* transfer pleas, among others. Mr. Stalin advised the Collectors to complete welfare programmes for 2024-25 soon, as the monsoon season may cause delay in their implementation.

District Collectors of Chengalpattu, Chennai, Cuddalore, Kallakurichi, Kancheepuram, Mayiladuthurai, Nagapattinam, Ranipet, Thanjavur, Tirupattur, Tiruvallur, Tiruvannamalai, Tiruvarur and Vellore took part in the meeting.

UDF walks out over failure to provide Plus One seats in North Kerala

The Hindu Bureau
THIRUVANANTHAPURAM

The Congress-led United Democratic Front (UDF) Opposition walked out of the Kerala Assembly on Tuesday, accusing the Left Democratic Front (LDF) government of not providing enough Plus One seats to fulfil the academic aspirations of higher secondary students in six districts in northern Kerala.

Indian Union Muslim League (IUML) legislator N. Shamsudeen served an adjournment notice seeking the Assembly's leave for an emergency debate on the government's "dismissive attitude" towards students and their families in Malabar.

Mr. Shamsudeen said a student with a low score in Pathanamthitta could quickly get admission at a school near home. In contrast, a student in Malappuram with an A+ in all subjects would find it difficult to get a Plus One seat in a school within a reasonable distance from home.

"Nearly 14,000 Plus One seats lie vacant in Pathanamthitta. The government should reallocate them to benefit students in the ill-served northern districts," he said.

Education Minister V. Sivankutty reeled out Plus One seat availability statistics and said, "Thousands of Plus One seats lie vacant in Malappuram".

Leader of the Opposition V.D. Satheesan attributed the high vacancy rate in Malappuram to the fact that students find studying in far-flung schools taxing and financially demanding of their parents.

Monsoon plays truant

Slow progress: A view from the catchment area of the Malampuzha dam in Palakkad on Tuesday. Water level in the dam is rapidly receding due to the absence of rainfall this ongoing monsoon. K.K. MUSTAFAH

Dasara jumbo Ashwathama dies; electrocution suspected

The Hindu Bureau
MYSURU

Dasara elephant Ashwathama died at its camp in the Nagarahole Tiger Reserve in Karnataka on Tuesday.

It is suspected that the 38-year-old elephant was electrocuted after it came into contact with a solar fence at the Bheemanakatte elephant camp in the Ane Chowkur range.

A press release from the Director of the Nagarahole Tiger Reserve said the elephant was tied to its usual place by its staff on Monday at the camp.

The next morning, when the staff went to check on the animal around 5.30 a.m., it was lying on the ground. On inspection, the staff realised the elephant was dead.

Dasara elephant Ashwathama was found dead at its camp in the Nagarahole Tiger Reserve.

They informed the higher officials who rushed to the camp.

Solar fence

The Bheemanakatte jumbo camp has been fenced with solar barriers to prevent the entry of wild elephants and for the safety of the camp staff, the note said.

A post-mortem was conducted and the report is awaited. Director Harashakumar Chikkanaragunda said the exact reason of its death would be known after the post-mortem report.

Captured in 2017

Ashwathama was captured from Sakleshpur in 2017. The jumbo was part of the Dasara squad in 2021 and 2022. It was also used to capture wild elephants and for other combing operations.

Forest Minister Eshwar Khandre has expressed condolences over the demise of Ashwathama. The Minister has ordered an inquiry into its death. He has sought a report after the investigation.

Police dog retires, felicitated for years of faithful service

The Hindu Bureau
CHITTOOR

On the occasion of its retirement, the Chittoor District Armed Reserve Police on Tuesday held a ceremony to honour police dog Bindu, which has faithfully served the department for nearly 11 years.

Superintendent of Police V.N. Manikanta Chandolu commended Bindu's contributions to various police operations and felicitated it with garlands and a shawl. Bindu's handler Mohan Raj was also present.

A sniffer dog of Labrador breed, it was employed in VIP events and played a crucial role in maintaining peace during Brahmotsavams at temples like Tirumala and Kanipakam.

Bow-wow: Police dog Bindu being felicitated on its retirement day at a function in Chittoor on Tuesday. SPECIAL ARRANGEMENT

Gold medal

It was also involved in various elections as part of police duty and received recognition for its outstanding service, including a gold medal.

The retirement ceremony saw senior officials giving suggestions and insights to the dog squad personnel.

IISc develops method to remove heavy metal contaminants from groundwater

The Hindu Bureau
BENGALURU

Indian Institute of Science (IISc) researchers have developed a novel remediation process for removing heavy metal contaminants such as arsenic from groundwater.

According to IISc, the three-step method, which is patent-pending, also ensures that the removed heavy metals are disposed of in an environment-friendly and sustainable manner, instead of sending untreated heavy metal-rich sludge to landfills from where they can potentially re-enter groundwater.

"In every technology that exists, you can take out arsenic and provide clean water. However, after you remove the arsenic, you must do something about it so that it doesn't re-enter the environment, and that aspect is not given due consideration in the existing methods. Our process was designed to solve this problem," said Yagnaseni Roy, assistant professor at the Centre for Sustainable Technologies, whose lab has developed the method.

Polluting groundwater: Heavy metal contaminants can significantly affect human and animal health. FILE PHOTO

IISc said that according to reports, 113 districts in 21 States in India have arsenic levels above 0.01 mg per litre while 223 districts in 23 States have fluoride levels above 1.5 mg per litre, which are beyond the permissible limits set by the Bureau of Indian Standards (BIS) and the World Health Organisation.

These contaminants can significantly affect human and animal health, necessitating their efficient removal and safe disposal.

The researchers have been working with the INREM Foundation and Earthwatch, both NGOs, to deploy and test these systems in rural areas such as Bhagalpur in Bihar and Chickballapur in Karnataka.

A BLK

IISc develops method to remove heavy metal contaminants from groundwater

The Hindu Bureau
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Polluting groundwater: Heavy metal contaminants can significantly affect human and animal health. FILE PHOTO

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What are the impacts of water pollution?

Urban and domestic use

Increased water treatment and inspection costs, maintenance costs from scouring and premature ageing of infrastructure, increased wastewater treatment costs with implementation of more strict regulations. Emergency and clean-up costs from spills/accidents.

Ecosystem health

Damage to freshwater and marine ecosystems (e.g. fish kill, invertebrates, benthic fauna, flora, habitat degradation) and loss of ecosystem services, which may require investment in additional or different grey infrastructure alternatives to replicate these services.

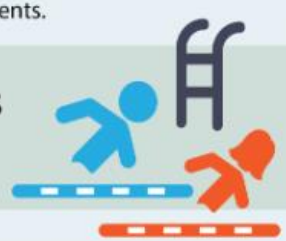
Human health

Polluted water is the world's largest health risk, and continues to threaten both quality of life and public health. Associated with this are health service costs, loss life expectancy, and emergency health costs associated with major pollution events.

Industrial productivity

Exclusion of contaminated water for industrial use results in increasing water scarcity. Scouring of infrastructure, and clean-up costs from spills/accidents.

Social values and tourism



Prohibition from recreational use (e.g. swimming, fishing, seafood gathering), beach closure, impacts on aesthetics, cultural and spiritual values. Losses in fishing, boating, rafting and swimming activities to other tourism activities or to other ventures with superior water quality.

Agricultural productivity

Exclusion of contaminated water for irrigation results in increasing water scarcity. Irrigation with contaminated water causes damage to, and reduced productivity of, pasture and crops, soil contamination, impacts to livestock health and production, and scouring of infrastructure.

Commercial fisheries

Direct and indirect fish kill, contamination of shellfish.

Property values

Waterfront property values can decline because of unsightly pollution and odour.

