Sanskriti IAS

10th April 2026

IMPORTANT

EDITORIAL HIGHLIGHTS

DELHI CENTRE:
636, Mukherjee Nagar
New Delhi-110009

PRAYAGRAJ CENTRE:
1/1/8A, Stanley Rd,
Maharana Pratap Chauraha,
Civil Lines, Prayagraj, UP - 211002

9555-124-124
sanskritiias.com

GS 2: INTERNATIONAL RELATIONS

INDIAN EXPRESS PAGE: 10

A post-Iran war West Asia order can open strategic space for India

SHYAM SARAN

THE DECLARATION of a two-week pause in the Iran war has been greeted with a collective sigh of relief across a deeply anxious world. There will be endless analysis and speculation about who may have won and who may have lost the six-week war between Iran on one side and the US and Israel on the other. But that would be premature since this is not an end to the war, only the prospect of its end. US President Donald Trump has agreed to negotiate a more durable peace based on a set of 10 Iranian demands — all takes, no gives — conveyed through the good offices of Pakistan. There is no mention of the 15 points put forward by the US earlier. This one-sidedness is unusual in any negotiating exercise and puts Iran in an advantageous position. It suggests a certain urgency on Trump's part to call a halt to the war, perhaps because of its mounting cost, its fuelling inflation in a year when crucial mid-term elections are due, and a recognition of Iran proving to be more resilient under fire than anticipated. One should expect the US to seek to extend the pause into a longer suspension of hostilities, always with the caveat that Trump's unpredictability and impulsiveness could upend any rational calculation. Just a few hours before the ceasefire, he was threatening to "extinguish" Iranian civilisation if his demands were not met.

Pakistan has undeniably emerged as a key intermediary in the proposed negotiations to be hosted by it in Islamabad on April 10. It is reported that the powerful Speaker of the Majlis, Iran's parliament, MB Ghalibaf, will lead the Iranian delegation. The US side may be led by Vice President J D Vance. China will be an unseen but influential presence. Trump publicly gave it credit for having contributed to the ceasefire. Pakistan will bask in the limelight, celebrating its return to geopolitical prominence, not as a spoiler but as a trusted intermediary, harking back to 1971, when it enabled Henry Kissinger's secret visit to China. That India will merely watch from the sidelines, even though it is a major stakeholder in the Gulf and West Asia, will be savoured by Islamabad. It may be tempted into provocative behaviour towards India, feeling shielded, once again, by Washington and Beijing alike.

In dealing with this new situation, the temptation to engage in sharpened rhetoric and assertive diplomacy may be counterproductive. It may be prudent to monitor progress in the negotiations, convey goodwill and support to our Gulf and West Asian partners. They will value strong and reliable partners as they deal with the aftermath of the destructive war. The region will be reassessing its security architecture, which has hitherto been based on a string of US military bases hosted by them. But these failed to protect them from relentless Iranian missile and drone attacks. It also became obvious to them that for the Americans, the defence of Israel would always have priority over their security needs. There is no immediate alternative to reliance on the US, but a process of diversification will inevitably take place. India should get into pole position in this process by enhancing its defence collaboration with these countries. This should take place within a high-level dialogue on the transformed security landscape in a region of vital interest to India. The reconstruction and rehabilitation of infrastructure damaged in the war will also offer opportunities for a constructive role by Indian companies, which are already well entrenched in the region and have developed benign partnerships.

> A US-led security architecture in the region, including Israel as a key pillar, has diminishing prospects. India inserting itself into such arrangements had some rationale in the past, but may have lost its relevance now

If India must contribute substantially to an enduring security architecture on its western flank, then it will need to recalibrate its relations with Israel and Iran. Israel will remain a valued security partner, but it should not inhibit the pursuit of our relations with other countries in the region in line with our interests. We should acknowledge that we let our relations with Iran slide while pursuing initiatives like I2U2 (Israel, India, the UAE and the US) and IMEC (India-Middle East-Europe Economic Corridor), which excluded Iran and Turkey. In the wake of the Iran war, the US role in the region has become problematic, as has the prospect of a collaborative network of relationships between Israel and the Gulf countries. A US-led security architecture in the region, including Israel as a key pillar, has diminishing prospects. India inserting itself into such arrangements had some rationale in the past, but may have lost its relevance now. Irrespective of what happens in the coming negotiations, these broader trends unleashed by the war should be carefully assessed and acted upon. It is always better to stay ahead of the curve.

