

'Adopt UNCITRAL for cross-border insolvency'

Framework is widely accepted: Survey

LALATENDU MISHRA
MUMBAI

The Economic Survey 2021-22 has called for a standardised framework for cross-border insolvency as the Insolvency and Bankruptcy Code (IBC) at present does not have an instrument to restructure firms involving cross-border jurisdictions.

The proposal to frame a robust cross-border insolvency framework has already been highlighted in the report of the Insolvency Law Committee, which had recommended the adoption of the United Nations Commission on International Trade Law (UNCITRAL), with certain modifications to make it suitable to the Indian context. "UNCITRAL



on Cross-Border Insolvency, 1997 has emerged as the most widely accepted legal framework to deal with cross-border insolvency issues," the Survey said.

It has been adopted by 49 countries so far, such as Singapore, the U.K., the U.S., South Africa and Korea.

This law works on four main principles: access, recognition, cooperation and coordination.

United Nations Commission on International Trade Law is the core legal body of the United Nations system in the field of international trade law.

UNCITRAL was established in 1966 with a recognition that international trade cooperation among States is an important factor in the promotion of friendly relations and, consequently, in the maintenance of peace and security.

Through its several model laws, conventions, legislative guides and robust debates in working groups, UNCITRAL has provided a valuable platform for countries to compare, examine, debate and adopt principles of international commercial and trade law appropriate to their circumstances.

Context

The Economic Survey 2021-22 has called for a standardised framework for cross-border insolvency as the Insolvency and Bankruptcy Code (IBC) at present does not have an instrument to restructure firms involving cross-border jurisdictions.

Centre is also preparing to come out with a cross-border insolvency resolution framework based on the UNCITRAL model law and which would be applicable to both corporate debtors as well as personal guarantors to such debtors.

UNCITRAL Model Law on Cross-Border Insolvency, 1997 (Model Law) provides legal framework to deal with cross-border insolvency issues while ensuring the least intrusion into the country's domestic insolvency law.

The model law deals with four major principles of cross-border insolvency:

Direct access to foreign insolvency professionals and foreign creditors to participate in or commence domestic insolvency proceedings against a defaulting debtor.
Recognition of foreign proceedings & provision of remedies.

Cooperation between domestic and foreign courts & domestic and foreign insolvency practitioners.
Coordination between two or more concurrent insolvency proceedings in different countries. The main proceeding is determined by the concept of centre of main interest (COMI).

UNCITRAL Model Law

Cross-border insolvency resolution framework

UNCITRAL

PART A

- India's economic growth estimated at **9.2%** to be the highest among all large economies.
- 60 lakh new jobs** to be created under the productivity linked incentive scheme in 14 sectors.
- PI Schemes have the potential to create an **additional production of Rs 30 lakh crore**.
- Entering Amrit Kaal, the 25 year-long lead up to India @100, the budget provides impetus for growth along **four priorities**:

- PM GatiShakti**
- Inclusive Development**
- Productivity Enhancement & Investment, Sunrise opportunities, Energy Transition, and Climate Action.**
- Financing of investments**

PM GatiShakti

- The seven engines that drive PM GatiShakti are Roads, Railways, Airports, Ports, Mass Transport, Waterways and Logistics Infrastructure.
- National Highways Network to be expanded by 25000 Km in 2022-23.
- Rs 20000 Crore to be mobilized for National Highways Network expansion.
- Contracts to be awarded through PPP mode for Implementation of Multimodal Logistics Parks at four locations.
- One Station One Product: concept to help local businesses & supply chains.
- 2000 Km of railway network to be brought under Kavach.
- 400 new generation Vande Bharat Trains to be manufactured during the next three years.
- 100 PM GatiShakti Cargo terminals for multimodal logistics to be developed during the next three years.
- National Roadways Development Program, Parvatimala to be taken up on PPP mode.
- Contracts to be awarded in 2022-23 for 8 ropeway projects of 60 Km length.

Inclusive Development

- Rs. 2,37 lakh crore direct payment to 1.63 crore farmers for procurement of wheat and paddy.
- Chemical free Natural farming to be promoted throughout the country
- NABARD to facilitate fund with blended capital to finance startups for agriculture & rural enterprise.
- 'Xisan Drones' for crop assessment, digitization of land records, spraying of insecticides and nutrients.
- 1400 crore outlay for implementation of the Ken – Betwa link project.
- Udyam, e-shram, NCS and ASEEM portals to be interlinked.
- ECLGS to be extended up to March 2023.
- Guarantee cover under ECLGS to be expanded by Rs 50000 Crore to total cover of Rs 5 Lakh Crore.
- Rs 2 lakh Crore additional credit for Micro and Small Enterprises to be facilitated under CGTMSE.
- Raising and Accelerating MSME performance (RAMP) programme with outlay of Rs 6000 Crore to be rolled out.
- Digital Ecosystem for Skilling and Livelihood (DESH-Stack e-portals) will be launched
- Startups will be promoted to facilitate 'Drone Shakti' and for Drone-As-A-Service (DrAAS).
- 'One class-One TV channel' programme of PM eVIDYA to be expanded to 200 TV channels.
- Virtual labs and skilling e-labs to be set up
- Digital University for world-class quality universal education with personalised learning experience to be established.
- An open platform for National Digital Health Ecosystem to be rolled out.
- 'National Tele Mental Health Programme' to be launched.
- A network of 73 tele-mental health centres of excellence will be set up.
- Integrated benefits to women and children through Mission Shakti, Mission Vatsalya, Saksham Anganwadi and Poshan 2.0.
- Two lakh anganwadis to be upgraded to Saksham Anganwadis.
- Rs. 60,000 crore allocated to cover 3.8 crore households in 2022-23 under Har Ghar, Nal se Jal.
- Rs. 48,000 crore allocated for completion of 80 lakh houses in 2022-23 under PM Awas Yojana.
- New scheme PM-DevINE launched to fund infrastructure and social development projects in the North-East.
- Vibrant Villages Programme for development of Border villages with sparse population, limited connectivity and Infrastructure on the northern border.