Tainted groundwater

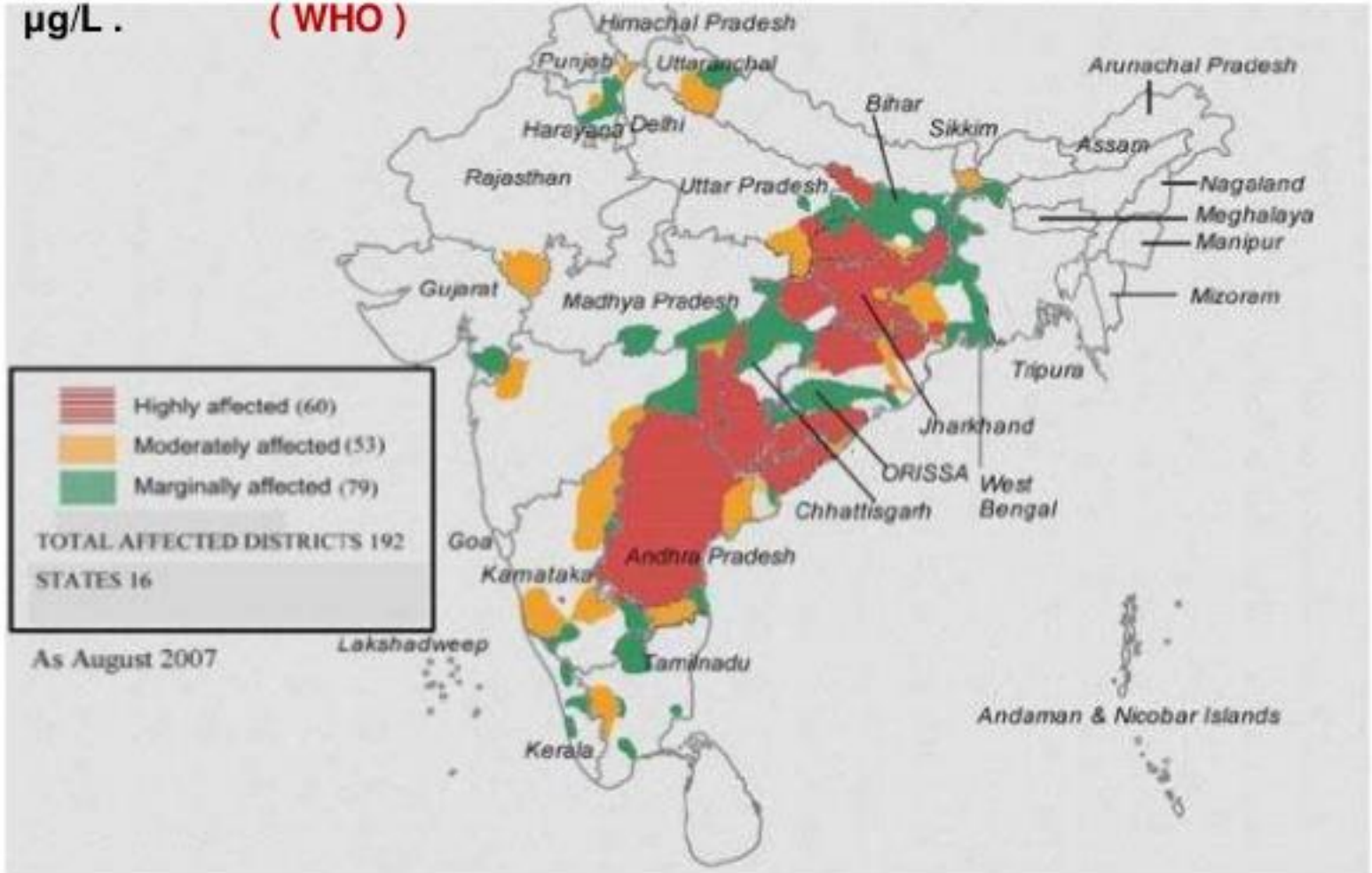
Sixteen States show a high prevalence of uranium concentrations above the WHO provisional guideline value (30 µg/L)

- India has no standards for uranium levels in groundwater
- There have been reports of high levels of uranium in Andhra Pradesh
- Over-pumping of groundwater causes a decline in water levels
- This induces oxidation conditions that enhance uranium enrichment in shallow groundwater

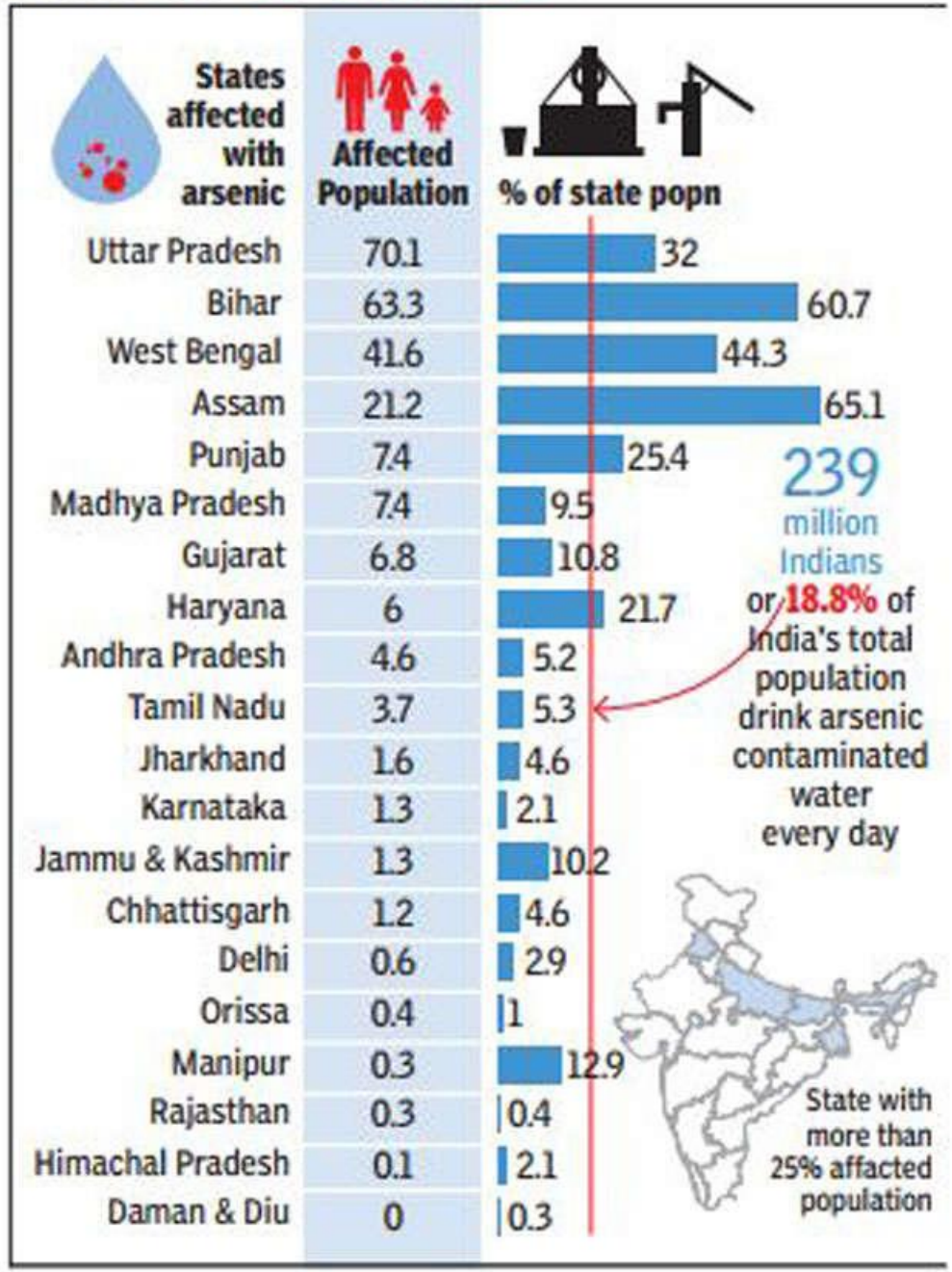
Source:
"Large-Scale Uranium Contamination..." Rachel M. Coyte et al.

AREA AFFECTED WITH ARSENIC

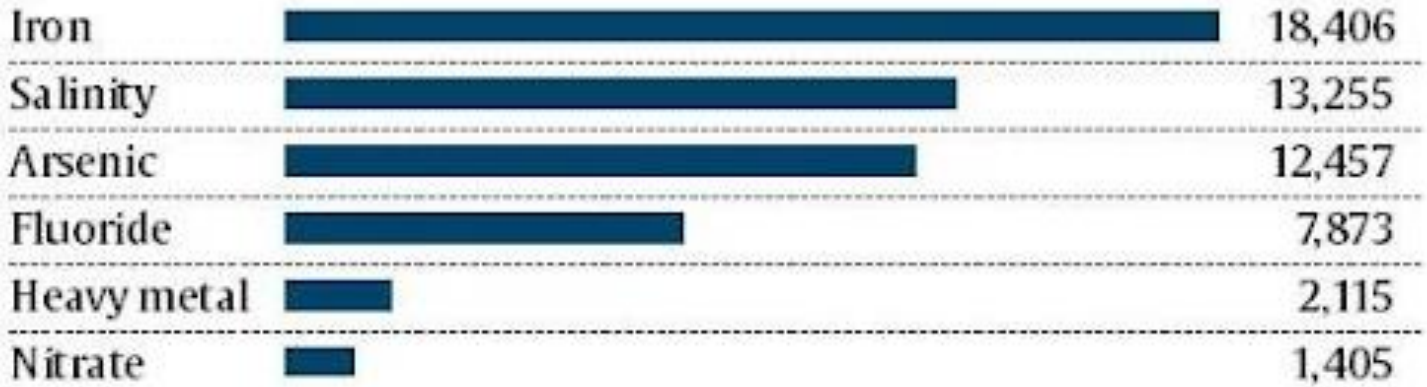
Fifty districts of Bangladesh and 9 districts in West Bengal, India have arsenic levels in groundwater above the maximum permissible limit of 50 µg/L . **(WHO)**



STATUS OF STATES



RURAL HABITATIONS WITH WATER QUALITY ISSUES (ALL INDIA: 55,511)



ARSENIC POLLUTION

IRON POLLUTION

Source: Ministry of Jal Shakti

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HOW FAR RURAL INDIA TRAVELS EVERY DAY TO FETCH DRINKING WATER ?

