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IAS ACADEMY

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# VEDHIK

# DAILY NEWS ANALYSIS

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## **FOREWORD**

We, at Team Vedhik is happy to introduce a new initiative - "Daily Current Affairs\_The Hindu" compilations to help you with UPSC Civil Services Examination preparation. We believe this initiative - "Daily Current Affairs\_The Hindu" would help students, especially beginners save time and streamline their preparations with regard to Current Affairs. A content page and an Appendix has been added segregating and mapping the content to the syllabus.

It is an appreciable efforts by Vedhik IAS Academy helping aspirants of UPSC Civil Services Examinations. I would like to express my sincere gratitude to Dr. Babu Sebastian, former VC - MG University in extending all support to this endeavour. Finally I also extend my thanks to thank Ms. Shilpa Sasidharan and Mr. Shahul Hameed for their assistance in the preparing the compilations.

We welcome your valuable comments so that further improvement may be made in the forthcoming material. We look forward to feedback, comments and suggestions on how to improve and add value for students. Every care has been taken to avoid typing errors and if any reader comes across any such error, the authors shall feel obliged if they are informed at their Email ID.

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# Energising India-Nepal ties, the hydropower way

**I**n August 18, 2022, the Investment Board Nepal signed a Memorandum of Understanding (MoU) with India's National Hydroelectric Power Corporation (NHPC) Limited to develop the West Seti and Seti River (SR6) projects – a total of 1,200 MW.

Interestingly, nearly four years have passed since China's withdrawal from the project before Nepal decided to grant the project to India. Considering that hydro-power cooperation is a pillar in India-Nepal relations, there is a need to reflect on these questions: what does the decision offer to India and Nepal? What are the shared concerns and common interests? What are the options and alternatives?

## Many hurdles

Historically, the 750MW West Seti Hydroelectric Project was thought of in the early 1980s as a 37 MW run-of-the-river scheme. Nepal issued the developing licence to France's Sogreah, which prepared a pre-feasibility study in 1987 proposing the scheme without building a dam.

With the project failing to see the light of the day, Australia's Snowy Mountains Engineering Corporation (SMEC) acquired a majority stake in the early 1990s. Between 1997-2011, attempts to make progress were affected due to investment and environmental concerns. Consequently, the China National Machinery and Equipment Import and Export Corporation stepped in in 2009, with SMEC holding a majority stake. However, China National Machinery and Equipment Import and Export Corporation withdrew citing a poor investment environment.

In 2011 Nepal revoked the licence of the West Seti Hydropower Company Limited in which SMEC had a majority stake, and handed it over to China. In an MoU in 2012, China's Three Gorges International Corporation was assigned to develop the project, but it withdrew in 2018, citing issues of resettlement and rehabilitation.

Subsequently, Nepal tried to develop the project by mobilising internal resources. However, increased costs resulted in further



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delays. Meanwhile, the project was remodelled as the West Seti and Seti River (SR6) joint storage project (1,200 MW).

## Much potential

The decision to involve India is a sign that Nepal is reposing its faith in India to complete the project. If completed, it is expected to provide India the much-needed leverage in future hydropower cooperation.

The NHPC has initiated a preliminary engagement of the site with an investment of over ₹18,000 crore. It has also signed an MoU with the Power Trading Corporation Limited, India for sale of power. India is already involved in the Mahakali Treaty (6,480 MW), the Upper Karnali Project (900 MW) and the Arun Three projects (900 MW) in western and eastern Nepal, respectively. This will also help India minimise the geopolitical influence of China and firm its presence in Nepal, considering that the West Seti Hydroelectric Project was a major Chinese venture under the Belt and Road Initiative. In a tilt towards India, Nepal's Prime Minister Sher Bahadur Deuba said, "We failed to invest in this project... Since India is reluctant to purchase energy produced by Chinese companies in Nepal, we will talk with PM Modi for the engagement of Indian developers."

The project has the potential to enhance cross-border power exchanges between the two countries.

It is ironic that despite its huge hydropower potential, Nepal experiences power shortages during peak time, increasing its dependence on India to bridge the shortfall. With an estimated potential of 83,000 MW, Nepal's electricity exports to India are expected to increase foreign exchange and address the power shortage. It is estimated that if the hydropower potential is fully harnessed, Nepal can generate revenue to the tune of ₹310 billion in 2030 and ₹1,069 billion per year in 2045 by exporting electricity to India.

Similarly, India's severe deficit in coal-based thermal power plants in recent years, which meet

70% of India's electricity demand, has compelled the Government to arrange supplies through coal imports, accelerating the search for better alternatives. Given the growing energy demand, the West Seti Hydroelectric Project can provide an added alternative and viable way to address power deficits.

## Steps to take

For the project to be successfully completed, options and alternatives need to be explored. First, the revised cost around the construction process has increased to \$2.04 billion. Since investment-related constraints have delayed the project, there needs to be a careful study of investment scenarios, particularly a conducive investment environment, distribution and transmission network and cost of resettlement and rehabilitation, at the preliminary stage.

Second, Nepal is concerned that the electricity rates and supply from India is inadequate to meet the rising demands. To address these concerns, the new MoU has already revised the percentage share of energy that Nepal will receive free of cost from the generation projects to 21.9% from 10% (Section 6.1) and provides for discussion 'in good faith for further modalities, including Section 6.1' to make it commercially viable (Section 6.2). Further, to address domestic demand, the MoU allows Nepal to request the NHPC to sell the power generated from the projects to the domestic market before selling whole or part to the export market (Section 8.2).

Third, the project can also be extended to other regional partners under the Bangladesh-Bhutan-India-Nepal (BBIN) framework for cross-border energy cooperation. For example, if the combined estimated hydropower potential in Nepal and Bhutan, along with the potential of Northeast India, is effectively harnessed, a cross-border energy market can be created and optimally operationalised. It will be a win-win at the bilateral and regional levels.

*The views expressed are personal*

Nepal's move to involve India in completing the West Seti and Seti River (SR6) joint storage project has the potential to enhance much-needed cross-border power exchanges

# U.S. says relationships with India, Pakistan are distinct

**We don't view our ties with Pakistan, and on the other hand, we don't view our relationship with India as in relation to one another, says the State Department**



The U.S. statements came in response to India's remarks criticising a recently announced \$450 million assistance by Washington to Islamabad for "sustainment and related equipment" for its F-16 fighter jets. REUTERS

## Sriram Lakshman

WASHINGTON

**T**he U.S. has said its relationship with India and Pakistan are not in relation to each other when asked about External Affairs Minister S. Jaishankar's remarks criticising a recently announced \$450 million U.S. assistance to Pakistan for "sustainment and related equipment" for its F-16 fighter jets.

"Well, we don't view our relationship with Pakistan, and on the other hand we don't view our relationship with India as in relation to one another," State Department Spokesperson Ned Price said at a press briefing on Monday.

"These are both partners of ours with different points of emphasis in each, and we look to both as partners because we do have in many cases shared

values, we do have in many cases shared interests," he said, adding the relationship with each country stood on its own. The U.S. also does everything it can to see that the India-Pakistan relationship is as "constructive" as possible, Mr. Price said. "You're not fooling anybody by saying these things," Mr. Jaishankar had said about the F-16 assistance package being given to Pakistan ostensibly for counter-terrorism reasons. The Minister said this during Sunday's remarks at a diaspora event in Washington DC. He had also said the U.S.-Pakistan relationship was serving neither Pakistan, nor the U.S. India has repeatedly raised its objections to the U.S. assistance package for the F-16s.

Also on Monday, U.S. Secretary of State Antony Blinken met with his Pakistani counterpart, Foreign

## **Antony Blinken asks Pakistan to engage China on some issues of debt relief and restructure**

Minister Bilawal Bhutto Zardari. The focus of their bilateral talks was 75 years of the U.S.-Pakistan relationship and U.S. assistance to Pakistan for flood relief and reconstruction. However, India was also discussed, as per Mr. Blinken.