Productivity Enhancement & Investment, Sunrise opportunities, Energy Transition, and Climate Action.

- 100 per cent of 1.5 lakh post offices to come on the core banking system.
- Scheduled Commercial Banks to set up 75 Digital Banking Units (DBUs) in 75 districts.
- e Passports with embedded chip and futuristic technology to be rolled out.
- Modernization of building byelaws, Town Planning Schemes (TPS), and Transit Oriented Development (TOD)
- Battery swapping policy to be brought out for setting up charging stations at scale in urban areas.
- Unique Land Parcel Identification Number for IT-based management of land records.
- Centre for Processing Accelerated Corporate Exit (C-PACE) for speedy winding-up of companies.
- An animation, visual effects, gaming, and comic (AVGC) promotion task force to be set-up
- Scheme for design-led manufacturing to be launched to build a strong ecosystem for 5G as part of the Production Linked Incentive Scheme.
- Special Economic Zones Act to be replaced with a new legislation
- 68% of capital procurement budget earmarked for domestic industry in 2022-23.
- Government contribution to be provided for R&D in Sunrise Opportunities
- Additional allocation of Rs. 19,500 crore for PLI for manufacture of high efficiency solar modules
- Five to seven per cent biomass pellets to be co-fired in thermal power plants.
- Four pilot projects to be set up for coal gasification and conversion of coal into chemicals for the industry
- Financial support to farmers belonging to SC/ST, who want to take up agro-forestry.

Financing of investments

- 'Effective Capital Expenditure' of Central Government estimated at Rs. 10.68 lakh crore in 2022-23, 4.1% of GDP.
- Outlay for capital expenditure stepped up sharply by 35.4% to Rs. 7.50 lakh crore in 2022-23 (2.9% of GDP)
- World-class foreign universities and institutions to be allowed in the GIFT City.
- An International Arbitration Centre to be set up
- Data Centres and Energy Storage Systems to be given infrastructure status.
- Blended funds to be promoted for sunrise sectors.
- Sovereign Green Bonds to be issued for mobilizing resources for green infrastructure.
- Introduction of Digital Rupee by the Reserve Bank of India starting 2022-23.
- Enhanced outlay for 'Scheme for Financial Assistance to States for Capital Investment':
- From Rs. 10,000 crore in Budget Estimates to Rs. 15,000 crore in Revised Estimates for current year
- Allocation of Rs. 1 lakh crore in 2022-23 to assist the states in catalysing overall investments in the economy
- In 2022-23, States will be allowed a fiscal deficit of 4% of GSDP, of which 0.5% will be tied to power sector reforms

Fiscal Management

- Budget Estimates 2021-22: Rs. 34.83 lakh crore
- Revised Estimates 2021-22: Rs. 37.70 lakh crore
- Total expenditure in 2022-23 estimated at Rs. 39.45 lakh crore
- Total receipts other than borrowings in 2022-23 estimated at Rs. 22.84 lakh crore
- Fiscal deficit in current year: 6.9% of GDP (against 6.8% in Budget Estimates)
- Fiscal deficit in 2022-23 estimated at 6.4% of GDP

PART B **DIRECT TAXES**

To take forward the policy of stable and predictable tax regime:

- Provision to file an Updated Return on payment of additional tax. Can be filed within two years from the end of the relevant assessment year.
- Alternate Minimum Tax paid by cooperatives brought down from 18.5 per cent to 15 per cent.
- Surcharge on cooperative societies reduced from 12 per cent to 7 per cent for those having total income of more than Rs 1 crore and up to Rs 10 crores.
- Payment of annuity and lump sum amount from insurance scheme to be allowed to differently abled dependent during the lifetime of parents/guardians, i.e., on parents/ guardian attaining the age of 60 years.
- Tax deduction limit increased from 10 per cent to 14 per cent on employer's contribution to the NPS account of State Government employees.
- Period of incorporation extended by one year, up to 31.03.2023 for eligible start-ups to avail tax benefit.
- Last date for commencement of manufacturing or production under section 115BA8 extended by one year
- Any income from transfer of any virtual digital asset to be taxed at the rate of 30 per cent.
- In cases where question of law is identical to the one pending in High Court or Supreme Court, the filing of appeal by the department shall be deferred till such question of law is decided by the court.
- Subject to specified conditions, the following to be exempt from tax
 - Income of a non-resident from offshore derivative instruments.
 - Income from over the counter derivatives issued by an offshore banking unit.
 - Income from royalty and interest on account of lease of ship.
 - Income received from portfolio management services in IFSC.
- Surcharge on AOPs (consortium formed to execute a contract) capped at 15 per cent.
- Surcharge on long term capital gains arising on transfer of any type of assets capped at 15 per cent.
- Any surcharge or cess on income and profits not allowable as business expenditure.
- Benefits passed on to agents as business promotion strategy taxable in hands of agents.