INDIAN AVERAGE %

35%
NEED NOT TRAVEL

42.9%
TRAVEL UPTO 0.5 KM

22.1%
TRAVEL MORE THAN 0.5 KM

WITHIN PREMISES | 0.5 KM | MORE THAN 0.5 KM

MOST ACCESSIBLE

#1 CHANDIGARH 85.4%
#2 PUNJAB 81.7%

TOP 10 STATES WITH LEAST ACCESSIBILTY

#1 MANIPUR 40.7%
#2 TRIPURA 39.6%
#3 ODISHA 38.5%
#4 MEGHALAYA 37.9%
#5 JHARKHAND 36.4%
#6 MADHYA PRADESH 36.1%
#7 MIZORAM 32.1%
#8 RAJASTHAN 31.9%
#9 WEST BENGAL 31.5%
#10 NAGALAND 31.4%

Source : Answer to Unstarred question 1757 in the Lok Sabha

8 Facts on India's Drinking Water Challenge

Piramal Sarvajal

163 Mn
people do not have access to safe drinking water

*Source: Aid report

>6 in 10
households report that they do no treat their water prior to drinking

*Source: NFHS-4 (2015-16)

India loses **73 Mn**
working days due to water-borne diseases

*Source: IndiaSpend report 2016

21%
of the disease reported in the country are water related

*Source: World Bank Report

443 Mn
School days are lost each year from water related illness

*Source: Human Development Report 2006

~66 Mn
people in **20** states are at risk because of the excessive fluoride in water

*Source: Ministry of Drinking Water and Sanitation (MDWS) Report

~6 Mn
children below age 14 suffer from dental, skeletal and non-skeletal fluorosis

*Source: Fluorosis Research and Rural Development Foundation

Arsenic is the other big killer putting at risk nearly **~10 Mn** people

*Source: World bank report

Type	Public research university
Established	c. 1909; 115 years ago
Founders	Jamsetji Tata · Krishnaraja Wadiyar IV
Accreditation	NAAC
Affiliation	ACU[1] · UGC · AIU · MISA
Budget	₹918.27 crore (US$110 million) (2024–2025)[2]
Director	Govindan Rangarajan[3]
Academic staff	525[4]
Administrative staff	354[4]
Students	3,842[4]
Undergraduates	453[4]
Postgraduates	947[4]
Doctoral students	2,737[4]
Location	Bangalore, Karnataka, 560012, India
Campus	Urban, 440 acres (180 ha)

New portable atomic clock offers very accurate timekeeping at sea

Researchers have build a portable optical atomic clock that can be used onboard ships. While it traded some accuracy for size and robustness, it was still more accurate than other vessel-borne timekeeping options. According to the researchers, it is the most performant optical clock at sea

Tejasri Gururaj

Atomic clocks are the backbone of the Global Positioning System (GPS), the network of satellites above the earth that we use every day to navigate cities, respond to emergencies, and organise military operations, among other things.

Despite being one of the most accurate timekeeping methods, however, there is still room for improvement. Scientists today are pushing the boundaries with a new technology called optical atomic clocks.

But for being such sophisticated instruments, both these clocks are also bulky, power-hungry, fragile, and expensive. As a result, their installation and operations are often restricted to big research facilities.

A study recently published in the journal *Nature* introduced a kind of portable optical atomic clock that can be used onboard ships. While these devices traded some accuracy for size and robustness, they were still more accurate than other vessel-borne timekeeping options.

According to the researchers, this is the most performant optical clock based at sea and represents a significant advancement in optical timekeeping.

A server rack containing three independent optical clocks, a 1-U power supply, a control laptop for each clock, an uninterruptable power supply, and a measurement system were loaded in a total rack volume of 23 U. The cargo container housing the rack was craned onto the deck of the HMNZS Aotearoa, where it remained for a three-week naval exercise. NATURE 628, PAGES 736–740 (2024)

The working of an atomic clock

Atomic clocks work by keeping time using atoms. One popular design uses atoms of an isotope of caesium, Cs-133. The International Committee for Weights and Measures first used it in 1967 to define the duration of one second. India also uses a Cs-133 atomic clock to define the second for timekeeping within its borders.

Cs-133 is a highly stable atom and is found naturally, which is why it is so commonly used in atomic clocks.

Atomic clocks exploit a fundamental property of all atoms: their ability to jump between different energy levels. Energy levels are like the steps of a ladder. An atom climbs up the ladder by absorbing energy, like electromagnetic radiation.

In a Cs atomic clock, the energy needed for the atom to jump to a higher energy level matches the frequency of microwave radiation. This frequency is related in some fully understood way to the duration of a second.

First, researchers keep the Cs atoms in a cavity, to which microwave radiation of a specific frequency is applied. When the frequency of this radiation matches the transition energy of the Cs atoms, the match-up is called a resonance.

The Cs-133 atoms absorb this radiation and jump to a higher energy level. This transition only happens when the frequency of the applied radiation is equal to 9,192,631,770 Hz.

Put another way, when the Cs-133 atom completes 9,192,631,770 oscillations between the two energy levels, one second will have passed.

The accuracy of atomic clocks comes from a feedback mechanism that detects any changes in the resonance frequency and adjusts the microwave radiation to maintain resonance.

Thus, a caesium atomic clock loses or gains a second every 1.4 million years.

Optical atomic clocks use lasers

Optical atomic clocks are even more accurate. While they have the same working principle, the resonance frequency here is in the optical range. Radiation in this range includes visible light (to humans) and ultraviolet and infrared radiation.

As part of an optical atomic clock, researchers use lasers to stimulate atomic transitions. The lasers' light is highly coherent: the emitted light waves all have the same frequency and their wavelengths are related to each other in a way that doesn't change. The result is light with more precise properties and great stability.

Optical atomic clocks use coherent light to achieve higher accuracy in two main ways.

The first is the higher operating frequency of atomic clocks. Say we have two clocks, A and B. A has a higher operating frequency than that of B — which means A will complete more oscillations than B in the same time.

As a result, A will be able measure smaller increments of time more accurately because it has more cycles to count within that time frame.

The second reason is that optical atomic clocks have much narrower linewidths. The linewidth is the range of frequencies over which the transition occurs. The narrower the linewidth, the easier it is to tune the frequency of the optical light that produces the resonance. This leads to higher accuracy because it enables more precise changes.

The most commonly used atom in optical atomic clocks is strontium (Sr): it has narrow linewidths and stable optical transitions.

Researchers at the Indian Institute of Science Education and Research, Pune, are working on a strontium optical atomic clock. Their peers at the Inter-University Centre for Astronomy and Astrophysics in the same city are developing a similar clock with ytterbium ions. These devices, once ready, will bring precision timekeeping in India to the optical regime.

Building a portable device

The researchers in the *Nature* study developed an optical atomic clock that uses molecular iodine as the frequency standard.

Traditional optical atomic clocks are large and not easy to transport. Scientists have previously attempted to make them portable. Those in the new study wished to fit them within a standardised rack, of the sort used in data centres, laboratories, and telecommunications facilities.

To do this, the team miniaturised the clock's spectrometer, laser system, and frequency comb.

The spectrometer, used to measure the frequencies of transitions, was designed to have a volume of 2.5 litres. The laser system was built using optical fibres — slender, flexible, transparent cables made of glass or plastic and which can transmit light over long distances. The system thus had a volume of only 1 litre, and operated with light of wavelength 1,064 nm.

A frequency comb is a device that generates a series of equally spaced optical frequencies. This provides a stable and accurate reference for tracking the atomic transitions and generating precise optical frequencies. The frequency comb occupied a volume of 0.5 litres.

The researchers also equipped the clock with a software control system that could autonomously initialise the clock from an 'off' state to a fully operational state. It monitors temperature, identifies specific transitions, activates some components, and ensures the system stays stable by continuously checking for problems.

As a result, the final clock had a total volume of 35 litres — about the size of a large backpack. It weighed around 26 kg and consumed 85 W of power, which is just above the consumption of an incandescent light bulb.

The 3U, 19-inch rackmount iodine optical clock occupies a volume of 35 litres and consumes less than 100 W. NATURE 628, PAGES 736–740 (2024)

> Despite the ship's motion, a temperature fluctuation of 2-3 degrees C, and 4-5% changes in humidity, the clocks were nearly as stable as they were in laboratory conditions for up to 1,000 s at a time

Optical atomic clocks at sea

The researchers conducted initial tests at the U.S. National Institute of Standards and Technology (NIST) in April 2022. They operated two prototypes, called PICKLES and EPIC, autonomously for 34 days. The optical atomic clocks' accuracy fluctuated less over short periods, outperforming NIST's hydrogen maser ST05, one of the world's most accurate and stable atomic clocks, which is based on hydrogen atoms.

The optical atomic clocks also had 10x lower long-term drift compared to rubidium atomic clocks. This means that over long periods, the rate at which the clock's frequency changes is much lower compared to changes in rubidium atomic clocks. It is a sign of the compact clock's high stability.

The researchers also deployed the two clocks plus another, called VIPER, on a boat at Pearl Harbor in Hawaii to test them at sea. VIPER was built with a smaller spectrometer and a more simplified laser design.

Despite the ship's motion, a temperature fluctuation of 2-3 degrees C, and 4-5% changes in humidity, the clocks were nearly as stable as they were in laboratory conditions for up to 1,000 s at a time. When operated for more than a lakh seconds at a time, the clock was still highly stable but also more susceptible to being affected by temperature fluctuations.

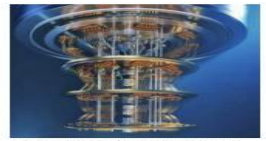
Accuracy trade-offs and applications

Atomic clocks are prized for their accuracy, losing or gaining just one second over 300 million years. Optical atomic clocks only lose or gain a second over 300 billion years.

The new iodine clock isn't as accurate as an optical atomic clock in the laboratory, trading it off for mobility and robustness. But it is still accurate enough to lose or gain a second only every 9.1 million years.