### **'Responsible ties'**

In remarks delivered after their meeting, Mr. Blinken said he and Mr. Bhutto Zardari "talked about the importance of managing a responsible relationship with India". The Pakistan Foreign Minister did not allude to this in his remarks. Mr. Blinken said he had also asked Pakistan "to en-

gage China on some of the important issues of debt relief and restructure so that Pakistan can more quickly recover from the floods".

They also discussed commitments to democracy and upholding freedom or religion and belief, Mr. Blinken said. "We continue to work closely on counter-terrorism issues," Mr. Blinken said, adding the U.S. and Pakistan have a "shared stake" in Afghanistan's future. "We've had our differences; that's no secret," he said.

However, Pakistan and the U.S. shared a common objective, as per Mr. Blinken, of a stable, peaceful future for Afghanistan and "for those across the broader region". The Secretary said the two countries would work together to support the human rights of Afghans, particularly women and girls.

# Permanent membership of the UNSC is another story

**T**here is a buzz in India about the prospects of the country becoming a permanent member of the United Nations Security Council. India's External Affairs Minister has been actively canvassing for the country's candidature, meeting his counterparts from several countries. He has repeated the call, made often in the past, for a text-based negotiation on what has been euphemistically referred to as the reform of the United Nations Security Council (UNSC), i.e., negotiation on a written document outlining the proposed reform instead of just holding forth verbally.

The five permanent members of the UNSC – China, France, the Russian Federation, the United Kingdom and the United States – constitute what is the last, most exclusive club in international relations. All other clubs have been breached. Until a quarter century ago, the nuclear weapon club had five members, the same five as the P-5. India, Pakistan, North Korea and Israel have since joined the club. The P-5 could do nothing to stop the latter countries from forcing themselves into membership of the nuclear club. But the permanent membership of the Security Council is another story.

## Declarations that deserve scepticism

The inescapable fact is that none of the P-5 wants the UNSC's ranks to be increased. One or the other of them might make some noise about supporting one or more of the aspirants. Each is confident that someone among them will torpedo the enlargement of the club. Declarations of support for India's candidature need to be taken with a fistful of salt.

When delegations of 50 countries were drafting the Charter of the future United Nations at Dumbarton Oaks near Washington DC in 1944-45, the article regarding the Security Council, particularly the right of veto, was the subject of maximum debate and controversy.



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Many countries opposed it. The British representative made it clear: either you have a United Nations with veto or there will be no United Nations. The other participating nations had to lump it. The chief Indian delegate said that it was better to have an imperfect United Nations than not to have one.

## Intricacies of membership

There is considerable unhappiness among membership at large in the UN about the right of veto. The debate about veto is most often raked up when the western members of the P-5 club are not able to have their way. It is true that Russia, in its incarnations as the Soviet Union and the Russian Federation, has cast more vetoes (estimated to be 120 times, 'or close to half of all vetoes') than the three western members of the club. But the western members have used their privileged position any number of times to protect Israel when the Palestinian question was being discussed. They also used veto to prevent sanctions being imposed on the apartheid regime of South Africa. There are no saints there.

India needs to be circumspect about veto. We ought to remember that the Russians have bailed India out on many occasions on the question of Kashmir. Most importantly, Russia helped India by vetoing unfavourable resolutions during the war of Bangladesh liberation in 1971. Looking ahead, we can never rule out the possibility of the Kashmir issue being raised in the Council at some time in the future. While we might expect, though not be certain of, Russia to come to our help, we must rule out either Britain or America from casting a negative vote against Pakistan. Going by the Chinese position of repeatedly blocking India's efforts to include confirmed Pakistani terrorists in the sanctions list, we can be sure of Chinese hostility towards us for a long time.

There are four declared candidates for permanent membership: India, Japan, Brazil and Germany, called the G-4. Africa and Latin America and the Caribbean are unrepresented in the permanent category at present. Africa's claim for two permanent seats has wide understanding and support, but the Africans have yet to decide which two countries these are to be. As for India, we can discount Pakistan's opposition; China will not support India nor will it ever support Japan. Brazil has regional opponents and claimants. As for Germany, Italy is firmly opposed to its claim. Italy has an interesting argument. If Germany and Japan – both Axis powers during the Second World War, and hence 'enemy' states – were to join as permanent members, that would leave out only Italy, the third founding member of the Axis group. In any case there are already three western nations among the P-5. Even if India enjoyed near universal support, there is no way

that India alone can be elected; it will have to be a package deal involving countries from other groups.

There is quite a debate going on about whether the aspiring countries should accept permanent membership without the right of veto. There is no ambiguity regarding the position of the P-5. Every one of them is firmly opposed to conferring the veto power to any prospective new permanent member. Not just the P-5. The vast majority of members do not want any more veto-wielding members in the Council. There is a proposal to the effect that a resolution can be defeated only by a negative vote of at least two permanent members. This also is a non-starter; the P-5 are firmly opposed to any dilution of their privileged position.

Changing the membership of the Council requires amending the Charter. This involves consent of two-thirds of the total membership of the UN, including the concurring votes of P-5. This means that each of the five has a veto. The Charter was amended once in the 1960s to enlarge the Council by additional non-permanent seats.

Even now, if the proposal was to add a few non-permanent seats only, it would be adopted with near unanimity or even by consensus. It is the permanent category that poses the problem. One can have a good idea of the difficulty of amending the Charter by the fact that the 'enemy clause' contained in Article 107 of the Charter remains in it even though some of the enemy states such as Germany, Japan, Italy, etc. are very active members, often serve on the Council, and are close military allies of some of the victors in the war.

**A new category is an idea worth considering**  
A distinguished group of experts suggested a few years ago that a new category of semi-permanent members should be created. Countries would be elected for a period of eight to 10 years and would be eligible for re-election. India ought to give serious consideration to this idea.

Some experts are of the opinion that India should not accept permanent membership without the right of veto. "We cannot accept second class status", is what they say. First, nobody is offering India permanent membership. Second, membership with veto power should be firmly ruled out. If by some miracle we are offered or manage to obtain permanent membership without veto, we must grab it. Even a permanent membership without veto will be tremendously helpful in protecting our interests. For, there should be no illusion about how states view membership in the Council. It is all about national interest; nobody is there for any worthy cause such as human rights or even war and peace. India will be and should be no different.



REUTERS

# At state funeral in Tokyo, Modi recalls Abe's vision for a free, open Indo-Pacific

**Suhasini Haidar**

NEW DELHI

Strengthening the Indo-Pacific region, a concept first articulated by former Japanese Prime Minister Shinzo Abe, was at the top of Prime Minister Narendra Modi's discussion with Japan's current Prime Minister Fumio Kishida in Tokyo on Tuesday.

Mr. Modi, along with several heads of state and government, attended Mr. Abe's funeral in the Nippon Budokan arena, where Mr. Kishida and his predecessor, Yoshihide Suga, offered emotional tributes to their former leader, who was assassinated in July.

A total of 20,000 policemen were deployed at the ceremony attended by nearly 4,300 people. Security arrangements were stepped up due to recent protests over the Kishida government's decision to accord the former Prime Minister a state funeral, which the Opposition parties called overly expensive



Prime Minister Narendra Modi with his Japanese counterpart, Fumio Kishida, at the Akasaka Palace guest house in Tokyo. AP

and out of step with tradition in Japan which reserves the honour for the royal family. Only once in the past – in 1967 – was a state funeral accorded to a Prime Minister.

Mr. Modi offered flowers at the funeral, and later met Mr. Abe's widow, Akie Abe, and offered condolences.

"When I was in Tokyo earlier this year, little did I imagine I would be back for the solemn programme of former PM Abe's state funeral. He was a great

leader, a phenomenal individual and someone who believed in India-Japan friendship. He shall live on in the hearts of millions," Mr. Modi tweeted about Mr. Abe, whom he had known for several years, and had last met in May when he had gone to attend a Quad summit.

