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## TOP OF SATURDAY

**PM TO DISTRIBUTE OVER 51,000 APPOINTMENT LETTERS ON 28 AUGUST**

NEW DELHI: Prime Minister Narendra Modi will distribute more than 51,000 appointment letters to the newly inducted recruits on 28 August, an official statement said on Saturday. Border Security Force said that Union Minister Hardeep Singh Puri will distribute appointment letters on August 28 in Punjab. Taking to X, BSF Punjab Frontier said, "Empowerment through jobs. The 8th tranche of appointment letters distribution is set for 28/08/2023 at 45 Rozgar Mela, including BSF Punjab, Jalandhar, in the presence of Hardeep Singh Puri, GOI, PM of India Narendra Modi will address the event online."

**ISRO SHARES VIDEO SHOWING PRAGYAN ROVER ROAMING AROUND SHIV SHAKTI POINT**

NEW DELHI: The Indian Space Research Organisation (ISRO) on Saturday released a video showing the Pragyan rover roaming around Shiv Shakti point, the touchdown site of lander Vikram, on the lunar surface. Taking to social media platform X, formerly called Twitter, ISRO said, "Pragyan rover roams around Shiv Shakti Point in pursuit of lunar secrets at the South Pole!" This comes hours after Prime Minister Narendra Modi announced that the touchdown spot of the Vikram lander on the lunar surface would from now onwards be known as the "Shiv Shakti" point.

**'EU HAS MADE PROGRESS ON FTA TALKS WITH INDIA'**

NEW DELHI: The discussions on the Free Trade Agreement between India and the European Union (EU) have made "progress but a lot of work is still ahead of us", said EU Executive Vice-President Valdis Dombrovskis on Saturday, adding that the ties between the two sides have a "lot of untapped potential". At a press conference held in India, Dombrovskis acknowledged that while progress has been made in the FTA discussions, there are still substantial challenges to address.

## SHUNNING BLOCS

# AHEAD OF G20 SUMMIT, MODI STEERS BRICS TOWARDS NEUTRALITY

Despite efforts by some of its members to convert the group into an instrument of bloc politics, BRICS has remained neutral. Despite similar efforts directed at causing disharmony within the 2023 G20, the proceedings have gone on smoothly.

**MADHAV NALAPAT**  
NEW DELHI

The XV meeting of the BRICS Big Five (one of them attending virtually) that took place during the week in Johannesburg drew international attention on a scale not seen before. The reason was the perception in international

media that the association would change from its present neutrality to a stance that opposes the Atlanticist powers, specifically the United States. This did not happen. Prime Minister Narendra Modi has thereby ensured that the autonomy of India where foreign (and domestic) policy is concerned remains intact. Despite the

fault line created within the UNSC and the G20 (to name just two international bodies) by the intensification since February 2022 of the conflict in Ukraine, India has remained on the best of terms with both the Russian Federation as well as the United States. Within BRICS, India was clear that the bloc politics of Cold War

2.0 needed to be avoided, and that the platform should continue to remain neutral. As a corollary, it was made clear that any new member should be carefully and unanimously chosen, so that bloc politics did not creep into the selections. All six of the new members are on good terms with India, and among them only Iran,

partly as a consequence of the scrapping of the nuclear deal under President Trump and partly because of its clerical regime, can be considered hostile to the Atlanticist powers. Efforts made by some in the group aimed at bringing in additional members, at least two of which were closely aligned to Cold War 2.0 bloc politics, was

put aside in deference to the view of the Indian side that BRICS needed to remain a neutral platform even after it was expanded by six new members to BRICS Plus. Both Brazil and South Africa, the other two members of the Global South within the current BRICS framework, were on board with the Indian stand that the platform

ought not to become an instrument of bloc politics and recrimination.

## PUTIN ACTS AS A FRIEND

India's success at maintaining a balance within BRICS between the two competing blocs in the new Cold War has been unwelcome

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## STELLAR SUCCESS

# Chandrayaan-3 puts India into a higher geopolitical orbit

**T. BRAJESH**  
NEW DELHI

India's stellar and historic success in soft-landing the Chandrayaan-3 on the moon's potentially water-rich southern polar region literally brought scores of congratulatory messages to Prime Minister Narendra Modi and ISRO (Indian Space Research Organisation) scientists, from the United States, Europe, Russia, Japan, Asian nations, the Gulf and the 32-million-plus Indian diaspora. As the development happened coincidentally during the BRICS Summit where PM Modi was present, it increased its international resonance all the more. There is no gainsaying the fact that the successful lunar mission has boosted India's status on the global stage, particularly in all the elite groupings such

as BRICS, G20, Quad, SCO, etc. PM Modi's statement at Johannesburg soon after Chandrayaan-3's successful landing impressed the global leaders. "The success of Chandrayaan-3 is not only limited to one country, but it is the success of mankind". An official here said: "The words of PM Modi reaffirm his stature as a statesman who gave a wider perspective to the achievement."

Diplomatic officials, who are preparing the strategy for the forthcoming G20 summit to be held in New Delhi next month, told *The Sunday Guardian* that "Chandrayaan-3's success will give India more power in its mission for getting a permanent UNSC seat, Nuclear Suppliers Group (NSG) membership, etc." "We will be working much harder to capitalise on India's growing geopoliti-

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Ready to take off

A view of the 'Bharat Mandapam', at Pragati Maidan, in New Delhi on Saturday. The G20 Summit will be held at this venue in September. ANI

## 'DEBT TRAP'

# FREEBIES GALORE IN RAJASTHAN AS GEHLOT EYES RE-ELECTION

**RAHUL CHHABRA**  
NEW DELHI

Rajasthan Chief Minister Ashok Gehlot's bid to win a record back-to-back Assembly election by offering freebies has not only sparked a debate over electoral promises adding up to bad economics, but also started creating a headache-of-sorts for him like in the case of free smartphones for 1.35 crore women wherein some beneficiaries allegedly are complaining about the poor quality of the handsets.

Even the free power scheme for the poor faced criticism, initially, amid allegations that the surcharge on bills was undoing the

benefits of the free electricity offer. Apart from 100 free units of power, the state government has now waived off fixed charges, fuel surcharge and other levies for customers who consume up to 200 units of power in a month. Consumers using up to 200 units will also not be charged for the first 100 units of power.

Other schemes announced by Ashok Gehlot for the poor include LPG cylinder for Rs 500 for those in the Below Poverty Line (BPL) category; free scooters for 30,000 meritorious girl students at a total cost of Rs 390 crore; free emergency care under right to health; family health insurance of Rs 25 lakh—up

from Rs 10 lakh earlier, along with an accident insurance cover of Rs 10 lakh; and a minimum monthly pension of Rs 1,000 under a social security scheme.

Prime Minister Narendra Modi has warned the Congress government in Rajasthan not to offer freebies blindly as such steps will increase the desert state's debt drastically. PM Modi was speaking at the launch of two Metro lines in Pune earlier this month. "Emptying a state's treasury for selfish reasons impacts the people the most...it impacts the future of the youth," he said, referring to what he often calls the "revdi culture".

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## MAJOR ACHIEVEMENT

# Chandrayaan-3 landing spot now 'Shiv Shakti Point'

PM Modi declares that 23 August will be celebrated as 'National Space Day'.

**R. JAYAPRAKASH**  
BENGALURU

Conforming to the naming tradition, Chandrayaan-3's landing point on the moon will be named "Shiv Shakti Point," a convergence of welfare and strength, Prime Minister Narendra Modi announced on Saturday.

PM Modi flew down to Bengaluru on Saturday morning from Greece's capital Athens to interact with ISRO scientists on the successful lunar mission and announced the decision to name the spot where the lander "Vikram" touched

down as "Shiv Shakti Point". Terming the success of Chandrayaan-3 mission as an "extraordinary moment" in the history of India's space programme, PM Modi, who turned emotional, said the place where the Chandrayaan-2 lander crash-landed on the moon's surface in 2019 would be known as "Tiranga Point".

"There is a scientific tradition of naming the location of touchdown. India has decided to name the lunar region where our Chandrayaan-3 landed. The place Vikram lander descended will be known as Shiv Shakti Point."

"In Shiv, there is resolution for the welfare of humanity and Shakti gives us strength to fulfil those resolutions. This Shiv Shakti Point of the moon also gives a sense of connection with the Himalayas to Kanyakumari," the PM added.

He said the new generation should come forward to prove scientifically the astronomical formulae in Indian scriptures and to study them anew. "It is also important for our heritage and for science. In a way, this is a double responsibility for the students of schools, col-

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## IDEATING

# THOUGHT LEADERS DISCUSS A WIDE RANGE OF ISSUES IN FESTIVAL OF IDEAS

**RAHUL CHHABRA**  
NEW DELHI

The Festival of Ideas, a two-day event held in New Delhi on 24-25 August, brought together leading thinkers and experts from a wide range of fields to discuss some of the most pressing issues facing the nation and the world today.

The two-day thought-provoking discussions, organised by NewsX, *The Sunday Guardian* and India News that are a part of the iTV Network, covered a wide range of topics, including politics, defence, economy, science, films, books, influencers, India's soft power, faith and Hinduism.

In the political sphere, the 2024 Lok Sabha elections and the Opposition's alliance to challenge Prime Minister Narendra Modi dominated the debate. While Rahul Gandhi, the relevance of his family and his leadership style figured prominently. Author, Dr Aishwarya Pandit Sharma cautioned the Congress against drifting around buzzwords like "evolution of Rahul Gandhi" as the issue was of interest only to his party. She also highlighted Rahul's failure to understand the situation on the ground, which has changed dras-

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## COMMON CAUSE

## BRICS LEADS WORLD'S GROWTH ECONOMIES

After expansion, BRICS becomes a powerful group of growth economies of the world.

PRANJAL SHARMA  
JOHANNESBURG

After an hour's flight north from Johannesburg, I landed at the small airport of Hoedspruit town. Built within a private game reserve, the airport allows access to the great savanna region of South Africa. I took a two-hour drive away on excellent roads, cutting through vast stretches of protected grasslands to visit the ZZZ Farming Company. Run by the Van Zyl family for generations, the farm now is among the largest producer of tomatoes in the world. ZZZ also produces avocados and a range of fruits, including cherries and dates.

