

Gram panchayats across Telangana struggle with fund crisis

Hyderabad: Gram panchayats across Telangana are grappling with severe financial difficulties due to the non-release of funds by the state government for the past six months. This funding freeze has left many village administrations struggling to manage basic services and operations. Of nearly Rs 1,380 crore pending for payment to the gram panchayats, the State government is learnt to have released only Rs 160 crore in two spells over the last six months. During the previous BRS regime, around Rs 230 crore was released every month to 12,769 gram panchayats across the State. The State government released matching grants along with the Central funds. These funds supported various rural development initiatives, including garbage collection, road maintenance, and the operations of dumping yards.

The previous government also appointed a panchayat secretary for each village under the new Panchayat Raj Act, which aimed to make gram panchayats a model for the country. Due to these initiatives, the rural local bodies of Telangana won numerous awards from the union government under various categories/schemes over the last three-four years. However, the current government

has significantly cut these monthly allocations. Panchayat officials are under pressure to cover emergency expenses from their own pockets, adding to their financial strain. The situation has worsened with the expiry of the rural local bodies' term in February this year, following which the administration is being handled by the special officers appointed by the State government.

The situation is especially dire for smaller gram panchayats, where the lack of funds has led to a halt in essential services. Tractors, crucial for garbage collection, are unable to run due to a lack of diesel. Panchayat buildings are facing power cuts, and the funds needed to pay sanitation workers are unavailable, causing widespread concern among panchayat secretaries and special officers. "Without the necessary funds, we can't even pay the electricity bills," a panchayat secretary from Kamareddy district lamented. "We haven't been able to pay our sanitation workers for months," he added.

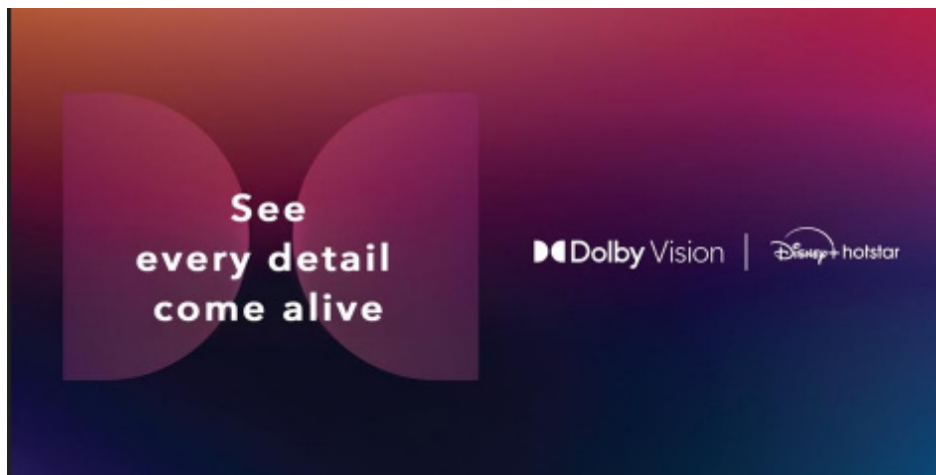
The State Finance Commission (SFC) has yet to release the required funds, compounding the problem. The Central funds from the 15th Finance Commission are also on hold until new panchayat governing bodies are elected, leaving villages with-



out any significant income sources in a precarious position. Adding to the woes, the State government directed the gram panchayats to handle the drinking water supply to local households with their own funds. This funding crisis has led to a halt in critical services. Drinking water shortages have become common, and multi-purpose workers, who handle everything from sanitation to water supply, have not

been paid for last three months. Larger panchayats are also struggling to maintain adequate numbers of sanitation workers, causing delays in essential services. The lack of funds has left many villages in a dire condition. "We can't even buy diesel to run the garbage collection tractors. Unless funds are released immediately, the situation will be out of control," said an official in the Panchayat Raj and Rural Development department.

Disney+ Hotstar becomes the first streaming service in India to stream Live Sports in Dolby Vision



Disney+ Hotstar becomes the first streaming platform to stream live sports in Dolby Vision® in India and for cricket in the world. This ICC Men's T20 World Cup 2024, all India matches, Super 8s, semi-finals and finals will be streamed live in Dolby Vision on Disney+ Hotstar. Disney+ Hotstar's Premium-only subscribers can get the best seats in the house when they experience the ICC Men's T20 World Cup 2024 in Dolby Vision. Cricket fans can ex-

perience every heart stopping, nail-biting moment of the game in the lifelike colors, sharp contrast, and rich details of Dolby Vision. Sharing the excitement about this milestone, Mukund Acharya, Head of Engineering, Disney+ Hotstar, said, "India is a country that lives and breathes cricket; and it is our endeavour to consistently make their viewing experiences more immersive. We are delighted to introduce Dolby Vision for our Premium-only users

to experience the ICC Men's T20 World Cup 2024 on their screens like never before. Our collaboration with Dolby marks a significant step for sports streaming in India; and sets a new precedence towards our efforts in offering the best in entertainment and technology." Entertainment in Dolby Vision comes alive with sharper contrast and richer colors, revealing surprising new details. This advancement will be a unique selling proposition (USP) for Disney+ Hotstar's Premium-only subscription, offering users an unmatched viewing experience that makes every moment of the game come alive. Karan Grover, Senior Director – Commercial Partnerships IMEA Dolby Laboratories, expressed his enthusiasm for the collaboration, saying, "We are

excited to collaborate with Disney+ Hotstar to bring Dolby Vision to live sport streaming for the first time in India. This ICC Men's T20 World Cup 2024, Disney+ Hotstar subscribers can experience how the game comes alive in Dolby Vision, pulling you deeper into the action. This collaboration marks a significant achievement in delivering the future of cricket viewing to audiences." Only select 4K-enabled Smart TVs that support Dolby Vision will be able to stream these matches, ensuring that viewers with compatible technology get the best possible experience. Disney+ Hotstar continues to innovate and lead the way in providing exceptional entertainment experiences, and the introduction of Dolby Vision for live cricket streaming is a testament to this commitment.

Financier dies by suicide in Bowenpally

Hyderabad: A financier died by suicide by hanging in his house in Bowenpally on Friday. The reason for the suicide was not known, police said.

Jagadish, who lived with his wife and two children in Hasmathpet in Bowenpally,

was reportedly upset over some issues for the past few days. Police said Jagadish who asked his wife to make tea for him, went into the bathroom saying he was going to freshen up, and hanged from the ventilator.

What is nuclear waste and what are the challenges of handling it? | Explained

Recently, India loaded the core of its long-delayed prototype fast breeder reactor (PFBR) vessel, bringing it to the cusp of stage II — powered by uranium and plutonium — of its three-stage nuclear programme. By stage III, India hopes to be able to use its vast reserves of thorium to produce nuclear power and gain some energy independence. But the large-scale use of nuclear power is accompanied by a difficult problem: waste management.

What is nuclear waste?