Among the dignitaries at the funeral were the Prime Ministers of Australia and South Korea, the President of Vietnam and U.S. Vice-President Kamala Harris.

Canadian Prime Minister Justin Trudeau, who was due to be the only G-7 country leader present, cancelled plans at the last minute due to floods in Canada, and his Industry Minister attended instead.

Apart from the bilateral meeting with Mr. Kishida, Mr. Modi met Australian Prime Minister Anthony Albanese at the Akasaka palace event in the evening.

## Bilateral meeting

"Prime Minister [Modi] noted the contributions of late Prime Minister Abe in strengthening India-Japan partnership as well in conceptualising the vision of a free, open and inclusive Indo-Pacific region," said the Ministry of External Affairs in a statement about the bilateral meeting between Mr. Modi and Mr. Kishida on Tuesday morning.

Speaking at the funeral, Mr. Kishida spoke of Mr. Abe's vision of the Indo-Pacific, which he had first outlined in a speech he

gave in the Indian Parliament in 2007. "You who advocated 'the confluence of the two seas' deepened that concept further, cultivating it to become the framework of a 'free and open Indo-Pacific' that encompasses many countries and includes massive numbers of people," said Mr. Kishida, who served in Mr. Abe's Cabinet during both his prime ministerial tenures (2006-07 and 2012-2020).

"You not only markedly strengthened our ties with the United States and dramatically reinforced Japan-U.S. deterrence but also enhanced our cooperation with India and Australia to form the Quad framework, based on reasoning you had long promoted."

In a mark of growing tensions with China, the Japanese government hosted a high-power delegation from Taiwan at the state funeral, and included Taiwan's name on the list of floral tributes from various countries read out.

# Moody's sees Quad lifting India's trade, investment flows

Rating firm flags country's 'relatively protectionist' approach, regulatory and infrastructure constraints as key determinants of extent of gains

**The Hindu Bureau**

NEW DELHI

**I**ndia's membership of the Quadrilateral Security Dialogue will help it tap greater trade and investment flows as economic ties deepen among members seeking to cut their reliance on China, but India's protectionist stance and 'weak' business climate could constrain these gains, Moody's Investors Service said on Tuesday.

"India is poised to become a growing destination market for goods from the other Quad countries, including commodities, machinery and chemicals," the rating agency said in a note on geopolitical risks stemming from the Quad alliance. "The U.S. and Japan will continue to be major sources of foreign direct investment (FDI) to India in services, telecommunications and software, while Australia's presence will grow as a result of a free-trade agreement with India," it added.

Trade and investment gains would accrue to India, Moody's observed, adding that regulatory and infrastructure constraints, however, remained. The magnitude of the trade flow shifts would also depend on improvements in India's business climate and the level of investment



**Trade winds:** Moody's sees the Quad continuing to drive long-term supply-chain shifts toward Southeast Asia and India. PTI

attractiveness, which 'remained weak' compared with that of other Asia Pacific and Quad economies.

"India also stands out as a relatively protectionist market... reflected in its high weighted average import tariff," Moody's said.

Still, as economies diversify production of critical products and technologies, the Quad would continue to drive some long-term supply-chain shifts toward Southeast Asia and India, it forecast.

"These shifts may include greater Australian exports of commodities including copper, energy and agricultural goods to these economies. Financial services companies in the U.S., Japan and Australia will benefit from the shifts, which will also support India's industrial and capital market development."

India stood to benefit from Quad-related supply chain shifts by raising trade with member economies and diversifying sources of imports, Moody's said.

"For India, the costs of pivoting from China toward Quad members as priority markets for trade growth will be relatively low, given that only a small share of its exports currently go to China. As reflected in its reluctance to join the RCEP trade agreement, India is keen to reduce its dependence on imports from China while expanding its market access to Australia, Japan and the U.S.," Moody's said.

"A lack of cohesion between Quad members... exemplified by India opting out of the IPEF trade pillar, may also hurt its ability to find common strategic ground, the firm averred.



**In protest:** A gagged rally taken out by the Dalit League protesting against the government's economic bill to provide 10% quota to economically weaker sections in Malappuram in 2019. SAKEER HUSSAIN

# On reservations for EWS: a test for law and justice

While in most cases the Supreme Court's own precedent provides principled answers, the challenges made to the 103rd constitutional amendment present a more difficult judicial examination than usual

**Suhrit Parthasarathy**

The Supreme Court has reserved its verdict on a batch of pleas challenging the validity of the 103rd constitutional amendment providing 10% reservation to EWS persons in admissions and government jobs. In this article dated July 16, 2019, Suhrit Parthasarathy explains how reservations based on economic status is against the elementary conception of equality guaranteed by the Constitution.

**C**onstitutional challenges are often described as hard cases. This is, however, seldom true. Invariably, disputes possess a simple solution. We can debate over what theories of interpretation to apply and over whether the text of a clause needs to be read literally or in light of its historical background, but in most cases, the Supreme Court's own precedent and commonly accepted legal theories provide an easy enough guide to finding a principled answer. The challenges made to the 103rd constitutional amendment, though, which a two-judge bench of the Supreme Court is slated to hear this month, present a rather more difficult test.

Here, the issues involved concern questions both over whether the amendment infringes the extant idea of equality, and over whether that idea is so intrinsic to the Constitution, that departing from it will somehow breach the document's basic structure. The court's answers to these questions will operate not merely within the realm of the law but will also likely have a deep political bearing – for at stake here is the very nature of justice that India's democracy embodies.

The law, which was introduced in January this year, amends Articles 15 and 16 of the Constitution, and grants to government the power to provide for reservation in appointments to posts under the state and in admissions to educational institutions to "economically weaker sections [EWS] of citizens". At first blush, this reservation, which can extend up to 10% of the total seats

available, may not appear to impinge on the existing constitutional arrangement. But what it does mandate is a quota that will apply only to citizens other than the classes that are already eligible for reservation. Consequently, persons belonging to Scheduled Castes and Scheduled Tribes and persons who are not part of the creamy layer of the Other Backward Classes will not be eligible to the seats available under the quota.

According to the petitioners in the Supreme Court, the central hypothesis of the amendment, where reservation is predicated on individual economic status, violates the Constitution's basic structure. In their belief, the law, by providing for affirmative action unmindful of the structural inequalities inherent in India's society, overthrows the prevailing rationale for reservations. In doing so, they argue, the amendment destroys the Constitution's idea of equal opportunity. The Union of India argues that while the Constitution demands equality, it does not confine Parliament to any singular vision. According to it, the power to amend the Constitution must necessarily include a power to decide how to guarantee equal status to all persons.

## Meaning and purpose

In some senses, as sociologist Gail Omvedt wrote in these pages ("The purpose of reservation - I", March 24, 2000), "the whole history of the struggle for reservation has also been a debate about its very meaning and purpose". When reservations were first introduced by some of the princely states the policy was seen largely as an alleviative measure. For instance, in the princely State of Mysore, where privileged castes had cornered virtually every post available under the government, a system of reservations was introduced denominating communities as "Backward Classes", and providing for them a larger share in the administration. By the time the Constitution was being drafted as a reading of the Constituent Assembly's debates shows us, the rationale for reservations had broadened. The Constitution's framers saw the measure as

a promise against prejudice, as a tool to assimilate deprived groups into public life, and as a means of reparation, to compensate persons belonging to those groups for the reprehensible acts of discrimination wrought on them through history. Marc Galanter has called this a compensatory discrimination principle.