The development of such setups is a necessary first-step for their use for navigation, maritime communication, and scientific research. For example, they can now help monitor underwater seismic and volcanic activity with great precision. Onboard spacecraft, they can help scientists conduct experiments that test the theories of relativity and potentially reduce the cost of satellite-based navigation.

(Tejasri Gururaj is a freelance science writer and journalist with a master's degree in physics.)



Quantum computers will have transformative effects on electronics, clean energy, and drug development. GETTY IMAGES/ISTOCKPHOTO

UN declares 2025 the Year of Quantum Science

The Hindu Bureau

The United Nations has said 2025 will be designated the 'International Year of Quantum Science and Technology'. In a statement, the body said the initiative will be "year-long", "worldwide", and that it will "be observed through activities at all levels aimed at increasing public awareness of the importance of quantum science and applications."

The proclamation is the result of a resolution led by Mexico in May 2023 and which was soon joined by other countries. By November that year, almost 60 countries had co-sponsored the resolution and the UNESCO General Conference adopted it. In May this year, Ghana submitted a draft resolution to the U.N. General Assembly asking for an official proclamation, with the support of over 70 other countries. The General Assembly acceded on June 7.

The timing isn't entirely coincidental. Next year will be a century since the German physicist Werner Heisenberg published a famous paper in which he reinterpreted a series of tweaks — required for classical mechanics to make sense of the quantum phenomena being discovered in the late 19th and early 20th centuries — to lay the foundation stone of what would come to be called quantum mechanics. He was awarded the Nobel Prize for physics seven years later, roughly around the time he devised his famous uncertainty principle.

According to the UN statement, the proclamation has also received the endorsements of the International Union

Next year will be a century since the German physicist Werner Heisenberg published a famous paper laying the foundation stone of what would come to be called quantum mechanics

of Pure and Applied Physics, the International Union of Pure and Applied Chemistry, the International Union of Crystallography, and the International Union of History and Philosophy of Science and Technology.

Quantum science and technologies have been featuring more often in public conversations and issues of late thanks to quantum computers. While fully operational machines of this type don't yet exist, researchers and industry experts believe it is a matter of time.

In line with this belief, the Government of India announced a 'National Quantum Mission' in April 2023 at a cost of Rs 6,000 crore, to be implemented from 2023 to 2031 by the Department of Science & Technology (DST). According to Akhilesh Gupta, a senior DST advisor and the head of the Mission, it will have four verticals: quantum computing, quantum communication, quantum sensing and metrology, and quantum materials and devices.

Many researchers expect functional quantum computers will have transformative effects on electronics, clean energy, and drug development, given their superior computational abilities.

According to the U.N. statement, its proclamation "is a signal for any individual, group, school, institution, or government to use 2025 as an opportunity to increase awareness about quantum science and technology." It added that a steering committee is also "planning global initiatives and events, particularly those that reach audiences unaware of the importance of quantum science and technology."

Physics World reported that an opening ceremony is expected to be conducted on January 14, 2025, in Berlin.

For feedback and suggestions
for 'Science', please write to **science@thehindu.co.in** with the subject 'Daily page'

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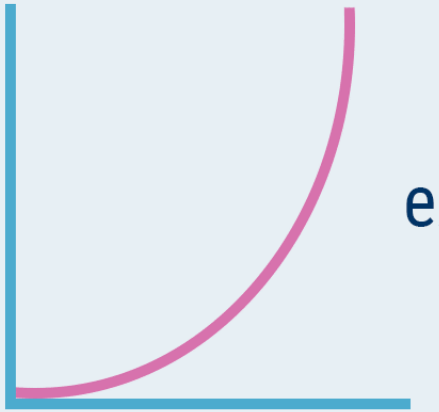
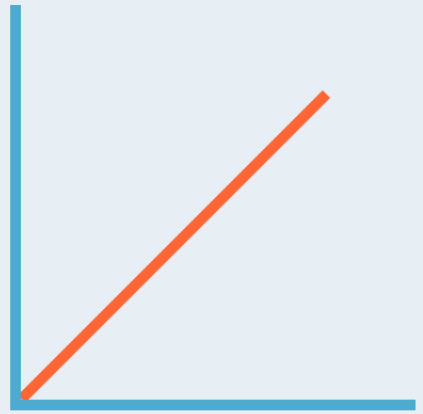
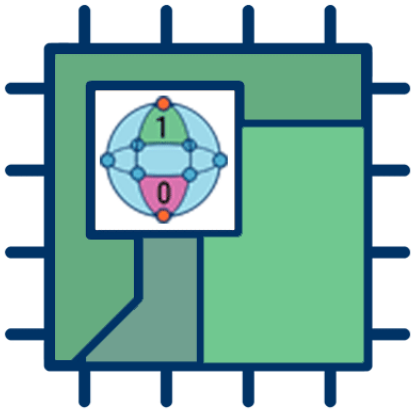


Power increases exponentially in proportion to the number of qubits

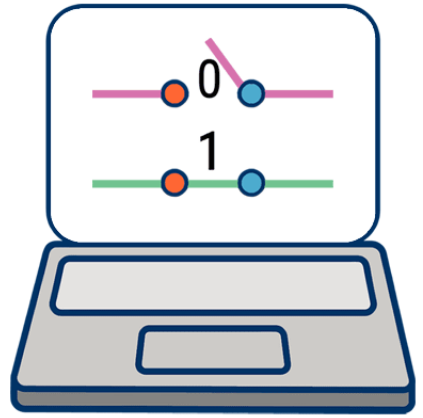
Power increases in a 1:1 relationship with the number of transistors



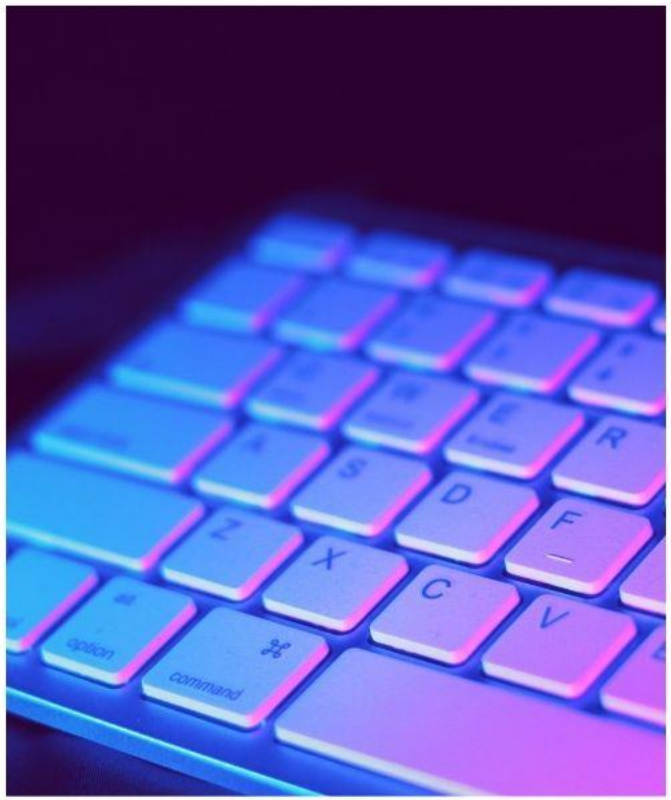


Quantum computers have high error rates and need to be kept ultracold

Classical computers have low error rates and can operate at room temp



Quantum Technology Applications



secure communications

research in fundamental physics

disaster management

pharmaceuticals

industrial revolution 4.0
weather prediction

securing financial transactions

aeroscpace egineering

cybersecurity

advanced manufacturing

The Indian EXPRESS

JOURNALISM OF COURAGE
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WEDNESDAY, JUNE 12, 2024, NEW DELHI, LATE CITY, 24 PAGES

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NADDA TERM ENDS JUNE 30

Bhagwat's remarks on table, BJP works on rejig, poll review & president election

LIZ MATHEW
NEW DELHI, JUNE 11

EVEN AS the Ministers in the new NDA government took charge Tuesday, the BJP has begun to set in motion the process of re-jigging its organisation nationwide and, simultaneously, reviewing its Lok Sabha performance.

This exercise is expected to begin with a fresh membership drive and will conclude with the election of a new party president. It's still not clear if this will take place under a new working president or incumbent J P Nadda who has been inducted in the Modi government as Union Health Minister.

The party's Parliamentary Board, its apex decision-making body, will meet soon to decide. That meeting comes in the wake of RSS chief Mohan Bhagwat's unusually sharp comments Monday on the bitter Lok Sabha campaign that included a cautionary note too.

"A true sevak maintains decorum while working... The one who maintains decorum does his work, but remains unattached. There is no arrogance that I did this. Only such a person has the right to be called a sevak," Bhagwat had said.

Sources said these remarks, seen as a veiled criticism of the BJP leadership, are neither "routine nor normal."

CONTINUED ON PAGE 2

Production stalled, MeitY & Commerce want visa norms for Chinese eased

RAVI DUTTA MISHRA & SOUMYARENDRA BARIK
NEW DELHI, JUNE 11

AT LEAST TWO Union ministries — Electronics and Information Technology and Commerce and Industry — are pushing for easier visa norms for entry of Chinese technicians after the domestic industry raised concerns that export orders were not being fulfilled due to delays in grant of visas.

A senior official in the Commerce and Industry ministry told *The Indian Express*, "The department is aware of the concerns raised by the industry and we are pushing for limited entry of Chinese technicians to resolve the issue."