INDIRECT TAXES

- Customs Administration of SEZs to be fully IT driven and function on the Customs National Portal – shall be implemented by 30th September 2022.
- Gradually phasing out of the concessional rates in capital goods and project imports; and applying a moderate tariff of 7.5 percent – conducive to the growth of domestic sector and 'Make in India'.
- More than 350 exemption entries proposed to be gradually phased out
- Simplifying the Customs rate and tariff structure
- **Electronics:** Customs duty rates to be calibrated, Duty concessions to parts of transformer of mobile phone chargers and camera lens of mobile camera module
- **Gems and Jewellery:** Customs duty on cut and polished diamonds and gemstones being reduced to **5 per cent**; A simplified regulatory framework, Customs duty of at least Rs 400 per Kg to be paid on imitation jewellery import
- **Chemicals:** Customs duty on certain critical chemicals namely methanol, acetic acid and heavy feed stocks for petroleum refining being reduced; Duty is being raised on sodium cyanide.
- **MSME:** Customs duty on umbrellas being raised to 20 per cent. Exemption being rationalised on implements and tools for agri-sector which are manufactured in India. Customs duty exemption given to steel scrap last year extended for another year. Certain Anti-dumping and CVD on stainless steel and coated steel flat products, bars of alloy steel and high-speed steel are being revoked
- **Exports:** exemptions being provided on items such as embellishment, trimming, fasteners, buttons, zipper, lining material, specified leather, furniture fittings and packaging boxes. Duty being reduced on certain inputs required for shrimp aquaculture.
- Unblended fuel to attract an additional differential excise duty of Rs 2/ litre

₹3,358 cr. in MGNREGA wages not paid

Govt. reply in RS comes amid cut in Budget allocation

SPECIAL CORRESPONDENT
NEW DELHI

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) workers are still waiting for almost ₹3,360 crore in pending wage payments, with the largest pending payments in West Bengal, Uttar Pradesh and Rajasthan, according to the government's reply to a question in the Rajya Sabha on Wednesday.

This comes as the Centre reduced its Budget allocation for the scheme by 25%



Wait gets longer: Women working at a children's park in Tamil Nadu under the MGNREGA. *B. VELAMANNI/RAJ

in comparison to revised estimates for the current year. If these pending wage and material payment liabilities are carried forward into the next financial year, it will further reduce the amount of money available to pay workers next year.

In a written response to a question from CPI(M) member John Brittas on the State-wise details of the MGNREGA work provided during

the pandemic, as well as arrears in wage payment, Minister of State for Rural Development Sadhvi Nirajjan Jyoti provided scheme data as on January 27, 2022. On that date, pending wage liabilities stood at ₹3,358.14 crore, out of which workers from West Bengal had the largest amount of wage arrears of ₹752 crore, followed by U.P. and Rajasthan with ₹597 crore and ₹555 crore respectively. The scheme's financial statement, available on its website, shows that payment due for material costs amounts to ₹11,027 crore as on February 2.

CONTINUED ON PAGE 8

It is a demand driven wage guarantee programme enacted in September 2005.

It is an entitlement-driven and self-target oriented employment generation scheme which aims addressing the concern of productive absorption of rural surplus work force and building quality and productive community assets and enterprises.

It is being implemented in 693 districts, 2.65 lakh Gram Panchayats.

14.82 crore person-days of work generated in 2020. Average wage raised to Rs. 202.

As of May 2020, out of 13.82 crore registered households 25% could actively participate in the scheme.

Out of 261 works notified by Ministry of Rural Development to be permissible under NREGA, 182 are linked to natural resource management and 184 to agriculture and allied activities.

From 2016 to 2019, on an average Rs. 44967 crore (78% of total allocation) has been spent on wages to generate 236 crore-days of annual wage employment.

One person-day employment costs about Rs. 251 in 2019-20.

RURAL EMPLOYMENT AND NREGA

STATUS OF IMPLEMENTATION

MGNREGA

CONTEXT

FEATURES OF THE SCHEME

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) workers are still waiting for almost ₹3,360 crore in pending wage payments, with the largest pending payments in West Bengal, Uttar Pradesh and Rajasthan, according to the government's reply to a question in the Rajya Sabha

Gives legal guarantee of wage employment to the adult members of rural households who are willing to do unskilled manual labour subject to a maximum of 100 days per household.

Job cards issued within 15 days from the date of receipt of application for the job card registration.

Equal payment for men and women. Wages to be paid within a fortnight. 1/3 beneficiaries should be women. Work site facilities such as canteen, drinking water and shade have to be provided.

60:40 wage and material ratio has to be maintained for all works undertaken under NREGA. No contractors and machinery allowed.

A minimum of 10 job seekers shall apply to sanction a new work under MGNREGA.

• Social Audit is a must

State Govt. to pay 25% of minimum wage for the 1st 30 days as compensatory daily unemployment allowance on failure to provide employment for the families demanding the works under MGNREG Act, and 1/2 of wage for remaining period of the year.

The work shall be provided within 5 kms jurisdiction from the village. If beyond, the job seekers shall be given 10% of the minimum wages as additional amount.

Jan. PMI reflects further easing in services activity

Business confidence hits 6-month low

PRESS TRUST OF INDIA
NEW DELHI

India's services sector activity moderated further in January as new business rose at a noticeably slower rate amid the escalation of the pandemic, reintroduction of restrictions and inflationary pressures, a monthly survey showed on Thursday.