Yet, despite the expanded justification, the basic foundational logic for reservations was still predicated on a demand for a fairer and more representative share in political administration. This is demonstrated by R.M. Nalavade's comment in the Constituent Assembly. "Our experience in the provinces, though there are provisions for reservation in the services, is bitter," he said. "Even though the depressed classes are educated and qualified, they are not given chances of employment under the Provincial Governments. Now that we have provided for this in the Constitution itself, there is no fear for the Scheduled castes. According to this clause we can be adequately represented in the provincial as well as in the Central services."

By providing for a more proportionate distribution of the share in administration, the programme of reservations, it was believed, would end at least some of caste-based domination of jobs, particularly of employment in the public sector – a domination that was built over thousands of years, where Dalits and Adivasis were denied access to equal status. As Ms. Omvedt has pointed out, the strategy behind reservations could, therefore, never have involved an attack on pure economic backwardness. The idea was always to disavow caste-monopoly in the public sector.

## Theory of justice

Even when the Constitution's first amendment was introduced in 1951, to allow the state to make special provisions beyond reservations in public employment for "the advancement of any socially and educationally backward classes of citizens, or for the Scheduled Castes and the Scheduled Tribes", the rationale, as the lawyer Malavika Prasad

has argued, remained constant. Attempts made at the time to categorise individuals on the basis of economic status were expressly rejected. Behind this thinking was a distinctive theory of justice: that by acceding a greater share in public life to historically disadvantaged groups the relative position of those groups would stand enhanced. No doubt such a policy would not, in and of itself, help eliminate the various inequalities produced by the caste system, but it was believed it would represent a resolute effort to eliminate at least some of the caste-based domination prevailing in society.

Indeed, the policy and the idea of justice that undergirds it have been seen as so indispensable to the Constitution's aims and purposes that the Supreme Court in *State of Kerala v. N. M. Thomas* (1975) held that reservations based on social and educational backwardness, far from being an exception ought to be seen as an intrinsic facet of the idea of equality.

## Unseating equality

It is in departing from this logic that the 103rd amendment unseats the Constitution's code of equality. Pure financial ability is a transient criterion; it doesn't place people into a definite group requiring special privileges. If anything, allowing for reservation on such a principle only further fortifies the ability of powerful castes to retain their positions of authority, by creating an even greater monopolisation of their share in administration. If such an end is indeed the vision, it's difficult to see how the elementary conception of equality guaranteed by the Constitution can continue to survive. Now, no doubt the Supreme Court may, on the face of things, consider Parliament as possessing the power to altogether dismantle the Constitution's existing idea of equality without simultaneously demolishing the document's basic structure. But, if nothing else, when the court hears the challenges made to the 103rd amendment, it must see the petitioners' arguments as representing a credibly defensible view. The least the court ought to do, therefore, is to refer the case to a constitution bench, given that Article 145(3) mandates such an enquiry on any issue involving a substantial question of law concerning the Constitution's interpretation, and, in the meantime, stay the operation of the amendment until such a bench hears the case fully. Should the court fail to do so the government will surely one day present to it a cruel fait accompli.

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# SC reserves verdict on petition against EWS reservation

**The Hindu Bureau**

NEW DELHI

A five-judge Bench of the Supreme Court led by Chief Justice of India (CJI) U.U. Lalit on Tuesday reserved for judgment petitions challenging the validity of the 103rd Constitutional Amendment which provides 10% reservation in government jobs and educational institutions to the economically weaker sections or EWS, but excludes the 'poorest of poor' among Scheduled Castes, Scheduled Tribes and Other Backward Classes from its ambit.

The Bench heard marathon arguments for seven days on the vital issue whether the EWS quota, solely based on economic criterion, violated the basic structure of the Constitution. The petitioner argued that the amendment was contrary to the equality code. The court asked the Centre whether the reservation encroached on the opportunities of merit-based candidates.

The government maintained that the 10% quota was not an addition to the



50% ceiling on reservation. It said the quota was an "independent compartment". The court had questioned whether it would take a piece of the pie from the 50% available to non-reserved or open category who compete purely on the basis of merit. The court had also questioned the exclusion of backward classes.

Dr. Mohan Gopal, in his rejoinder, said this was the first time that being a member of the forward classes was made a pre-requisite for getting government assistance. Advocate Kaleeswaram Raj submitted that fundamental rights are individualistic and the government's justification for excluding SC, ST and OBC on the ground that they already take benefit of the 50% quota does not hold water.

# Tread carefully

Power to remove online content  
must be used sparingly, responsibly

The Government's order asking YouTube to remove 45 videos from 10 channels can be seen as a justified response to growing concern over the propagation of hate and communally sensitive material over the free video sharing website, but the frequent exercise of such a power is not without concerns. The Ministry of Information and Broadcasting (I&B) has asked for the removal of the content in these videos based on intelligence inputs and the ostensible reasons are not limited to dissemination of hate against religious communities. They also relate to issues the Government considers "sensitive": references to Kashmir, the Agnipath scheme, and what it says are false claims about the rights of religious minorities being taken away and dissemination of material portending civil war. If these claims are true, and if the content transgresses the boundaries of free speech or threatens public order and security, such take-down orders may be justified. However, the manner of their passing remains an unrevealed process, as it is not known if the originators of the content were given an opportunity to explain their stand before the blocking orders were issued. Section 69A of the IT Act, which empowers the Government to block content, was upheld by the Supreme Court only after it noted that the rules provided procedural safeguards, including the need to issue notice to the originators or the intermediary, before a blocking order.

The latest order invokes the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021. It has a procedure by which an inter-departmental committee considers complaints on content and makes recommendations. The Authorised Officer has to take the approval of the Secretary, I&B, before directing the publisher or intermediary to block the relevant content. There is an emergency provision under which the Secretary may order content blocking as an interim measure, and thereafter confirm it after getting the committee's views. All such blocking orders are meant to be examined by a review committee, which ought to meet once in two months, but it is not known whether the panel meets regularly. The Government, which discloses how many videos it has got removed, must also reveal the outcome of such reviews, if any. India ranks quite high in the list of countries that make regular requests for removal of online content. There is no doubt that offensive content, as hate speech, incitement to violence and child pornography – posing a challenge to the dignified use of online space – ought to be removed. However, the power to block online content must be used sparingly and with sensitivity towards key freedoms and due process.

# The lack of quality engineering education

The Union Ministry of Education released the National Institutional Ranking Framework (NIRF) rankings of 2022 in July. An analysis of the top 200 institutes of technology and engineering colleges presents a disquieting picture. The best institute in the category scored 90.04%. But the 50th best scored only 50.11%; the 100th best institute scored a mere 40.14%; and the one ranked 200th scored as little as 33.7%. One can imagine the situation of the remaining 1,049 institutions that applied but got no rank. And how terrible must be the situation in the approximately 4,500 institutions which did not even apply for the ranking?

These top-ranking institutions accommodate about 30,000 students as against the 11 lakh-12 lakh who register for the JEE Main exam. The odds to get a seat in one of the top 100 institutions are as low as 2.73%. Only 0.9% make it to one of the top 10 institutions.

## Misleading headlines

Meanwhile, during the peak of the placement season, we keep seeing news about engineering graduates bagging job offers worth lakhs of rupees. Liberally embellished with encomiums like 'hard work pays' and 'institutions matter', these stories both entice prospective students and justify increasing fees. They rarely clarify that the reported packages are the rupee equivalent of U.S. salaries in dollars with no regard for the cost of living or for purchasing power parity. Those who get such placements know well that by U.S. standards, these salaries could only be regarded as decent.

They also know that their take-home salaries are only a fraction of what is mentioned in the headlines. A major proportion may comprise a sign-on bonus, a relocation allowance, restricted stock units (RSUs), and employee stock options plans (ESOPs). RSUs alone could constitute around 30% of the annual package but are typically paid over four years,



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There is neither a scarcity of seats nor capacity constraints, but a dearth of institutions offering quality engineering education at an affordable cost

with only 5% and 15% paid in the first and the second year, respectively. What appeared to be ₹30 lakh would turn out to be only ₹1.5 lakh in the first year. Sign-on bonus is rarely paid upfront; instead, it is usually disbursed over about 24 months. The base salary component is only a fraction of the total package.