The issue was flagged in several forums including the Board of Trade meeting in January this year. The BOT plays an advisory role to the Commerce and Industry Ministry and the annual meetings are attended by central and state government officials, alongside all major trade

CONTINUED ON PAGE 2

MOHAN CHARAN MAJHI IS FOUR-TIME MLA FROM KEONJHAR

BJP opens Odisha innings with surprise CM choice, 2 deputies

Mohan Charan Majhi with Union Ministers Rajnath Singh, Bhupender Yadav in Bhubaneswar on Tuesday. *ANI*

SUJIT BISOYI
BHUBANESWAR, JUNE 11

ENDING A week of speculation, the BJP Tuesday announced Mohan Charan Majhi, a four-time MLA from Keonjhar and a tribal face of the party, as the new Chief Minister of Odisha.

Majhi will take oath Wednesday along with two Deputy Chief Ministers — K V Singh Deo and Pravati Parida — at a grand event in Bhubaneswar which will be attended by Prime Minister Narendra Modi.

The 52-year-old Majhi, seen as a leader who has risen from

CONTINUED ON PAGE 2

Naidu is back: Amaravati will be capital of Andhra

SREENIVAS JANYALA
HYDERABAD, JUNE 11

A DAY before he is set to be sworn in as Andhra Pradesh Chief Minister, Telugu Desam Party chief N Chandrababu Naidu confirmed Tuesday that Amaravati would be the state capital.

He made the announcement at the NDA Legislature Party meeting held in Vijayawada, during which he was unanimously elected the alliance's leader of the House. Jana Sena Party chief K Pawan Kalyan proposed his name, and it was supported by BJP state president and newly elected MP D Purandeswari. Naidu will take oath of office on Wednesday at a function which Prime Minister

CONTINUED ON PAGE 2

BUSINESS AS USUAL
By UNNY

EXPRESS NETWORK

LT GEN UPENDRA DWIVEDI WILL TAKE CHARGE AS ARMY CHIEF ON JUNE 30

UGC LETS VARSITIES ADMIT STUDENTS TWICE A YEAR P 7, 8

The return of Che & Motorcycle Diaries — in Parliament breach case chargesheet

MAHENDER SINGH MANRAL
NEW DELHI, JUNE 11

MEMOIRS OF a road trip from Chennai to Ladakh, which "mirrors the famous Motorcycle Diaries" of Cuban revolution communist icon Ernesto 'Che' Guevara, with a Chinese national riding pillion some of the way; a video of tear gas being set off inside the Kosovo Parliament; and, an alleged acquaintance from

The chargesheet was filed last week. *File*

the Bureau of Immigration who provided a key clue.

These are some of the details listed in the chargesheet filed by the Delhi Police last week in the Parliament House security breach case against the main accused, Manoranjan D, sources told *The Indian Express*.

"While searching Manoranjan's emails, we found a travel memoir in one of the folders which (he) probably forgot to delete as he had deleted most of

CONTINUED ON PAGE 2

NEET-UG row: Retest for 1,563 candidates an option; exam sanctity affected, says top court

DEEKSHA TERI & ANONNA DUTT
NEW DELHI, JUNE 11

A RETEST for all 1,563 candidates who were awarded "grace marks" for "loss of time" in the National Eligibility-cum-Entrance Test (Undergraduate) this year is among the options being considered by the four-member committee formed last week by the National Testing Agency (NTA) following an uproar over the extraordinarily large number of candidates scoring well in the entrance test this time — 67 secured the perfect score of 720/720.

The Indian Express has learned that the committee, headed by a former UPSC chairman, in its first few meetings, has

A protest against the NEET exam in Pune, Tuesday

discussed offering all 1,563 candidates to either sit for a retest accept the "non-normalise score", which is what these students had actually achieved b fore the addition of grace mark

The committee, whose exa

CONTINUED ON PAGE

Chhattisgarh missed red flags over desecration protest, acts after arson

JAYPRAKASH S NAIDU
BALODA BAZAR, JUNE 11

A DAY after the office of the Superintendent of Police and over 200 vehicles were set on fire, and the District Collector's office pelted with stones in Chhattisgarh's Baloda Bazar district — by members of the Satnami Samaj community over the desecration of a site sacred to them — the SP and the Collector have been transferred by the state government.

According to officials and

The SP office torched by the mob in Baloda Bazar; the SP & DC have been transferred

members of the communi who spoke to *The Indian Expre* a day later, the administratio

CONTINUED ON PAGE

UGC gives nod to universities to admit students twice a year, DU says good idea

ABHINAYA HARIGOVIND
NEW DELHI, JUNE 11

THE UNIVERSITY Grants Commission (UGC) has allowed higher education institutions to admit students twice a year.

While earlier regulations allowed students to be admitted only during July-August, the UGC's recent decision means that students can now be admitted in January/February and in July/August from the upcoming academic session.

The UGC decision leaves it to the institutions to decide if they want to offer admissions in both the cycles or just one, and this will depend on their infrastructure and faculty.

The UGC has said that biannual admissions are not mandatory, but the decision now provides "flexibility" to institutions that might want to "increase their student intake and offer new programmes in emerging areas".

UGC Chairman M Jagadesh Kumar told The Indian Express, "Every university offers admissions in July/August. In addition to this, if they wish to offer programmes in January, they are welcome to."

"The situation can be unique to a particular institution; the challenges can vary from institution to institution. The UGC provides the broader regulatory framework enabling the institutions to work out the details themselves and implement it if they think they can," he said.

On whether universities may now be able to offer admissions to different sets of courses in the two admission cycles, he said: "It is a choice for them… depending on the infrastructure that is available. For a science programme, if they find that for the students admitted in the July session lab facilities are used in the daytime, they may want to use lab facilities in the evening for the session that began in January, so that there is better utilisation of resources available in universities."

The UGC first attempted this biannual admission process with open and distance learning (ODL), and online mode programmes.

On why the UGC decided to allow biannual admissions, Kumar said that during the trials in ODL and online, the UGC found that nearly half a million students who would have otherwise waited for one year to join these programmes have got the opportunity to join in January itself.

"There is a possibility that even in the physical mode, students who have missed admissions for various reasons in July/August, will have the opportunity to join in January instead of waiting for one full year. It is also a global practice. It also has the potential to increase the GER (Gross Enrolment Ratio) also," he said.

If universities now intend to begin a second session in January, they will have to get the decision approved in their academic and executive councils, and amendments will have to be made in their institutional regulations. This biannual admission system can apply to PhD, postgraduate and undergraduate programmes.

In the case of programmes to which admissions are based on entrance exams, the UGC Chairman said, "For PhD admissions, currently all universities admit in July. We are conducting UGC-NET twice a year. So, universities can now begin to admit twice a year in PhD programmes. For postgraduate programmes, CUET (PG) is not mandatory, it is only an option and many universities admit based on their own entrance exam or marks in undergraduate programmes. Now they can offer biannual admissions in masters programmes".

Similarly in undergraduate programmes, except for Central universities, CUET (UG) is not mandatory for other universities, he said.

"They use a combination of admission criteria including CUET (UG) scores, their own entrance exam, board exam marks. If any university wants to start UG programmes in a second session, they are free to do it," he said.

On whether entrance exams may now have to be held twice a year, Kumar said: "Entrance exams are now technology driven. Ideally, if they are conducted twice a year, it will be beneficial to students. One-by-one, we are trying to implement that. Over a period of time, I hope we will have most entrance exams conducted by the NTA twice in a year".

Delhi University Vice Chancellor Yogesh Singh said, "It is a good idea, a very common idea in the western world where many universities are doing this. We are also very open… in PhD, we are already doing it, we are admitting students twice a year. For UG and PG also, we are very open and we will initially implement it in a few programmes and then extend it to other programmes."

On whether the new admission system is likely to be in place from the upcoming session onwards, he said, "No… admissions have already started, so can't do it right now."

Asked about courses for which admissions are based on entrance exams, he said: "We will have to conduct entrance exams twice a year."

Existing process, change

Students are now admitted once a year, in a single academic session that begins in July/ August. The UGC's decision will allow universities to admit students in two cycles, in July/ August and then in January/February, to undergraduate, postgraduate and PhD programmes.

The new system could allow universities to reflect the admission cycles in some countries that admit students twice a year, and where the courses that are available in these different admission cycles may also vary. Universities in the United States, for instance, have 'intakes' in the fall (session that begins in August/ September) and in the spring (session that begins in January).

Reason and beneficiaries

The UGC has already attempted the biannual admission process for open and distance learning, and online programmes, and found that "permitting a second academic session in a year has helped nearly half a million students join their degree programmes without waiting for one full academic year".

This, according to UGC Chairman M Jagadesh Kumar, could benefit students who may have missed admissions in the July/ August session on account of health issues, delays in board exam results, or personal reasons. With admissions opening twice a year, they need not wait for an entire year before they can apply again.

Kumar has said that universities abroad follow a biannual admission system, and this system in Indian institutions "can enhance their international collaborations and student exchanges".

He has also said that this system could also help increase the 'gross enrollment ratio' (GER). For higher education, GER is the ratio of students enrolled to the population of the age group eligible for higher education.

The new system could help global collaborations, according to UGC chairman M Jagadesh Kumar. *File*

What next for institutions

The decision to open admissions twice a year lies with the universities — their academic and executive councils will have to take the call. It will be up to the universities to work out what programmes they might open up for biannual admissions. The availability of infrastructure and faculty will be crucial in deciding to admit students in two admission cycles.