Already an exporter, ZZZ is now poised to expand its business across the world as South Africa enhances its position in the BRICS grouping. The farming company uses cutting edge technologies to enhance its output and yield. ZZZ uses smart plant sensors to monitor the growth of its crops. "The plant sensors ensure that we don't over or under irrigate the plants. Each row gets the

right amount of water to ensure optimum yield," Tommie Van Zyl, CEO of ZZZ, told me as we stood among long rows of lush green tomato plants. Marketing head Clive Garrett said that tariff agreements between South Africa and BRICS countries will further enhance agricultural trade within the group. "For instance, mangos from India could be imported to South Africa while our avocados could be sent to India at much lower prices," Garrett explained to me.

My recent visit to South Africa for the BRICS Summit allowed me a good view of the economic abilities of the country. Agricultural products are among the many strengths of the South African economy which is now keen to globalize further while investing in its own economic infrastructure.

The BRICS Summit hosted by President Cyril Ramaphosa in the sparkling Sandton town of Johannesburg capital region marked a significant turning point in global politics. The expansion of BRICS to include Argentina, UAE, Iran, Egypt, Saudi Arabia and Ethiopia carries deep implications for a world grappling with poly-crises. These countries will join the grouping from January 2024.

The expanded BRICS will include the world's fastest growing economies amounting to about 30% of global GDP worth over \$30 trillion. Moreover, these econo-



In Johannesburg

mies are also among the top producers of oil in the world.

New and distinct lines are emerging in the global economy. While global institutions categorise the world into developed and devel-

oping economies, I would describe them in a more contemporary manner. The developed countries of the Global North should be described as legacy economies. The developing countries of



ZZZ Farming Company

*The developed countries of the Global North should be described as legacy economies. The developing countries of the Global South should be termed as growth economies. A quick glance at the GDP growth ranking shows that the fastest growing economies are no longer in the Americas or Europe.*

The Global South should be termed as growth economies. A quick glance at the GDP growth ranking shows that the fastest growing economies are no longer in the Americas or Europe. The legacy economies are larger in size but appear to have peaked in their growth curve. The growth economies may be relatively small but rising fast and are brimming with billions of new consumers. These consumers will drive them to accelerated growth fuelled by new technologies.

After expansion, BRICS

will become a powerful group of growth economies of the world. The economies are populous and also immensely influential in global business routes. Egypt has the Suez canal, UAE is a global aviation hub, while Argentina and Brazil drive the South American economy. And South Africa is the link between countries of the southern hemisphere.

Three deep shifts are likely to occur as a result of the expansion.

- Stronger demand for multilateral reforms
- Enhanced use of regional

currencies

- Increased collaboration among growth economies

In itself, the BRICS grouping has its internal contradictions. India and China relations are tense. Iran and Saudi Arabia joust over regional supremacy. Egypt and Ethiopia have a history of war and continuing dispute over the river Nile.

But they may be willing to rise above these regional issues to demand a stronger say in the global order. What is common between them is the urge to decide their own destiny in an increasingly multipolar world. At a time when North America and European Union are grappling with slowdown, the growth economies are demanding a voice in institutions like the UN and World Bank. The BRICS Declaration has demanded the inclusion of Brazil, India and South Africa in the Security Council of the United Nations.

A common currency is not a feasible idea but the use of local currencies within the expanded BRICS will rise and deepen financial linkages among these countries. "We have noted that there is global momentum for the use of local currencies, alternative financial arrangements and alternative payment systems. As BRICS, we are ready to explore opportunities for improving the stability, reliability and fairness of the global financial architecture," South Af-

rican President Ramaphosa said in a statement. "The Summit agreed to task the BRICS Finance Ministers and/or Central Bank Governors, as appropriate, to consider the issue of local currencies, payment instruments and platforms and report back to the BRICS leaders by the next Summit."

Even as trade linkages will increase, the BRICS grouping plans to enhance linkages in critical sectors. India's Prime Minister Narendra Modi proposed collaboration for space exploration, confident with the success of Chandrayaan 3 Mission. Modi pitched the idea of establishing a BRICS space exploration consortium. "We are already working on the BRICS satellite constellation, but to move a step further, we should think about establishing a BRICS space exploration consortium," Modi said.

The growth economies of the world are uniting with a common cause with BRICS. As I returned to Delhi from Johannesburg via Addis Ababa, it appeared that I had witnessed a key turning point for the global economic order. Deeper collaborations could form among growth economies that don't want to remain overly dependent on legacy economies.

*Pranjal Sharma is a geo-economic analyst and author based in New Delhi.*

## LAB MADE

## Synthetic Biology: Time to build a regulatory framework to protect good science

Engineering organisms leading to the restoration of extinct species like dodos and dinosaurs is an impulsive idea with less clarity on its potential benefits.

PAWAN K. DHAR  
NEW DELHI

Synthetic Biology is the rational design and construction of biological components leading to applications. The components come in the form of parts, devices, circuits, cells, and organisms. Due to this reason, people also use the term "Biological Engineering" to indicate "Synthetic Biology".

Right from the time when Synthetic Biology was formally launched as a new discipline in 2004, there have been deliberations and annual meetings on building new compositional standards in biology, generating applications, and investigating biosafety and biosecurity aspects.

Over the past 19 years, amazing advancements in Synthetic Biology have emerged. Foremost among those is the ability to write very long pieces of DNA leading to the synthesis of whole genomes, editing DNA at predefined genomic locations, making brand new genes from the dark matter of the genome, hacking the genetic code, constructing a non-natural DNA, biasing the

inheritance pattern of genes (gene drives) and bringing back extinct organisms to life.

Though the term genetic engineering has been traditionally used for adding, deleting, and altering specific genes, in reality, we never engineered genetics. Scientists have practiced probability in the name of engineering. Only in the last two decades, a deliberate attempt towards engineering biological systems has begun.

The question is: What are the opportunities and challenges for India? Designing a desktop DNA printer, creating a national BioFoundry for accelerating biological innovations, designing more efficient DNA editing technologies (beyond CRISPR-Cas9), repurposing the dark genome, establishing organoids and organ-on-the-chip technologies for drug testing, designing microbial factories for biomanufacturing, are some of the technologies where India could take a global lead.

As a consequence of rapid global scientific developments, recently a BioFoundry India group has emerged in Delhi with an aim to provide shared space for developing standards, tools, and applications and accelerating biological innovations. The need of the hour is increased participation in building an open science network for and collectively addressing emerging societal challenges.

However, all this and more can be achieved if we deal with regulatory challenges to ensure responsible inno-



vation. Due to the absence of regulatory guidelines customized to the scientific developments in synthetic biology, global research practices seem to have largely evolved with less government oversight.

The Ad Hoc Technical Expert Group (AHTEG) of the Convention of Biological Diversity (CBD) on synthetic biology has produced multiple reports but is yet to come up with a robust assessment and recommendations. The Self-regulation by people in academia, industry, and hobbyists in the form of "soft standards" is neither binding nor legally enforceable.

Transferring lab-made organisms into the wild can result in the proliferation of engineered traits in natural ecosystems, affecting the genetic diversity and adaptability of native species. The nature of science is such that unintended ecological effects cannot be ruled out at any stage of induced evolution,

even if that was not the intent in the first place.

The development of sophisticated DNA writing and DNA editing technologies warrants real-time surveillance of the relevant data and the development of anti-DNA editing technologies to address the misuse. Also, regulating DNA writing technologies is a complex endeavour that involves balancing the potential benefits of scientific progress and its potential application for bioterrorism or bio warfare.

Engineering organisms leading to the restoration of extinct species is an impulsive idea with less clarity on its potential benefits. Bringing back dodos and dinosaurs can easily make cool media headlines. However, on a more responsible note, it is important to understand that habitats have evolved and new players have come up in the food chain. Putting lab-made pressure on the ecosystem can lead to unex-

pected consequences.

In India, the first foresight study in synthetic biology was organized by Jawaharlal Nehru University, New Delhi, in collaboration with FLEDGE (The Forum for Law, Environment, Development and Governance), Chennai. An 85-page report was submitted to DBT, Ministry of Science & Technology in 2020 to help the Government build a more robust regulatory framework. The report was an outcome of national deliberations involving stakeholders from academia, industry, administration, and society.

There is a pressing need to mark a clear boundary between synthetic biology and Recombinant DNA technology to bring clarity. Declaring exclusion criteria is important so that the policy gaps in synthetic biology are clearly visible, leading to the strengthening of existing guidelines on genetic modification.

As part of the 12th five-year plan, India set up a Task Force on systems biology and synthetic biology research in 2011. India has informed international bodies that India can be a world leader in open-source biological platforms. However, this requires greater participation from stakeholders and a robust regulatory environment.

In the context of Indian science, the movement of synthetic biology research has been a bit slow. Greater interactions among scientists, students, and funding managers are needed to improve India's position globally. India needs to launch major scientific and education programs in synthetic biology, along with a dedicated task force on synthetic biology.

Furthermore, India needs to commission detailed foresight and technology landscaping studies at the global level (Quad, BRICS, ASEAN, Asia Pacific) to understand regional and global science, applications, and environmental and biosecurity challenges in synthetic biology. To become future-ready, it's time to bring the stakeholders from academia, industry, and society on a common platform and build a robust regulatory framework to ensure the protection of good science within a responsible innovation framework.

*Pawan K. Dhar is Professor & Head, Synthetic Biology, Jawaharlal Nehru University, New Delhi.*

## TECH-TALK

## META'S NEW AI SYSTEM CAN TRANSLATE 100 LANGUAGES

CORRESPONDENT  
LOS ANGELES

Meta has developed an AI model called SeamlessM4T that can translate and transcribe almost 100 languages in both text and speech as part of its effort to create AI that can comprehend a variety of dialects, TechCrunch reported.

A new translation dataset called SeamlessAlign is also available in open source. According to Meta, SeamlessM4T is a significant breakthrough in the field of AI-powered speech-to-speech and speech-to-text.

According to Meta in a blog post shared with TechCrunch, "Our single model offers on-demand translations that help people who speak different languages to communicate more effectively." The source languages are implicitly recognised by SeamlessM4T without the requirement for a separate language identification mechanism.

In some ways, SeamlessM4T is the spiritual heir to Universal Speech Translator, one of the only direct speech-to-speech translation systems that support Hokkien, and Meta's No Language Left Behind, a text-to-text machine translation paradigm.

Additionally, it expanded on Meta's architecture for massively multilingual speech, which offers technology for speech synthesis, language identification, and recognition across more than 1,100 languages.

Not just Meta is devoting efforts to the creation of cutting-edge AI transcription and translation systems.

As part of Google's larger effort to develop a model that can comprehend the 1,000 most widely spoken languages in the world, the tech giant is developing what it calls the Universal Speech Model, which goes beyond the wealth of commercial services and open-source models already offered by Amazon, Microsoft, OpenAI, and a number of startups.