Placement headlines also rarely reveal that such offers are rare, limited to only a minuscule number of graduates, and are generally confined to international placements, mostly in the Information Technology sector. Of the about 30,000 students graduating from premier technology institutions, not more than 100 bag such offers.

But who bothers about such details? Most parents dream of ₹1 crore plus placements for their children, unmindful of the immense stress that they put their young ones through. This triggers a mindless rat race to get students into institutions of national importance. Students chase quality institutions, which, to them, are those that offer an assured placement, preferably with a dream package.

This, coupled with the scarcity of seats, makes a fertile ground for commerce to capitalise on. Coaching for entrance tests now commences from Class 9, if not earlier. Children are often forced to take time off from their studies to focus on admissions. In the process, they are robbed of their ambitions and passions. They are

forced to realise the dream that their parents and peers have seen for them and become doctors and engineers – not as much to serve society as to make big money. Dejection on the one hand and persistent peer pressure on the other cause anxiety, depression and even gives birth to suicidal tendencies.

## Dearth of quality education

But does this mean that India has a severe capacity constraint in engineering and technological higher education? Official data tell otherwise. The All-India Council for Technical Education (AICTE) has already approved an adequate number of institutions in engineering and technology to admit at least 23.67 lakh students. That is twice the number of aspirants for engineering education. There is, thus, neither a scarcity of seats nor capacity constraints. The nation is, in fact, staring at a dearth of institutions offering quality engineering education at an affordable cost. In business parlance, that is the ability to deliver value for money.

A quick review of the data reveals that the task is daunting. AICTE has so far approved 5,926 institutions to offer programmes in engineering and technology. Of these only 1,249 (21.07%) came forward to get ranked under the NIRF in 2022. India probably doesn't need more institutions. The scope of enhancing the intake in the existing quality institutions also appears limited. What is needed is improvement in the overall quality of technical higher education across the board.

The youth are aspirational. Monetary rewards are a major attraction. But that does not mean that they are not orientated towards national development. Headline placements serve the purpose of sustaining such motivations. It is now for the nation to mitigate the widening gap between the best and the rest, and ensure equality of opportunity in access to quality technical higher education.

GETTY IMAGES/ISTOCKPHOTO



# An attempt to get the Indian Railways back on track

Adding more AC III tier economy class coaches is a step in the right direction

## DATA POINT

**Jasmin Nihalani  
& Vignesh Radhakrishnan**

The Indian Railways' experiment to introduce AC III tier economy class coaches has started to pay off. Since its introduction, in the last one year, these coaches have earned the Railways more than ₹230 crore in revenue by ferrying around 21 lakh passengers. Fares in AC III tier economy are 6%-7% cheaper than the AC III tier class. The economy class has a capacity of 83 berths compared to 72 in the regular coach.

Only 370 such coaches have been used so far, but with demand picking up, the Railways has planned to add more such coaches. Data suggest that adding more AC III tier economy class coaches is a step in the right direction. In recent years, the operating margin of the Indian Railways has taken a beating. Latest data show that the Railways spends ₹98 to earn ₹100. It has consistently failed to meet the expected revenue internally, and its reliance on extra-budgetary resources such as funds from LIC and market borrowings has significantly increased.

**Chart 1** shows the operating ratio (OR) of the Railways in the last 12 years. OR measures the amount spent by the Railways to earn ₹100. Between FY09 and FY16, OR ranged from 90% to 95%. But between FY17 and FY20, it ranged from 96% to 98%. In other words, the Railways was spending ₹98 to earn ₹100.

**Chart 2** shows the share of internal revenue, extra budgetary resources and gross budgetary support in the total revenue receipts of the Railways. The share of internal resources in total revenue receipts fell from 79% in FY15 to 53% in FY20, while reliance on extra budgetary resources to raise funds rose from 5% to 26% during the same period.

The AC III tier is the only class of

service which has generated consistent profits for the Railways. Between FY16 and FY20, AC III tier coaches carried only 1% of the total passengers, but were responsible for 21% of the earnings from travellers. Such a low-passenger, high-revenue dichotomy was not seen in any other class. On the other hand, a high-passenger, low-revenue dichotomy was seen in the inexpensive classes. For instance, over 90% passengers travelled by second class which accounted for only 37% of the earnings. **Table 3** shows the relevant data for all classes of service.

While the first AC and second AC coaches also ferry a smaller share of passengers, their share in earnings was far lower than AC III tier. While the average rate charged per passenger per kilometre in first AC, second AC and executive AC coaches was higher than AC III tier, their share in total earnings was lower. And so, AC III tier stands out. It is not as expensive as the other AC classes and at the same time, its share in revenue has not been impacted by the relatively low pricing.

Table 3 also shows the class-wise share in passenger kilometres. One passenger kilometre is the equivalent of transporting one passenger over one kilometre.

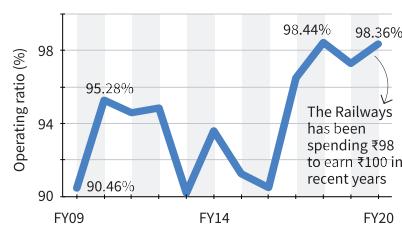
**Table 4** further brings out the uniqueness of AC III tier. It shows operational losses (in ₹crore) incurred while operating various classes of service. A negative figure points to losses incurred. For instance, in operating AC first class service, the Railways incurred a loss of ₹403 crore in FY20. In contrast, the Railways made a profit of ₹65 crore by operating AC III tier coaches. The table shows that AC III tier was the only class which made profits in the FY13-FY20 period, while all the other classes except AC chair car posted losses. So, the move to introduce an economy version of AC III tier may help the Indian Railways get back on track.

*With inputs from Yuthika*

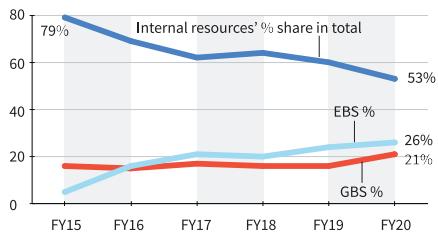
*Bhargava*



**Chart 1** | The chart shows the operating ratio (OR) of the Indian Railways in the past 12 years. OR measures the amount spent by the Railways to earn ₹100.



**Chart 2** | The chart shows the share of internal revenue, extra budgetary resources (EBS) and gross budgetary support (GBS) in the total revenue receipts of the Indian Railways



**Table 3** | The table shows various parameters across all classes of train travel for the FY16-FY20 period. For instance, AC III tier carried only 1% of the passengers but formed 21% of railway earnings from travellers



Class of travel	Passenger carried (% share)	Passenger kilometres (% share)	Earnings from passenger (% share)	Avg. rate charged per passenger per km (in paise)
Second class*	90%	63%	37%	25 paise
Sleeper class*	4%	26%	28%	45 paise
First class*	4%	1%	1%	103 paise
AC chair car	0.37%	1%	3%	142 paise
<b>III AC</b>	<b>1%</b>	<b>7%</b>	<b>21%</b>	<b>127 paise</b>
<b>II AC</b>	<b>0%</b>	<b>2%</b>	<b>8%</b>	<b>160 paise</b>
Executive class	0.01%	0.05%	0.33%	303 paise
<b>I AC</b>	<b>0.03%</b>	<b>0.16%</b>	<b>1.01%</b>	<b>273 paise</b>

\* includes mail and ordinary coaches

**Table 4** | The table shows the operational losses in ₹ crore incurred while operating various classes of service. A negative figure points to losses incurred. AC III tier is the only class which consistently made profits in the FY13 to FY20 period, while all the other classes except AC chair car have been posting losses

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Class	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
I AC	-40	-47	-127	-176	-139	-165	-249	-403
First class	-61	-92	-69	-58	-53	-35	-39	-38
II AC	-348	-497	-495	-463	-559	-604	-908	-1378
<b>III AC</b>	<b>+495</b>	<b>+410</b>	<b>+881</b>	<b>+898</b>	<b>+1041</b>	<b>+739</b>	<b>+318</b>	<b>+65</b>
AC Chair car	-38	-148	-142	-6	+118	+98	+243	-182
Sleeper class	-6852	-8407	-8510	-8301	-9313	-11003	-13012	-16056
Second class	-5167	-7134	-7642	-8570	-10025	-11524	-13214	-14457
Ordinary class	-9783	-11105	-11673	-13238	-14648	-16568	-19124	-20450
EMU	-3365	-4027	-4679	-5125	-5324	-6184	-6754	-6938

# Arrival of foreign tourists took big hit in 2021, data show

**The Hindu Bureau**

NEW DELHI

The COVID-19 pandemic and the resulting restrictions saw foreign tourist arrivals in India dip by 44.5% in 2021. While in 2020, 2.74 million foreign tourists had visited India, in 2021, the number was 1.52 million.