While the UGC has allowed higher education institutions to admit students twice a year from the coming academic year, Delhi University Vice Chancellor Yogesh Singh pointed out that admissions for the upcoming session have already begun.

Chairman Kumar said: "This a provision that we are providing… It is quite possible that it will not happen immediately. The universities may have to work on their infrastructural requirements, faculty requirements, and then plan it over a period of time."

Singh said the university is open to the idea and may implement it initially for a few programmes before extending it to others.

There is also the question of admissions that are based on entrance exams. Kumar said that it could be "beneficial to students" if they are conducted twice a year.

MP completes preparations for second cheetah home – Gandhi Sagar Sanctuary

EXPRESS NEWS SERVICE
BHOPAL, JUNE 11

THE MADHYA Pradesh government has completed preparations for its ambitious cheetah reintroduction project at Gandhi Sagar Wildlife Sanctuary, which is slated to be the second home for cheetahs in India after Kuno National Park, an official said on Tuesday.

Teams from Kenya and South Africa had earlier visited Gandhi Sagar to assess the conditions, the official said.

He also said that Madhya Pradesh Chief Minister Mohan Yadav chaired a meeting of the wildlife board in which it was informed that preparations have been completed. Prey animals have been relocated from Kanha, Satpura and Sanjay tiger reserves, the official said.

A wildlife department official said, "All preparations have been completed for reintroduction of the cheetah in Gandhi Sagar Sanctuary. Cheetals have been reintroduced from Kanha and other places to increase their population in the region. 50 gaurs (Indian bisons) have also been successfully reintroduced from Kanha and Satpura Tiger Reserve to the Sanjay Tiger Reserve (in Sidhi district)."

12 % hike in Schengen visa fee comes into effect

DIVYA A
NEW DELHI, JUNE 11

FROM TUESDAY onwards, the cost of a short-stay Schengen visa has increased by 12 per cent. While the Schengen visa fee for adults has increased to 90 euros from 80 euros, children between the age of 6 and 12 will now pay 45 euros instead of 40 euros. It is still free for those under six years of age.

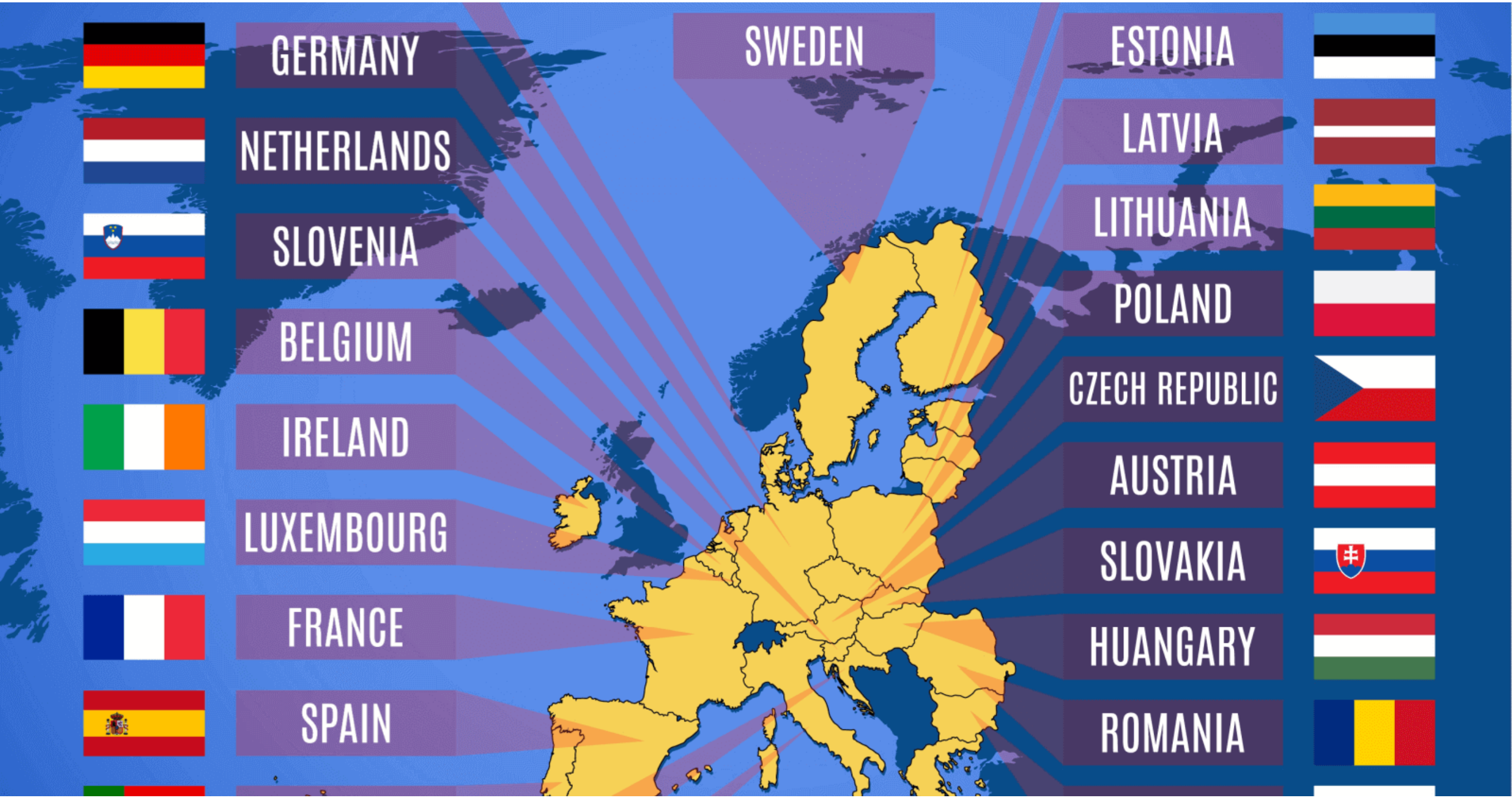
The EU attributes the increase to both inflation and growing civil worker wages.

Schengen visa allows the holder to travel freely in the Schengen Area comprising 29 European countries, for short stays of a maximum of 90 days in any 180-day period. The visas are not purpose-bound, but they do not grant the right to work.

Schengen countries are among the most popular destinations for Indian travellers with a high preference for destinations like France, Spain, Germany, Italy and Switzerland, among others. Schengen countries account for around 20 per cent of India's outbound traffic, as per estimates.

The hiked fee comes into effect globally as per a statement by the European Commission. The EU visa costs were reviewed in December 2023, as Schengen Visa Code mandates review every three years. The fee was increased from 60 euros to 80 euros in February 2020. A few weeks ago, the EU had announced a major reprieve for Indian travellers to Europe, offering multiple entry Schengen visas with longer validity. Frequent Indian travellers can now apply for five-year multiple entry visas, which puts them on par with "visa-free nationals".

Indian nationals can now be issued long-term, multi-entry Schengen visas valid for two years after having obtained and used two visas in past three years. "The two-year visa will normally be followed by a five-year visa, if the passport has sufficient validity remaining," said a statement by the European Commission in April.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POLAND
CZECH REPUBLIC
AUSTRIA
SLOVAKIA
HUANGARY
ROMANIA

Rupee closes at record low

SACHIN KUMAR
Mumbai, June 11

THE RUPEE FELL 6 paise against the dollar to close at a record low of 83.57 on Tuesday, weighed down by a strong dollar. The weakness in the local currency was in sync with that of other Asian currencies and comes ahead of the US Federal Reserve's rate decision this week.

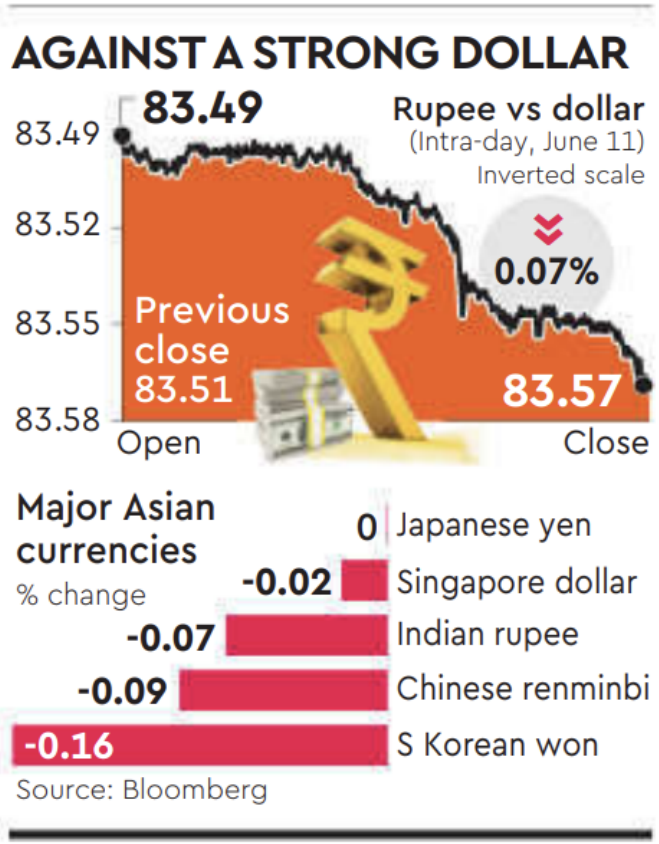
The local currency plunged to as low as 83.5725, near to its previous record low of 83.5750 touched in April, but likely intervention from the Reserve Bank of India (RBI) prevented any further fall in the rupee.

