



@ieExplained
#ExpressExplained

If there are questions of current or contemporary relevance that you would like explained, please write to explained@indianexpress.com

TELLING NUMBERS

Countries reducing n-warheads but modernising arsenals: report

A REPORT by a think-tank has found that the worldwide total of nuclear warheads has decreased since 2018 but countries are modernising their nuclear arsenals. The 2019 Yearbook of the Stockholm International Peace Research Institute (SIPRI), which is part-funded by the Swedish government, said that nine nuclear-armed countries (including India) had a total of some 13,865 nuclear weapons at the start of 2019, which is a decrease of 600 nuclear weapons from 14,465 at the start of 2018. Figures for North Korea were not added to the total on account of uncertainty.

The report separately counts “deployed warheads” (warheads placed on missiles or located on bases with operational forces) and “other warheads” (stored or reserve warheads and retired warheads awaiting dismantlement). For India, it gives a fig-

ure of 130-140 “other warheads” in 2019, the same as in 2018.

Of the 13,865 nuclear weapons, 3,750 are deployed with operational forces and nearly 2,000 of these are kept in a state of high operational alert, SIPRI said. It attributed the decrease mainly to Russia and the US—which together still account for over 90 per cent of all nuclear weapons—further reducing their strategic nuclear forces pursuant to the implementation of the 2010 Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (New START) while also making unilateral reductions. SIPRI added, however, that both Russia and the US have extensive and expensive programmes under way to replace and modernize their nuclear warheads, missile and aircraft delivery systems, and nuclear weapon production facilities.



WORLD NUCLEAR FORCES, JANUARY 2019

COUNTRY	DEPLOYED WARHEADS*	OTHER WARHEADS**	TOTAL 2019	TOTAL 2018
USA	1,750	4,435	6,185	6,450
Russia	1,600	4,900	6,500	6,850
UK	120	80	200	215
France	280	20	300	300
China	—	290	290	280
India	—	130–140	130–140	130–140
Pakistan	—	150–160	150–160	140–150
Israel	—	80–90	80–90	80
North Korea	—	—	(20–30)	(10–20)
TOTAL	3,750	10,115	13,865	14,465

* ‘Deployed warheads’ refers to warheads placed on missiles or located on bases with operational forces. ** ‘Other warheads’ refers to stored or reserve warheads and retired warheads awaiting dismantlement. Total figures include the highest estimate when a range is given. Figures for North Korea are uncertain and are not included in total figures. All estimates are approximate.

Source: SIPRI Yearbook 2019

TIP FOR READING LIST

WHEN RACE IS TAKEN AS ‘SCIENCE’

LAST YEAR, British science journalist Angela Saini’s widely acclaimed *Inferior: How Science Got Women Wrong — and the New Research That’s Rewriting the Story* examined sexism in science and used scientific arguments to counter various patriarchal notions. Now, in *Superior: The Return of Race Science*, Saini



looks at another misconception in science — that race is a biological entity.

Engaging with scientists and historians around the world, Saini explores the concept of race, and how it evolved. Even great scientists looked at race as a scientific characteristic and white people at the top of the hierarchy. Charles Darwin saw “gradations between the ‘highest men of the highest races and the lowest savages’.. Men were above women and white races above others.” Carl Linnaeus, who pioneered the globally standardised format for biological names, placed humans into four categories identified with colour — red (the Americas),

white (Europe), yellow (Asia) and black (Africa).

After World War II, scientists made an effort to move away from race science. “Scientists have reached general agreement in recognising that mankind is one: that all men belong to the same species, Homo sapiens,” read a statement in 1950 by 100 scientists, policymakers and diplomats, brought together by UNESCO. Saini argues that white supremacists continued to study race science in the shadows, and it is now witnessing a revival. In its review of the book, *The Guardian* cites the example of Richard Spencer, president of the white supremacist organisation National Policy Institute. “Authoritarian leaders around the world look to people like this and to their underlying race ‘scientists’ to add intellectual ballast to their prejudice on issues ranging from equality to immigration,” *The Guardian* review says.

TABASSUM BARNAGARWALA & SANTOSH SINGH

MUMBAI, PATNA, JUNE 17

IN THE outbreak of acute encephalitis syndrome (AES) in Bihar, which has witnessed close to 350 cases and 103 deaths until Monday evening, most of these deaths have been attributed to hypoglycaemia, or low blood sugar. Hypoglycaemia is a commonly seen sign among patients of AES, and the link has been the subject of research over the years.

What causes AES?

AES is a broad term involving several infections, and affects young children. The syndrome can be caused by viruses, bacteria or fungi. In India, the most common cause is the virus that causes Japanese encephalitis (JE). Health Ministry estimates attribute 5-35% of AES cases to the JE virus.

In Bihar, the Directorate of Health Services (DHS) claimed that the JE virus had caused only two of the AES cases this year (this assessment came at a time when the total cases were 342). The syndrome is also caused by infections such as scrub typhus, dengue, mumps, measles, and even Nipah or Zika virus. In the latest outbreak in Muzaffarpur, the cause is yet to be clinically identified in most of the children.

How is hypoglycaemia linked to AES?

The combination of AES with hypoglycaemia is unique to Muzaffarpur, Vietnam and Bangladesh. “Hypoglycaemia is not a symptom but a sign of AES. In Bihar, convulsions in children (which is AES) are found in combination with hypoglycaemia. This hypoglycaemia is caused by malnourishment and lack of proper diet,” said Dr Kavinder Sinha, former Director of Health Services in Bihar. With 98% of AES patients in Bihar also suffering hypoglycaemia, doctors are attributing deaths to the latter. A 2014 study in Muzaffarpur by Dr Arun Shah and T Jacob John suggested that hypoglycaemia was the trigger that led to diagnosis of encephalitis

What explains the connection?

In 2014, a research paper, ‘Epidemiology of Acute Encephalitis Syndrome in India: Changing Paradigm and Implication for Control’ drew a parallel between cases in Bihar’s Muzaffarpur and in Vietnam’s Bac Giang province. In both places, there were *litchi* orchards in the neighbourhood. “The possible association with some toxin in *litchi*



One of many children admitted at SK Medical College, Muzaffarpur. Santosh Singh

or in environment needs to be documented. Methylene cyclopropyl glycine (MCPG) which has been known to be a content of litchi fruit has been shown to cause hypoglycaemia in experimental animals,” the study said.