What about the larger geo-political equations? The US has suffered grievous reputational damage both for its indulgence in unrestrained violence and its inability to pursue a well-crafted strategy with credible outcomes. It won on tactics but may have lost the war. This is the first time in the post-World War II period that the US was unable to mobilise support from its NATO and European allies. This confirms the perception of there no longer being a West with a coherent identity and shared values. China has gained in stature by default, and to a lesser extent, Russia. One should expect diminished US attention to the Indo-Pacific. It's been stripped of military assets because of the Iran war. These will take time to be replenished. Its allies and partners in the region are already questioning the wisdom of outsourcing their security to the US. Japan and South Korea find themselves especially vulnerable.

One should also note the visit of the Taiwan Opposition leader, the head of the KMT party, to Beijing at the invitation of Chinese President Xi Jinping. China senses an opportunity to unify Taiwan with the mainland by convincing Taiwanese leaders and its people that they can no longer rely on the US for their defence. Trump's forthcoming visit to China next month may provide a better sense of how far the US-China equation has now tilted towards the latter. These changes on our eastern flank, just as we must cope with the turmoil on our western flank, will throw up additional challenges for Indian diplomacy.

That will require a separate examination.

The writer is a former foreign secretary

GS 2: SOCIAL JUSTICE

INDIAN EXPRESS PAGE: 10

CBSE's AI curriculum — lofty goals, little clarity

R RAMANUJAM

THE CENTRAL Board of Secondary Education (CBSE) has announced a new curriculum for Computational Thinking (CT) and Artificial Intelligence (AI) from classes III to VIII, to be implemented during the 2026-27 academic session. It aims to "develop the capacities of learners to use computational thinking, such as logical thinking, problem solving, pattern recognition, and so on, and understand the role and use of Artificial Intelligence in daily life". The use of an ellipsis — "and so on" — in stating curricular aims notwithstanding, this is an objective to be lauded. What is unclear is how the former list is related to the latter goal. Or, what does the curriculum really achieve?

Schoolchildren interact with AI tools and use social media routinely now, and this has led to a worry among parents and educators about safety and privacy on the one hand, and what it does to their ability to learn and think critically and independently on the other. The AI literacy curriculum can be seen as a welcome opportunity to address these concerns. But does it address them?

The curriculum advocates CT in classes III to V. In classes VI to VIII, "advanced CT" and "foundational knowledge of AI" are provided, along with "AI ethics". The learning outcomes for Class VI speak of describing "key differences between machine intelligence and human intelligence", explaining "the difference between automation and AI using practical, real-world cases", differentiating "the three fundamental AI methodologies, namely supervised, unsupervised and reinforcement learning". What can we teach 11-year olds to help them achieve these capabilities? Understanding the characteristics of human intelligence calls for considerable maturity. Understanding the characteristics of machine intelligence is difficult even for undergraduates. Children experience supervised learning, but can they introspect on it? How would they distinguish between supervised and reinforcement learning? More importantly, why should they?

The learning outcomes for Class VII ask children to distinguish between "key predicative techniques such as regression, classification and clustering". These are techniques taught in Data Science at the undergraduate level. While the terms can perhaps be explained to 12-year olds, how are they to understand these in the context of AI? The learning outcomes for Class VIII include applying "no-code tools to tackle real-world problems and reflect on their utility".

The syllabus and learning outcomes do speak of bias in AI but simply do not address the concern of how to change the perception of vulnerable children with regard to AI, the fact that they tend to see AI as an all-knowing human-like companion, who answers questions "without judging" them.

The discussion of computational thinking is on an entirely different plane, and relates to abstraction, decomposition, pattern recognition and algorithmic thinking. This is already meant to be integrated into the Mathematics curriculum for classes III to VIII. Whether they can be integrated across the curriculum, with Science and Social Studies, is currently under review across the world. Until research shows how such integration can be carried out effectively, any educator would hesitate to advocate it in a national curriculum.

The disconnect between the discussion on CT and AI literacy in the curriculum document is striking. How does the development of CT, as advocated in the document, connect to AI? It is claimed that CT is the "underlying foundation for AI" and that the processes involved in CT are "the same reasoning processes that power AI and ML systems". This is puzzling, since the symbolic processes of algorithmic thinking are entirely different from the neural network-based learning algorithms that power AI and ML systems. There is also very little research on AI education at the primary and middle-school levels to merit any clear curricular recommendations.