In a fission reactor, neutrons bombard the nuclei of atoms of certain elements. When one such nucleus absorbs a neutron, it destabilises and breaks up, yielding some energy and the nuclei of different elements. For example, when the uranium-235 (U-235) nucleus absorbs a neutron, it can fission to barium-144, krypton-89, and three neutrons. If the 'debris' (barium-144 and krypton-89) constitute elements that can't undergo fission, they become nuclear waste. Fuel that is loaded into a nuclear reactor will become irradiated and will eventually have to be unloaded. At this stage it is called spent fuel. "The spent fuel contains all the radioactive fission products that are produced when each nucleus ... breaks apart to produce energy, as well as those radioactive elements, ... produced when uranium is converted into heavier elements following the absorption of neutrons and subsequent radioactive decays," M.V. Ramana, the Simons Chair in Disarmament, Global and Human Security at the School of Public Policy and Global Affairs, University of British Columbia, wrote in a 2018 paper. Nuclear waste is highly radioactive and needs to be stored in facilities reinforced to prevent leakage into and/or contamination of the local environment.

How do we handle nuclear waste?

Handling the spent fuel is the main challenge: it is hot and radioactive, and needs to be kept underwater for up to a few decades. Once it has cooled, it can be transferred to dry casks for longer-term storage. All countries with longstanding nuclear power programmes have accumulated a considerable inventory of spent fuel. For example, the U.S. had 69,682 tonnes (as of 2015), Canada 54,000 tonnes (2016), and Russia 21,362 tonnes (2014). Depending on radioactivity levels, the storage period can run up to a few millennia, meaning "they have to be isolated from human contact for periods of time that are longer than anatomically modern Homo sapiens have been around on the planet," Dr. Ramana wrote in his paper.

Nuclear power plants also have liquid waste treatment facilities. "Small quantities of aqueous wastes containing short-lived radionuclides may be discharged into the environment," International Agency for Atomic Energy (IAEA) scientist V. Tsyplenkov wrote in a 1993 article. Japan is currently discharging, after treatment, such water from the Fukushima nuclear power plant into the Pacific Ocean. Other such waste, depending on their hazard, can

be evaporated or "chemically precipitated" to yield a sludge to be treated and stored, "absorbed on solid matrices" or incinerated. Liquid high-level waste contains "almost all of the fission products produced in the fuel". It is vitrified to form a storable glass. "The vast majority of the radioactivity in the waste from [pressurised heavy-water reactors of stage I] ... can't be used to fuel the PFBR," Dr. Ramana said of India's situation in an email to The Hindu. "Only uranium and plutonium can be used as fuel. Because India reprocesses its spent fuel, these fission products will have to be stored, at least for a while, in the form of liquid waste, which poses accident hazards."

How is nuclear waste dealt with?

Once spent fuel has been cooled in the spent-fuel pool for at least a year, it can be moved to dry-cask storage, and is placed inside large steel cylinders and surrounded by an inert gas. The cylinders are sealed shut and placed inside larger steel or concrete chambers. Some experts have also rooted for geological disposal: the waste is sealed in "special containers", to quote Dr. Ramana's paper, and buried underground in granite or clay. The upside here is long-term storage away from human activity, although some studies have pointed to the risk of radioactive material becoming exposed to humans if the containers are disturbed, such as by nearby digging activity. A 2015 paper in Nature Materials also wrote "the act of emplacement of the waste affects some of the fundamental properties of the surrounding rock. The construction of tunnels creates a disturbed zone of increased fracture, and pore waters move in response to the thermal pulse generated by the decay of radionuclides". Reprocessing — the name for technologies that separate fissile from non-fissile material in spent fuel — is another way to deal with the spent fuel. Here, the material is chemically treated to separate fissile material left behind from the non-fissile material. Because spent fuel is so hazardous, reprocessing facilities need specialised protections and personnel of their own. Such facilities present the advantage of higher fuel efficiency but are also expensive. Importantly, reprocessing also yields weapons-usable (different from weapons-grade) plutonium. The IAEA has specified eight kilograms of plutonium in which plutonium-239 accounts for more than 95% to be the threshold for "safeguards significance". It tightly regulates the setting up and operation of these facilities as a result.

What are the issues associated with nuclear waste?

In 2013, Der Spiegel reported on engineers' years' long effort to access the Asse II salt mine, where "thousands of drums filled with nuclear waste" had been kept for "over three decades". The effort — a decontamination project — was prompted by mounting public concerns that the waste may have contaminated water resources



A bird's eye view of the production, handling, and storage of this difficult substance and their effects on policy and tariffs

(including groundwater) in the area. The newspaper said it was likely to cost "somewhere between \$5 billion and \$10 billion" and around 30 years, speaking to the demands of waste decontamination. Dr. Ramana also used the case of the Waste Isolation Pilot Plant in the U.S. to illustrate the issue of "unknown unknowns". The facility has been operational since March 1999 with a licence to store waste for a few millennia. "For long, WIPP had been held up as a model for how radioactive wastes should be dealt with," Dr. Ramana wrote. But in 2014, an accident at the site released small quantities of radioactive materials to the environment, revealing serious failures in its maintenance. He also expressed concerns to The Hindu about uncertainties with treating liquid waste: "How well have the vitrification plants at reprocessing plants functioned? How much liquid waste — high level and intermediate level — is yet to be vitrified?" "Almost all countries that have tried to site repositories have experienced one or more failures," he wrote. He also highlighted "normative problems with the idea of exporting nuclear waste, including the environmental injustice inherent in the exports of such hazardous materials, and the ethical argument that those enjoying the benefits of nuclear power should also incur the costs".

How does waste-handling add to the cost of nuclear power?

The Nuclear Waste Policy Act 1982 in the U.S. imposed on electricity from nuclear power, to be funnelled into a 'Nuclear Waste Fund', which in turn would fund a geological disposal facility. As of July 2018, the fund had a corpus of \$40 billion and attracted criticism for being unspent for the "intended purpose". In the 1993 article, Dr. Tsyplenkov considered a

nuclear power plant of 1,000 MWe capacity "operating at a capacity factor of 70% for 30 years". They estimated "the waste management at the front end of the cycle leads to about 10% of the total waste management cost. Of this, about one-third is due to the management of depleted uranium as a waste. The management of wastes from power plant operation accounts for about 24% of the costs and 15% is due to power plant decommissioning. The remaining 50% of costs is associated with the back end of the fuel cycle." In the final estimate, they added, waste management imposed a cost of \$1.6-7.1 per MWh of nuclear energy.

How does India handle nuclear waste?

According to a 2015 report of the International Panel on Fissile Materials (IPFM), India has reprocessing plants in Trombay, Tarapur, and Kalpakkam. The Trombay facility reprocesses 50 tonnes of heavy metal per year (tHM/y) as spent fuel from two research reactors to produce plutonium for stage II reactors as well as nuclear weapons. Of the two in Tarapur, one used to reprocess 100 tHM/y of fuel from some pressurised heavy water reactors (stage I) and the other, commissioned in 2011, has a capacity of 100 tHM/y. The third facility in Kalpakkam processes 100 tHM/y. Also in 2015, Jitendra Singh, the Minister of State for the Prime Minister's Office (among other portfolios), said in the Rajya Sabha: "The wastes generated at the nuclear power stations during the operation are of low and intermediate activity level and are managed at the site itself." He added they are treated and stored in on-site facilities, that "such facilities are located at all nuclear power stations", and that the surrounding area "is monitored for radioactivity".