The seasonally adjusted India Services Business Activity Index fell to 51.5 in January, from 55.5 in December, pointing to the slowest rate of expansion in the six-month sequence of growth.

According to survey participants, demand was restricted by the fast spread of the Omicron variant and the reinstatement of curfews in parts of the country.



The spread of the Omicron variant affected demand.

Resultant concerns led to job shedding

Companies became increasingly worried that growth would be harmed by the intensification of the pandemic, reintroduction of curbs and inflationary pressures. Business sentiment remained positive but slipped to a six-month low.

"Concerns about how long the current wave of COVID-19 will last dampened business confidence and caused job shedding," said Pollyanna De Lima, Economics Associate Director at IHS Markit. "Firms were also alarmed about price pressures," she added.

The purpose of the PMI is to provide information about current and future business conditions to company decision makers, analysts, and investors.

It is different from the Index of Industrial Production (IIP), which also gauges the level of activity in the economy.

IIP covers the broader industrial sector compared to PMI.

However, PMI is more dynamic compared to a standard industrial production index.

Difference from IIP

Purpose

IHS Markit India
Manufacturing Purchasing
Managers' Index

Context

India's services sector activity moderated further in January as new business rose at a noticeably slower rate amid the escalation of the pandemic, reintroduction of restrictions and inflationary pressures

The seasonally adjusted India Services Business Activity Index fell to 51.5 in January, from 55.5 in December, pointing to the slowest rate of expansion in the six-month sequence of growth.

It is a survey-based measure that asks the respondents about changes in their perception about key business variables as compared with the previous month.

It is calculated separately for the manufacturing and services sectors and then a composite index is also constructed.

The PMI is a number from 0 to 100.

A print above 50 means expansion, while a score below that denotes contraction.

A reading at 50 indicates no change.

If PMI of the previous month is higher than the PMI of the current month, it represents that the economy is contracting.

It is usually released at the start of every month. It is, therefore, considered a good leading indicator of economic activity.

About

RS debates use of private Bills to amend Preamble to Constitution

SPECIAL CORRESPONDENT
NEW DELHI

Rajya Sabha Deputy Chairman Harivansh said on Friday that there have been a number of instances in the past when a private member's Bill to amend the Preamble to the Constitution has been introduced in both the Houses of Parliament and that its legislative competence is decided by Council and not the Chair.

Mr. Harivansh stated that during the last session, on December 3, member Manoj

Kumar Jha had opposed the motion moved by K.J. Alphons to introduce a Bill on the subject. Mr. Jha had argued that Preamble is part of the basic structure of the Constitution and the Bill may not be allowed for introduction.

Mr. Alphons had moved a Bill to replace the word "socialist" with "equitable" in the Preamble. He had said the word carried political connotations.

Following this, Congress leader Anand Sharma said

the Preamble cannot be changed. "I would urge the member concerned that in larger interest of the country where questions are being raised about the integrity of our commitment to the Indian Constitution, this should not be allowed."

At which, Biju Janta Dal member Amar Patnaik interjected to say: "the two words – socialist and secular – were added to the Preamble of the Constitution by the 42nd amendment, so it can be changed."

Any Member of Parliament (MP) who is not a minister is referred to as a private member.

Its drafting is the responsibility of the member concerned. Its introduction in the House requires one month's notice.

The government bills/public bills can be introduced and discussed on any day, private member's bills can be introduced and discussed only on Fridays.

Its rejection by the House has no implication on the parliamentary confidence in the government or its resignation.

Upon conclusion of the discussion, the member piloting the bill can either withdraw it on the request of the minister concerned, or he may choose to press ahead with its passage.

The last time a private member's bill was passed by both Houses was in 1970.

Private members' bill

Amendment to Preamble

Context

Last year, Rajya Sabha reserved its decision to allow the introduction of a Private Member's Bill to amend the Preamble to the Constitution.

The Bill seeks to change the words in the Preamble "EQUALITY of status and of opportunity" to "EQUALITY of status and of opportunity to be born, to be led, to be educated, to get a job and to be treated with dignity".

As a part of the Constitution, the preamble can be amended under Article 368 of the Constitution, but the basic structure of the preamble can not be amended.

As per the Supreme Court verdict in the Kesavananda Bharati vs State of Kerala, 1973, Parliament cannot change the basic structure of the Constitution.

As of now, the preamble is only amended once through the 42nd Amendment Act, 1976. It added three new words—Socialist, Secular and Integrity.

Rajya Sabha Deputy Chairman Harivansh said that there have been number of instances in the past when a private member's Bill to amend the Preamble to the Constitution has been introduced in both the Houses of Parliament and that its legislative competence is decided by Council and not the Chair.

Crypto riddle: tax first, recognition later?

What is the debate around the legality of cryptocurrencies after the announcement of a 30% tax?

SURESH KUNIVANAN

The story so far: In her Budget speech, Finance Minister Nirmala Sitharaman announced a 30% tax on income earned from transfer of virtual digital assets. The Government is yet to recognise cryptocurrencies, including Bitcoin and Ethereum, but this ambiguity has not stopped people from trading in digital assets in large numbers, which apparently forced the Government's hand. In a press conference after presenting the Budget, Ms. Sitharaman said consultation is underway with stakeholders on digital assets, adding that there is no clarity yet on how the Government of India will regulate cryptocurrencies.

What would be the tax component for income from virtual digital assets?