The digital divide in the country is vast, and our teachers are ill-prepared and undereducated on AI and digital tools. Our system has had little success in weaning children away from rote learning and connecting closely related disciplines, such as Mathematics and Science, let alone integrating CT and AI. The proposed curriculum could add to the information overload, without addressing the central concern relating to middle-school children using AI.

Understanding the characteristics of human intelligence calls for considerable maturity. Understanding the characteristics of machine intelligence is difficult even for undergraduates

The writer is professor, Azim Premji University, Bengaluru, and faculty (retired), Institute of Mathematical Sciences, Chennai. Views are personal

GS 3: ECONOMY

INDIAN EXPRESS PAGE: 16

• MINING

In Odisha clashes between police & tribals, bauxite mining in focus

Sujit Bisoyi
Bhubaneswar, April 9

CLASHES BETWEEN rural tribal communities and police near Odisha's Rayagada district left at least 40 police personnel and 25 residents injured on Tuesday.

The immediate trigger for the violence was the construction of a 3-km approach road leading to the Sijimali bauxite mine in Kashipur, officials said. But the opposition to the road reflects a long-simmering discontent over the bauxite project, ever since the mine was handed over to Vedanta Ltd in 2023 through an auction.

Concerns over bauxite project

The project's approval has been contentious. The district administration has stated that Gram Sabhas (meetings comprising all adults in a village) were held in all eight affected villages on December 8, 2023, under the Forest Rights Act, and that the villages' residents gave their "unanimous approval". Vedanta has also submitted a proposal to the Centre, seeking clearances for mining.

The residents, however, alleged that the Gram Sabhas were conducted fraudulently and their signatures were forged. They have held protests against the project over concerns that it would endanger their livelihoods.

WIKIMEDIA COMMONS

ODISHA IS A TOP BAUXITE PRODUCER

- Odisha accounts for 41% of India's bauxite resources
- Alumina is refined from bauxite ore and used to produce aluminium, which is instrumental in making everything from soda cans to aircraft

Vedanta, meanwhile, says it has received Stage-I forest clearance from the Union government and is targeting commissioning the project next year. Stage-I clearance is a conditional approval, where the company must comply with compensatory afforestation, deposit funds for diversion of forest land, etc.

Significance of Odisha's deposits

Sijimali is part of the Eastern Ghats hill ranges and is interspersed with valleys. The bauxite reserve, spread over 1,500 hectares, covers Rayagada and Kalahandi districts. With an estimated reserve of 311 million tonnes of high-grade bauxite, Sijimali is located close to Vedanta's alumina refinery at Lanjigarh in Kalahandi district.

Alumina is refined from bauxite ore and used to produce aluminium, which is instrumental in making everything from soda cans to aircraft. Aluminium's strength, lightness and conductivity allow for a multiplicity of uses. It is also the most abundant metal in the Earth's crust, and the third most common element, after oxygen and silicon.

According to the Indian Bureau of Mines' 2022 Yearbook, Odisha alone accounts for 41% of India's bauxite resources, and was the leading producer in 2021-22, comprising about 73% of the total production. Beyond bauxite, Odisha has some of the richest mineral deposits in the country, including high-grade iron ore, coal, nickel, gemstones and graphite, together accounting for nearly 17% of India's total mineral reserves.

Past protests against mining

Vedanta had earlier faced rejection in its bid to mine bauxite from the nearby eco-sensitive Niyamgiri hill, inhabited by the Dongria Kondhs, a Particularly Vulnerable Tribal Group which worships Niyam Raja as the God of the Niyamgiri forest. Vedanta and the state-owned Odisha Mining Corporation had formed a joint venture to mine the bauxite reserve for the Lanjigarh alumina refinery. The project ran into rough weather after the Centre refused Stage-II forest clearance in 2010 for diverting 660 hectares of forest land. In 2013, the Supreme Court ruled that the mining project required clearance from the Gram Sabhas. Later that year, all 12 Gram Sabhas rejected the plan.

GS 3: SCIENCE AND TECHNOLOGY

THE HINDU PAGE: 7

India's first Quantum Reference Facility to be launched in A.P.

The Hindu Bureau
VIJAYAWADA

India's first quantum computing testing beds, called Quantum Reference Facility, will be dedicated to the nation by Chief Minister N. Chandrababu Naidu on April 14, coinciding with the World Quantum Day, says P.S. Pradyumna, Secretary to the Chief Minister.