In the meantime, Mozilla led the development of Common Voice, one of the most comprehensive collections of voices in multiple languages for teaching automatic speech recognition systems.

However, SeamlessM4T is one of the more daring attempts to date to integrate translation and transcription abilities into a single model.

According to Meta, SeamlessM4T outperformed the most recent state-of-the-art speech transcription model in voice-to-text tasks on an internal benchmark for background noise and "speaker variations" in speech-to-text tasks.

This is attributed to the training dataset's rich blend of speech and text data, which according to Meta provides SeamlessM4T an advantage over speech-only and text-only models.

"With state-of-the-art results, we believe SeamlessM4T is an important breakthrough in the AI community's quest towards creating universal multitask systems," stated Meta in the blog post.

# COMMENT & ANALYSIS

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OPINION OF THE WEEK

*Between stimulus and response there is a space. In that space is our power to choose our response. In our response lies our growth and our freedom.*

Viktor E. Frankl

PICK OF THE WEEK

Over the moon

School children celebrate the successful landing of Chandrayan-3 lander Vikram on the surface of the moon, in New Delhi on Wednesday. ANI



EDITORIAL MOON MISSION

## CHANDRAYAAN SHOWS GLOBAL SOUTH'S METTLE

When Prime Minister Narendra Modi expressed his joy and gratitude to the scientists, technicians and others responsible for the soft landing of the Vikram on the south surface of the moon, he was joined by the entire country in such an emotion. Under PM Modi, the full weight of the Indian private sector has been harnessed in the development of the space program, and multiple private entities played a role in the success of the Chandrayaan mission. For too long, the private sector was considered a much lower priority than its public counterparts, several of whom were converted into monopolies by a stroke of the pen. Not surprisingly, many did badly. It was only in the 1990s that this double standard was, if not abolished altogether, at least diluted. The consequence has been much faster economic growth. It needs to be remembered that a double digit growth is not just desirable but necessary for India, given its expanding young population. Unless the ten million and more young Indians coming into the job market are given the opportunity to work, unless they are educated in a manner that fits 21st century needs, the Demographic Dividend so often talked about would go to waste. The importance of the success of Chandrayaan is also in the demonstration effect that the feat has on investors looking at India, now that geopolitical tensions and domestic policies have made China far less attractive as a production base than before. Whether it be gadgets or semiconductors, India has shown that these can be made in India not only in a cost-effective way but in a manner that improves quality. Chandrayaan has shown that when the Prime Minister says that India is an ideal destination for investment, no matter how advanced the product, he is being completely accurate. Across the world, while in a few countries such as China that are competing with India in attracting investment and have caused tensions in bilateral relations, in other parts of the world, the feat was welcomed, particularly in the Global South. Although China under Xi Jinping claims to be a part of the Global South, both in terms of geography as well as in terms of GDP, the country is no longer part of the group, unlike India, which has become a champion of the interests of countries hitherto ignored. The success of Chandrayaan is the success of the Global South, which is why it must have been warmly welcomed by the leaders of South Africa and Brazil at the BRICS Summit. Given that a similar mission by Moscow failed a short while ago, the President of Russia may be excused for being as unenthusiastic as his PRC counterpart at the soft landing of the India-developed space vehicle on the south side of the moon, a first in the history of space travel dating back to the 1950s.

Some years ago, when ISRO in India conducted a successful space mission, there was a disparaging cartoon on the front page of a prominent US newspaper. The cartoon showed a skinny, evidently starving, man in rags carrying a rocket under his arm and knocking at the door of a large house, inside which a few wealthy people were having a laugh at the apparition at their doorstep. The message in the cartoon was unmistakable. It was that a country with a per capita income as low as India's ought not to try and break into the world of activities that were the prerogative of the wealthy, such as space exploration. If that cartoonist, and the editor who placed such a cartoon on the front page, are still around, they would have learnt of the success of the soft landing of the Chandrayaan mission to the moon and remembered their earlier work and its meaning. Certainly India has a per capita income that is far below what it ought to be (and will be within a decade). However, although not in per capita income but in brainpower, India is easily among the top countries in the world. Financial stringency had the benefit of making ISRO scientists work hard at rockets that were much lower in cost than those launched by other countries. India has the least cost per unit of output of any space program in the world, which is why countries across the world have started to rely on Indian launch vehicles to get the satellites made by them into orbit. Unlike other space programs that concentrate on military needs, with the civilian component piggybacking on the military, in India the nuclear and space programs have as their foundational mission civilian needs, with military applications only a by-product. At the BRICS Summit that took place in South Africa, India, Brazil and South Africa worked together to ensure that the Global South in the form of IBSA (India, Brazil, South Africa) was given its due, and would together become a symbol not of backwardness but of progress. The Chandrayaan mission is a major milestone in such a necessary road.

MDN

FOR GLOBAL SOUTH

# A neutral BRICS Plus is a win for India

The presence of PM Modi at the 2023 BRICS Summit proved to be an effective counter to what was expected to be the overwhelming influence of Xi Jinping.

ROOTS OF POWER

M.D. NALAPAT



It is a relief that there has not been a demand from the G-7 that President Zelensky be invited to the BRICS Summit that has just concluded in Johannesburg. It would be a measure of diplomatic finesse on the part of the G7 were such a demand to also remain unsaid where the forthcoming G-20 Summit is concerned. Given the South Africa precedent, President Vladimir Putin will join the forthcoming summit only virtually if at all, given that his physical presence would convert the conference into a cacophony of recriminations. The British delegation, in particular, has from the start of the Ukraine-Russia conflict in February 2022 been particularly anxious to demonstrate a complete absence of the

calm and understatement that so many in the UK claim as their special trait. In the UNSC, the British delegation has been even more "frank" (to use diplomatese) than the US side, although neither can compare with the histrionics of that perpetual Special Invitee, the Ukrainian delegation. If there was ever a time when the UNSC was taken to be a serious and significant forum, ever since the repeated meetings on Ukraine, its proceedings have taken on the characteristics of a circus. Along the way, the G-7 has lost much of the goodwill that countries within the group had accumulated in the populations of those countries that are not situated on both sides of the North Atlantic. There is a perception that all that the Europeans and the Europhiles on the other side of the North Atlantic care about is themselves. Or in other words, about those who are either European or of European ethnicity, specifically Ukraine. After a hiatus, the perception that the world is divided into the West and the Rest has returned, with practically the

entire "Rest" unable to understand the fixation of the West on a country in Europe that is of strategic value only in the advent of a kinetic war with the Russian Federation. Small wonder that the Kremlin has become obsessed about the worry that NATO was going to do what it had avoided doing throughout the period when the USSR was around, which was to launch a war with Russia. The more the western resources and manpower that gets thrown into the quagmire that the Ukraine conflict had from the start been for the West, the greater the sense of a double standard in the rest of the world. In the US, a new crop of Republican leaders has been making their presence felt, of which Vivek Ramaswamy has been the most forthright. If elected President of the US, he says his first mission would be to go to Moscow and try and wean the Russian Federation away from the primary danger to the democracies, which is the People's Republic of China. As the 2024 Presidential election comes closer, the rising popularity of such a stand within US voters may perhaps even seep through the doors of the White House, which is presently throwing in a substantial amount of taxpayer dollars into the all-consuming fire that the conflict on Russia's borders has become for NATO, an organisation that in its present form at least, has outlived its utility. The

memo that the PRC is, in a much more potent form, the challenge to the US that the USSR was until the 1980s seems to have been misplaced on its way to the Oval Office. Included in the collateral damage that this has caused is a sharp diminution in the trust and therefore loyalty of several countries that the US had previously firmly had in its corner. Several of converts to mild or serious strains of Westphobia have indicated their desire to join BRICS, a group in which neither side of the North Atlantic plays any role. Indeed, the effort by Putin and Xi is to refashion BRICS as a counter to the numerous post-1945 structures that continue to be dominated by the West. Had the two been successful in bringing Brasilia, Pretoria and New Delhi to their point of view, BRICS would have expanded not by just six additional members but by more than a dozen. Smuggling in bloc politics in the name of moving away from such games has been the PRC effort, but given the convention of unanimity, Xi joined by Putin was not able to get their way except on members that were approved for inclusion in January 2024 by the other three members of BRICS. The three, India, South Africa and Brazil (unlike Russia and China) are part of the Global South, as are four of the six new BRICS members, the Kingdom of Saudi Arabia and the UAE by

virtue of their wealth being part of the Global North, in contrast to Ethiopia, Egypt, Argentina and Iran. Of the six, only Iran is Westphobic, partly out of its clerical rulers and partly out of the reaction caused by the tearing up of the Obama-era pact between Iran and the US that set guardrails on that country's nuclear program. It was an agreement that was more generous to the other side than to Iran, but for the "All or Nothing" President Trump, it was not good enough to retain. Instead of his subsequent "Maximum Pressure" policy cutting back Iran's nuclear program, it has expanded to a level that the Obama-era agreement was designed to delay, if not avoid. Given that none of the new members of BRICS are within the PRC sphere of influence (except Iran by default), it is unlikely that Beijing would be able to exercise the degree of control over an expanded BRICS that Washington has long had over the World Bank and the IMF. Even as debts to China accumulate to unrepayable levels, the nightmare facing Beijing is that several countries may simply repudiate that debt, especially if they were able to garner support from countries opposed to PRC expansionism in such a move. In the past, the PRC poured money into the pockets of influential US citizens through various channels in order to ensure policies suitable to itself, only to

watch that investment go up in smoke once President Trump calculated in 2017 that taking measures against China was not a vote loser but a vote enhancer. The presence of Prime Minister Narendra Modi at the 2023 BRICS Summit in Johannesburg proved to be an effective counter to what was expected to be the overwhelming influence of Xi Jinping. With the possible exception of Iran, which is still smarting over the cutting off by India of oil purchases as a response to the Trump sanctions, the other five countries that will in four months become members of BRICS (or BRICS Plus, as the group has been renamed) are friends of India, especially the UAE, Egypt and Saudi Arabia, with Indonesia expected to follow soon. Despite the presence in the group of Russia, China and Iran, BRICS Plus cannot be termed anti-West or Sino-centric. Often in diplomacy, something that does not happen is equally if not more significant than something that has happened. BRICS in its new form will not change, it will remain a bloc-neutral platform. At the same time, inspired untruths (such as that India was opposed to BRICS expansion) were promptly shot down by the MEA. All in all, the 2023 BRICS Summit has been a win for India and the rest of the Global South.