Dr Sinha said when *litchi* harvesting starts in May, several workers spend time in the fields. “It is common for children to feed on fallen *litchis* and sleep without food. The toxin in *litchi* lowers blood sugar level during night, and these children are found unconscious in the morning,” Dr Sinha said.

However, this remains a subject of debate. “If toxins from *litchi* were causing hypoglycaemia, then these cases should have remained consistent each year and affected children of all socio-economic strata. This year, all deaths have all been recorded in the lower income groups,” said Dr Ragini Mishra, Bihar state surveillance officer. She added that while the cause of AES is still being researched, hypoglycaemic AES may be caused by malnutri-

tion, heat, lack of rain, and entero-virus.

What is the history of AES in this region?

The first AES case was recorded in 1995 in Muzaffarpur. Eastern UP too sees frequent outbreaks. There is no fixed pattern, but a year with high temperature and scanty rain usually witnesses high cases. “Last year we had very few cases (in Muzaffarpur). A few days of high temperature was usually followed by rain showers. This year, the heat has been prolonged with no spells of rain,” said Dr Mishra. There were 143 deaths in 2013 and 355 in 2014, which dropped to 11 in 2017 and 7 in 2018.

What makes this region so vulnerable?

Malnutrition is high in both states, and malnourished children are prone to infection. Ministry of Health and Family Welfare data show UP and Bihar together account for over 35% of child deaths in country. National

THE SYNDROME, THE VICTIMS

AES affects the central nervous system, mostly in children and young adults. It starts with high fever, hampers neurological functions causing seizures, confusion, delirium, even coma. An outbreak usually happens during the monsoon (June-October); cases are also reported during April-June in Bihar.

AES DEATHS IN BIHAR

2014	355	2017	11
2015	11	2018	7
2016	4	2019	103

AES IN INDIA

6% Fatality rate in India

632 deaths across 17 states

25% Fatality rate among children

10,485 cases diagnosed in 2018

■ Bihar & UP worst affected; cases also reported from Assam, Jharkhand, Manipur, Meghalaya, Tamil Nadu, Karnataka, Tripura,

Source for India figures: NVBDCP

Family Health Survey-4 data show that in 2015-16, 48% children aged less than five in Bihar were stunted — the highest in India.

A team from the Centers for Disease Control, Atlanta, and Christian Medical College, Vellore, has concluded that heat, humidity, unhygienic conditions and malnutrition, unique to these areas, together contribute to the rise in AES. Incidence is higher in *litchi* fields around which malnourished children live.

How is the government tackling AES?

The Bihar government introduced free vaccines at all primary health centres. The current coverage is 70%. The central and state governments have conducted awareness campaign since February asking people not to expose their children to sun, ensure a proper diet and increase fluid intake. Dr R D Ranjan, DHS director, said early hospital referral and standard treatment for convulsions, high fever and vomiting can save lives.

GM cotton: what is allowed, what farmers sowed

PARTHA SARATHI BISWAS

PUNE, JUNE 17

LAST WEEK, a group of more than 1,000 farmers gathered in a village in Akola of Maharashtra to sow seeds of an unapproved, genetically modified variety of cotton, defying government regulations. The government is now investigating what was planted.

The event was organised by Shetkari Sanghтана, a farmers’ union once led by the late Sharad Joshi. About two decades ago, Joshi had led a campaign for the introduction of genetically modified food crops. The campaign played a major role in the approval for Bt cotton, a transgenic variety of cotton.

What is allowed

Bt cotton remains the only GM crop allowed to be cultivated in the country. Developed by US giant Bayer-Monsanto, it involves insertion of two genes viz ‘Cry1Ab’ and ‘Cry2Bc’ from the soil bacterium *Bacillus thuringiensis* into cotton seeds. This modifica-

tion codes the plant to produce protein toxic to Heliothis bollworm (pink bollworm) thus making it resistant to their attack. The commercial release of this hybrid was sanctioned by the government in 2002.

In India, it is the responsibility of the Genetic Engineering Appraisal Committee (GEAC) under the Environment Ministry to assess the safety of a genetically modified plant, and decide whether it is fit for cultivation. The GEAC comprises experts and government representatives, and a decision it takes has to be approved by the Environment Minister before any crop is allowed for cultivation.

Besides Bt cotton, the GEAC has cleared two other genetically modified crops — brinjal and mustard — but these have not received the consent of the Environment Minister.

The variety now sown

The farmers in Akola planted a herbicide-tolerant variety of Bt cotton. This variety (HtBt) involves the addition of another gene, ‘Cp4-Epsps’ from another soil bacterium, *Agrobacterium tumefaciens*. It is not cleared

by GEAC. The farmers claim that the HtBt variety can withstand the spray of glyphosate, a herbicide that is used to remove weeds, and thus it substantially saves them de-weeding costs. Farmers spend around Rs 3,000-5,000 per acre for de-weeding. Along with the uncertainty in finding labour, de-weeding threatens economic viability of their crops, they say.

Why it’s a concern

Genetic changes made in a plant can make it unsafe for consumption, have adverse impacts on human or animal health, or introduce problems in the soil or neighbouring crops. There is an elaborate process of tests and field trials to be followed. Critics of GM technology argue that some traits of genes start expressing themselves only after several generations, and thus one can never be sure about their safety.

What the law says

Legally, sale, storage, transportation and usage of unapproved GM seeds is a punishable offence under the Rules of

Environmental Protection Act 1989. Also, sale of unapproved seeds can attract action under the Seed Act of 1966 and the Cotton Act of 1957. The Environmental Protection Act provides for a jail term of five years and a fine of Rs 1 lakh for violation of its provisions, and cases can be filed under the other two Acts.

Farmers who assembled in Akola alleged that the HtBt variety is being surreptitiously used by farmers across the country, smuggled from abroad. Maharashtra’s Commissioner of Agriculture has registered 10 police cases and impounded 4,516 packets of HtBt seeds this year alone.