Addressing the media in Vijayawada, Mr. Pradyumna said the two testing beds, developed as part of the Amaravati Quantum Reference Facilities under the State government's Amaravati Quantum Valley programme, were coming up at SRM University A.P.

They were being developed in partnership with the Amaravati Quantum Research Facility and Qubit Force. At SRM University, a team of 50 researchers, students and scientists was working on assembling the quantum computing ecosystem.

"Till date, we did not have a quantum testing computer in the country that can be used as a reference to test different components of the quantum computing ecosystem," Mr. Pradyumna said, adding that Andhra "is the first State to take this up."

GS 3: DIASATER MANAGEMENT

THE HINDU PAGE : 10

Climate change reshaping disease patterns, straining health systems: report

Geetha Srimathi
CHENNAI

Climate change is emerging as a major public health threat in India, reshaping disease patterns, straining healthcare systems, and placing nearly 40% of districts at high risk from extreme weather events, according to a new report.

The report, *Under the Weather: India's Climate-Health Intersections and Pathways to Resilience*, by Dasra, a philanthropy fund organisation, highlights how rising temperatures, erratic rainfall, floods, and cyclones are no longer isolated events but part of a continuous cycle of disruption affecting health, livelihoods, and access to care across the country.

Changing disease landscape

Extreme weather events in India are increasing in frequency and intensity, bringing both immediate and long-term risks, the report notes. Floods trigger outbreaks of water-borne diseases such as cholera and hepatitis, while heatwaves lead to dehydration, heatstroke, and increased cardiovascular stress.

The report says climate change is altering how diseases spread. Warmer temperatures and shifting rainfall patterns are expanding the range of vector-borne diseases such as dengue and malaria into new regions. Areas that were previously unaffected, including Shimla, parts of Jammu & Kashmir, and the Himalayan foothills, are now reporting cases. The report also identifies Pune as a major dengue hotspot, with cases expected to rise further.

Non-communicable diseases are also linked to climate stress. Heat exposure has been associated with higher cardiovascular mortality, while worsening air pollution contributes to respiratory illnesses and chronic conditions. Climate change, the report says, is acting as a "health-risk multiplier", increasing both disease burden and pressure on healthcare systems.

Unequal burden

The impact is not evenly distributed. Vulnerable communities – including rural populations, informal workers, women, and children – face the greatest risks. These groups are often the least equipped to cope with climate shocks, deepening existing inequalities.

Extreme heat, for instance, reduces labour productivity and increases health risks for outdoor workers. The report notes that India lost an estimated 160 billion labour hours due to heat exposure in 2021.

Big impact: Vulnerable communities — including rural populations, informal workers, women, and children — face the biggest impact of climate change. K.V.S. GIRI

Women and children face heightened risks from climate-related health impacts. The report notes that exposure to extreme heat is linked to a 16% increase in the odds of preterm birth during heatwaves, with risks rising further for every 1 degree Celsius increase in temperature.

Air pollution, particularly fine particulate matter (PM2.5), has been associated with hypertensive disorders in pregnancy, including pre-eclampsia, as well as increased gestational blood pressure. As infants and young children have limited ability to regulate body temperature, it makes them more prone to heat stress, dehydration, and respiratory illnesses.

Exposure to air pollution is also linked to low birth weight, asthma, and reduced lung function, the report says.

Climate disasters also disrupt access to healthcare. Floods and cyclones can damage hospitals, cut off roads, and interrupt the supply of medicines and vaccines. In remote areas, even a small disruption can leave communities without access to basic services.

Beyond direct health impacts, climate change is also affecting livelihoods and economic stability. Rising healthcare costs, loss of income, and reduced productivity are creating a cycle of vulnerability, particularly for those already at risk.

Efforts taken

Despite these challenges, the report highlights growing efforts to address the climate-health link. Over the past decade, India has begun to move from broad climate policies to more targeted approaches that recognise the connection between climate and health. Initiatives such as the National Action Plan on Climate Change and Human Health and State-level action plans are helping shape local responses. Heat Action Plans, which include early warnings and preparedness measures, are now being implemented in several cities and districts.

These efforts are helping communities adapt to both immediate shocks and long-term climate risks.