OPPO F27 Pro+ 5G: India's first Super-Rugged, Monsoon-Ready Smartphone

An OPPO India dipstick—conducted in May on Instagram, LinkedIn and X—found that 42% of 6000+ respondents need a water-resistant smartphone for monsoons, 30% want a waterproof device for beach or poolside use, 19% prefer drop-proof protection for clumsy moments, while 9% said they valued a scratch-proof toughened glass to brave coins and keys in their pockets and purses. To meet this articulated need, OPPO India will introduce the country's first super-rugged monsoon-ready smartphone—the OPPO F27 Pro+ 5G—on June 13, 2024.

OPPO F27 Pro+ 5G Certifications

IP69, IP68 and IP66 rating

Swiss SGS Premium Performance 5 Stars Drop Resistance

MIL-STD-810H Method 516.8 certification

Monsoon-ready & waterproof with IP69, IP68 and IP66

The OPPO F27 Pro+ 5G boasts a waterproof screen and waterproofing on key openings, including a completely waterproof microphone, speaker openings, SIM card slot pinhole and USB port. The microphone openings and earpiece speaker are protected by a waterproof, breathable film for audio permeability while keeping the water out, while its USB unit comprises a silicone sealing ring designed to ensure water-tightness. Additionally, OPPO uses a new waterproof circuit design, so water jets cannot compromise the phone via any openings; this is a critical type of damage a monsoon downpour can cause to a device. According to a 2021 Cashify report, water damage often impacts the

smartphone motherboard, resulting in a need for replacement. An international survey, published by the Organisation of Consumers and Users (OCU) in 2018, found that 35% of users experienced some form of water damage within the first two years of smartphone use; the F27 Pro+ 5G was designed to address this issue. Additionally, the F27 Pro+ 5G comes with an innovative feature designed to enhance usability; it supports accurate touch operation even with wet hands. Regardless of rainwater, vapour, or moisture on the screen, users can now slide and touch-operate their phone with "Splash Touch" accuracy. Adding solid credibility to the F27 Pro+ 5G waterproofing claims are the three Ingress Protection (IP) certifications it carries. The F27 Pro+ 5G sets a benchmark in the industry as the first smartphone in India to pass three waterproofing tests: IP66: The highest level of protection against dust and regular water jets. IP68: The highest level of protection against dust and water immersion up to 1.5m for 30 mins. IP69: The highest level of protection against dust and high-pressure water jets at temperatures up to 80°C. The OPPO F27 Pro+ 5G not only meets but exceeds the standards of competing smartphones to be a water-resistant, monsoon-ready smartphone.

Military Grade Durability

The OPPO F27 Pro+ 5G's durability goes beyond dust and water resistance due to its damage-proof 360° Armour Body that shields from internal and external impacts. Each of the four corners connects the back cover with the body to minimise the risk of separation and distortion after drops. The front cover of the motherboard uses



AM03—a high-strength, high-thermal conductivity aluminium alloy commonly used in high-performance computing environments—to protect critical components. Additionally, the interior is filled with cushioning materials, such as sponges, to enhance drop resistance and safeguard essential components during impacts.

The OPPO F27 Pro+ 5G is also subjected to stringent internal durability tests. Its charging interface is subjected to 20,000 plugs and unplugs, each phone button is pressed 2,00,000 times, while the product is tested against 42,000 micro-drops, as well as high-frequency drops from low heights. The device has received the Swiss SGS Premium Performance 5 Stars Drop

Resistance certification after passing multi-angle drop tests, extreme height shock resistance and extreme frequency shock resistance. It also carries the MIL-STD-810H Method 516.8 certification—usually found on shock-resistant hard drives and laptops designed for military use—that involves five parameter tests: Functional Shock, Transportation Shock, Fragility, Transit Drop and Crash Hazard Shock. The OPPO F27 Pro+ 5G ships with a Corning Gorilla Glass Victus 2 display at the front—for 180% improvement in drop resistance and three times stronger scratch resistance over its predecessor—to ensure the display remains scratch and crack-free, even if you drop it.

MG India Launches Exclusive Summer Accessories Range

MG (Morris Garages), a British automobile brand with a 100-year-old legacy, launches its all-new Summer Accessories Range designed for its portfolio of cars. This newly introduced range is specifically crafted to keep customer drives cool and comfortable during the hot summer months, ensuring an enhanced driving experience while protecting the vehicle. The accessories included in this range are tailored to meet the unique needs of MG car owners, promising both functionality and style. The Summer Accessories Range includes:

1. Sunshades: Custom-fit sunshades are now available for Gloster, Hector, Astor, ZS EV, and Comet models, offering maximum UV protection. Designed to perfectly fit the contours of the MG's windows, these sunshades provide superior protection against harmful UV rays, keeping the interior cool and preventing sun damage to the upholstery and dashboard. Unlike generic sunshades, MG's custom-fit sunshades ensure a snug fit, providing optimal coverage and an aesthetically pleasing look. Price: Hector/Hector Plus – Rs 3,999/-, ZSEV/Astor – Rs 4,449/-,

Gloster- Rs 4,739/-, Comet EV- Rs 1,999

2. Car Cover: For Gloster, Hector, Astor, ZS EV, and Comet models, an all-weather, breathable car cover has been introduced. Crafted from premium materials, this car cover shields the vehicle from sun, rain, and dust. Its advanced fabric technology not only protects the car from external damages but also allows moisture to escape, preventing mold and mildew buildup, ensuring the MG looks pristine no matter where it's parked. Price: Hector / Hector Plus (Silver) – Rs 2,649/-, ZSEV/Astor – Rs 2,299/-, Gloster- Rs 3,199/-, Comet EV- Rs 1,849. Refrigerator: Perfect for long summer drives, a compact, high-efficiency car refrigerator is now available for Gloster, Hector, Astor, ZS EV, and Comet models. This refrigerator keeps beverages and snacks cold throughout the journey, combining portability with style. Designed to fit seamlessly, it offers a blend of convenience and sophistication with a high-efficiency cooling system that minimizes power consumption while maximizing performance. Price: For all variants - Rs 25,000/-

4. Ventilated seats: Available for Gloster models, featuring an integrated ventilation system that circulates cool air through the seat cushions. This ensures passengers remain comfortable and sweat-free even on the hottest days. Unlike traditional seat coolers, MG's ventilated seats are seamlessly integrated into the car's design, providing a luxurious cooling experience without bulky add-ons. Price: Gloster BLACKSTORM – Rs 9,1895. Cooler and Warmer Holder: A dual-function cooling and warming holder, available for Gloster, Hector, Astor, ZS EV, and Comet models, ensures beverages are always at the perfect temperature. Using advanced thermoelectric technology, it efficiently cools down or heats up beverages within approximately 30 minutes, keeping drinks cool at 6°C or warm at 55°C (with room temperature at 26°C). MG's Cooler and Warmer Holder combines robust aluminium construction with cutting-edge thermoelectric cooling and heating capabilities, offering optimal beverage temperature control with a sleek design and quiet operation. Price: For all variants - Rs 8,399/