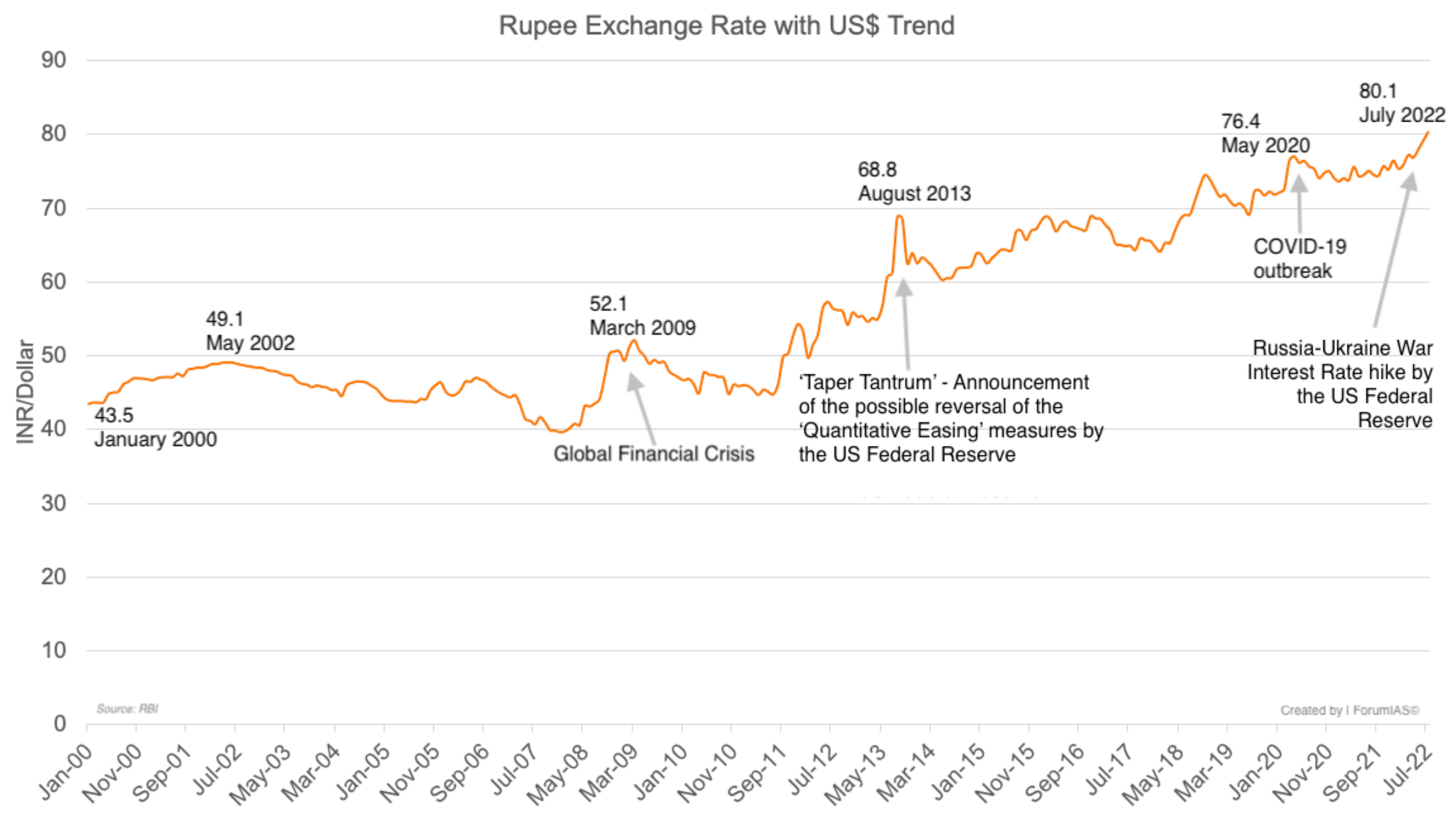
"Stronger than expected US data and political uncertainty after the French president called for snap elections pushed euro-US dollar pair lower and the dollar index higher. Oil demand and rising crude oil prices are further adding to rupee weakness," Kunal Sodhani, vice-president - treasury, Shinhan Bank, told *FE*. "RBI stepped in to cap the slide in rupee and was seen selling dollar around 83.54 level," he added.

Sodhani said Indian bonds will be included in JP Morgan Bond Index from this month which will start attracting debt inflows, adding that 83.30 now acts as a support while 83.80 acts as a resistance for rupee.

Analysts say the rupee will continue to remain under pressure and may fall to around 85 before recovering to 83 in the next 2-3 quarters.

Continued on Page 17




Rupee Exchange Rate with US$ Trend
INR/Dollar
90
80
70
60
50
40
30
20
10
0
43.5
January 2000
49.1
May 2002
52.1
March 2009
Global Financial Crisis
68.8
August 2013
'Taper Tantrum' - Announcement of the possible reversal of the 'Quantitative Easing' measures by the US Federal Reserve
76.4
May 2020
COVID-19 outbreak
80.1
July 2022
Russia-Ukraine War
Interest Rate hike by the US Federal Reserve
Source: RBI
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Jan-00
Nov-00
Sep-01
Jul-02
May-03
Mar-04
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Jul-07
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Jul-17
May-18
Mar-19
Jan-20
Nov-20
Sep-21
Jul-22

- **Positive:Weaker rupee should theoretically give a boost to India's exports, but in an environment of uncertainty and weak global demand, a fall in the external value of rupee may not translate into higher exports**

- **Negative:**
  - It poses **risk of imported inflation**, and may make it difficult for the central bank to maintain interest rates at a record low for longer.
  - India meets more than two-thirds of its domestic oil requirements through imports.
  - India is **also one of the top importers of edible oils**. A weaker currency will further escalate imported edible oil prices and lead to a higher food inflation.

- **Q1. Which one of the following is not the most likely measure the Government/RBI takes to stop the slide of Indian rupee? (2019)**
- **(a) Curbing imports of non-essential goods and promoting exports**
  (b) Encouraging Indian borrowers to issue rupee denominated Masala Bonds
  (c) Easing conditions relating to external commercial borrowing
  (d) Following an expansionary monetary policy

Indian House Crows

- Recently the Kenyan government has announced an action plan to eliminate a million Indian House Crows (Corvus splendens) by the end of 2024.
- This decision stems from the birds' significant negative impact on local ecosystems and their nuisance to the public, particularly in the Kenyan coastal region.

- What is the Kenyan Government Action Plan?
- Invasive Species Issue: The Indian House Crow is described as an invasive alien species from India and parts of Asia, introduced to East Africa via shipping activities.
- Ecological Impact: The crows prey on endangered local bird species, destroy nests, and eat eggs and chicks, leading to a decline in indigenous bird populations.

- **Historical Effort**: A similar effort in Kenya over 20 years ago managed to reduce their numbers temporarily.
- **Government and Community Response**: An action plan to combat the crow menace includes mechanical and targeted methods for culling the birds, and **use of licensed poison** for population control.

- Kenya is located in East Africa.
- Its terrain rises from a low coastal plain on the Indian Ocean to mountains and plateaus at its centre.
- Kenya shares common borders with five countries namely: Tanzania in the South, Uganda in the West, South Sudan in the North West, Ethiopia in the North and Somalia in the East Kenya's is located between the Indian Ocean and Lake Victoria.

Lake Turkana, the world's largest desert lake, is part of the Omo-Turkana basin, which stretches into four countries: Ethiopia, Kenya, South Sudan and Uganda.

UN-Habitat maintains its headquarters at the United Nations Office in Nairobi, Kenya.

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Global Plastic Treaty

- The ongoing discussions in the Intergovernmental Negotiating Committee (INC-4) of the United Nations Environment Agency (UNEA) for a global treaty on plastic pollution prompt considerations for a fair transition for informal waste workers.

- What is the Global Plastic Treaty?
- The Global Plastics Treaty, initiated in 2021, is a pivotal international effort aimed at combatting plastic pollution on a global scale.
- Established during the fifth UN Environment Assembly in Nairobi, Kenya, the treaty has progressed through various meetings worldwide, including Dakar, Senegal; Uruguay; Paris, France; Nairobi, Kenya; and Canada, with the final meeting set for South Korea.

- Notably, the International Alliance of Waste Pickers has played a significant role, advocating for the inclusion of informal waste pickers in the treaty discussions to promote sustainable waste management and equitable policies.

POLYMER TYPES	EXAMPLES OF APPLICATIONS	SYMBOLS
Polyethylene Terephthalate (PET)	Fizzy drink and water bottles. Salad trays.	
High Density Polyethylene (HDPE)	Milk bottles, bleach, cleaners and most shampoo bottles.	
Polyvinyl Chloride (PVC)	Pipes, fittings, window and door frames (rigid PVC). Thermal insulation (PVC foam) and automotive parts.	
Low Density Polyethylene (LDPE)	Carrier bags, bin liners and packaging films.	
Polypropylene (PP)	Margarine tubs, microwaveable meal trays, also produced as fibres and filaments for carpets, wall coverings and vehicle upholstery.	
Polystyrene (PS)	Yoghurt pots, foam hamburger boxes, plastic cutlery, protective packaging for electronic goods and toys. Insulating material in the building and construction industry.	
Unallocated references	Any other plastics that do not fall into any of the above categories - for example polycarbonate which is often used in glazing for the aircraft industry.	