■ The Budget has proposed a 30% tax on income from the transfer of any virtual digital asset. Secondly, the capital gains tax on such transfers cannot be set off against any income. Fourthly, tax will be deducted at source at the rate of 1%, so as to capture transaction details, thus infusing a tax deducted at source (TDS) mechanism.

What has been India's approach to cryptocurrencies?

■ The Government and the Reserve Bank of India have in the past cautioned people against considering cryptocurrencies as legal tender. The RBI has been consistently warning against using crypto assets for tax evasion, and therefore be used for illicit transactions, have been bothering governments across the world. The Reserve Bank of India, in 2018, directed banks not to provide services to the cryptocurrency ecosystem. The RBI also issued a circular in 2019 stating that crypto assets are not legal tender, given that such currencies were not recognised as legal tender. A ban on cryptocurrencies, which was supposed to have been brought in last year, is yet to see the light of day. The broad expectation about the Government's approach to this was set by a 2020 report by an advisory committee which recommended a ban on all cryptocurrencies.



There has been a phenomenal increase in transactions in virtual digital assets, said Nirmala Sitharaman, and the frequency of these transactions have made it imperative to provide for a specific tax regime.

Yet, through all this, cryptocurrencies traditionally grown in India, in fact, Ms. Sitharaman noted in her Budget speech that "there has been a phenomenal increase in transactions in virtual digital assets, of from two and other speculative transactions".

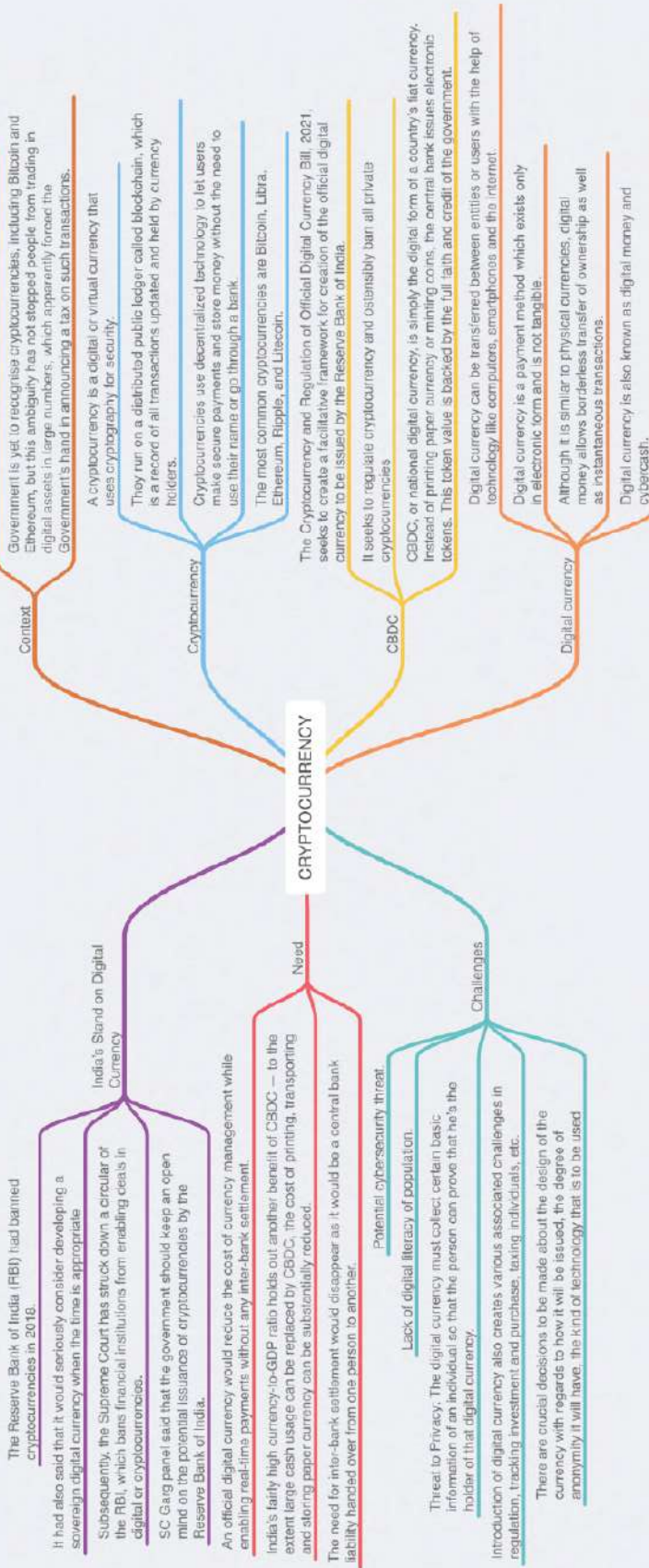
Union Minister Rajeev Chaudhary told NDTV a day after the Budget, "Yesterday's Budget has given a direct answer - crypto won't be banned".

Now, seemed to suggest that the question on the ban hasn't been decided one way or another. She also seemed to divorce the usability issue from the legitimacy issue. She said, "There is no way anything can stop a sovereign Government from taxing an activity, banning or not banning will be decided only when the Government is given the huge profits being transacted. I will, legitimate or not, legitimate is a different question, taxing is completely my prerogative."

In recent days, experts have pointed out that the legal position of cryptocurrencies is still unclear. For instance, the verdict in the Commissioner of Income Tax v. Pooni Singh in 1980 quoted from the judgment in the Commissioner of Income Tax v. Colera v. SC Roberts, in which the court had observed that "if the business is illegal, neither the profits earned nor the losses incurred would be considered for tax. But, that does not take the profits out of the taxing statute".