Canon Eyes Significant Expansion of Core Business in India, Alongside Strengthening Industrial & Medical Business

Highlighting India's crucial role in its global growth strategy, Canon today announced its outlined plans for strengthening its core business segments of imaging, printing, and surveillance, along with growing presence in the Semiconductor, Flat Panel Display business and the medical industry. Reaffirming the brand's commitment to India, these announcements were made during Canon's strategy meet in Mumbai, attended by key global leadership. In the industrial equipment business, Canon has a wide range of Semiconductor Lithography Equipment and Flat Panel Display Lithography Equipment. Canon aims to introduce state-of-the-art lithography solutions and emphasize eco-friendly practices, backed by superior customer service to India. Additionally, beyond equipment provision, Canon's commitment to India's industry extends to talent development as well. On the other hand, with respect to healthcare, Canon has a comprehensive portfolio of advanced medical products and solutions from diagnostic imaging systems and healthcare IT solutions. With India as a key market, Canon further focuses on bolstering the rapidly growing medical business.

Speaking on the occasion, Mr. Howard Ozawa, Executive Vice President of Canon Inc., Chief Representative of Canon Asia Group, Chairman & CEO of Canon Marketing Asia, said, "As Canon continues to etch its global legacy across diverse domains, we recognize that India stands at the heart of our strategic ambitions. With a rich heritage of innovation and a commitment to excellence, Canon has become synonymous with cutting-edge imaging technology. India's dynamic economy, vibrant culture, and tech-savvy population make it a critical market for Canon. And our existing segments (managed by Canon India Pvt. Ltd.), be it cameras, printers, or office solutions have thrived here, driven by the trust and loyalty of Indian consumers. India remains a beacon of opportunity for us and recognizing the immense potential that the market holds, we are aiming to strengthen the semiconductor and medical business. At Canon, we are committed to empowering customers through high quality and performance-based technology that meets their specific needs. As Canon's legacy meets India's boundless potential, we hold an optimistic vision for Canon India to emerge as the leading company in the region by 2035, thereby propelling Canon Asia to secure its position as the top sales region globally."

Commenting on the Semiconductor and Flat Panel Display industry, Mr. Kazunori Iwamoto, Advisory Director, Deputy Chief Executive of Optical Products Operations, Unit Executive of Semiconductor Production Equipment Unit of Canon Inc. said, "In the semiconductor business in India, we aim to introduce our advanced skillsets and knowledge to India, taking advantage of our over 50 years history in the exposure equipment business. Canon provides a variety of manufacturing solutions for the cutting-edge electronics industry. Our latest technology, called Nanoimprint lithography equipment, imprints a pattern on a mask onto a wafer



to form a fine pattern. Compared to the conventional optical exposure tool, it has a simple configuration without complex optics and high power EUV, and the electric power consumption is only 1/10. In addition, not only by our cutting-edge technology and wide range of products, but also by developing talents through our global training curriculum, we will contribute to India's semiconductor industrial growth."

Sharing insights on the expansion of medical business, Mr. Koh Yamada, President, Canon Medical Systems India Pvt. Ltd. said, "Canon Medical Systems India Pvt. Ltd. is a subsidiary of Canon Medical Systems Corporation in Japan. Canon Medical Systems has a comprehensive portfolio of advanced medical imaging from diagnostic and interventional imaging systems to healthcare IT solutions for the wider healthcare enterprise. Recognized as a world leader in innovation, Canon Medical Systems continues to develop breakthrough technology and applications including using AI, to support diagnostic imaging and therapeutic needs, all while optimizing patient outcomes. We understand that more and more people are suffering from non-communicable, life-style diseases such as cardiovascular diseases, cancer, and diabetes, and hope that our unique technologies can contribute and help medical professionals better deal with them. In India, Canon Medical Systems aim to provide our customers with higher quality services as a priority."

The brand has established a strong footprint in the digital imaging industry, as an end-to-end solutions provider, having diversified into new markets, broadening its product range and asserting its leadership across customer segments. In the camera segment, Canon has retained its No.1 share in the Digital Interchangeable Lens

Camera (DILC) global market for 21 consecutive years. Canon further endeavors to expand its imaging business by broadening the conventional camera industry to include comprehensive offerings like video management and video analytics. Similarly, in the printing business, Canon aims to become the global leader in office and home printing by aligning with modern re-

mote working lifestyles and leading digital transformation in the office, through its innovative modern solutions. The surveillance and broadcast range of solutions from Canon has been receiving positive response from customers, and Canon further aims to strengthen their positioning as the one-stop surveillance solution provider.

Sunita Williams dances to ISS as Starliner docks

Washington: Indian-origin NASA astronaut Sunita Williams danced her way to the International Space Station (ISS) in the early hours on Friday, as the Boeing Starliner spacecraft successfully docked to the orbital laboratory. Along with NASA astronauts Butch Wilmore, she will spend about a week at the ISS.

"Docking confirmed! @BoeingSpace's Starliner docked to the forward-facing port of the @Space_Station's Harmony module. NASA astronauts Butch Wilmore and Sunita Williams will spend about a week. That feeling when you're back on the station!" NASA said in a post on X. Later, the seven Expedition 71 crew members gathered with the two crew flight test members for a team portrait aboard the space station. The spacecraft was launched on a United Launch Alliance Atlas V rocket from Space Launch Complex-41 at Cape Canaveral Space Force Station in Florida.

As part of the agency's Commercial Crew Programme, the mission is the first crewed flight for the Starliner



With NASA astronaut Butch Wilmore, she'll spend roughly a week at the ISS

spacecraft. The Starliner mission aims to carry astronauts and cargo for future NASA missions to low Earth orbit, and beyond. The crew flight test aims to certify the spacecraft for routine space travel to and from the space station.

Pioneering New Collaborations: Renowned Cinematographer Ravi K. Chandran Joins Canon India as Cinema EOS Ambassador

Fostering the filmmaking culture and innovation in India, the partnership marks a new addition to Canon's esteemed ambassador program.

Building on its legacy of fuelling creativity and innovation, Canon India today announced the onboarding of acclaimed cinematographer and director, Ravi K. Chandran as a Canon Cinema EOS Ambassador. This initiative is part of Canon's commitment to spread the culture of videography and nurture talent in the realms of filmmaking through its ambassador program. Chandran, a celebrated figure with an illustrious three-decade career spanning Hindi, Malayalam, and Tamil cinema, is known for his pivotal role in redefining Indian cinematography.

A beloved figure in Indian cinema, Chandran's journey began in 1984 and quickly ascended after his breakthrough with the Malayalam film "Kilukkampetti." His masterful work in "Virasat" earned him widespread acclaim, setting a high standard early in his career. Over the years, Chandran has garnered multiple reputed awards, including two Filmfare Awards and a Southern Filmfare Award. His international recognition peaked with a nomination for the prestigious Camerimage Golden Frog Award, marking him as the only Indian cinematographer to achieve this honour.