What next

Akola’s District Collector has assured that farmers will not face any action but organisers of the event would be acted against. The district administration has sent samples of the sown seeds to a laboratory in Nagpur to verify whether they were indeed an unapproved GM variety. The Environment Ministry has written to the state government seeking a factual report on the incident.

New ISI chief: his rise to post, what his appointment signals to world, India

NIRUPAMA SUBRAMANIAN

MUMBAI, JUNE 17

ON SUNDAY night, Lt General Faiz Hameed was appointed the new director general of Pakistan’s Inter-Services Intelligence, the military-led spy agency. The ISI, with its outsize say in national politics and foreign policy, not least in shaping Pakistan’s “mullah-military alliance”, is today among the world’s most significant intelligence agencies.

Though it is the Prime Minister who appoints the ISI chief “in consultation” with the Army chief per the Constitution, in reality it is the Army who decides who he wants in the job. In turn, the DG ISI is answerable only to the Army chief. He is the *de facto* number two in the Pakistan Army, and arguably in the country after the Army chief. That seems truer today as the civilian government led by Prime Minister Imran Khan struggles to get into stride, and the Army’s influence grows. Pakistan daily *The News* reported on Monday that the government is in the process of setting up an Economic

Security Council with Army chief Gen QamarJaved Bajwa as one of the members.

The appointment

Lt Gen Hameed replaces Lt Gen Asim Muneer, who was appointed to head the ISI only eight months earlier. No other ISI chief has had a shorter stint. He has been moved as Corps Commander Gujranwala.

After Lt Gen Naveed Mukhtar and Lt Gen Muneer, Hameed is Bajwa’s third spymaster since he became Army chief. His appointment was foreshadowed when he was promoted to a three-star general along with three other major-generals in April 2019.

His appointment, announced by Inter Services Public Relations (ISPR) on Sunday night along with a host of other appointments in the Army, comes months before Gen Bajwa’s three-year term ends in November 2019. Like Bajwa, Hameed is also from the Baloch Regiment. In his new role, he carries heft enough to see off challengers to Bajwa within the Army in case he wants an extension. That would last until 2022, when Hameed would be among a small group of



Lt General Faiz Hameed

generals favourably positioned for the top job.

Rise to prominence

Immediately prior to his appointment as the head of ISI, Hameed led the counter-intelligence wing of the ISI. He most famously brokered a deal that ended a siege on Islamabad by protesters of the Tehreek-e-Labbaik, in November 2017.

The Labbaik, an extremist Bareilly group, was protesting a change in the oath of office

in the Elections Act that it said diluted Pakistan’s anti-Ahamadiyya laws. The then PML(N) government headed by PM Shahid Abbasi had to cave in to its demands, including the resignation of then Law Minister Zahid Hamid. The agreement brokered by the Army, bears Lt Gen Hameed’s signature as a guarantor. The document ended with praise for the Army, and gratitude to General Bajwa for “special efforts” and “for saving the nation from a big catastrophe”. As the crowds dispersed, a major-general was reportedly seen distributing white envelopes with Pak Rs 1,000 each to the protesters.

Earlier this year, a Supreme Court bench, which had taken *suo motu* the case of the 2017 seige, said members of the armed forces should not engage in any political activity, and passed adverse remarks against the ISI, and said the events around the sit-in continue the perception that the intelligence agency interferes in the country’s politics.

The wheel has turned full circle. While Hameed is now ISI chief, a reference has been brought against Justice Faez Isa who wrote the verdict.

Hameed was also in the eye of a storm ahead of the 2018 Pakistan elections when former PM Nawaz Sharif accused him of engineering defections from his PML(N) to Imran Khan’s PTI. At the time, Director-General ISPR Lt Gen Asif Ghafoor came out strongly in Hameed’s defence, stating “[then] Maj Gen Hameed has played an important role in combating terrorism and his detractors do not understand the scope of his post”.

What India will watch for

As the head of the ISI, which is known as a ‘state within a state’, Hameed will practically run Pakistan from the shadows and crucial aspects of its foreign policy, including relations with India, and will be in charge of safeguarding Pakistan’s interests in the ongoing “Afghan peace talks” between the US and the Taliban.

From New Delhi, he will be watched for how he directs the relationship of the ISI with the two UN-designated terrorist groups focused on India, Jaish-e-Mohammed, and Lashkar-e-Taiba/Jamat-ud-dawa, and their leaders, Masood Azhar





The IndianEXPRESS

FOUNDED BY

RAMNATH GOENKA

BECAUSE THE TRUTH INVOLVES US ALL

Claiming the Indo-Pacific

India must play a key role in shaping the narrative
in the region



GIRISH LUTHRA

SEARCH FOR CURE

Clashes involving doctors and patients underscore the need
for institutional initiatives to restore the relationship

THE DOCTOR'S STRIKE in Kolkata's NRS Medical College that snowballed into a nationwide stir has flagged the faultlines in the doctor-patient relationship. More than three lakh physicians in several parts of the country struck work on Monday in response to a call by the Indian Medical Association (IMA); their counterparts in West Bengal called off a week-long strike late evening after West Bengal Chief Minister Mamata Banerjee agreed to their demands. The IMA has demanded a safe working environment and a "national law against violence in hospitals". There can be no quarrel against this demand. However, it's also a fact that 19 states, including West Bengal, have passed the Protection Of Medicare Service Persons And Medicare Service Institutions (Prevention Of Violence And Damage To Property) Act, which outlaws attacks against physicians. Offenders can be sentenced to jail term of up to three years and levied a fine of Rs 50,000. The failure of such remedies to curb violence against medical personnel points to deeper problems that dog the doctor-patient relationship in the country's hospitals.

The atmosphere at the emergency, casualty or OPD wards of most government — and private — hospitals is nowhere close to being congenial for those suffering serious illness. Tempers often run high when patients have to contend with overcrowded and unhygienic facilities, the waiting time to meet specialists is painfully long and several visits have to be made to get even basic investigations conducted. At the same time, the debate on medical ethics in India has not progressed much beyond the doctor-patient binary. This has not only prevented the satisfactory resolution of complex systemic problems pertaining to the rights of patients and physicians, but has also resulted in junior doctors becoming the face of the failure of the country's healthcare system. One such doctor incurred the wrath of a deceased patient's family at NRS Medical College.