- **Why is there a great concern about the ‘microbeads’ that are released into the environment? (UPSC 2019)**
- (a) They are considered harmful to marine ecosystems.
  (b) They are considered to cause skin cancer in children.
  (c) They are small enough to be absorbed by crop plants in irrigated fields.
  (d) They are often found to be used as food adulterants.

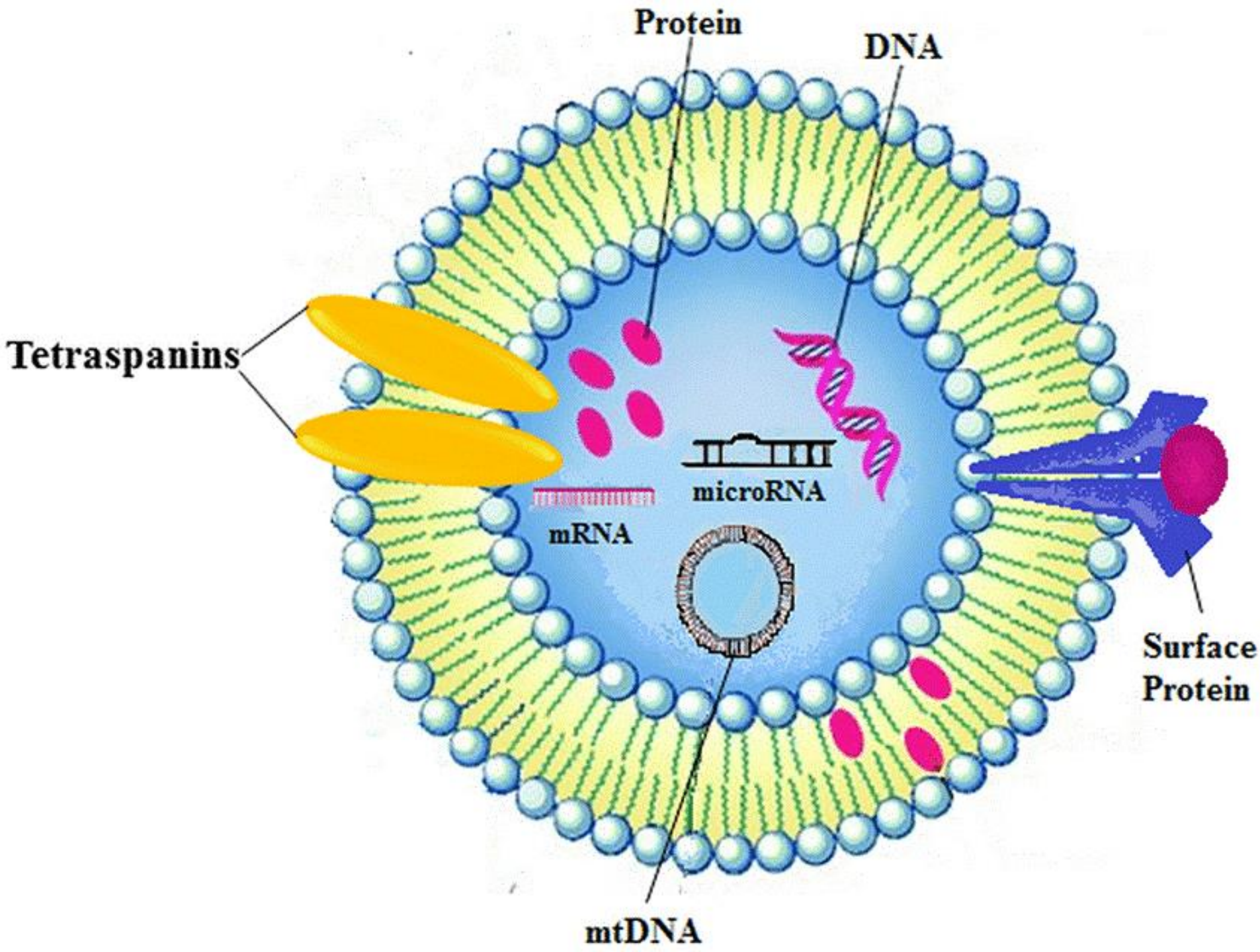
- **In India, ‘extend producer responsibility’ was introduced as an important feature in which of the following? (UPSC 2019)**
- (a) The Bio-medical Waste (Management and Handling) Rules, 1998
- (b) The Recycled Plastic (Manufacturing and Usage) Rules, 1999
- (c) The e-Waste (Management and Handling) Rules, 2011
- (d) The Food Safety and Standard Regulations, 2011
-

safeEXO-Cas

Scientists at Columbia University College of Dental Medicine have developed a new gene editing platform called “safeEXO-Cas,” using exosomes as delivery vehicles for CRISPR/Cas9 components.

This platform enhances precision in targeting specific cells and tissues, overcoming the limitations of current delivery methods.

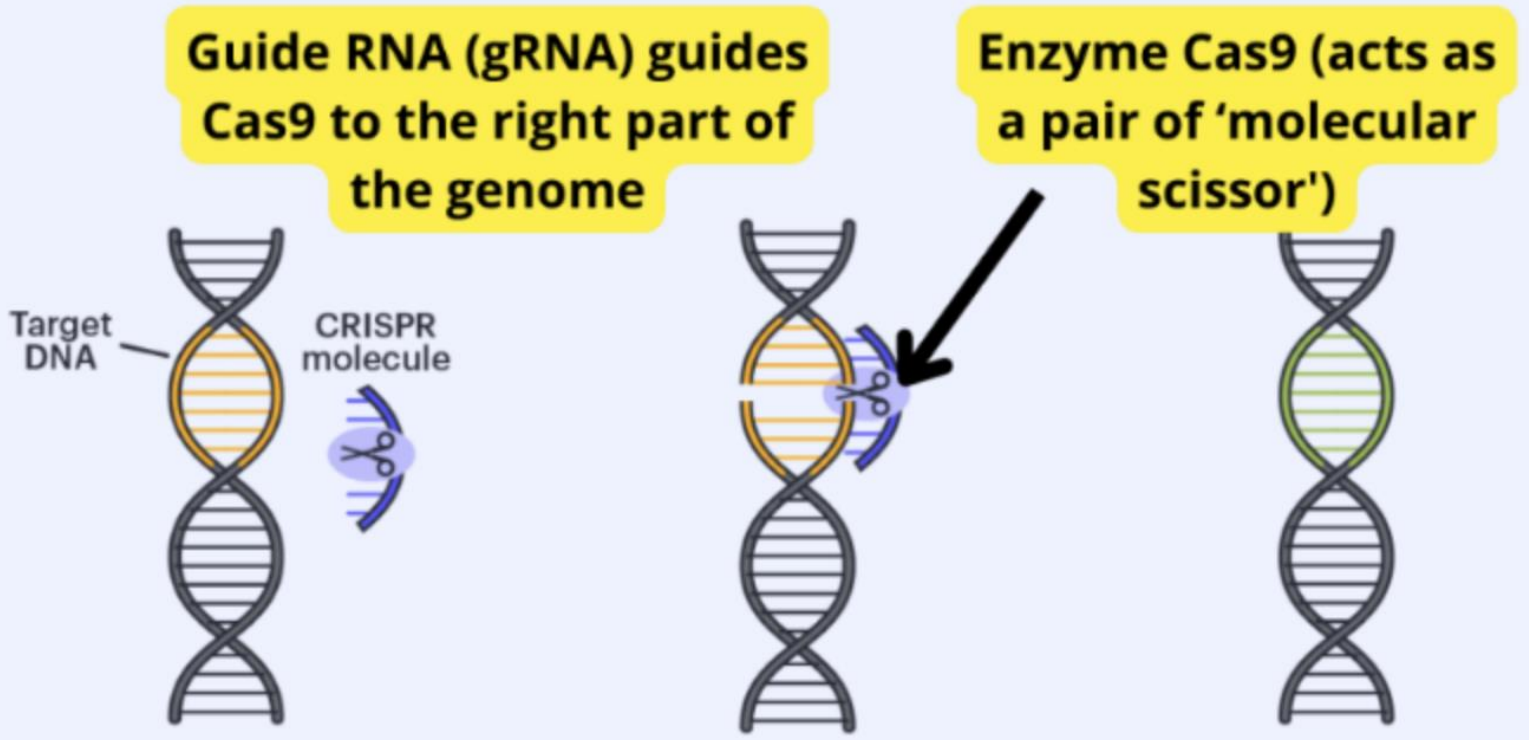
- **What are Exosomes?**
- **Exosomes are naturally occurring vesicles that act as vehicles for transporting molecules**, such as proteins and genetic material, between cells. These tiny membrane-bound structures play a crucial role in cell-to-cell communication and have potential applications in drug delivery, diagnostics, and therapeutics.
-


Protein
DNA
Tetraspanins
microRNA
mRNA
Surface
Protein
mtDNA

It is a genome editing tool, that works as a cut-and-paste mechanism on DNA strands, allowing targeted modifications to the genome.

Its applications include editing genes in human embryos, improving crop resilience, and treating diseases like sickle cell disease.

CRISPR–Cas9 is a unique technology that enables editing parts of the genome by removing, adding or altering sections of the DNA



1 SEARCH
A CRISPR molecule finds a precise location in the target DNA.

2 CUT
The CRISPR enzyme cuts the target DNA at the point found by the guide.

3 EDIT
A new custom sequence can be added when the DNA is repaired.

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