Mr. Vishesh Magoo, Assistant Director, Imaging Communication Business Centre, Canon India, expressed his enthusiasm about Chandran's inclusion, "We are thrilled to welcome Ravi K. Chandran to the Canon family! His exceptional talent and innovative spirit align perfectly with Canon's mission to empower visual storytellers. At Canon India, we are not only committed to pioneering new technology but also forging new partnerships, so that together, we can spread the culture of filmmaking further and nurture a culture of cre-

ativity in India. With Chandran's expertise coupled with our cutting-edge cinematography solutions, I am confident that India's visual storytelling landscape will reach unprecedented heights, inspiring generations to come."

Mr. Ravi K. Chandran expressed his excitement about the collaboration, stating, "Joining the Canon EOS Ambassador Program is an exciting moment for me. Canon's continuous innovation has always intrigued me, pushing me to explore new possibilities in cinematography. With this collaboration, I not only look forward to infusing new energies amidst bright young minds of the world of cinema but I'm also all geared up to unlock new horizons that I have envisioned throughout my career. Together with Canon, I am eager to push the boundaries of filmmaking and pave the way for exciting advancements in the field."

Chandran's innovative approach is exemplified in iconic Bollywood films such as "Dil Chahta Hai," "Yuva," "Koi Mil Gaya," "Paheli," "Fanaa," "Saawariya," "Ghajini," "Rab Ne Bana Di Jodi," "My Name is Khan," and "Agnepath" amongst others. In the South, he has significantly influenced visual storytelling with masterpieces such as "Minsaara Kanavu," "Kandukondain Kandukondain," "Citizen," "Boys," "Aayitha Ezhuthu," and "Kannathil Muthamittal." The Canon EOS Ambassador Program brings together creative professionals and industry experts who are influential leaders in the photo and video community, both offline and online. They help the community by providing trusted product validation, assurance, and consultation, reaching a diverse audience across different genres, demographics, and languages. The program nurtures a community dedicated to advancing the art of visual storytelling.



Avian influenza cause for concern



Hyderabad: Testing times are ahead for the public healthcare system with the World Health Organization (WHO) on Thursday confirming the world's first hu-

man fatality due to avian influenza (H5N2) in Mexico and the havoc wreaked, for the past several months in Indian States of Andhra Pradesh and Kerala and also sev-

eral countries, by H5N1 bird flu outbreak.

Given the fact that H5N2, which is a subtype of influenza A virus (H5N1), has started to fatally infect humans, in addition to livestock, it should be a wakeup call for the State government and its public health wing to frame and implement proactive surveillance and genetic testing plans to monitor the spread of avian influenza among livestock and take appropriate action wherever there is a risk of an outbreak. Thanks to its surveillance system, Kerala started detecting cases of H5N1 way back in April and has been able to control major outbreaks that usually have the potential to trickle down to humans. Tamil Nadu has already set border checkpoints for vigilance teams comprising veterinarians and support staff. At such locations, vehicles transporting poultry products are being stopped and disinfection measures taken up or are turned back. So far, however, none of such proactive measures have been taken up by Telangana State, which has porous borders with multiple States, including Karnataka.

According to the WHO, the most likely route of H5N2 infection to the deceased individual in Mexico could be through poultry. "Although the source of exposure to the virus in this case is currently unknown, the H5N2 virus has been reported in poultry in Mexico. A human infection caused by a novel influenza A virus subtype has a potential for high public health impact," the WHO said. Whenever avian influenza viruses are circulating in poultry, there is a risk for infection and small clusters of human cases due to exposure to infected poultry or contaminated environments. Therefore, sporadic human cases are not unexpected.

Human cases of infection with other H5 subtypes, including A(H5N1), A(H5N6) and A(H5N8) viruses, have been reported previously, the WHO made it clear. The possibility of human infection, whenever the influenza viruses are circulating in poultry, should be a major reason enough for the Health Department to be proactive and focus on large-scale monitoring, surveillance and genetic testing.

Understanding dialysis outcome patterns in India through a nationwide study

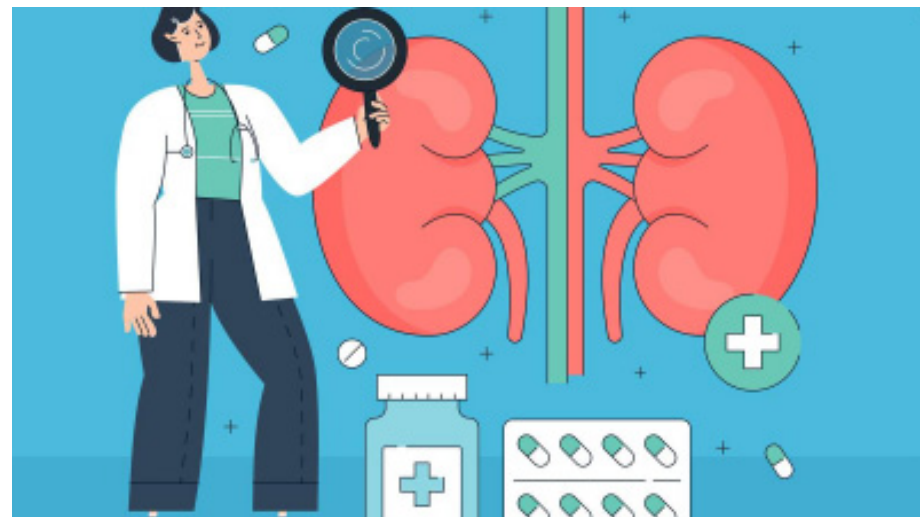
Hockman et al, 'Centre-level variation in the survival of patients receiving haemodialysis in India: findings from a nationwide private haemodialysis network', The Lancet Regional Health-Southeast Asia, March 13, 2024. The authors attempt to analyse the survival of patients undergoing dialysis at 193 centres in India. The primary outcome was all-cause mortality, measured from 90 days after joining a centre, using patient-level and centre-level characteristics. The findings indicate the need not only to scale up infrastructure for dialysis across the country, but also to standardise dialysis care and ensure lower mortality by doing so.