Whatever be the provocation, the violence against doctors is inexcusable. But the episode lays bare an aspect of the country's healthcare system that hasn't received adequate attention in the policy discourse: Physicians, especially junior doctors, lack the communication skills to engage with emotionally-charged relatives of patients suffering life-threatening diseases. Such skills hold the key to building trust between doctors and their patients — or their relatives. The doctor's relationship towards patient is largely paternalistic. This means that very rarely does a doctor convey to a patient, in a jargon-free language, the complexities of his ailment or counsels him about dealing with its symptoms or prepares him mentally for a long-drawn therapy. Young doctors have scarcely any training in being empathetic while conveying bad news to patients' relatives. These lacunae have much to do with the IMA's dwindling credibility. Hit by several scams in the past five years, the internal regulator of medical practice in India has failed to be an interlocutor between doctors and patients. The NRS incident underscores the need for institutional interventions to rebuild the doctor-patient relationship.

APATHY AND DENIAL

The deaths of manual scavengers in Gujarat must serve as a
catalyst: The matter can no longer be brushed aside

AMONG THE MOST significant steps undertaken by the Narendra Modi government in its first term was ending the culture of silence around sanitation. Unfortunately, the zeal of the Swachh Bharat Mission does not seem to have percolated to those at the bottom of the social and economic pyramid in urban India. The death of seven people — three hotel staff and four cleaners — in Dabhoi, a town in Vadodara district, Gujarat, while cleaning a septic tank, is a shameful symptom on many counts. First, it highlights how the provisions of the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 continue to be flouted. The deaths are also a reminder of the fact that official statistics, including in Gujarat, serve only to brush under the carpet the fact that manual scavenging continues.

According to the Gujarat Safai Kamdar Development Corporation, sewers are no longer cleaned manually. Yet, as recently as June 2018, four cleaners died after inhaling noxious fumes in a sewer in Vadodara. This seeming contradiction can be explained, at least partially, by the fact that private contractors, some of which are reportedly employed by municipalities across India, frequently flout the safety provisions of the 2013 Act. State governments appear to be in denial of this reality: An inter-ministerial task force set up in 2017 found in its survey across 12 states that the number of manual scavengers was under-reported by about 400 per cent. The implication is clear — most states either severely under-report, or are simply unaware, of the scale of the problem.

The path, going forward, is clear. First, municipalities and state governments across the country, following the example of Delhi and Hyderabad, must ensure that every sanitation worker is provided with equipment that ensures their safety. This must include basic materials like gloves, masks and helmets, to the sewer-cleaning machines that the Delhi Jal Board is ensuring that former manual scavengers, and the families of those who have died manual scavenging, are provided through low-interest bank loans. Second, operators in the private sector must be given both carrot and stick: Any violation of the Prohibition of Manual Scavengers Act must be dealt with severely and the use of the latest technology incentivised. Finally, the Swachh Bharat's ambit must, on a mission mode, ensure that the apathy and denial that has surrounded the practice of manual scavenging, both in governments and the society at large, be put to an end.

DADDY COOL

US politicians get a reminder from electorate that parenting
matters even in presidential polls

HANGING DIAPERS AND keeping track of your child's football matches might come with more perks, as male politicians on the campaign trail for the 2020 US presidential race are realising. It could, for instance, also translate into a happy electorate and what can be more win-win than that? For the first time, male candidates are faced with the question that has dogged their female counterparts for years — what about the children then? The dads in the political fray seem to recognise this changing dynamic, stepping up to acknowledge that parenting is a two-person job.

When it comes to the pursuit of greater professional glory, men — and not just politicians — often seem to have an invisible opt-out clause written in their contracts. It's only in the last decade, with the rise and rise of social media bridging the gap between the personal and the professional, that politicians have realised the efficacy of letting their electorate get a glimpse of their emotional lives. One of the first American presidents to successfully negotiate the thin line between privacy and emotional connect was Barack Obama, who spoke regularly about his daughters, Malia and Sasha. Unlike Obama, the Republican Sarah Palin, pitched as the hockey mom who also fought corruption, failed to garner empathy for her political ambitions when she ran for the vice president's office, not least for her decision to contest when she had a baby with Down Syndrome and two other children at home.

Yet, you only need to look at New Zealand Prime Minister Jacinda Ardern to realise that contemporary politics has scope, even if limited, to accommodate ambitions and go beyond gendered roles. And that, as for women, it's equally possible for men to be hands-on parents and still run for the highest office of the land.

THE PREVAILING AND emerging international order, characterised by a new form of internationalism and hazy geopolitics, finds centrality in the Indo-Pacific region. It is the new arena for strategic rivalry, within the bounds of interdependence, and all major players have made Indo-Pacific-related policy and posture pronouncements in the recent past. The region's share of world merchandise trade is over 75 per cent and its seaports are the busiest in the world. Its contribution to global GDP is around 60 per cent. The region is also critical to world energy flows, for both suppliers and consumers. The rise of China (and President Xi Jinping's grand Belt and Road Initiative), the realignment of US global strategy, the new approach adopted by India, Japan, ASEAN, France and other key players and new partnerships have further underlined the salience of the region.

It is true that the Indo-Pacific has some very diverse sub-regions, where systems, environments and challenges differ widely. Yet, the region is now a coherent strategic space due to its increased interconnectedness. The geographical expanse of the region, however, is open to interpretation. While the US considers this region to be from "the West Coast of the United States to the western shores of India", the other perception includes the area from "the East Coast of Africa to the West Coast of the United States".

There is an increasing recognition of the importance of maritime security, maritime commons and cooperation. In the last few years, almost every joint or vision statement at the end of summit-level talks or meeting between major maritime powers accords high priority to maritime security and stability.