Government is yet to recognise cryptocurrencies, including Bitcoin and Ethereum, but this ambiguity has not stopped people from trading in digital assets in large numbers, which apparently forced the Government's hand in announcing a tax on such transactions.

In her Budget speech, Finance Minister Nirmala Sitharaman introduced a 30% tax on income earned from transfer of virtual digital assets.



Centre to tweak no-build zone around monuments

Site-specific limits likely to be introduced post-amendments

DAMINI NATHI
NEW DELHI

The 100-metre radius around Centrally protected monuments where construction is prohibited could be replaced with site-specific limits to be decided by an expert committee, as the Union Culture Ministry was working on amendments to the relevant Act, officials say.

The Ancient Monuments and Archaeological Sites and Remains (AMASR) Act, 1958, was amended in 2010 to declare the 100-metre radius of protected monuments as prohibited areas and the next 300-metre radius as regulated areas.

However, according to Ministry officials as well as a recent Parliamentary Standing Committee report, there was no specific reason for the 100-metre and 300-metre limits.

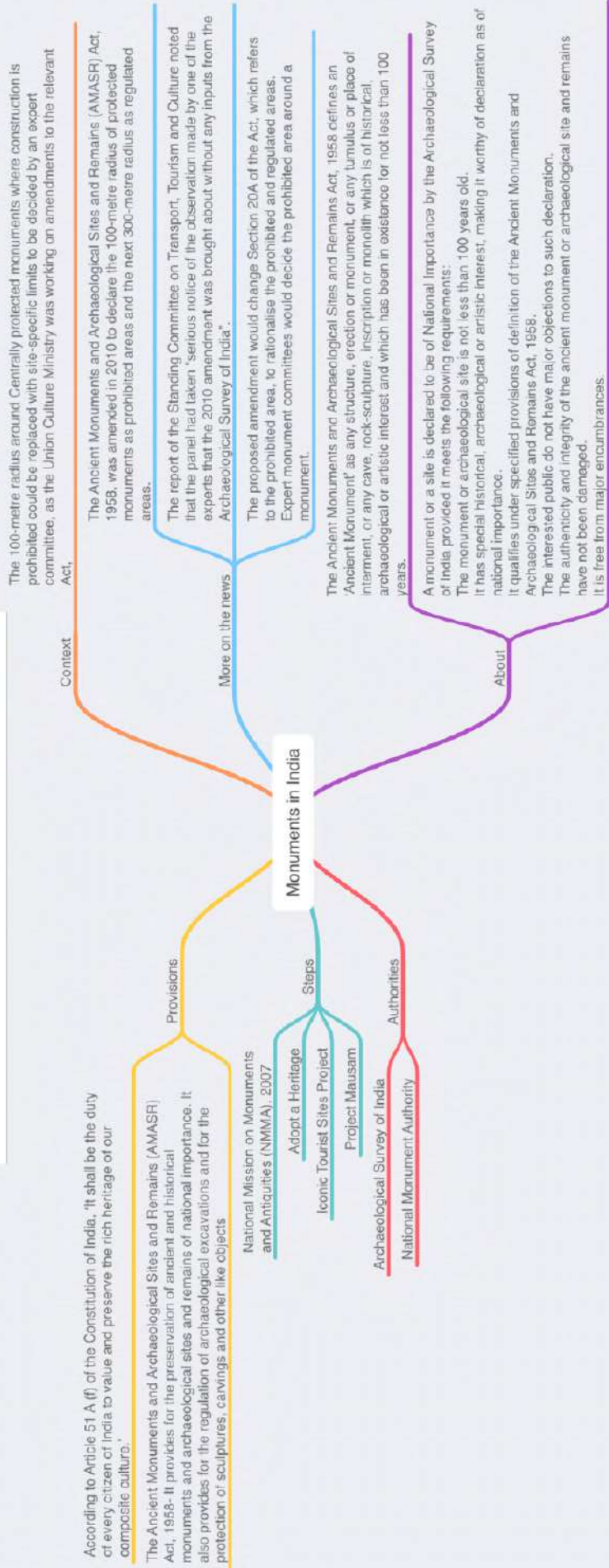
The report of the Standing Committee on Transport, Tourism and Culture



The 17th century Qutb Shahi tombs seen amid the urban landscape of Hyderabad. • INDIAN EXPRESS

A senior official of the Culture Ministry said the proposed amendment would change Section 20A of the Act, which refers to the prohibited area, to rationalise the prohibited and regulated areas. Expert monument committees would decide the prohibited area around a monument.

CONTINUED ON PAGE 8



Universalise maternity benefit scheme, say activists

Govt. has said PMMVY will cover second child only when it is a girl

JAGRITI CHANDRA

NEW DELHI
The government's recent announcement that the maternity benefit programme which provides ₹5,000 for the first child will be extended to cover the second child only if it is a girl has met with sharp criticism from activists who have demanded that it be universalised.

The Pradhan Mantri Matru Vandana Yojana (PMMVY), launched in 2017, provides ₹5,000 for the birth of the first child to partially compensate a woman for loss of wages. It also aims to improve the nutritional well-being of the mother and the child. The amount is given in

three instalments upon meeting certain conditions. It is combined with another scheme, Janani Suraksha Yojana, under which nearly ₹1,000 is given for an institutional birth, so that a woman gets a total of ₹6,000.