India has amongst the highest number of patients receiving chronic dialysis, globally estimated at around 1,75,000 people in 2018. On a daily basis, the number of patients on dialysis has been increasing. The authors notch this up to the launch of the National Dialysis Service in 2016 to improve access, and ongoing efforts to develop affordable dialysis systems, all underlined by the rising incidence of end stage renal disease in the country. Before this study, there were no large studies examining survival in patients receiving haemodialysis in India, or considering centre-level effects on survival. As per the authors, the only, and largest study, conducted in Andhra Pradesh used claims data from a publicly-funded insurance scheme between 2008 and 2012 to describe outcomes amongst 13,118 beneficiaries, and found that 10.2% of patients died within six months of starting haemodialysis. However, there was limited opportunity in the study to examine whether differences in survival existed between dialysis centres, as has been shown in other countries. As a result, major gaps existed in the full understanding of dialysis outcome patterns in India, limiting efforts to improve care across the country. There is also, as yet, no national benchmark for survival in patients receiving dialysis, they stated. Measuring differences

The authors measured the differences in the survival rate between dialysis centres across India and evaluated the extent to which these differences are explained by centre-based characteristics. They found that centre- and patient- level characteristics are associated with survival, but there remains an unexplained variation between centres. In this study, one of the largest of its nature, over 23,600 patients, undergoing haemodialysis at any centre in the NephroPlus network, for 90 days or more, between April 2014 and June 2019 were chosen. The primary outcome was all-cause mortality, measured from 90 days after joining a centre. The individual-level variables included sex, smoking status, history of diabetes, history of heart disease or heart failure, history of hypertension, hepatitis B and hepatitis C in patients. Besides this, other categories such as education, monthly household income, dialysis frequency and vascular access were

factored in for evaluation. The centre-level variables included frequency of nephrologist visits, number of beds, number of staff and number of patients. Mortality rate

After accounting for multi-level factors, the estimated 180-day survival ranged between 83% and 97%. The mortality rate in patients attending rural centres was 32% higher than those at urban centres. This latter figure was likely due in part to unmeasured differences in patient characteristics. Nevertheless, it highlights the unique challenges faced by rural centres, the authors aver. Among the patient characteristics associated with mortality were: catheter-based vascular access which had a higher mortality compared to access via an arteriovenous fistula or graft; also, financial support for dialysis treatment through a government panel scheme or private insurance had a lower mortality compared to out-of-pocket payment. There was an inverse relationship between mortality and dialysis vintage, with those receiving dialysis for at least a year prior to joining a centre having a 17% lower rate of mortality than those who started dialysis less than 30 days before joining. The presence of diabetes was associated with a higher mortality rate. By including centre-level factors in the analysis; for instance, staffing, processes of care and patient volume, they found it reduced the variability in survival across dialysis centres by



31%. The way forward. The authors propose this as the first national benchmark for survival amongst dialysis patients in India. As India continues to widen dialysis access, ongoing quality improvement programs will be an important part of ensuring that patients experience the best-possible outcomes at the point of care. In future, it is clear that the number of patients in need of dialysis will increase. While overall improvements in health infrastructure and care are essential to keep pace with the demand, the authors of the study underline the need for a collaborative quality improvement system across the country.

Alongside establishing national standards for dialysis outcomes in India, it is important to understand the multilevel effects of centre- and patient-level characteristics on these outcomes, the authors add, in the paper. It has been shown, in nephrology and other medical specialities, that clinical practice patterns and patient outcomes vary substantially between centres. Therefore, establishing national benchmarks for dialysis outcomes against which the dialysis centres' performances and changes over time can be compared is essential to drive this, they say, arguing that their findings present the first step in this voyage.

Nvidia unveils flagship AI chip, the B200, aiming to extend dominance

Artificial-intelligence semiconductor powerhouse Nvidia on Monday unveiled a flagship AI chip, the Blackwell B200, saying it is up to 30 times speedier than its previous chip. Chief Executive Jensen Huang, kicking off the company's annual developer conference, also launched a new set of software tools designed to help developers sell their artificial-intelligence models more easily to any company that uses Nvidia. Nvidia's chip and software announcements at GTC 2024 will help determine whether the company can maintain its leadership position as the dominant seller of AI equipment. Nvidia had a roughly 80% share of the data center AI chip market last year.

"I hope you realize this is not a concert," Huang, wearing his trademark black leather jacket, said after taking the stage, in a nod to the rising profile of his company.

The B200 takes two chips the size of Nvidia's previous offering and binds them together into a single chip. The new chip has 208 billion transistors, more than double the 80 billion on the company's previous chip. All of those transistors can access the memory attached to the chip at nearly the same time, improving

productivity. Tom Plumb, CEO and portfolio manager at Plumb Funds, which has Nvidia as one of its largest holdings, said the Blackwell chip was not a surprise.

"But it reinforces that this company is still at the cutting edge and the leader in all graphics processing. That doesn't mean the market is not going to be big enough for AMD and others to come in. But it shows that their lead is pretty insurmountable," said Plumb. Insider Intelligence analyst Jacob Bourne said Nvidia could solidify its AI dominance. "However, rivals like AMD, Intel, startups, and even Big Tech's own chip aspirations threaten to chip away at Nvidia's market share, particularly among cost-conscious enterprise customers," he said. Nvidia said major customers, including Amazon.com, Alphabet's Google, Meta Platforms, Microsoft, OpenAI, Oracle and Tesla, are expected to use the new chip.

Nvidia also is shifting from selling single chips to selling total systems. Its latest iteration houses 72 of its AI chips, 36 central processors and contains 600,000 parts and weighs 3,000 pounds (1,361 kg). Though Nvidia is widely regarded as a chip designer, the company has built a significant battery of software products as well. The new software tools, called

microservices, improve system efficiency across a wide variety of uses, making it easier for a business to incorporate an AI model into its work, just as a good computer operating system can help apps work well. Nvidia's shares have surged 240% over the past 12 months, making Nvidia the U.S. stock market's third-most valuable company, behind only Microsoft and Apple.

Nvidia stock dipped 1% in extended trade on Monday, while Super Micro Computer, which makes AI-optimized servers with Nvidia's chips, fell 4%. Advanced Micro Devices stock dipped nearly 3% during Huang's keynote address. Its stellar 12-month rally leaves Nvidia's stock at risk of plummeting back to earth if the Santa Clara, California, company fails to expand its AI business as much as investors expect. Nvidia's market share is expected to drop several percentage points in 2024 as new products from rivals such as Intel and Advanced Micro Devices hit the market. Huang spoke at a Silicon Valley hockey arena to accommodate its largest crowd for its annual conference. Huang also announced partnerships with design software companies Ansys, Cadence and Synopsys. Shares of the three companies jumped around 3% in extended trade following Huang's comments.

Non-invasive prenatal testing: Purpose, advantages, risks and limitations of NIPT

Non-invasive prenatal testing (NIPT), also known as non-invasive prenatal screening (NIPS), is an advanced genetic screening test used during pregnancy to assess the risk of certain genetic conditions or chromosomal abnormalities in the fetus like Down syndrome, Edwards syndrome and Patau syndrome. NIPT/NIPS is performed using a simple blood test from the pregnant women, which analyzes fetal DNA that is circulating in their bloodstream where about 20 ml of mother's blood is taken for the test and the result is available in about 10 days. In an interview with HT Lifestyle, Dr Chetna Jain, Director Dept of Obstetrics and Gynecology at Cloudnine Group of Hospitals in Gurgaon Sector 14, gushed, "NIPT/NIPS has revolutionised the care of pregnant women. It analyses cell free fetal DNA which is circulating in mother's blood. This test can be done from 10 weeks of pregnancy. Traditionally, double markers were used as a screening test for Down syndrome between 11 to 13 weeks of pregnancy as first trimester serum (blood) screening. It has a detection rate of about 80%. When combined with nuchal scan, the detection rates are about 90% with a 5% false positive. This means about 5 % women will test positive even if their baby is normal and would need further invasive testing. Quadruple marker is a second trimester screening test for Down syndrome. It is performed between 15 to 22 weeks. It has a detection rate of 80% for Down syndrome with 5% false positive." Dr Chetna Jain shared, "During pregnancy, a small amount of fetal DNA is naturally released into the pregnant women's bloodstream. NIPT/NIPS uses a maternal blood sample to isolate and analyze this fetal DNA. By examining the relative amounts of different chromosomes or specific genetic markers, the test can estimate the risk of certain chromosomal abnormalities." Dr Chetna Jain answered, "NIPT is highly accurate. The detection rate of Down syndrome is 99%, 96% for Trisomy 18 and 91% for Trisomy 13. NIPT has highest detection achieved by any noninvasive test. A combined assessment with ultrasound and an NIPT significantly reduces the need for invasive procedures like Amniocentesis." She elaborated -