SPACEFARER

# Focus on strategic implications of India's lunar ambitions

If China establishes a lunar base before India does, a space war between the two countries could occur as early as 2030. China could use advanced jamming and targeting techniques to thwart India's space missions and vehicles.

OPINION

WG CDR S. SUDHAKARAN (RETD)



India has long been a spacefaring nation, and its lunar ambitions are no exception. The country has successfully launched several lunar missions and plans to send a human mission to the moon shortly. India's lunar ambitions have several strategic implications. First, they can help India assert its regional dominance and deter potential adversaries. Second, they can be used to develop new technologies that can be used for military purposes. Third, they can help India boost its economy and create jobs. Some of the benefits of an ambitious lunar program are:  
 Technology leadership: India's success in lunar exploration

projects. However, it is also competing with other countries for dominance in space. This competition could lead to tensions between countries. From a military standpoint, India is one of the only four countries that have successfully reached the lunar surface. The competition in space is between the former superpowers, who are nearing the end of their glory, and two emerging powers. Space-based intelligence, surveillance, and reconnaissance (ISR) capabilities are the next frontier to conquer to maintain a military edge. Even a poor and bankrupt country like Pakistan can put up a good fight against any adversary on land. Space will be the decisive factor in the next generation of warfare. If India wants to be a major power in the future, it must have a presence and superiority in space. China's Chang'e series of missions is now in its fifth phase. It is worth noting that China achieved what India's Chandrayaan-3 mission achieved a decade ago with its Chang'e 3 mission. While the Chandrayaan mission helped India reach the moon, India still has a long way to go before it can claim its place among the spacefaring nations. China aims to establish a permanent lunar base by 2027 with its Chang'e 8 mission. Hence, India must accelerate its space program and build on the momentum of Chandrayaan-3. If China establishes a lunar base before India, a space war between the two countries could occur as early as 2030. China could use advanced jamming and targeting techniques to passively thwart India's space missions and vehicles. If India does not accelerate its space program in the next five years, China could establish a powerful optical surveillance and intelligence gathering system on the moon. This would give China a significant advantage in space surveillance, as it would be difficult to detect surveillance carried out from the moon. The moon is constantly visible from all parts of the earth, which means that a network of optical telescopes on the moon could provide continuous surveillance of any target on earth. This could be used for a variety of purposes, such as monitoring military activity, tracking missile launches, detecting nuclear weapons tests, and spying on other countries. Humanoid robots are poised to play a major role in future space colonization. Advances in artificial intelligence (AI) and robotics have made it possible to create robots that are capable of performing complex tasks that were once thought to be the exclusive domain of humans. Humanoid robots could be used to perform a variety of tasks in space, such as exploring the surface of planets and moons, building habitats and infrastructure, conducting scientific research, repairing spacecraft and equipment, and providing companionship and support to human astronauts. Some of the programs undertaken by various countries to develop humanoids for space:  
 USA: The US space agency NASA is developing a humanoid robot called Valkyrie. Valkyrie is designed to be a versatile robot that can perform a variety of tasks in space, such as exploring the surface of Mars and repairing spacecraft. China: The Chinese space agency CNSA is developing a humanoid robot called Xiaofei. Xiaofei is designed to be a more affordable and accessible robot than Valkyrie or HRP-5P. It is also designed to be more user-friendly, which is important for applications such as space tourism. Europe: The European Space Agency ESA is developing a humanoid robot called CIMON. CIMON is designed to be a companion robot for astronauts. It is not designed to perform tasks in space, but it is designed to provide companionship and support to astronauts. India is actively involved in developing its humanoid missions to space. ISRO and DRDO are working on projects such as Vyommitra, Agastyi, and Rudra. However, if India wants to accelerate its space race, private companies should engage the Indian youth in large numbers and simultaneously develop multiple competing products. While some initiatives have already started, such as QROBOT-IX, we need greater government support to ensure that these companies are nurtured and grown into global leaders in this field. India and China have different approaches to space exploration. India is focused on traditional space goals, while China is aiming to lead in space-related technologies. China has a clear vision for space exploration and is investing heavily in space technology. It has also achieved several major milestones in space exploration. India needs to up its game in several areas to beat China in space exploration. The following are some aspects that could define the space race in the times to come. India and China are emerging space powers, and their rivalry will likely intensify in the coming years. The outcome of this rivalry will have a significant impact on the future of space exploration and the global space economy. India needs to develop a clear vision for space exploration and articulate its goals for the next five years. India must invest more money in space technology, research, and development. India needs to collaborate with other countries to share resources and expertise. If India can do these things, it will be well on its way to beating China in space exploration. However, it is important to note that China is a formidable competitor, and India will need to work hard to catch up. India's lunar ambitions are ambitious but achievable. With careful planning and execution, India can become a major player in the space race and reap the benefits of lunar exploration. The success of Chandrayaan-3 is a stepping stone towards greater glory and achieving the position of a superpower. However, India should not rest on its laurels. It should build on this success and engage in parallel projects in multiple domains, such as developing humanoid robots for space exploration, building lunar bases, and developing new technologies for space mining. By doing so, India can truly cement its place as a leading spacefaring nation. India should also consider the strategic implications of its lunar ambitions in the context of the larger geopolitical landscape. The competition between India and China in space is likely to intensify in the coming years, and India needs to be prepared. By building a strong lunar program, India can help deter China's aggressive behavior in space and protect its own interests.

Wing Commander S. Sudhakaran (Retd) is CEO, QuGates Technologies.

MAKE SPACE

## Noteworthy: The journey of India's space technology

In this journey, there aren't any low-hanging fruits. China is our biggest competitor in this journey.

OPINION

OM PRAKASH DWIVEDI



With the successful landing of ISRO's Chandrayaan-3 on the moon's south pole, the global race to become a space superpower has intensified. Let it be stated that future geopolitical formations will be determined by the power of space technology. The United States, China and Russia are the major players in space technology, but, of late, India has also started punching above its weight in this sector given the robust push rendered by Prime Minister Narendra Modi's government. ISRO's momentous success in satellite launches, and, also, in mitigating the production cost has pulled many countries'

attention to India. But we are talking about the journey of a space superpower, and in this journey, there aren't any low-hanging fruits. China is our biggest competitor in this journey. As evident, Russia is no longer able to lure foreign countries to sell its technology. Also, the lack of funding and the subsequent sparse budget for technology in the wake of the ongoing Ukraine war has constrained its space programmes. The Western sanction has only exacerbated its problem. Pavel Luzin, a senior fellow at the Jamestown Foundation, predicts a gloomy future for the Russian space programme, suggesting that "Russia will be able to launch some satellites. But it will not be an advanced space power. It will not be making steps beyond low Earth orbit". The recent Luna-25 crash turns Luzin's prophecy true to some extent. And it is here that China gains momentum, a country

that is always seeking opportunities to exploit. While the competitors in this field seem to have been reduced, the rise of China may savour tensions and distrust within Asia as well as in the global geopolitical sphere. China's credentials are raucous, given its invariable disrespect for other countries and their borders. Judging China on the objective indicators of any democratic nation, one can find its performance has been pathetic and alarming. China shares its borders with 14 nations, and it is no surprise to find that it continues to exercise its muscle against 13 of them. China's desperation to gain iconic status in the field of space technology is evident in its bid to produce and circulate more films on space science. This has two hidden motives. First, to cultivate in its youth a fervent belief about their ability to attain the top position in the space sector, while also inspiring them to join this mission. Second, the theme of such movies has utopian underpinnings for global peace. With its overt plan to lead Asia and the world, China is treading a careful path and does not want powerful nations to question and critique its ongoing space innovations. There is a diktat to the film industry to produce films that promote Xi Jinping's thoughts. These films are more of an appeasement exercise to underplay the real agenda of its space mission, while also instilling in its citizens a sense of pride for their nation's progress. The Chinese movie, *The Wandering Earth*, is just one such example that foregrounds its peace mission that underpins space innovations. However, a mismatch between their statements and intentions is largely evident. For example, Ye Peijian, the head of China's Lunar Exploration Program emphasizes that "If others go there [moon], then they will take over, and you won't be able to go even if you want to. This is reason enough." Exactly the reason why the NASA administrator, Bill Nelson casts his apprehension about China's intention to colonize the moon. Nelson asserts, "I don't want China to get to the south pole first with humans and then say, this is ours; stay out." Casting a wary eye on China's intentions, Lloyd Austin, US Secretary of Defense identifies China as "the most significant threat going forward". In this ongoing tussle related to the space sphere and also to lead the race for superpower, India has registered a noteworthy entry. PM Modi has convincingly

demonstrated his bold vision for transforming the Indian economy. The "Make in India" and "Aatmanirbhar Bharat" initiatives are designed to put India on top of the global economic order. These initiatives also aim to position India as the most favoured destination for providing cutting-edge technological innovations. The recent developments in the international market augurs well for India. It has rendered a strong footing for India in this sector and there has been a palpable shift by many buyers to India. Ever since the Modi government allowed the space sector for all kinds of private enterprise in June 2020, it has seen the rise and spread of a network of businesses,



ISRO Chairman S. Somanath and others show the victory sign after the successful soft-landing of Chandrayaan-3 Lander Vikram on the surface of the moon, at ISRO in Bengaluru on Wednesday

most likely driven by home-grown talent. From a nation that depended on foreign technology to carry its space programme, India is becoming a self-reliant nation now. As a result of this push, India saw the registration of 140 space-tech start-ups, which have also boosted India's economy. The figures suggest that these start-ups have brought in an investment worth \$120 million, and this is expected to grow at a rapid rate in years to come. If one were to analyse the relevance of the "Make in India" (2014) and Aatmanirbhar Bharat (2020) initiatives, it is evident that ISRO has triggered more launches under the Modi government in comparison to all previous governments. Since 2014, ISRO has carried out 47 launches; they have all been carried out at a cost that is significantly lower than the launches conducted by other countries. And, this is where we have reached. Our self-belief and self-reliance have started attracting even Elon Musk's SpaceX company. Until recently, Russia, China, and SpaceX were the major suppliers of satellite launches, but India is now gaining momentum. As a result, the NewSpace India Ltd., launched three dozen satellites for the UK-based OneWeb Ltd, recently. This has invigorated India's position in the space sector. The rise in demand for high-speed internet has been brewing. For example, the chairman and managing director of the NewSpace, D. Radhakrishnan, says that "demand is so huge...there's going to be a lot of shortage of the heavy-lift launchers that will be required". Ernst & Young predicts that by 2025, the space economy will grow to \$600 billion from \$447 billion in 2020. Going by the figures, it is estimated that the value of India's satellite launch services may reach \$1 billion by 2025. In our journey of space innovation, India still requires more investment and a robust culture to cultivate

a scientific temperament to compete with China. The Washington-based think tank, Center for Strategic and International Studies, indicates that China owned 13.6% of all earth-orbiting satellites, compared to 2.3% for India until 2020. As much as there seems to be intensified competition, one also finds a lack of options in the field of space technology. It is very likely that the US, China, and India will be the key players in the race to become a space superpower, which will embolden its soft power as well. Unlike China, India has always harboured respect for other nations. "We are known to be a very friendly country and to live and let live has been the guiding principle of India approach or Indian world view," says the President of the Indian Council for Cultural Relations (ICCR), who also goes on to define soft power as the "ability to shape the long-term attitudes and preferences" of other nations towards one country. India's rise in space technology, therefore, is a celebratory occasion, and it will contribute to the establishment of a firm geopolitical order.