According to the India Tourism Statistics 2022, released here on Tuesday by Vice-President Jagdeep Dhankar, the arrival of NRIs, however, increased by 52.6% in 2021 compared with 2020.

In 2021, the top 15 countries from which foreign tourists arrived in India included the U.S., the U.K., Bangladesh, Canada, Nepal, Afghanistan and Australia.

These nations accounted for nearly 81% of foreign

**While in 2020, 2.74 million foreign tourists visited India, in 2021, the number was 1.52 million**

tourist arrivals in India last year.

The report goes on to say that air travel was the most favoured mode of travel for foreign tourists with 87.5% opting for it.

Interestingly, the number of Indian nationals departing the country saw a rise in 2021 as compared to 2020. In 2021, 8.55 million Indian nationals departed the country as compared with 7.29 million in 2020 – a 7.3% increase.

The UAE was the top destination for Indians in 2021, followed by the U.S., Qatar, Oman and the U.K.

# Jobs grew in final quarter of last fiscal, manufacturing is largest contributor: survey

Estimated employment in nine non-farm sectors rose from 3.14 crore during September-December 2021 to 3.18 crore in January-March 2022, says Labour Minister Bhupender Yadav; marginal increase in participation of women workers

**The Hindu Bureau**

NEW DELHI

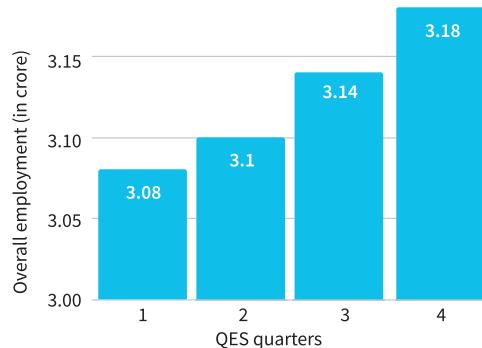
**M**anufacturing continues to be the largest institutional employer in the country, employing about 38.5% of the workers, according to the fourth round (January-March 2022) of the Quarterly Employment Survey (QES), which is a part of the All India Quarterly Establishment based Employment Survey (AQEES).

The survey, which was released by Union Labour Minister Bhupender Yadav here on Tuesday, estimated that around 3.18 crore workers were employed in about 5.31 lakh establishments between January and March. It claimed an increase of about four lakh workers compared with the third round of QES, which was done for the last three months of 2021.

Education, manufacturing, trade and financial services together accounted for 84% of the total estimat-

## Rise in jobs

An estimated total of 3.18 crore workers were found to be engaged in 5.31 lakh establishments during the 4th round (January-March, 2022) of the Quarterly Employment Survey, compared to a total of 3.14 crores in the third quarter



ed units. "Manufacturing sector accounts for the largest percentage (38.5%) of the total number of workers, followed by education sector with 21.7%, IT/BPO sector with 12% and health sector 10.6%," the survey said. Almost 80% of the establishments engaged 10 to 99 workers. About 12% of the establishments reported fewer than 10 workers. Only 1.4% of the establishments surveyed reported

at least 500 workers. "Such large establishments were mostly in the IT/ BPO sector and in the health sector," the report said.

The participation of women workers witnessed a marginal increase from 31.6% in the third quarter to 31.8% in the fourth quarter report. However, women workers constituted about 52% of the workforce in the health sector, while the corresponding per-

tages in education, financial services and IT/ BPO sectors stood at 44%, 41% and 36%, respectively.

"It is noteworthy that in financial services, women far outnumber males among self-employed persons," the report added.

The survey said 86.4% of the workers were regular employees, and 8.7% were contractual employees followed by casual employees (2.3%) and self-employed

(2%). "The share of fixed term employees in the establishments was found to be the least (0.7%) overall," the survey said.

Releasing the report, Mr. Yadav said employment was showing an increasing trend and estimated employment rose from 3.14 crore in the third quarter (September-December 2021) to 3.18 crore in the fourth quarter (January-March 2022). "It is important to mention here that the total employment in these nine selected sectors taken collectively was reported as 2.37 crore in the sixth economic census (2013-14)," he said.

The Labour Bureau had taken up AQEES to provide quarterly estimates about employment and related variables of establishments in both organised and unorganised segments of nine sectors – manufacturing, construction, trade, transport, education, health, accommodation and restaurant, IT / BPO and financial services.



**New frontier:** The \$325-million mission was the first attempt to shift the position of an asteroid. REUTERS

# Bam! NASA spacecraft crashes into asteroid

**Associated Press**

CAPE CANAVERAL

A NASA spacecraft rammed an asteroid at blistering speed on Monday in an unprecedented dress rehearsal for the day a killer rock menaces Earth.

The galactic slam occurred at a harmless asteroid 11.3 million km away, with the spacecraft named Dart plowing into the space rock at 22,500 kmph. Scientists expected the impact to carve out a crater, hurl streams of rocks and dirt into space and, most importantly, alter the asteroid's orbit.

It will take as long as a

couple of months to determine how much the asteroid's path was changed.

The \$325 million mission was the first attempt to shift the position of an asteroid in space.

Launched last November, the vending machine-size Dart – short for Double Asteroid Redirection Test – navigated to its target using new technology developed by Johns Hopkins University's Applied Physics Laboratory.

The anticipated orbital shift of 1% might not sound like much, scientists noted. But they stressed it would amount to a significant change over years.

# Govt. app to capture data on groundwater levels

**The Hindu Bureau**

NEW DELHI

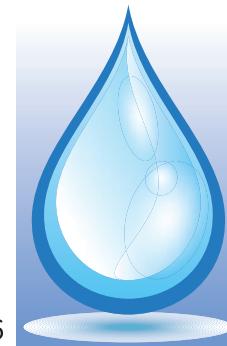
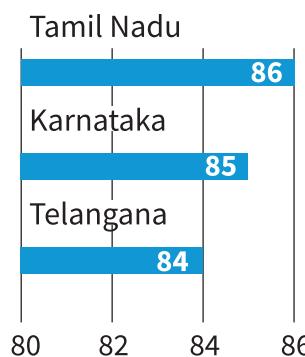
With the rapidly declining water table threatening to push many regions into drought, the Union government on Tuesday launched a mobile application – Jaldoot – jointly developed by the Rural Development and Panchayati Raj Ministries to monitor the groundwater levels across the country.

The application was launched by Minister of State for Rural Development Faggan Singh Kulaste in the presence of Ministers Sadhvi Niranjan Jyoti and Kapil Moreshwar Patil.