According to Dr Chetna Jain, NIPT has zero risk of miscarriage. CVS procedure has a miscarriage risk of 0.5 to 1%. Amniocentesis has a miscarriage risk of 0.25 to 0.5%. Limitations and considerations of NIPT: NIPT has reduced sensitivity for twin pregnancy. It is not available for triplets or higher order multiple pregnancies.

It is not available for other genetic conditions like cystic fibrosis. It can give false positive or false negative results. It is not available for women who themselves have Down syndrome, balanced chromosomal translocations or cancer. Women with organ transplant or blood transfusion in last 4 months cannot do it NIPT cannot screen for all chromosomal conditions. Not all NIPT panels screen for conditions re-

lated to sex chromosomes like Turners, Klinefelter and Triple X syndrom. Since NIPT is a screening test, for all positive cases a diagnostic test is recommended for confirmation which is CVS or Amniocentesis. A pregnancy can't be terminated based on a screen positive NIPT result. Who should do NIPT? Dr Chetna Jain informed, "NIPT is offered to all pregnant women from 10 wks in the USA, even to low risk population. It should be offered and considered by women where maternal age is > 35 years, ultrasound shows abnormal findings, or there is a family or personal history of chromosomal abnormality." Any pregnant women undergoing NIPT should understand that though this is the best screening test available to date, it can have false positives and false negatives. Any abnormal result would require a further invasive testing by Amniocentesis or CVS.

It is important for prospective parents in early pregnancy to have enough information on NIPT. With advances in technology, in future more conditions will be identified by noninvasive testing. As of to-



day, NIPT is having a glorious triumph above all noninvasive screening tests. In summary, NIPT/NIPS is a valuable prenatal screening tool that offers non-invasive assessment of fetal genetic risk for com-

mon chromosomal conditions during pregnancy.

It provides early and accurate information that can guide subsequent prenatal care and decision-making.

After a wedding kiss in Hapur, a full-blown brawl and a runaway bride

EVERYTHING WAS going to plan. The baraat had arrived to the cacophony of the wedding band. Minutes later, the couple – the bride in a deep-red lehenga and the groom in an ivory-coloured bandgala and matching turban – exchanged garlands. Then came the twist: the groom lunged forward and kissed the bride – "on the forehead". Nobody had told Deepanshu, who accompanies his father to play the dhol at weddings and other functions, that he could kiss his bride. Now that he had done so, all hell broke loose. Someone in the bride's family loudly objected to the kiss and soon, the wedding venue turned into a battlefield – plastic chairs were flung around, plates of food and juice lay spilled on the carpet, punches flew freely, some of the relatives were hauled off to the police station and others to a nearby hospital. The marriage was called off and the baraat returned without the bride. Then came another twist: in the stealth of the darkness, the 20-something bride gathered her immense lehenga and spunk, and walked out of her house in Ashok Nagar and into the home of her groom in the nearby Shiv Nagar area, where the two married in a hastily arranged ceremony. Deepanshu and Savita, childhood sweethearts both in their 20s, are now man and wife, but in two localities separated by less than a kilometre in Hapur, in western Uttar Pradesh, the memory of that kiss – and the runaway bride – hangs heavy, days after the brawl of May 20.

At the family's ancestral home in

Harchana village, about 20 km from Hapur, the bride's uncle Nepal Singh, 55, says his younger brother, Savita's father Naresh, was among those detained by the police after the brawl at the wedding. "My brother and the groom's father were at the police station when we heard that Savita had left the house around 4.30 in the morning. The groom's sister reached the police station to take her father home," he says. And then adds, "All this kissing might be okay in big cities like Delhi or Noida but in towns and villages like ours, it is not acceptable. My brother may forgive Savita for what she has done, but I won't. Five members of our family got hurt in this fight and had to be hospitalised. The couple can do whatever they want to in their own house, but how can they do such things in public?" Savita's father Naresh, a daily wage worker in Hapur, didn't want to speak on the incident. The same night as Savita's scheduled wedding on May 20, her sister Chanchal got married in a far less eventful ceremony. Refusing to talk about the chaos at her sister's wedding, Chanchal says, "Meri shaadi ho gayi thi aur meri baraat nikal gayi (I got married and left). I don't know what happened at my sister's wedding after that." A video grab of Deepanshu and Savita at their wedding' A video grab of Deepanshu and Savita at their wedding.

At Hapur's Dehaat Police Station, an officer said, "There is no FIR in this case. Several members from the wedding were detained after the brawl. Among them were Pappu (the groom's father) and Naresh (the bride's father). Several others were injured

and admitted to a nearby hospital." "Aaj kal ka trend" A five-minute walk from Savita's father's house in Ashok Nagar is Shiv Nagar, where Deepanshu's father Pappu 'dhol wala' is a familiar name. Their house, a three-room, single-storeyed structure at the end of a narrow lane, is teeming with relatives after the recent wedding. It's in one of the rooms that the pheras finally took place in the early hours of May 21, after the bride's daring five-minute walk from her house. Showing a reel of her brother's wedding day that's on her Instagram feed, Narya Verma, one of the groom's sisters, defends the kiss. "Aaj kal ka trend hai yeh. Photographers pose karne ko bolte hai aur mere bhai ne pose kiya, isme kaun si badi baat hai (It's the trend nowadays. Photographers tell the couple to pose and my brother was only posing for them... what is the big deal)?" Narya's Instagram feed is filled with reels from her brother's wedding and haldi ceremonies. Savita's House in Hapur's Ashok Nagar near Shatabdi school where the wedding was set to happen. Savita's House in Hapur's Ashok Nagar near Shatabdi school where the wedding was set to happen. (Express Photo) Sitting on a cot and lighting up her beedi, the groom's mother Santosh, 45, says her son, the youngest of her five children, has done no wrong. "If a husband does not kiss his wife, who else will?" Dismissing the brawl at the wedding and the tension with the bride's family since that night, she says, "Every wedding has a little bit of drama. What is a wedding without a fight?" Amid all the fuss over the kiss, the groom and the bride said their lips were sealed. "

Chabahar is a metaphor for strategic autonomy

India's declaration of a day-long State mourning and the lowering of the national flag to half-mast to commemorate the unexpected deaths of Iran's President Ebrahim Raisi and foreign minister Hossein Amir-Abdollahian was a rare gesture. In recent years, such honour was accorded by India when Sultan Qaboos of Oman and Queen Elizabeth II of the United Kingdom passed. The symbolic respect accorded to Raisi now is in recognition of Iran as a valued partner. India recently signed a 10-year contract to operate the Chabahar port in Iran and further expand its investments in this strategic outpost on the Gulf of Oman. It was a bold signal from New Delhi that it will forge ahead in pursuit of its long-term national interests despite geopolitical headwinds. Given the extreme tensions flaring up between Iran and its regional rivals, India's move carried risks but demonstrated its firm determination to manage its multiple strategic partnerships and extract the most from all of them.