"Under the revamped PMMVY under Mission Shakti, the maternity benefit amounting to ₹6,000 is also to be provided for the second child, but only if the second is a girl child, to discourage pre-birth sex selection and promote the girl child," Minister for Women and Child Development Smriti Irani told the Lok Sabha last week.

"Firstly, to provide mater-



A woman cradles her baby at her worksite in Vijayawada.

Dasgupta, co-convenor, Feminist Policy Collective.

She says that adding more conditions to the scheme will prove to be a bureaucratic nightmare, which can be overcome if the scheme is universalised.

"During COVID-19 in the past two years, ASHA [accre-

ditioned social health activists] workers have not been giving out contraceptive supplies. When the State has failed to provide contraceptive services, why is it penalising women for having babies," asserts Ms. Dasgupta.

"The new announcement implies that women will be able to access the scheme only after the delivery, which will not have any impact on their nutritional uptake during the course of their pregnancy," says Raghavesh Ran-

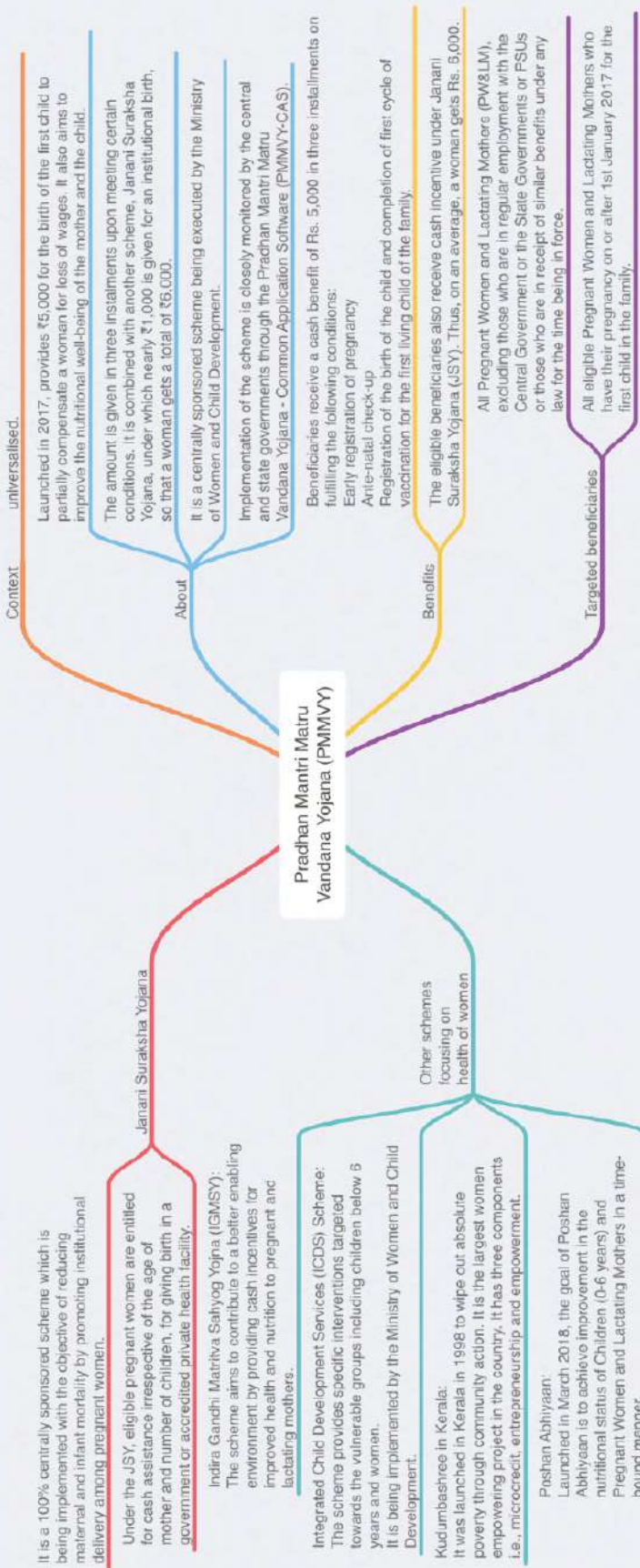
jani, Director, Social and Economic Empowerment, IPE Global.

One of the objectives of the scheme is to also improve health seeking behaviour of women and, therefore, the first instalment of ₹1,000 is given after ascer-

taining early registration of

pregnancy and the second instalment of ₹2,000 is given after an ante-natal check after six months of pregnancy and the final instalment of ₹2,000 is given after the registration of the child birth and vaccinations for the newborn. Though the Minister shared the information days after the Union Budget, the allocation for the scheme has not shown a notable increase. The scheme is clubbed with several other programmes under the Samartiya scheme. The allocation of ₹2,522 crore for the umbrella scheme last fiscal year was almost the same as the allocation of ₹2,500 crore for the PMMVY alone the year before. For financial year 2022-2023, the umbrella scheme has seen a total increase of ₹100 crore.

The government's recent announcement that the maternity benefit programme which provides ₹5,000 for first child will be extended to cover the second child only if it is a girl has met with sharp criticism from activists who have demanded that it be universalised.



It is a 100% centrally sponsored scheme which is being implemented with the objective of reducing maternal and infant mortality by promoting institutional delivery among pregnant women.

Under the JSY, eligible pregnant women are entitled for cash assistance irrespective of the age of mother and number of children, for giving birth in a government or accredited private health facility.