China has made a decisive move from a continental to maritime mindset, with its maritime orientation becoming central to its overarching ambition of seeking a new model for great power relations. The Chinese posture has underlined the need for an equal and equitable world order, and has stressed that the American approach to global and regional issues has become redundant. The US Indo-Pacific Strategy Report, released on June 1, outlines the US posture and plan to retain its influence in the region, through partnerships and preparedness. It underlines the strategic rivalry with China, identifying it as "a revision-

There is need to give shape and substance to SAGAR, with an appropriate implementation plan. Bilateral, trilateral, quadrilateral, and multilateral partnerships in the Indo-Pacific should be strengthened. India should initiate new cooperative projects, and accelerate the momentum of ongoing projects in infrastructure, manufacturing, trade and tourism, with special focus on connectivity, coastal areas and ports.



AJEY LELE

LAST WEEK, INDIAN Space Research Organisation (ISRO) head K Sivan spoke about India building its own space station by the end of the next decade. The announcement came as a surprise, but ISRO seems to have been working on this project for some time. The first indication came in 2017 when Rs 10 crore was budgeted for an orbital rendezvous and docking experiment between two satellites. Docking expertise is essential when two separate free-flying units in space are required to physically link with each other. This technique is important to link the space shuttle with the space station. The second indication was when the human space flight mission (2021/22) was announced in August 2018. This suggested that India was preparing to undertake microgravity experimentation.

India's space station is expected to be very small with limited utility. It would be placed in an orbit, 400 km above earth. ISRO has mentioned it would start planning for the station only after the successful completion of a manned space flight, slated for 2022. ISRO has now called for proposals for experiments, including docking, to be carried out on the orbiting platform (PS4-OP). For the last few years, ISRO has been experimenting with its PSLV rocket in different ways. Now, a single PSLV rocket can put satellites in different orbits. PSLV launch vehicle is a four-stage rocket. On two occasions (PSLV-C44 and PSLV-C45

NEW HORIZONS

ISRO should invite private sector to join in building the proposed space station

missions) in 2019, ISRO successfully converted the fourth stage (PS4) of the rocket into an orbital laboratory. Such laboratories are normally hosted on space stations.

Since the project is in the inception stage, some questions about the proposed space station should be asked.

First, is India trying to reinvent the wheel? Should India not have participated in the International Space Station (ISS) experiment? The ISS is now in the last leg of its existence and is expected to become redundant during 2024-28. India could not have been a part of the ISS in its heyday since it was excluded from such projects because of Delhi's nuclear policy; ISRO and DRDO were taken out of the export control list only in 2011.

Second, what are the scientific benefits of microgravity experimentation? It offers the scientific community a range of subjects to conduct research in, from astronomy and meteorology to biology and medicine. Also, materials is one arena where India should make major investments. Breakthroughs in this field would have major commercial and strategic benefits.

Third, why is India planning for a very small space station? ISS, which is a joint project of 16 countries (the US, Russia, Europe, Japan, etc), is a 400-tonne station, while the proposed Chinese space station (Tiangong programme) is likely to be a 80-tonne station.

India is proposing a 20-tonne station to serve as a facility where astronauts can stay for 15 to 20 days. Would it not be wise to have a project with much bigger dimensions where scientists can stay longer? There is a need for ISRO to learn from the past experiences of missions to the Moon and Mars. These missions offered limited scope for scientific experimentation since India's heavy satellite launch vehicle, GSLV, was not ready in time, and ISRO could not send heavier scientific payloads. But with India making a breakthrough with cryogenic technology, ISRO is expected to have better options by the end of next decade to carry a heavier payload to the low earth orbit.

Fourth, is the project economically viable? Cost consideration could emerge as a major issue. So, India must involve the private sector in such projects. Recently, NASA has declared that the ISS would be open for commercial business and people could "purchase" a ticket to visit ISS. India could think of developing such projects under a public-private partnership model.

Major projects like the space station are national projects. They may not offer any immediate scientific/technological benefits, but investments must be sustained. Private industrial houses within India should be encouraged to participate in such projects.

The writer is senior fellow, IDSA, New Delhi

JUNE 18, 1979, FORTY YEARS AGO

EXECUTIONS ORDER

THE SUPREME COURT notice of June 8, asking the Union government to request all states to stay executions till the constitutional validity of the death sentence has been decided, has yet to reach the government. The notice was issued on writ by Mal Singh, challenging the constitutional validity of death sentence under Section 302 of the IPC. The section leaves it entirely to the court's discretion to award death sentence on a conviction for murder. Officials of the law and home ministries said they had not so far heard anything on the subject from the SC. The states are also not aware of any such notice since they are to be informed about this only by

the Centre.

POWER CRISIS

THE CLOSURE OF industrial units in Bombay and the rest of Maharashtra had a telling effect on industry and the working class on the first day of the five-day closure. Enquiries revealed that most of the industrial and textile units in the city observed complete closure, rendering thousands of workers idle. A mill owners association spokesman said practically all the 61 textile units in the city, including those managed by the National Textile Corporation, remained closed entailing the industry a loss of over Rs 3 crore per day. He said those laid off would be paid 50 per cent

of their wages as lay-off compensation.

ARMS CUTBACK

THE UNITED STATES president, Jimmy Carter, outlined his proposals for cutting nuclear arsenals in the 1980s to the Soviet president, Leonid Brezhnev. Their military chiefs opened direct consultations for the first time since World War II. "I think he sees in it a greater probability of peace and stability," a senior US official said of Brezhnev's reaction to Carter's arms control proposals. The official, who declined to be identified, said one result could be cutbacks in one weapons systems beyond these constrained by the SALT II treaty to be signed tomorrow.