Challenges ahead

However, the report identifies several challenges, including a lack of local, disaggregated data linking climate events to health outcomes, limiting targeted interventions. Funding for adaptation remains constrained and skewed towards mitigation, while weak public awareness and fragmented data systems further hinder effective response.

The report calls for stronger collaboration between government, civil society, and the private sector, along with greater investment in local data systems and climate-resilient healthcare infrastructure. It also calls for placing health at the centre of climate policy, rather than treating it as a secondary concern.

(geetha.srimathi@thehindu.co.in)

GS 3: SPACE

THE HINDU PAGE : 10

How will Gaganyaan astronauts return safely to earth?

Why can't parachutes alone ensure a safe landing? How does Gaganyaan module lose its enormous speed?

Unnikrishnan Nair S.

The story so far:

The Gaganyaan crew module, which will host the Indian astronauts on their human spaceflight mission, will orbit the earth at about 7,800 m/s. When it re-enters the atmosphere, it will have to shed its kinetic energy. The atmospheric drag itself will be the primary brake, taking away most of its energy in a process called aerobraking. To further reduce the module's velocity for a soft landing, a multi-stage parachute system will be deployed once the module comes within 12 km of the ground. A typical recovery system includes all the items required to soft-land the module in sea or on land after aerobraking. This includes parachutes, locating devices to find out where the module has splashed down, and a system to ensure the module is pointing in a favourable direction in case it drops in the sea. For touchdown on land, apart from parachutes, the recovery system will fire braking motors to reduce the impact velocity before touchdown. The Russian Soyuz and Chinese Shenzhou modules are designed for terrestrial landing and use retro-rockets for braking.

Why do parachutes alone not suffice?

As the land is hard, touching down on land needs to be around 1-2 m/s. The module can, however, tolerate landing at around 7-9 m/s in the sea, as water is a natural energy absorber.

Land touchdowns also require vast, empty territories free of people or buildings, while offering easier crew recovery and quicker refurbishing of the module.

Sea landings are preferred by countries that lack large deserts or plains. However, it requires recovery ships, flotation bags, and specialised gear to keep the crew safe in rough waters.

Reducing a module's velocity to less than 2 m/s using parachutes alone is impractical due to the inverse-square relationship between speed and drag area. To slow a module from 7 m/s to 1 m/s, the parachute will have to be roughly 49x larger, incurring a large weight and volume penalty.

A parachute that large would also be difficult to deploy without tangling.

Why is the landing zone elliptical?

When a module returns to the earth, it doesn't aim for a bull's-eye but rather a large ellipse. This is because the module's kinetic energy is concentrated almost entirely along its flight track. At hypersonic speeds, minor fluctuations in atmospheric density or re-entry conditions like velocity can cause the module to over- or undershoot its target by hundreds of kilometres.

In contrast, energy available to make any significant path changes in a direction sideways to its track is very low and hence lateral deviations are minimal. The result is a landing footprint significantly elongated along the path of travel.

Once a module is in the water, recovery teams use predictive tracking, electronic signalling, and visual aids to find it. The module transmits its GPS coordinates and homing signals to satellites and aircraft and also releases a bright green fluorescent dye.

If the splashdown is at night or in low visibility, flashing from high-intensity strobe lights from the module will be used to locate it. To ensure it stands out against the deep indigo colour of the water, the module and its flotation bags are painted international orange.

How will the Gaganyaan crew module be recovered?

The Gaganyaan recovery operation will be led by the Indian Navy, plus other stakeholders. After the module is slowed by parachutes, it will splash down in the Bay of Bengal. Immediately after, the parachutes will be released to avoid any entanglement and the flotation bags will automatically inflate.

Once naval divers find and secure the module with a flotation collar and towing gear, it will be winched onto a ship's deck to safely extract the crew.

(Unnikrishnan Nair S. is former director, VSSC and IIST; founding director, HSFC; and an expert in launch vehicle systems, orbital re-entry and human spaceflight technologies: Currently Dr Sarabhai Professor at VSSC)

THE GIST

- The crew module sheds most of its kinetic energy through aerobraking, with atmospheric drag acting as the primary brake, followed by a multi-stage parachute system and, for land touchdowns, braking motors to ensure a soft landing.
- Due to high re-entry speeds and limited lateral control, the landing zone is an elongated ellipse, and recovery involves locating devices, GPS signals, and Indian Navy-led operations after splashdown in the Bay of Bengal.