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# ROUSSETY BRINGS ON STAGE GERMAN PLAY HAMLETMACHINE IN HINDI AND ENGLISH

Dr Roussety's approach to NSD students' involvement was highly collaborative in nature. The idea was to create a linguistic fusion wherein each student brought their unique perspective to the play.



MURTAZA ALI KHAN

In a daring and innovative re-adaptation, the acclaimed German actress and theatre director Dr Jacqueline Roussety recently staged Heiner Müller's iconic play 'Hamletmachine' with the National School of Drama (NSD) final year students, both at NSD's Bahukh Auditorium as well as the German Embassy in New Delhi. Müller, a German playwright and theater director, wrote the postmodernist drama 'Hamletmachine' in 1977. Loosely based on William Shakespeare's 'Hamlet', 'Hamletmachine' was inspired by Müller's attempt to translate 'Hamlet' from Shakespeare.

Coming back to the recent adaptation, Dr Roussety didn't just direct the play but she also helmed the set, costume, and choreography

departments. Known for its strong political and sexual undercurrents, the play's themes were brought to life through a fusion of Hindi and English dialogues, creating a unique theatrical experience that pushed boundaries and ignited thought-provoking discussions. "I was drawn to 'Hamletmachine' because of its fearless exploration of societal and personal turmoil. The play's themes are universal, and I believed that the energy and passion of NSD's final year students was a perfect match for such a provocative work," rejoiced Dr Roussety.

Blending Hindi and English was a conscious choice made by her. "I wanted to transcend linguistic barriers and allow the audience to experience the emotional intensity of the play directly. Blending Hindi and English was a conscious choice to amplify the universality of the emotions portrayed," she explained. The play serves as a mirror to our times. The re-imagined 'Hamletmachine' allows one to draw parallels with current political and social struggles, inviting introspection and dialogue. Its



A still from Dr Roussety's re-adaptation of Heiner Müller's iconic play Hamletmachine at the NSD

daring narrative cocktail makes room for strong political and sexual overtones, keeping the audience immersed throughout its running time of 90 minutes.

Dr Roussety's approach to the students' involvement was highly collaborative in nature. The idea was to cre-

ate a linguistic fusion wherein each student brought their unique perspective to the play. A major challenge for her was to let the creative juices flow while ensuring that the essence of 'Hamletmachine' wasn't lost in the process. In order to achieve this, she held discussions,

workshops, and improvisations with the keenness and the resolve to delve into the more complex layers.

"The beauty of 'Hamletmachine' lies in its uncompromising examination of societal upheaval. As far as I remember, I yearned for a canvas as daring as possible

for the students to paint this vivid tapestry of chaos and introspection," she recollected.

Another important task for Dr Roussety was to tackle the larger themes at play. "The potency of the play's political and sexual themes had to be unveiled with care.



Dr Jacqueline Roussety

Our aim was not to shock, but to engage in conversations about power dynamics, oppression, and identity. We wanted the audience to feel the disquiet and urgency of the issues reflected in the play," revealed Dr Roussety who isn't averse to pushing the boundaries of traditional theatre. "Witnessing the students' growth and commitment was truly inspiring during the rehearsals. There were moments of uncertainty, but their enthusiasm and dedication were unwavering," she added.

Right from the very outset, Dr Roussety wanted to infuse 'Hamletmachine' with a fresh lens, one that illuminates the undercurrents of feminism. The play's exploration of power dynamics,

identity, and societal rebellion resonate deeply with this theme.

In Dr Roussety's adaptation, the feminist voice is as prominent as the beating heart of the play. A clear attempt has been made to amplify the female characters' narratives, weaving threads of liberation, strength, and resilience. It's a tribute to women who defy norms and challenge the status quo. «While Müller's 'Hamletmachine' is a powerful discourse on societal turmoil, our rendition navigates through the prism of diversity. Our ensemble consists of 4 boys and 5 girls, each imbuing their characters with a distinct energy. This diversity enhances the narrative, reflecting the vibrant tapestry of humanity,» she explained.

Dr Jacqueline Roussety's adaptation of 'Hamletmachine' can best be described as a transformative experience that will hopefully succeed in pushing the boundaries of theatre and sparking conversations that resonate far beyond the stage. As for the students, the experience will certainly fuel their artistic journeys and empower them to challenge norms.

## I HAVE ALWAYS BEEN PASSIONATE ABOUT JEWELLERY: MEHER JETLEY ON HER BRAND NOYRA



NOOR ANAND CHAWLA

It's official - the Indian festive season has begun with the festival of Raksha Bandhan leading the way. During this wonderful time of the year, everyone looks forward to dressing up in their festive best. It's also a time to scout for good gifts. Noyra, a brand that creates ageless jewellery handcrafted in Jaipur provides ideal gifting options. The Sunday Guardian speaks to founder and designer Meher Jetley on what Noyra stands for.

### EXCERPTS FROM AN EDITED INTERVIEW:

Q: How did you enter the field of design?

A: I graduated from NIFT, Gandhinagar with a Bachelor's degree in Design (Fashion). I've previously headed the design team of an e-commerce fashion brand, worked with textile weavers in Gujarat, and worked in sales and marketing for a legacy brand. Over the past eight years, I have had exposure to design, marketing, sales, as well as customer experience and these fields have enhanced my knowledge. My journey has helped me understand the

nuances of the industry and the customer, and it felt like the right time to channelise this knowledge into my own business.

Q: How did you transition from fashion to jewellery?

A: Jewellery is something I have always been passionate about. I have extensively researched it and would even create custom jewellery for myself much before launching Noyra. Since the designs I used to create myself were stylish, of good quality and affordable, they were admired by a lot of people, which made me realise that I had a knack for it. In the middle of the pandemic, I was faced with a pay cut at my job. So, I took a leap of faith and decided to start Noyra. I knew I had extensive experience working with artisans as well as customers, and knew how to create and sell a product, and I felt confident about it. That's how the jewellery business began.

Q: What kind of jewellery do you specialise in?

A: At Noyra, we specialise in high-quality, handcrafted jewellery at affordable price points. All the jewellery takes inspiration from art, culture, history, and my many moods and is carefully made by talented jewellery artisans from Jaipur, India. We focus on working with the best plating techniques and certified semi-precious stones for all our pieces, while pledging to provide our patrons with as much information as pos-



Founder and designer for Noyra sible in order to be transparent. We work on a made-to-order model as a conscious effort to lower our carbon footprint. Owning a piece from Noyra is like owning an ageless, crafted, rare museum piece.

Q: How do you stand apart from competitors?

A: Noyra is a unique jewellery brand where we design and craft our pieces from scratch. A thorough design process is followed, where we start right from the type or design of stone we need, to what base metal it will finally be set in (we work majorly with brass and 92.5 silver). The most important thing is our plating technique. We use micron plating, for all our products and rhodium plating for the shiny silver finish. Our designs are unique, and we work with only the highest quality semi-precious stones. Our products are nickel and lead-free, and we offer a stellar after-sale service that includes replating, refurbishing, and



Stella Tennis Bracelet



Naulakha Haar Choker

fixing the piece in case of any damage, to increase its longevity. Plus, our customisation is very affordable.

Q: What have been the biggest challenges you have faced so far?

A: Noyra is a bootstrapped business without a legacy. It has been hard to break into a competitive market where people come from much more comfortable



Omega Nebula Bangle



Astraea Necklace

rewards so far?

A: Even though we follow a made-to-order model, we have managed to create a loyal customer base and earned the trust of our customers. I'm so proud that niche, high-end marketplaces stock our products now. We have managed to create a name for ourselves where admirers and customers of the brand

really appreciate our brand ethos and story. We especially loved launching our third collection called 'Supernova' in under three years. It's a big deal for a new brand like ours to launch annual collections, and fortunately, ours have always been well received by both marketplaces and individual customers. I also take pride in being

able to sustain my original artisans and vendors who have seen the growth of the brand from the first day. It is my dream to make the brand international and have it stocked at well-reputed global stores. As I'm a big fan of Sabyasachi Mukherjee, it is my dream to have Noyra products stocked at Bergdorf Goodman someday!

Q: Tell us about your design process.

A: Each piece at Noyra first begins its journey in my head. I believe I have the gift of creative visualisation which allows me to formulate an entire design from start to finish, without lifting a pen, and translate it directly into materials with the help of my artisans. Artistic themes, history, psychology, science, anything and everything that inspires me at that particular moment, acts as an inspiration while I design the pieces.

Q: Where can customers find your designs?

A: All the jewellery at Noyra retails through our own e-commerce website noyra.co and designer marketplaces such as Tata Cliq Luxury, and Nete.in, IKKIVI, The Yarn Story, etc. Currently, our physical designs are on display and for purchase at Jewelry Box by Arnav in Bangalore, Meraki Lifestyle in Pondicherry and Studio 108 at Kochi.

Noor Anand Chawla pens lifestyle articles for various publications and her blog [www.nooranandchawla.com](http://www.nooranandchawla.com).



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6 UNION BANK RAISES EQUITY CAPITAL OF RS 5,000 CR

## TOP OF THE SATURDAY

### DIGITALIZATION PUSH IN G20 TRADE TALKS

**Jaipur:** During the G20 Trade and Investment Ministerial Meeting in Jaipur, French trade minister Olivier Becht emphasised the importance of digitalization in trade documents. Becht believes this will simplify import/export for companies, particularly benefiting SMEs by improving their global reach. He remarked on France's prioritisation of this digital shift, mentioning a recently completed report on required legislative changes. Additionally, Becht stressed the need for technical aid to developing nations, ensuring their businesses can also leverage these digital advancements.