13 THE IDEAS PAGE

A new approach

Jal Shakti Mantralaya should promote decentralised, but integrated water resource management and service delivery



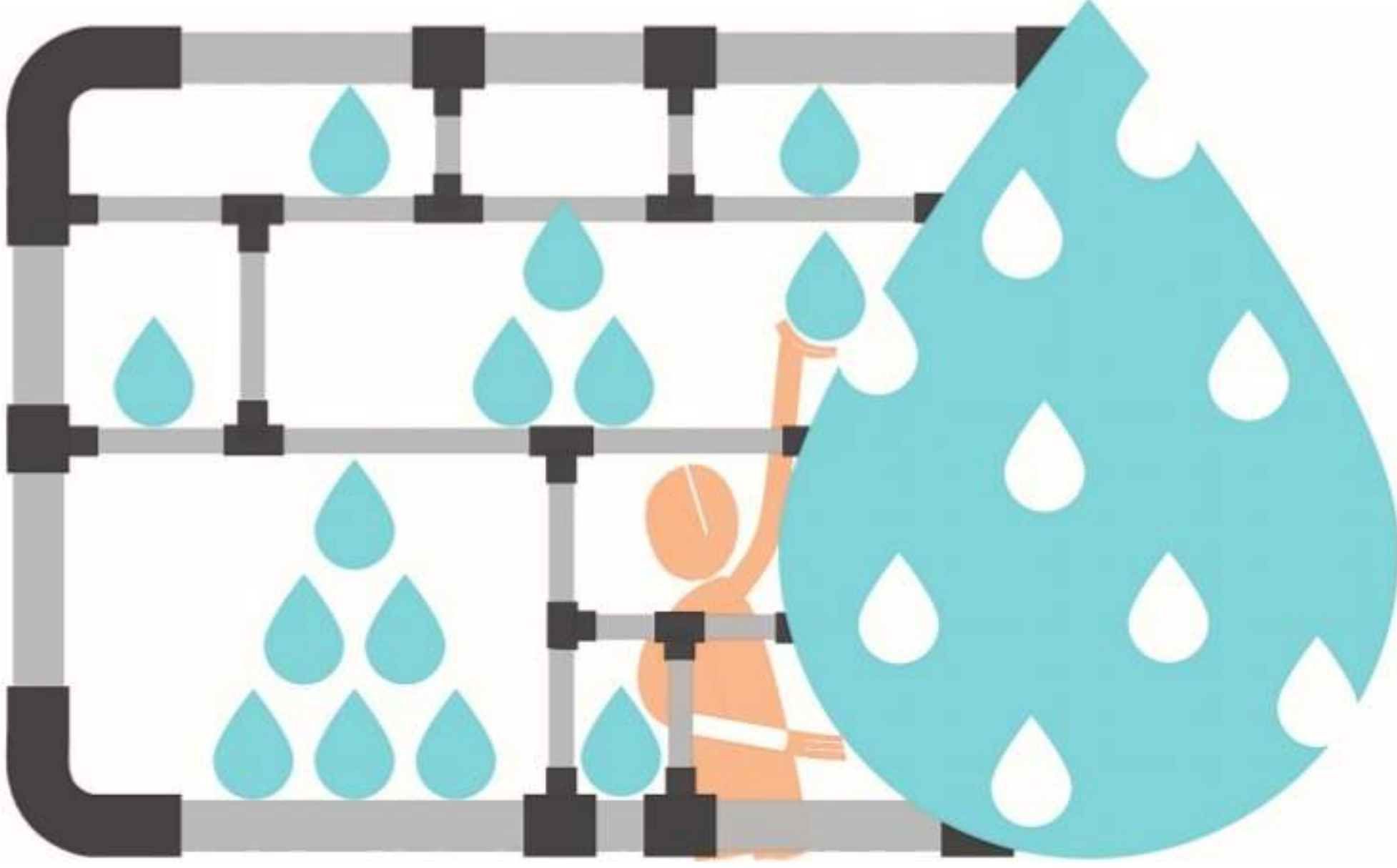
PARAMESWARAN IYER

WATER IS AT the top of the development agenda of the new government, as emphasised by the prime minister at Niti Aayog's governing council meeting last week. Encouraging the participating chief ministers to give top priority to the subject of water in all its different avatars, especially conservation, the prime minister emphasised that the first concrete step taken by the central government towards a holistic and integrated perspective on water has been the constitution of the new Jal Shakti Mantralaya. This bold institutional step has integrated the erstwhile Ministry of Water Resources, River Development and Ganga Rejuvenation with the former Ministry of Drinking Water and Sanitation, and has led to the formation of a single new ministry focused on water with a capital W. This is a major step towards the consolidation of the management of water resources with delivery of drinking water and sanitation — a much-needed step in the direction of ensuring India's water security — as well as a thrust towards the goal of providing safe and adequate piped water supply for all households.

Until now, the institutional landscape for water in India has been somewhat fragmented, with about seven ministries and more than 10 departments having a say on different aspects of water management and use. Not only have these had some overlapping roles and responsibilities, but no single body had the ultimate oversight and authority necessary to resolve conflicting issues and take the necessary decisions. This led to these ministries and departments working in silos. While the Niti Aayog had made a solid start at integrating the sub-sectors of water by creating an integrated water management index and ranking states on this basis, the creation of the new Jal Shakti Mantralaya is a big bang governance reform which will have a permanent and positive impact on integration in the water sector.

Integrated water management in India has never been more relevant than it is today. India is entering water crisis territory, with certain estimates indicating that water demand will exceed supply by a factor of two by 2030 if we continue with a business-as-usual approach. This has the potential of driving economic losses of an estimated 6 per cent of GDP by 2050, and potentially leading to a significant percentage of our population having limited or no access to drinking water. Recent satellite data has also shown that India's taps could run completely dry in the medium term, with cities like New Delhi, Bengaluru, Chennai and Hyderabad completely running out of groundwater.

Some inefficiencies in the water sector have led to challenges with respect to important outcomes such as rainwater storage, and greywater treatment and reuse. Presently, India captures only eight per cent of its annual rainfall, among the lowest in the world. Lack of proper maintenance of existing infrastructure causes further losses of almost 40 per cent of piped water in urban areas. Treatment and reuse of greywater is almost non-existent. As a benchmark, Israel, another country facing severe water shortages, treats



CR Sasikumar

100 per cent of its used water, and recycles 94 per cent of it, meeting more than half of its irrigation needs through this reused water.

In terms of drinking water, while 81 per cent of all habitations are currently estimated to have access to 40 litres of water per day through some source, only about 18 to 20 per cent of rural households in India have connections for piped water supply. One of the priorities of the new government is to provide piped water supply to all rural households by 2024 in a sustainable manner. The Jal Shakti Mantralaya will also need to promote decentralised, but integrated, water resource management and service delivery, with a key focus on water conservation, source sustainability, storage and reuse wherever possible, by involving the communities themselves, as they are the primary stakeholders. There are important lessons to be learned from the best practices of decentralised planning for water conservation such as in Hiware Bazaar, Maharashtra and the Swajal model of community-based drinking water in Uttarakhand — which need to be scaled up.