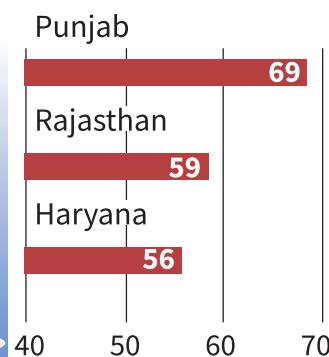
## Rise and fall

The Central Ground Water Board measured the groundwater level in wells in November 2021 against the decadal mean of November (2011-2020)

### Top 3 major States where % of water level in wells increased



### Bottom 3 major States where % of water level in wells dipped



Source: PIB

The app will be used to capture the water levels of two or three open wells in every village twice a year, from May 1 to 31 during the

pre-monsoon time and from October 1 to 31.

**CONTINUED ON**  
**» PAGE 12**

# The NASA spacecraft-asteroid collision

What is the 'kick' method which was used to deflect an asteroid headed towards earth? How can the technique be further utilised for space mining technologies?

## EXPLAINER

### T. V. Venkateswaran

#### The story so far:

In September 27, at 4:44 am IST, the DART (Double Asteroid Redirection Test) spacecraft collided with the space rock Dimorphos (just 160 metres wide). NASA has confirmed that the collision of the auto-rickshaw sized 600 kilogram weighing DART, on the football stadium-sized Dimorphos, about five billion kilogram in mass (orbiting around the 780 metres wide primary asteroid Didymos), has deflected the trajectory of the pair of space rocks. This kinetic impact technique, which appears as the climax of Hollywood sci-fi movies like *Deep Impact* and *Armageddon*, is also known as the 'kick' method. It could one day save humanity from a potential cataclysmic collision by safely deflecting a killer asteroid on its course towards earth. It could also fuel space mining technologies and unleash the space economy in decades to come.

#### What are asteroids?

Around a construction site, bits and pieces of leftover bricks, unused steel rods, and emptied paint canisters are usually strewn. Likewise, leftover materials from the formation of the sun, earth and planets, through the accretion and agglomeration of giant gas and rocks, are scattered as comets, asteroids and meteoroids in the solar system. Some of these cross their path and collide with earth from time to time, resulting in a spectacular meteor shower. Most rocks are so small that they burn up completely in the atmosphere due to frictional heating. If they are large enough, the charred piece falls through as a meteorite. The falling piece from a meteoroid 140 metres wide or more will be capable of completely wiping out a city like Chennai. The impact would be devastating if it was one or more kilometres wide.

Neither the plot nor NASA's Planetary Defense Coordination Office, made famous by the blockbuster Netflix movie *Don't Look Up* is imaginary. About 66 million years ago, an asteroid about 10-15 kms struck earth. The tsunami, volcanic eruptions and thick dust clouds ensuing from the blow decimated dinosaurs and nearly 75% of all species. What happened in the past can occur in the future. The chances of a giant asteroid striking earth are small; however, if it did occur, the devastation would be cataclysmic, wiping out the entire human civilisation. While dinosaurs were mute spectators, humans can prepare themselves to face the imminent threat. NASA tracks and keeps a close watch on the nearly 26,115 asteroids whose orbits are dangerously close to earth.

#### What was NASA's mission?

NASA, to put it simply, undertook the 'kick' technique. Compared to the massive Dimorphos, DART is a tiny Goliath. Yet crashing at a breakneck speed of 23,760 kilometres per hour, the momentum is adequate to slash the angular momentum of Dimorphos, making it speed up and move closer to Didymos. All of these reduce the orbital period and the time taken for the moonlet to go around the primary asteroid. The pair's trajectory is thus deflected as the net result of these dynamics. Consider it like this: a fast-moving moped slamming into a truck is sure to undergo a massive crash and burn, yet will veer the massive truck a bit. This is the essence of the 'kick' technique.

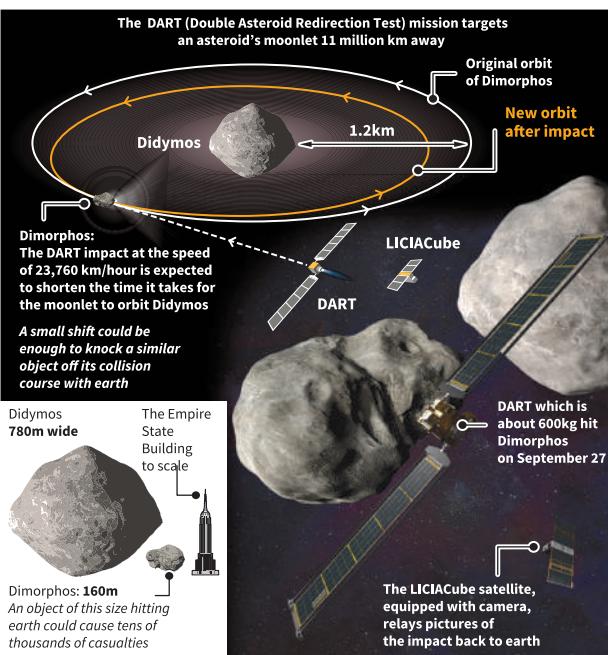
The extent of the trajectory change depends on the context. Compare throwing a ball against a solid wall and a sand pit. If



Behind the scene: This screengrab from the NASA live feed shows Dimorphos just before the DART spacecraft made impact. AFP

## Ready, set, crash!

NASA's DART spacecraft collided with the space rock Dimorphos (which orbits around Didymos, the primary asteroid) and has therefore, deflected the trajectory of the pair of space rocks



Sources: BBC, Johns Hopkins APL

Picture: NASA/Johns Hopkins APL

© GRAPHIC NEWS

the Dimorphos were solid, the crashing craft would make a dent on its surface and skim a tiny bit of its angular momentum, reducing the orbital time by about 75 seconds. However, close-up images transmitted by the DART moments before the fatal collision indicate that Dimorphos is more like a pile of rubble loosely held by gravity. If true, the impact will eject a cascade of debris, each piece carrying away a bit of momentum and energy. And as a net result, the asteroid will suffer a considerable loss. It will speed up more, and the orbit will become nearer to Didymos. The orbital period will then reduce by as much as 10 minutes.

#### What has been the impact assessment?

The DART craft carried a high-resolution

DRACO (Didymos Reconnaissance and Asteroid Camera for Optical navigation) camera to observe the collision and its consequences. The close-up images until its fatal crash are being analysed. In addition, like a kangaroo with a baby in its pouch, a tiny toaster-sized Italian Space Agency-built Light Italian CubeSat for Imaging of Asteroids (LICIACube) took a piggyback ride with the DART.

The CubeSat was released and deployed two weeks before the impact. Hovering 50 kilometres from the asteroid, the two cameras aboard the CubeSat have captured the plume of the debris ejected by the collision. At 11 million kilometres, the asteroids appear like a blip of dot even through the best of telescopes. As they waltz around each other, once in 11 hours and 55 minutes, Dimorphos and Didymos

line up, eclipsing one another. The total brightness of the pair darkens when Dimorphos passes in front of and behind Didymos.

Astronomers will now spend weeks and months observing the periodic change in the brightness using the telescopes to tease out the altered orbital period. All this data is still in process and will help fine-tune the technology.

#### What are the other possibilities of this technique?

At the heels of NASA, China is set to deflect a 40m diameter earth-crossing asteroid called 2020 PNI sometime in 2026. While ostensibly the drive comes from the desire to protect earth from killer asteroids, perhaps the lure of space mining lurks behind. Mining rare earth elements comes with a high environmental cost. In the coming years, the penalty for polluting could make space mining economically viable. If one can tug a mineral-rich asteroid near the Moon or establish a space mining factory between the orbits of earth and Mars, precious mineral resources needed for decades could be easily sourced. The 'kick' technique that deflects asteroids can then be used to move a small asteroid into a convenient position for space mining. Now shelved, NASA's Asteroid Redirect Mission (ARM) aimed at precisely this by bringing a 20-tonne space rock near earth to study and mine. In a way, the DART mission is also part of this framework.