### DGCA PROBES AIR INDIA'S DISCREPANCIES

**New Delhi:** A recent inspection by the Directorate General of Civil Aviation (DGCA) found discrepancies in Air India's internal safety audits. The probe revealed that Air India falsified reports for 13 safety checks across Mumbai, Goa, and Delhi stations. These inconsistencies were confirmed with CCTV footage and various official records. The DGCA also found that some reports lacked authorised signatures from the Chief of Flight Safety (CFS) and were signed by unauthorised auditors. In response, Air India stressed its commitment to regular safety assessments and addressing any concerns raised by authorities. DGCA is further investigating these findings.

### BOEING BOOSTS AMETHI'S HEALTHCARE

**New Delhi:** Union Minister Smriti Zubin Irani unveiled Boeing's literacy initiative, 'Room to Read', and a medical diagnostic centre in Amethi, Uttar Pradesh. Partnering with the renowned non-profit, Room to Read, Boeing aims to uplift literacy in 60 Amethi primary schools for four years. Additionally, the Boeing-funded diagnostic centre, equipped with state-of-the-art medical tools like CT scans and digital X-rays, will offer free tests and training to medical staff for three years. Irani oversees the women and child development and minority affairs ministries.

### AI'S ROLE: ASSISTANT OR INDEPENDENT?

**New Delhi:** Salesforce India's CEO, Arundhati Bhattacharya, emphasised that current Artificial Intelligence (AI) technologies act more as assistants and still require human intervention. At a recent media roundtable, Bhattacharya mentioned the uncertainty of AI's potential to operate independently in the future. She praised the specific problem-solving capabilities of Generative AI over blockchain and crypto. Addressing data concerns in the BFSI sector, she highlighted Salesforce's focus on data localization and compliance. The company, having a strong presence in India, plans to expand its 9,000-strong workforce across six centres. Salesforce's recent report reveals that 87% of Indian IT leaders define AI's organisational role, with concerns rising around generative AI ethics.

### GIFT IFSC EYES GLOBAL FINTECH HUB

**New Delhi:** On August 26, a Committee of Experts led by G. Padmanabhan, ex-RBI executive director, presented recommendations to the International Financial Services Centres Authority (IFSCA) on 'Onshoring Indian Innovation to Gujarat's GIFT IFSC'. The committee, comprising key stakeholders from venture capital, fintechs, and legal firms, proposed strategies to make GIFT IFSC a global fintech destination. Their goal? To encourage Indian startups to establish domestically and lure back those overseas by aligning regulatory norms with international benchmarks.

• Agencies

## G20 TRADE MINISTERIAL

# G20 MINISTERIAL ARRIVES AT CONSENSUS ON 5 DELIVERABLES

NIVEDITA MUKHERJEE  
NEW DELHI

India has scored a significant goal on steering a global move towards a rules-based, open, inclusive, multilateral trading system — holding the World Trade Organization (WTO) at its core — with the G20 Trade and Investment Ministers' meeting under India's Presidency arriving at an all-encompassing and inclusive consensus on five concrete deliverables which could have far-reaching and favourable implications for rejuvenating global trade demand, bringing in targeted investments in quality physical and digital logistics, enhancing supply chain resilience, promote economic growth and foster prosperity. The mutual agreement on these areas assumes greater import amidst a multi-dimensional global crisis that raises challenges of macroeconomic in-



stability, food insecurity and disruptions across GVCs, as acknowledged in the 'Outcome Document of Trade Ministerial Meeting' which concluded in Jaipur on Friday. The joint communique flags the uncertainty over near-term prospects of glob-

al trade and investment and the prediction that growth in cross-border trade will remain subdued at 1.7 per cent in 2023. These underline the significance of the G20 acting together to ensure that trade, along with domestic production, plays a vital role

in improving global food security in all its dimensions, that trade-related investment initiatives foster resilient, diversified and sustainable economic growth and that use of technology for facilitation of cross-border trade promotes integration

of MSMEs in global trade. Prime Minister Narendra Modi has emphasized the G20's responsibility to rebuild confidence in international trade and investment order, setting the future template. Commerce Minister Piyush Goyal had clearly stated that the focus of G20 Trade and Investment Ministerial Meeting (TIMM) will be on easing barriers to international trade and investment, helping boost productivity and output and fostering economic growth and prosperity for all.

A key priority for action agreed upon at the Jaipur Ministerial is building resilient and inclusive global value chains that can withstand future shocks and ensure higher participation of MSMEs in global trade. In a recognition of the important role of free, fair and open markets in maintaining resilient GVCs, the G20 Ministers have agreed to work

towards GVC mapping and a mapping framework to help members identify opportunities for building resilience within GVCs. The G20 Generic Mapping Framework for GVCs endorsed by the trade ministers contained key building blocks of data, analysis and representation of GVC data. The framework will move along identifying key dimensions to help evaluate the resilience of GVCs both at the sectoral and product levels.

The voluntary and non-binding nature of the "G20 Generic Framework for Mapping GVCs", however, leaves room for inaction by countries and thus robbing the intent of effective action but the G20 trade ministers expect to close the significant gap between some developing and developed countries in GVC participation and capacity of members to attract global production, by promoting and fostering

linkages between foreign enterprises and domestic companies, particularly MSMEs. Since sustainable and inclusive GVCs require investment, G20 ministers have emphasised on investment facilitation to enhance relevant investment flows in this regard.

Facilitation of trade is of critical importance to MSMEs and India's consistent advocacy for this cause reflects in an unanimous G20 trade ministers' Jaipur Call for Action for enhancing access to information for these businesses. This will help MSMEs, particularly in developing countries, who often lack the requisite resources to collect and analyse all the relevant information for their target markets. For the first time, the International Trade Centre (ITC), Geneva has been mandated to work on a detailed imple-

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## CAPITAL MOBILISATION

# B20 SUMMIT ADDRESSES CLIMATE TRANSITION FINANCING CHALLENGES

CORRESPONDENT  
NEW DELHI

The B20 Summit, held at the Taj Palace, deliberated 'Financing the Climate Transition' this Saturday, spotlighting the world's urgent need for capital mobilisation towards climate action. Mark Carney, the UN's voice for Climate Action and Finance, emphasised the pivotal role of Multilateral Development Banks (MDBs) in catalysing this transition. Carney highlighted the vast sums needed, particularly in tough sectors, advocating

for developed nations to commit \$100-150 billion annually in aid to emerging economies. He urged these nations to establish regulations fostering renewable energy adoption, diminish fossil fuel reliance, and promoting carbon market development. Moderated by Lynn Forester De Rothschild, the discussion saw key global business figures stress collaborative approaches. Bernard Looney, BP's CEO, stressed the urgency of addressing emissions, emphasising a prompt, structured transition. Uday Kotak, Kotak

Mahindra Bank's CEO, called for a symbiotic relationship between businesses and governments to propel clean technology.

Mark E Tucker of HSBC pledged a whopping 1 trillion USD by 2030 for climate transition. Simultaneously, Verena Lim from Macquarie Group spotlighted mature technology acceleration, like solar and wind, as pivotal in developing nations. Tata Steel's CEO, T V Narendran, underscored steel's significance in decarbonization. The B20 discussions highlighted the necessity for

innovative financial solutions, global collaboration, and governmental backing to address the monumental climate challenges ahead. Macquarie Group spotlighted mature technology acceleration, like solar and wind, as pivotal in developing nations. Tata Steel's CEO, T V Narendran, underscored steel's significance in decarbonization. The B20 discussions highlighted the necessity for innovative financial solutions, global collaboration, and governmental backing to address the monumental climate challenges ahead.

## FTA TALKS

# India-EU free trade talks progress, challenges remain

CORRESPONDENT  
NEW DELHI

The Free Trade Agreement (FTA) discussions between India and the European Union (EU) have seen progress, but hurdles still remain, stated EU Executive Vice-President Valdis Dombrovskis. Speaking at a press conference in India, he expressed that the relationship between India and the EU holds vast untapped potential.

Although strides have been made in the FTA talks, Dombrovskis stressed that



significant challenges need addressing. Emphasising the importance of the partnership, he noted, "India and the EU are foundational allies sharing core values and interests." He further highlighted the EU's role as

India's second-largest partner.

The geopolitical backdrop of the FTA negotiations underlines the growing emphasis on trust and credibility in global relations. Detailing

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## HEALTH IMPACTS

# 'India needs to rethink its tobacco laws'

SHANTANU GUHA RAY  
NEW DELHI

A seasoned lawmaker has said India needs to seriously take a relook at its tobacco laws, and those relating to e-cigarettes and heated tobacco because the health ministry's ban on e-cigarettes is a missed public health opportunity.

MV Rajeev Gowda, vice-chairperson, State Institute for Transformation of Karnataka and former Rajya Sabha member strongly feels e-cigarettes could have been an option to help smokers

wean themselves off tobacco in India, the world's second largest consumer of tobacco.

Gowda says tobacco is India's largest threat to public health, reducing life expectancy among both men and women by more than a decade. Hence, the government must make efforts to curb tobacco consumption. But the Health Ministry missed the trees for the woods when it banned the Electronic Nicotine Delivery Systems (ENDS). Gowda says the government probably wanted to prevent the emergence of a large user base particularly

among the youth but when it banned ENDS, it did not consider the different types of ENDS and Heat Not Burn (HNBs) devices, their differential health impacts, and the use of HNBs as a tobacco harm reduction product.

Gowda feels the term "e-cigarettes" is used as a catch-all term but in reality, there are actually a range of devices with distinct technologies and characteristics. "Policy-makers should have evaluated and regulated each kind of device based on their individual features and implications

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## SIGNIFICANT GROWTH

# INDIA SAW 80 PLUS NEW STARTUPS IN MILLET SECTOR IN PAST YEAR AND A HALF

NIVEDITA MUKHERJEE  
NEW DELHI

A significant growth of startups in the millet sector has turned the attention of the highest levels of Government to making the millet movement a mass movement in India and globally. Engagement of younger individuals and innovation from large retail organisations have sparked a vibrant startup movement for promoting millets with India witnessing the



emergence of more than 80 startups in the millet sector within the past year

and a half, responsible for developing well-packaged products.

The nation's culinary history bears witness to millets being extensively used across all cultures, states, and cuisines in India before being overshadowed by rice and wheat. Millet is also being associated with environmental responsibility, as a low environmental impact grain, especially concerning water consumption. Khader Vali, known as the Millet Man of India points to the sustainable cultivation of millets, which requires minimal water.