In water stressed areas, especially in the designated dark blocks and in areas affected by water quality issues, surface water based multi-village schemes need to be designed, while in groundwater rich areas, single village, groundwater-based schemes with end-to-end source sustainability measures should be encouraged. These schemes also need to have provisions for rainwater harvesting through household or community storage, which can also be used for recharging groundwater. Other local methods of water storage and conservation must also be encouraged. A good example of local approaches to developing infrastructure for storage of water is seen in Dewas district in Madhya Pradesh. Here, through government support to farming communities for building ponds as alternative storage and supply sources, the district has achieved a 6 to 40 feet rise in the water table, even while increasing irrigated area by 120-190 per cent.

Another area of focus for water conservation in each drinking water scheme is developing infrastructure for collection and basic treatment of domestic non-faecal waste-water, kitchen or bathing waste water — also called greywater — which typically accounts

Raising awareness and changing perceptions on water also needs to be an important priority. Even today, water is regarded as an infinite resource and is abundantly wasted in many parts of the country, while others suffer drought-like conditions. Behaviour change communication initiatives for both internal and external stakeholders will be critical in changing attitudes towards water. All stakeholders, from state governments to citizens must be taken on board and a national consensus will have to be built.



COLIN GONSALVES

Assam's communal exercise

NRC violates constitutional morality, principles of international law

THE CASE of Mohammad Sanaullah — where Sanaullah, a former soldier, was declared a foreigner by an Assam Tribunal — exposed a gaping hole in the National Register of Citizens. No doubt, the state will scramble to correct the injustice. But for the poor in the state, nobody will bother.

A tribunal meet on the NRC and the Citizenship (Amendment) Bill (CAB), 2016, revealed that the Muslim minority in the state is angry at the sheer injustice of millions of them being suddenly declared foreigners. Some have been put in detention centres in violation of international law. According to the National Human Rights Commission, they face deplorable conditions. They are terrified as they anticipate employment termination and denial of government health and education services.

On the other hand, the indigenous and tribal people of Assam are fed-up with what they consider to be their growing marginalisation: Unchecked in-migration has continued despite the Assam Accord of 1985, an enactment intended to curb in-migration. They are furious at the central government-proposed CAB, which will regularise millions of migrants. Fortunately, leading members of both communities have displayed extraordinary statesmanship. The highlight of the meet was an exchange with

some tribal leaders who, when asked if they would press for deportation of those declared "foreigners," answered — off-the-record — that they would not take such an extreme stand. Rather, they said the burden of in-migration ought not be on Assam alone.

Civil society is categorical that governments, in the past, betrayed them by not implementing the Assam Accord, and wants effective protection of the rights of the indigenous including prohibition of land transfers: They have become a rapidly shrinking minority in their own land. And the proposal to enact the CAB is seen as the last straw.

The central government's move to establish the NRC and deport four million residents of Assam also leaves India vulnerable to the charge of ethnic cleansing. There are millions of stateless people in the world, and India has now added four million to the list: That these people have lived in Assam for decades and are entirely integrated into the local community makes the Indian case stand out on the international stage for its sheer inhumanity.

Article 15 of the Universal Declaration of Human Rights affirms that everyone has a right to a nationality. The UN Convention on the Reduction of Statelessness, 1961, cre-

ates an international obligation to prevent statelessness and prohibits the withdrawal of nationality in situations where persons would be left stateless.

The judiciary, which could have played an important role in restraining the government, has added fuel to the fire. It is one thing to direct measures to prevent illegal migration, and quite another to propose forced deportations. It is perfectly lawful for the state to identify and evict subversives within a migrant population, but it is not permissible to collectively punish millions of poor migrants. Thus, state action must be directed towards sealing the borders and regularising those who have resided in India for decades — as has been done by the Supreme Court in the case of the Chakmas.

The NRC process, however, is downright disgraceful and bereft of the rule of law. Relevant panels have heard heart-wrenching testimonies of people who had their citizenship stripped away in the most arbitrary manner. To establish citizenship, the burden of proof has been shifted — by unconstitutional legislation — to the migrant. The state can arbitrarily pick up members of the minority community, accuse them of being foreigners, and then pack them off to the Foreigners Tribunals to prove their innocence: The presumption of innocence, in this whole process,

has been done away with. The migrants are required to produce documents to prove their presence in the state prior to 1971. This is an onerous condition to have in a state where floods are a regular feature that drown homes and destroy records. The poor, in any case, find documentation impossible to grapple with. History will condemn this exercise as ethnic cleansing, pure and simple.

The Foreigners Tribunals are required by law to have judicial members. Tribunals without judicial members are unheard of. And yet, the Foreigners Tribunals flourish with an ever-increasing number of non-judicial members. Their appointments depend on the advocate's closeness to the political powers-that-be. Their tenure extensions depend on the number of persons they have declared foreigners. Their understanding of the law is sometimes so poor that people declared Indian citizens are tried again, until a tribunal finally declares the person to be a foreigner. The legal principle of *res judicata*, we are told, does not apply.

The judiciary should have kept its distance from this communal exercise that can only bring India shame at the international level.

The writer is a senior advocate, Supreme Court of India, and founder director of Human Rights Law Network

WHAT THE OTHERS SAY

"It seems extremely unlikely that Tehran has any hubristic inclination to confront the US directly. Yet at present there is no sign that either side is willing to halt the escalation." — THE GUARDIAN

Xi's Hong Kong headache

The street protests threaten to dim Beijing's aura of invincibility



RAJA MANDALA

BY C RAJA MOHAN

CAN WHAT HAPPENS in Hong Kong stay in Hong Kong? The consequences of the continuing protests in the city against a proposed law that lets authorities extradite citizens to mainland China may not remain confined to the island. The simmering discontent in Hong Kong threatens to become a prolonged political headache for President Xi Jinping.