For developing green energy technologies – electric vehicles, solar panels, wind turbines, and energy storage devices – and ushering in the low carbon economy of the future, rare earth elements such as yttrium, niobium, rhodium, palladium, osmium, iridium and scandium are critical. They are short in supply, and asteroid mining, it is believed, could solve the rare earth supply problem.

From the robotic Soviet Luna 16 in the 1970s to U.S. Apollo missions and China's first lunar sample-return mission, Chang'e 5 – all have brought back lunar soil. NASA's Stardust spacecraft returned a canister full of dust from comet Wild-2 captured by an aerogel-based sample collector in 2004. Japan Aerospace Exploration Agency (JAXA)'s Hayabusa 1 to 25143 Itokawa, the Hayabusa 2 to 162173 Ryugu, and NASA's OSIRIS-Rex to near-earth asteroid Bennu are missions to extract and return samples from asteroids.

T.V. Venkateswaran is Scientist F at Vigyan Prasar, Dept of Science and Technology

## THE GIST

On September 27, at 4:44 am IST, the DART (Double Asteroid Redirection Test) spacecraft collided with the space rock Dimorphos (just 160 metres wide). NASA has confirmed that the collision of the auto-rickshaw sized 600 kilogram weighing DART, on the football stadium-sized Dimorphos, about five billion kilogram in mass (orbiting around the 780 metres wide primary asteroid Didymos), has deflected the trajectory of the pair of space rocks.

The momentum of DART crashing at a breakneck speed of 23,760 kilometres per hour, is adequate to slash the angular momentum of Dimorphos, making it speed up and move closer to Didymos. All of these reduce the orbital period and the time taken for the moonlet to go around the primary asteroid. The pair's trajectory is thus deflected as the net result of these dynamics.

While ostensibly the drive comes from the desire to protect earth from killer asteroids, the technique also carries the lure of space mining. If one can tug a mineral-rich asteroid near the Moon or establish a space mining factory between the orbits of earth and Mars, precious mineral resources needed for decades could be easily sourced. The 'kick' technique that deflects asteroids can then be used to move a small asteroid into a convenient position for space mining.

# Army deploys medium, long-range weapons across northern border

**Dinakar Peri**

NEW DELHI

Since the standoff with China along the Line of Actual Control (LAC) in Eastern Ladakh in May 2020, the Army has deployed its entire range of medium-range artillery guns and long-range rockets in the region to augment its long range fire power as part of the reorientation towards the northern borders. The Army is now in the process of procuring another 100 K9-Vajra howitzers, which has already been approved by the Defence Ministry.

The Regiment of Artillery is also in the process of inducting loitering munitions, while it is also looking at procuring tactical Unmanned Aerial Vehicles (UAV). “Induction of Dhanush, K-9 Vajra and M777 Ultra Light Howitzers



The K9 Vajra Tank on the Rajpath. R.V. MOORTHY

(ULH) has enhanced reach of artillery firepower. Operationalisation of Pinaka Multi-Rocket Launch System (MRLS) has added punch to long range capability of artillery firepower,” a defence source said. The Regiment is celebrating the 196th Gunners Day on September 28.

The source added that in the next five years, majority of these inductions should near completion,

barring any slippages in delivery schedules. On this note, the source stressed on the need to upscale the capacities and capabilities of the domestic industry and the need to evolve a “conglomerate or consortium culture”.

The Army plans to convert all its artillery regiments to medium range by converting it to 155 mm standard. The process of completing the medium-

sation process is likely to be achieved sometime around 2040, the source stated. Further, the Regiment of Artillery is looking at procuring tactical UAVs, unlike the Medium Altitude Long Endurance UAVs operated by the Army Aviation, to enable Observation Post (OP) officers to better direct fire power and also to carry out post strike damage assessment at long ranges.

Ground based surveillance has limitations and so we are looking at mini-UAVs of two types which are capable of vertical take-off and landing, sources explained. These include UAVs capable with range of 15-20 km and endurance of upto two hours and those with slightly longer range of 80km with endurance of four hours.

# Carl-Gustaf M4 may be produced in India, says Sweden's SAAB

**The Hindu Bureau**

NEW DELHI

Swedish defence major SAAB on Tuesday announced plans to manufacture its Carl-Gustaf M4 weapon system in India.

The manufacturing would be done by a new fully SAAB-owned subsidiary, Saab FFV India Pvt. Ltd. "This is the first time, we will be setting up a manufacturing facility for this outside Sweden," said Goran Johansson, senior vice president, SAAB, in an interaction with the media. "We will transfer the technology to India. The first product will roll out in 2024," he said.

However, they are yet to receive the government approval for the new venture, Mr. Johansson said, while declining to give details on

the volume of investment and the production capacities planned. The location of the new facility is yet to be decided and they will have competition for it, he added.

The Indian Army has already ordered the M4 version, he said in response to a question. Mr. Johansson said the company would first meet requirements of the Indian forces, and later look at exporting the sub systems to Sweden from where they would go into the global supply chain.

The new facility would be partnering with Indian sub-suppliers which will fulfil the 'Make in India' requirements, he stated.

The Army has been using the iconic Carl-Gustaf since 1976 and currently operates the Mk2 and Mk3 versions.



**Open to all:** A screengrab of the live-streaming of the Constitution Bench hearing a challenge to the EWS quota. SPECIAL ARRANGEMENT

# In a first, Statute Bench cases beamed live on YouTube

Three Benches heard the EWS quota, Shiv Sena split and All India Bar Examination cases simultaneously, and were led by the CJI, Justice Chandrachud, Justice Kishan Kaul in their courts

## Krishnadas Rajagopal

NEW DELHI

In a first, three separate Constitution Bench proceedings in the Supreme Court were simultaneously beamed live through YouTube on Tuesday. “Statistics show that more than eight lakh viewers watched the proceedings before the three Constitution Benches. Truly, a historic day,” the Public Relations Office said in a statement.

The Benches were led by Chief Justice U.U. Lalit, Justices D.Y. Chandrachud and Sanjay Kishan Kaul, respectively. Justice Chan-

drachud, who is the chairperson of the court’s e-committee and the driving force behind the live-streaming project, said in court that “this is a work in progress”.

“This step will go a long way in overcoming the barriers of distance and provide to citizens from every nook and corner of the country an opportunity to watch the court proceedings. Attempts will now be made to live-stream proceedings in all important matters,” the statement said. The cases heard included the challenge to the 10% quota for EWS before the CJI’s Bench. Justice

Chandrachud’s Bench heard the dispute between Maharashtra Chief Minister Eknath Shinde’s faction and the Uddhav Thackeray camp over which was the “real” Shiv Sena party. Justice Kaul’s Bench heard the challenge to the All India Bar Examination – a post-enrolment exam for lawyers.

A Full Court meeting of apex court judges on September 20 had resolved to live-stream the Constitution Bench hearings from September 27.

Live-streaming has become a reality nearly four years after the court’s Swapnil Tripathi judgment

of 2018. The judgment had upheld the plea for live-streaming of its proceedings. The court had said live-streaming would “virtually” expand the court beyond the four walls of the courtroom. “Live-streaming of court proceedings has the potential of throwing up an option to the public to witness live court proceedings,” the court had said.



**To watch the livestreams**  
A first from the Supreme Court  
<https://bit.ly/3foPfaJ>

# Phalke award for Asha Parekh

**The Hindu Bureau**

NEW DELHI

The Dadasaheb Phalke Award for 2020 will be conferred on veteran actor Asha Parekh, the Informa-

tion and Broadcasting Ministry said on Tuesday.

The award will be presented at the 68th National Film Award ceremony on September 30. Announcing the decision, Union Minis-

ter Anurag Thakur said, “I am honoured to announce that the Dadasaheb Phalke selection jury has decided to award Ms. Parekh for her exemplary contribution to the Indian cinema.”