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BMI REPORT

# INDIA'S EV ADOPTION TO STAY SUPPRESSED UNTIL LOCAL EV SUPPLY CHAIN DEVELOPS

NIVEDITA MUKHERJEE  
NEW DELHI

As Tata, Maruti Suzuki and Hyundai increase their local EV (including plug-in hybrids) production in India, growth in sales is expected to accelerate and if Tesla moves to produce EVs in India over the medium term, consumers may hold off on buying an EV as they wait for Tesla-branded vehicles, says a research by BMI, a Fitch Solutions Company. The report remains bullish in FY2023 and expects India's passenger EV sales to increase by 64.1 per cent y-o-y to reach nearly 80,000 units sold annually and a passenger EV penetration rate of 1.9 per cent.



Over the long term, the development of a local EV supply chain (mining, refining and cell production) will set the pace of EV adoption in India. However, this will give the local industry time to develop the required skill base to support higher value

add manufacturing such as EV batteries and electronics. Over FY2022 (April-March), passenger EV sales in India increased by around 143.2 per cent y-o-y to reach an annual sales volume of just over 48,000 units, which represents a passen-

ger EV sales penetration of only 1.2 per cent of the market's total passenger vehicle sales. As more EV models become available in India over 2023-2027, there is likely to be stronger EV uptake; however, it will depend heavily on whether

the Government continues to severely tax imported vehicles and components from mainland China. Over FY2022 (April-March), BMI estimates that commercial EV (buses and trucks) sales in India reached just under 9,000 units annu-

ally. This represents an EV penetration ratio of only 1.0 per cent. In July 2022, India announced its intention to invest around USD10 billion (or around 50,000 electric buses) in its electric bus fleet to aid in decarbonising the road transport sector.

The report cites lack of a local EV supply chain (mining, refining, battery cell and pack production), as one of the most significant barriers to EV adoption in India, given that the Government has implemented very restrictive import policies for autos and components, especially from China which currently produces over 80 per cent of the global battery supplies. This means higher EV costs, long delays at ports and slow supply of EVs.

The Union Budget has removed the customs duties on imported capital equipment for lithium-ion battery cell manufacturing (which previously ranged from 5 per cent to 20 per cent), which will offer some support. However, the BMI report expects that strong competition for investment in battery manufacturing in other markets such as the US (following the adoption of its Inflation Reduction Act), the EU, China and South Korea, among others, will see the cost of the capital

machinery likely increasing over the coming quarters. Over the long term, we expect that plug-in hybrid electric vehicle sales in India will accelerate as automakers such as Maruti Suzuki and Toyota focus on hybrid vehicles instead of battery electric vehicles.

This, along with the potential increased supply of more affordable EVs from mainland China (MG, Wuling and BYD) and a likely 'price war' in India will offer strong upside risk to BMI's current forecast over 2023-2032. We currently expect India's passenger EV sales to average annual growth of 23.1 per cent over 2023-2032 to reach a high of around 355,000 units sold annually representing 4.6 per cent of total sales.

India's EV adoption incentives include reduction of Goods and Services Tax (GST) on EV sales from 12 per cent to 5 per cent while GST on chargers on charging stations for EVs has been reduced from 18 per cent to

5 per cent. The Ministry of Road Transport and Highways announced that EVs will be given green license plates and will be exempted from permit requirements. Over its 2023-2032 forecast period, BMI expects exponential growth in commercial EV sales in India as the government electrifies fleets to control the high level of pollution in cities. In FY2023, BMI expects commercial EV sales in India to rise by 166.7 per cent as the government moves ahead with its planned bus electrification.

As per the research, commercial EV adoption will face a strong challenge over the medium term from natural gas-powered vehicles. Compressed natural gas (CNG) trucks may fill the gap between internal combustion engine vehicles and EV adoption because it is more affordable. The electrification of India's CV fleet will also benefit from increased interest in hydrogen fuel cell vehicles (FCVs).

BHARAT NCAP

## AUTO INDUSTRY, EXPERTS HAIL NEW CAR TESTING NORMS

CORRESPONDENT  
NEW DELHI

The Bharat New Car Assessment Programme (Bharat NCAP) launched on 22 August 2023 and set to be implemented from 1 October, 2023, has received a rousing welcome by the auto industry and sector analysts as a localised, cost-effective testing system, potentially boosting the appeal to Indian OEMs to get the vehicle tested. The initiative will also bolster the auto component industry's value chain as well as stimulate the production of cutting-edge components, encourage innovation and create global excellence, in the opinion of component makers.

The Bharat NCAP which makes India the fifth country globally to introduce its own car crash test rating system, aims to enhance car safety standards in India, focusing on vehicles up to 3.5 tonnes and aligns with the government's vision to make the country a global automobile hub. "We welcome the BNCAP safety initiative by Government and believe this effort will raise safety standards, empower

consumers with vital information, and make Indian roads safer for all," assures Hyundai Motor India's Unsoo Kim, MD & CEO, highlighting Hyundai Motor's commitment to delivering the highest safety standards across our entire product range.

According to Prabhudas Liladhar research, the testing cost is Rs 60 lakh per car under Bharat NCAP, compared to Rs 2.5 crore if done overseas. The system involves three key tests -- frontal impact at 64kph, side impact and side pole impact at 29kph for cars rated 3 stars or more. Cars rated 3 stars or above must possess electronic stability control and front seat belt reminders. Prabhudas Liladhar view is that while this is entirely voluntary and will likely be slow in adoption, "there could be more emphasis on manufacturing of safer vehicles by the OEMs and increased awareness

in customers' mind due to localisation of the testing process over the years".

The roll out of BNCAP norms is, according to Myung-Sik Sohn, Chief Sales and Business Officer, Kia India, an enhanced road safety movement that extends



"this move eliminates the need and associated costs of testing vehicles outside. It will also elevate the global reputation of products from India to the world with good ratings in a big way."

The Automotive Component Manufacturers Association of India (ACMA) calls the launch of BNCAP a transformative initiative towards safer vehicles in India. "The launch of BNCAP protocol is indeed historic. It will lead to the integration of advanced safety features in vehicles thus minimising the risk of road accidents and fatalities," says Vinnie Mehta, Director General, ACMA. "The Indian auto component industry embraces this initiative wholeheartedly, recognizing its pivotal role in driving growth and global competitiveness," says Mehta.

Toyota Kirloskar Motor also lauds the Government's decision to introduce Bharat-NCAP as a step in the right direction. The decision comes at a time when consumers are looking at highest standards of safety

and seeking for safer vehicles, which is steering the purchase decision, points out Vikram Gulati, Country Head & Executive Vice President, TKM. "In addition to empowering consumers, this will also help bring about greater awareness and further transparency by allowing them to know comparative safety aspects of various products on offer," says Gulati, adding that for TKM, safety is non-negotiable. "We have always taken all measures to ensure that our offerings meet the highest standards in all respects. Looking ahead, we will continue to follow a holistic approach which includes making of ever safer cars, with advanced features, as well as focusing on safety educational activities," affirms Gulati.

Industry body ACMA is anticipating a safer automotive landscape and a future where Indian auto component manufacturers thrive on the global stage, while also contributing to responsible driving practices, reduced healthcare burdens and potential incentives from the insurance sector.

NEW LAUNCH

## All new Lexus LM debuts in India

CORRESPONDENT  
NEW DELHI

Lexus India, the leading luxury automobile manufacturer, has commenced bookings for its flagship MPV, the new majestic Lexus LM. Lexus India offers environment-friendly electrified vehicles including the LC 500h, LS 500h, RX 350h, RX 500h F-Sport Performance NX 350h and the Made in India ES 300h.

The first-generation Lexus LM was launched in 2020. Offering both 4-seat and 7-seat configurations in the ultra-luxury segment, the new Lexus LM was very well received across markets. In the intervening years, the needs and desires of the global luxury market have further intensified and diversified. In response, the new LM has been completely redesigned. "We are thrilled to announce the much-awaited arrival of the all-new Lexus LM in India," said Lexus India President Naveen Soni. "This is a new category for Lexus in India and we received an overwhelming response for the previous generation LM showcased at Auto Expo ear-



Naveen Soni, President Lexus India

lier," said Soni. The luxurious all-new LM as a multi-purpose vehicle delivers comfort, innovative design and craftsmanship. The exterior design projects an elegant presence and aerodynamic form in line with the Lexus design language, the vehicle's lines reflecting functionality and dynamic performance. In the interior, the front cabin design combines practicality with refinement to allow drivers to focus, while the spacious rear suite offers meticulously crafted seats and trim alongside a variety of features and technology to make the most of customers' precious travel time. With its impeccable attention to detail, advanced technologies, and exclusive

amenities, Soni is confident that the majestic Lexus LM will redefine ultra-luxury mobility experience for discerning customers in India.

The company which marked its sixth anniversary in India, is looking to expand its customer base in India, enhance sales infrastructure as part of its strategy to grow sustainably in the country. More recently, Lexus India unveiled the all-new 5th generation RX at its first participation in the Auto Expo 2023. Housing a long list of innovations including electrification, intuitive technology, performance & design, the Lexus RX India comes with two powertrains to meet the diverse needs of Lexus guests.

STRATEGY

## Tata Motors commits to net zero emissions by 2045

CORRESPONDENT  
RANCHI

Tata Motors, India's premier commercial vehicle manufacturer, has pledged to transition its facilities to achieve net zero in greenhouse gas emissions by 2045. The ambitious plan will encompass a variety of technologies, including electric and hydrogen fuel systems. This was shared by Girish Wagh, the company's Executive Director, in a recent interview.

With an annual investment of over Rs 2,000 crore in the commercial vehicle business, Tata Motors is rigorously pursuing a sustainable future. Wagh stated, "Tata Motors is committed to become net zero

in greenhouse gas emissions by 2045. Consequently, we aim to ensure our facilities become zero-emission and are working across multiple vehicle technologies."

Currently, Tata Motors operates five plants for commercial vehicles and two for passenger vehicles. Wagh emphasised the company's commitment by explaining that all these facilities will migrate to net zero greenhouse gas emissions by 2045.

The strategies for this impressive shift include battery electric and hydrogen fuel technologies, both of which can be incorporated in internal combustion engines or fuel cell electric. Signifying its dedication, Tata Motors has inked



a memorandum of understanding with the Jharkhand government to establish a manufacturing unit for these technologies. The initial focus

will be on the hydrogen internal combustion engine, followed by battery electric or fuel cell electric, as determined by their technology roadmap.