This month saw thousands of people in Hong Kong march in protest against a bill that seeks to prevent the city from becoming a haven for criminals. But the protestors fear the law will be misused to target political dissidents and ordinary citizens and send them to summary trials in China.

Caving into the pressure from the protestors, which escalated after clashes with the police on June 12, the Hong Kong administration suspended action on the bill at the end of last week. The chief executive of Hong Kong, Carrie Lam, announced there will be more consultations with the public on the issues involved. The protestors, however, have continued their marches. Nearly two million people turned out on Sunday demanding that the bill be withdrawn and not merely suspended. They also want Carrie to resign. On Monday, Beijing said it stands firmly behind Carrie.

Protests are not new to Hong Hong and have erupted frequently over the years. Five years ago in late 2014, the "Umbrella Revolution" mobilised people against the proposed electoral reforms that fell way short of the public expectations for deepening representative government. The protests ended after a crackdown by the authorities.

Back in 2003, there were protests against the efforts to implement a new law that sought to criminalise sedition and subversion against the People's Republic of China (PRC). The protests compelled Hong Kong government to withdraw the bill and its chief executive to step down.

The trouble is rooted in the special nature of the relationship between Hong Kong and the PRC. Imperial China ceded Hong Kong to Britain in the 1840s after the First Opium War. Hong Kong soon became a thriving international commercial centre with its special access to southern China. Hong Kong continued to serve as the gateway to China even after the Communists took charge in 1949.

When Deng Xiaoping opened up China for foreign investment in the 1980s, low-cost production from Hong Kong moved across the border. As most of its manufacturing moved into China, Hong Kong reinvented itself as a major financial centre servicing the rapid growth across East Asia.

As he leveraged Hong Kong to modernise China's economy, Deng was also determined to bring Hong Kong under PRC's sovereignty. In 1984, the politically inventive Deng nego-

tiated with Britain a framework for Hong Kong's integration with the mainland based on the principle "One Country, Two Systems". Under it, Hong Kong would become a part of China but retain a significant measure of autonomy for half a century. Integration over an extended period, it was hoped, would be painless. Britain handed over Hong Kong to China in July 1997, just a few months after Deng passed away.

Under the agreement called the Basic Law, Hong Kong retained its currency and political-legal system for 50 years — until 2047. But the inherent contradictions soon came into view as China sought to accelerate the extension of its sovereignty over Hong Kong amidst the city's resistance.

Hong Kong is not a democracy by any stretch; the city's focus has always been commerce and China's growth has energised Hong Kong. Yet, as the frequent protests show, Hong Kongers are reluctant to give up the few political liberties they have — including the freedoms of speech and assembly.

If China had become more liberal, the absorption of Hong Kong could probably have been easier. But China under Xi has moved towards greater political conservatism and ideological rigidity. The Communist Party has probably bet that Hong Kong was too minor a matter amidst China's rise and the grander scheme of things that Xi had in mind.

But the Hong Kong trouble comes at an inopportune time for President Xi. He is locked in a trade war with the US. The US Navy is pushing back against the Chinese naval assertion in the Indo-Pacific and strengthening its security partnerships in the littoral.

The long-dormant Taiwan question seems to be back in play. Beijing does not rule out a forceful unification of Taiwan that it calls a "renegade province". The US insists on a peaceful process of unification that is in tune with Taiwanese popular sentiment. Washington is lending credibility to that proposition with intensified diplomatic and military support for Taiwan. Meanwhile, the Hong Kong protests rob the credibility of the proposition that Taiwan can unify with China on the basis of "One Country, Two Systems".

Sections of the Chinese media have accused the US of orchestrating the protests. But the Trump Administration has shown little interest in promoting human rights anywhere; its main focus is on trade. The US Congress, however, is threatening punishment — by taking away some of the special privileges that Hong Kong enjoys under US law. Trouble in Hong Kong might well provide Trump additional political leverage in the unfolding "systemic rivalry" with China.

With the political aura of invincibility that he has constructed for himself, President Xi can't be seen as bending under American pressure on any issue. Putting the extradition bill on hold last week was a rare political retreat for Xi. He can't afford to have the Hong Kong protests, which are gaining widespread support within the city, linger on.

The writer is director, Institute of South Asian Studies, National University of Singapore and contributing editor on international affairs for The Indian Express

LETTERS TO THE EDITOR

NEW WORLD ORDER

THIS REFERS TO the editorial, 'Bishkek lessons' (IE, June 17). With the uncertainty in the global geopolitical environment, the alignment of Russia and China and the changing goals of Indian diplomacy, it has become necessary to counter the belligerence of the US. Indian diplomacy must emphasise strengthening regional groupings like the Shanghai Cooperation Organisation. The outreach to the Central Asian republics is very important because they are rich in natural gas and oil and can help India meet its energy needs. It is, therefore, imperative that New Delhi walks the tightrope between Moscow and Beijing, while guarding its interests.

Pranay Kumar Shome, via email

WATER WOES

THIS REFERS TO the editorial, 'If the rains fail' (IE, June 17). India needs adequate rainfall because it is largely an agriculture-based country. The four-month long monsoon season gives us 80 per cent of rain and it shapes the pattern of farming. This year, we are suffering from a shortage of rainfall. As a result, our economy is also badly affected. It is important to have a plan in place for such contingencies.

Tapomoy Ghosh, Katwa

MORAL BLINDNESS

THIS REFERS TO the article, 'Case for

LETTER OF THE WEEK AWARD

To encourage quality reader intervention, The Indian Express offers the Letter of the Week award. The letter adjudged the best for the week is published every Saturday. Letters may be e-mailed to editpage@expressindia.com or sent to The Indian Express, B-1/B, Sector 10, Noida-UP 201301. Letter writers should mention their postal address and phone number.

THE WINNER RECEIVES SELECT EXPRESS PUBLICATIONS

compassion' (IE, June 17). It is true that those at the top of our hierarchical, whether in terms of caste or class, remain insensitive to the plight of the masses until they fall prey to themselves. The medical fraternity's support to the case of violence in West Bengal seems hypocritical and opportunistic. In other cases of discrimination, for example of Dr Payal Tadv, there has been no similar outrage.

Anurag Ekka, Ranchi