India decided to double down on its stakes in Chabahar at a time when Iran has been embroiled in a near-warlike confrontation with Israel. Tehran and Tel Aviv have crossed previous red lines and engaged in direct missile and drone attacks against each other's territories, and the two antagonists have upped their proxy wars in the backdrop of the Israel-Hamas war in the Gaza Strip. Israel has indicated unambiguously that every sensitive critical infrastructure installation belonging to Iran is in its crosshairs.

But even as the gloves have come off in the undeclared Iran-Israel war, India's assets in Chabahar are not likely to be directly imperilled. This is because India has a robust strategic partnership with Israel and Tel Aviv does understand New Delhi's compulsions and motivations for developing Chabahar, which doesn't conflict with Israeli interests. Container bulk cargo shipments to and from Chabahar are helping to reify India's core vision of bypassing Pakistan as a land transit country and creating alternative multi-modal pathways for two-way trade among India, Afghanistan, Central Asia and Eurasia.

With the India-Middle East-Europe Economic Corridor (IMEC) agreement also having ambitious plans for transit via the Gulf of Oman up to the port of Haifa in Israel, India is co-creating a wide-ranging trans-regional connectivity architecture as it seeks to regain its place as a major commercial power across and beyond the Indian Ocean. Due to regional enmities and sensitivities in West Asia, Chabahar is not formally integrated into the IMEC. But pivotal strategic partners of India like the United Arab Emirates and Saudi Arabia, who are integral to IMEC, are not averse to pragmatically engaging with Iran. Jeopardising India's vantage point in Chabahar is in the interests of Pakistan — whose tensions with Iran have been rising — and China, which has built and runs the Gwadar port on Pakistan's southwestern

coast close to Chabahar. But Israel and Gulf countries are not inclined to throw a spanner in the works of India's presence in Chabahar.

The other risk factor that India has to reckon with when it comes to deepening its strategic partnership with Iran is the shift in the United States (US) foreign policy priorities. Due to its opposition to American preferences, Iran has the distinction of being one of the most sanctioned countries in the world. India has been forced to scale down its imports of Iranian oil since 2019 due to tough sanctions imposed by Washington DC and the resultant difficulties in arranging shipping, insurance and payments.

Yet, it is noteworthy that India negotiated with the US to secure a carve-out for its Chabahar investments from the "maximum pressure" American sanctions campaign against Iran. As India's "comprehensive global strategic partner", the US has been made to understand that India's rise rests on its expanded footprint across both sides of the Indo-Pacific. For stabilising and moderating Afghanistan and for checking the Chinese juggernaut in West Asia and Eurasia, India must have the freedom to manoeuvre and gain access to strategic



locations such as the Gulf of Oman. Just as India has not buckled under western pressure on the question of sanctions against Russia, insulating itself from western pressures over Iran is a litmus test of its success in juggling its multiple strategic partnerships and proving its indispensability to all sides. Chabahar is more than a metaphor for India's strategic autonomy. It augurs India's rise as a leading power that can persuade or compel other countries to

accommodate its national interests.

The departures of Raisi and Amir-Abdollahian will not alter the basic alignment of national interests between India and Iran, and New Delhi will look to consolidate this partnership come what may. Sreeram Chaulia is professor and dean, School of International Affairs, OP Jindal Global University. The views expressed are personal

Company willing to pay Rs 1.5 crore to people who donate their poop; claims it can alleviate gastrointestinal, mental health issues

In a video titled 'We want your poop', that was posted on its website, a woman says, "We want your poop, no, we need your poop! Let me explain, I'm with humanmicrobes.org and your poop could change someone's life. Recent research has shown that the microbiome, the microbes that live in our gut, help us to digest food and play a major role in our overall health and modifying and restoring our gut microbiome, has become a major investigative avenue for treating numerous illnesses." Half of the mass of our stool, she says, is microbes.

A procedure called Fecal Microbiota Transplant or FMT for short, involves transferring these microbes from a healthy donor to a sick person through this process. FMTs offer a potential new treatment option for a long list of conditions many of which may surprise you including irritable bowel syndrome, obesity, and even mental disorders, she tells viewers. In the video, they also feature a real-life success story of a woman named Jane, who "successfully cured her bipolar disorder after receiving an FMT."

The company is offering a whopping \$500 (INR 41,500) for one stool sample or up to \$180,000 (INR 1.5 crore) a year for daily donations from the public who are deemed a good fit. "Working to find fewer

than 0.1% of people with healthy, unperturbed, disease-resistant microbiomes," the website mentions. Is there any validity to the claim that (FMT) can cure or alleviate symptoms of mental health conditions?

Dr Sreehari Deshmukh, consultant endoscopist, medical gastroenterologist and hepatologist, Sparsh Hospital, RR Nagar, Bengaluru, elaborates, "Recent scientific inquiries have sparked a fervent debate over the potential therapeutic benefits of fecal microbiota transplant (FMT) in addressing the symptoms of mental health conditions, including bipolar disorder. While the concept may seem unconventional, a growing body of evidence suggests that the trillions of microorganisms residing in the gut could hold the key to unlocking new treatment avenues for this complex disorder." A 2020 review article published in *Frontiers in Psychiatry*, she states, examined the bidirectional communication between the gut microbiota and the central nervous system, highlighting the role of gut dysbiosis in the pathogenesis of mood disorders such as bipolar disorder. The authors noted that restoring microbial balance through interventions like FMT could potentially alleviate psychiatric symptoms.

She adds, "A randomised controlled trial published in *Translational Psychiatry*

in 2019 investigated the effects of FMT in patients with major depressive disorder, a condition that often co-occurs with bipolar disorder. The study found that FMT led to significant improvements in depressive symptoms, suggesting a potential benefit in mood regulation." As scientists continue to unravel the intricate connections between the gut microbiome and mental health, she stresses, FMT remains a promising yet experimental intervention.

Potential risks and side effects associated with FMTs FMT gains traction as a potential treatment for various medical conditions, it's crucial to address the potential risks and side effects associated with this innovative therapy.

One significant concern is the transmission of infectious agents from the donor to the recipient, Dr Deshmukh says, including bacteria, viruses, and parasites. "Despite screening protocols for potential donors, the risk of transmitting pathogens remains a possibility, underscoring the importance of stringent donor selection and thorough screening procedures," she recommends. Moreover, alterations in gut microbiota composition induced by FMT could potentially exacerbate underlying health conditions or trigger unforeseen complications. "