In a related development, TCPL Green Energy Solutions, a subsidiary of Tata Cummins Pvt Ltd, partnered with the Jharkhand government. They aim to invest over Rs 350 crore in the coming years to manufacture fuel-agnostic powertrain solutions. This will include technologies like hydrogen Internal Combustion Engine (ICE), battery and fuel cell electric vehicle systems, and fuel delivery frameworks. Tata Cummins Pvt Ltd itself is a joint collaboration between Tata Motors and global power tech giant, Cummins Inc.

Highlighting Tata Motor's significant presence in Jharkhand, Wagh noted that more than 80% of their heavy commercial

vehicles are produced at the Jamshedpur plant, in tandem with the Tata Cummins joint venture facility which produces engines.

The company's investment in the state is further illustrated by their plan to invest over Rs 350 crore in the first phase. This will cater to manufacturing hydrogen internal combustion engines with an annual capacity of 10,000 units. Regarding employment, Wagh revealed that their engine manufacturing plant would initially create 350 jobs. Given the extensive supply chain, this move is expected to generate employment almost tenfold in associated sectors. Emphasising the company's deep ties with Jharkhand, Wagh

remarked, "Our initiative will make Jharkhand a hub for green and next-gen technologies, contributing significantly to reducing India's carbon footprint."

Reaffirming Tata Motors' commitment to the nation's 'Make in India' initiative, Wagh also mentioned that the firm's annual capex in the commercial vehicle sector would remain around Rs 2,000 crore in the upcoming fiscal. In Q1 ending June 30, Tata Motors reported a consolidated net profit of Rs 3,300.65 crore and a revenue of Rs 1,01,528.49 crore. A member of the USD 128 billion Tata group, founded in 1868, Tata Motors remains a global frontrunner in automobile manufacturing.

## INNOVATION

# India's soil tech surge: Paving the way for green farming

## OPINION

MELIND DESHPANDE



Agriculture has been the backbone of India's economy for centuries, providing sustenance and livelihoods to millions. In recent times, however, the sector has faced numerous challenges, including degrading soil health, dwindling water resources, and unpredictable weather patterns. In this era of rapid technological advancement, the marriage of agriculture and innovation has become essential to ensure food security, sustainability, and economic prosperity. One such groundbreaking innovation that promises to transform Indian farming is advanced soil testing technology. India, with its rich history of farming, is poised to lead the way by integrating cutting-edge soil testing technologies into its agricultural practices, thus ensuring a more productive, sustainable, and resilient future.

## THE SIGNIFICANCE OF SOIL HEALTH

Soil is the foundation upon which the entire agricultural ecosystem rests. The health of the soil directly affects crop yields, nutritional value, and environmental sus-

tainability. Over the years, improper land management, excessive use of chemical fertilizers, and monoculture farming have taken a toll on soil health, leading to nutrient depletion, erosion, and reduced water-holding capacity.

Recognizing the critical role soil health plays in agricultural productivity, researchers and scientists have been striving to develop advanced soil testing technology that goes beyond traditional methods. These new tools offer a deeper understanding of soil composition, nutrient levels, and microbial activity, enabling farmers to make informed decisions and implement targeted strategies. Coupled with data analytics and machine learning algorithms, these technologies can generate real-time recommendations tailored to the specific needs of a farmer's plot. This not only optimises resource allocation but also mitigates the excessive use of fertilizers and pesticides, reducing environmental impact.

## THE ADVENT OF ADVANCED SOIL TESTING TECHNOLOGY

Advanced soil testing technology involves a combination of cutting-edge techniques such as remote sensing, spectroscopy, and molecular biology. These techniques allow for rapid, accurate, and cost-effective assessment of soil health parameters. One of the most promising advancements is the use of hyperspectral imaging, which provides a detailed analysis of soil



properties by capturing the reflected light spectra. This non-destructive method enables farmers to identify nutrient deficiencies, organic matter content, and even potential disease outbreaks.

Furthermore, molecular biology techniques, such as DNA sequencing, can reveal the microbial diversity present in the soil. This knowledge is invaluable as it helps farmers choose the right crop varieties and implement practices that support beneficial microorganisms, fostering a healthy and balanced soil ecosystem.

## BENEFITS FOR INDIAN FARMERS

India's vast and diverse agricultural landscape makes it an ideal candidate for the adoption of advanced soil

testing technology. With varying soil types, climate conditions, and cropping patterns, a one-size-fits-all approach is ineffective. Through precision agriculture enabled by these technologies, Indian farmers can fine-tune their practices, optimizing yields and conserving resources.

The adoption of advanced soil testing technology holds immense promise for Indian farmers. By accurately assessing soil health, farmers can tailor their agricultural practices to maximize yields, reduce input costs, and minimize environmental impact. Precise knowledge of nutrient levels allows for targeted fertilization, minimizing overuse of chemicals and preventing nutrient runoff into water

bodies.

Moreover, this technology empowers farmers to engage in precision agriculture, where they can optimize planting patterns, irrigation schedules, and pest management strategies. In a country where smallholder farmers dominate, these innovations level the playing field, enabling them to compete in a global market while practicing sustainable agriculture.

## GOVERNMENT INITIATIVES AND PRIVATE SECTOR INVOLVEMENT

The Indian government has recognized the potential of advanced soil testing technology and has taken steps to promote its adoption. Initiatives such as the Soil Health Card Scheme aim to provide farmers with per-

sonalized soil health information and recommendations. These cards are based on comprehensive soil testing, empowering farmers with data-driven insights to improve productivity and sustainability.

Additionally, the private sector has been actively contributing to the development and dissemination of these technologies. Startups and agri-tech companies are designing user-friendly, portable soil testing kits that can be used on-site, even in remote areas. These kits provide instant results, allowing farmers to make immediate decisions and adjustments.

## CHALLENGES AND THE WAY FORWARD

While the future of farming

with advanced soil testing technology looks promising, challenges remain. The initial investment required for adopting these technologies might deter some farmers, particularly those with limited resources. Moreover, ensuring that farmers can effectively interpret and implement the results of these tests is crucial. Training and capacity-building efforts are essential to bridge this knowledge gap.

Interpreting the complex data generated by these technologies can also pose a challenge, especially for those without access to technical expertise. User-friendly interfaces and training programs can bridge this knowledge gap, ensuring that even the most remote farmers can benefit

from these innovations.

## A COLLABORATIVE EFFORT

The integration of advanced soil testing technology into Indian agriculture is not a task for any single stakeholder. It demands collaboration between government bodies, agricultural research institutions, technology providers, and farmers themselves. Policy support in the form of incentives, subsidies, and regulations is crucial to incentivize adoption. Research institutions can drive innovation by tailoring these technologies to India's unique agricultural context. Technology providers need to develop user-friendly tools that can be easily operated by farmers, regardless of their technical prowess.

Advanced soil testing technology has the potential to revolutionise Indian agriculture, paving the way for sustainable, productive, and resilient farming systems. By harnessing the power of innovation, Indian farmers can address the pressing challenges of soil degradation, water scarcity, and climate change. As the nation strives for food security and economic growth, investing in advanced soil testing technology is not just a choice but a necessity. The time has come for a new era of farming – one driven by knowledge, data, and sustainable practices. However, realizing this potential requires a collective effort, driven by the conviction that technology, when harnessed wisely, can pave the way for a greener and more prosperous tomorrow.

*The author is the Founder and CEO of BhoomiSeva, HCF Tech Private Limited and Distributor for Bhu-Vision (Krishi-RASTA) which is an IOT based automated soil testing and agronomy advisory platform.*

## URBANIZATION

# PROS AND CONS OF WIRELESS ELECTRIC VEHICLE CHARGING



ASHISH DESWAL

Over the past ten years, there has been a tremendous increase in the development of wireless charging systems for electric vehicles. Amidst the rapid urbanization happening worldwide, the need to move away from gasoline and diesel-powered cars to usher into cleaner cities is the most powerful catalyst. Simultaneously, electric vehicles are becoming more effective and competitively priced, which is another crucial factor responsible for their unprecedented growth. Parallel to this revolution,

Wireless Electric Vehicle (EV) charging technology is transforming the entire mobility ecosystem into a desired shape.

Wireless charging technology eliminates the need for physical cables and connectors, making the charging process more convenient, efficient, and user-friendly. Besides, a slew of other benefits make this technology incredibly impactful in the future. Some of the pros associated with wireless charging technology are listed below.

## CONVENIENCE:

**1. Wireless EV charging eliminates the need for physical cables and connectors.** Drivers can park their vehicles over a charging pad, and the charging process initiates automatically, making it more convenient and user-friendly.  
**2. Reduced Wear and Tear:** Without physical connections, there is less wear and tear on the charging infra-



structure and the EV's charging port, potentially leading to increased longevity and reduced maintenance costs.

## 3. SAFETY:

The absence of exposed cables reduces the risk of tripping hazards and electrical accidents, making wireless

EV charging a safer option, especially in public spaces.  
**4. Increased Adoption:** The convenience of wireless charging can encourage

more people to adopt electric vehicles, as it alleviates range anxiety and simplifies the charging process for consumers.

**5. Integration with Autonomous Vehicles:** Wireless charging is well-suited for autonomous electric vehicles, as it allows for seamless charging without human intervention, further supporting the development of autonomous driving technology.

*Every pro has an effect and while the pros outweigh the cons, some of them are as follows:*

## LOWER EFFICIENCY:

**1. Wireless charging systems typically experience lower efficiency than traditional wired charging due to energy losses during induction.** This could lead to longer charging times and slightly higher energy consumption.  
**2. Higher Implementation Costs:** The installation and maintenance of wireless charging infrastructure can be more expensive than wired charging systems, which may hinder widespread adoption, especially in the early stages.  
**3. Electromagnetic Inter-**

ference: There might be concerns about potential electromagnetic interference with sensitive electronics, though extensive testing and safety standards aim to mitigate these risks.

## THE BOTTOM LINE

As technology advances and infrastructure expands, wireless EV charging can encourage the adoption of electric vehicles by alleviating range anxiety and simplifying the charging process. Embracing this technology can support India's ambitious goals to reduce pollution and promote sustainable transportation, making it the future of EV technology in the nation. Even though wireless EV charging has some challenges, the benefits it offers are more extensive and lasting, which encourages stakeholders to adopt it and facilitate the growth of EV infrastructure in India.

*Ashish Deswal is the Founder of EarthtronEV.*