Indira Gandhi Matritva Sahyog Yojna (IGMSY):
The scheme aims to contribute to a better enabling environment by providing cash incentives for improved health and nutrition to pregnant and lactating mothers.

Integrated Child Development Services (ICDS) Scheme:
The scheme provides specific interventions targeted towards the vulnerable groups including children below 5 years and women. It is being implemented by the Ministry of Women and Child Development.

Kudumbashree in Kerala:
It was launched in Kerala in 1998 to wipe out absolute poverty through community action. It is the largest women empowering project in the country. It has three components i.e., microcredit, entrepreneurship and empowerment.

Poshan Abhiyaan:
Launched in March 2018, the goal of Poshan Abhiyaan is to achieve improvement in the nutritional status of Children (0-6 years) and Pregnant Women and Lactating Mothers in a time-bound manner.

Other schemes focusing on health of women

Targeted beneficiaries

Haryana Cabinet nod for anti-conversion Bill

'Umpteen cases of religious conversions recorded'

SPECIAL CORRESPONDENT

The Haryana Cabinet on Tuesday approved the draft of the Haryana Prevention of Unlawful Conversion of Religion Bill, 2022, which seeks to prohibit religious conversion effected through misrepresentation, force, undue influence, coercion, allurement or by any fraudulent means or for marriage, by making it an offence.

According to the draft Bill, the burden of proof "lies on the accused". The draft Bill will now be tabled before the Assembly, an official statement said.

Higher punishment

The Bill, on the lines of recent anti-conversion laws passed in other States, proposes to make conversion by marriage an offence.

It also prescribes higher punishment for conversion of minors, women, and members of the Scheduled Castes and the Scheduled Tribes.

The draft Bill's statements of objectives and reasons read, "The Constitution confers on each individual the fundamental right to profess, practise and propagate his religion. However, the individual right to freedom of conscience and religion cannot be extended to construe a collective right to proselytize; for the right to religious freedom belongs equally to the person converting and the individual sought to be converted."

'Hidden agenda'

It added that there have been umpteen cases of religious conversions, both mass and individual.

"Obviously, such incidents have been hotly debated, more so in a multi-religious society, such as ours. The presence of pseudo-social organisations with a hidden agenda to convert the vulnerable sections of other religions. There have been

Legal code

A brief timeline of the developments leading to the drafting of the new Bill.

Nov 1, 2020: Haryana Chief Minister Mohan Lal Khattar says the State Government was taking the 'love jihad' issue seriously.

Nov 12: Haryana Home Minister Vigneshwar Prasad Saxena said the State and a committee will be constituted to draft this law.

Nov 20: Govt. sets up a three-member committee to draft an anti-conversion law.

Feb 8, 2022: Haryana Cabinet approves the draft of the Haryana Prevention of Unlawful Conversion of Religion Bill, 2022.

The Bill is to be tabled during the Assembly session which begins on March 2.



instances when glibble people have been converted by offering allurement or under undue influence. Some have been forced to convert to other religions."

It pointed out that in the recent past, there have been instances where to increase the strength of their own religion by getting people from other religions converted, people marry persons of other religion by either misrepresentation or concealment of their own religion and after getting married they force such other person to convert to their own religion.

CONTINUED ON PAGE 10

Hadiya Judgement 2017:

Matters of dress and of food, of ideas and ideologies, of love and partnership are within the central aspects of identity.

Neither the State nor the law can dictate a choice of partners or limit the free ability of every person to decide on these matters.

The principle that the right to marry a person of one's choice is integral to Article 21.

K.S. Puttaswamy or 'privacy' Judgment 2017:

Autonomy of the individual was the ability to make decisions in vital matters of concern to life.

The SC in its various judgments, has held that faith, the state and the courts have no jurisdiction over an adult's absolute right to choose a life partner.

Uncertain and Vague Terminology

Antithetical to Minorities

Antithetical to Secularism

Rulings of SC

ANTI-CONVERSION IN INDIA

Context

The Haryana Cabinet approved the draft of the Haryana Prevention of Unlawful Conversion of Religion Bill, 2022, which seeks to prohibit religious conversion effected through misrepresentation, force, undue influence, coercion, allurement or by any fraudulent means or by marriage or for marriage, by making it an offence.

Constitutional Provision: The Indian Constitution under Article 25 guarantees the freedom to profess, propagate, and practise religion, and allows all religious sections to manage their own affairs in matters of religion; subject to public order, morality, and health.

There has been no central legislation restricting or regulating religious conversions.

However, since 1954, on multiple occasions, Private Member Bills have been introduced in (but never approved by) the Parliament, to regulate religious conversions.

Further, in 2015, the Union Law Ministry stated that Parliament does not have the legislative competence to pass anti-conversion legislation.

Over the years, several states have enacted 'Freedom of Religion' legislation to restrict religious conversions carried out by force, fraud, or inducements.

Laws in India

Scientists set new record in fusion energy

Team at JET near Oxford generated 59 megajoules of sustained energy

SPECIAL CORRESPONDENT
NEW DELHI

Scientists in the United Kingdom said they have achieved a new milestone in producing nuclear fusion energy, or initiating the way energy is produced in the sun.

A kilogram of fusion fuel contains about 10 million times as much energy as a kilogram of coal, oil or gas. The energy was produced in a machine called a tokamak, a doughnut-shaped apparatus that can technically exceed a 100%. A team at the Joint European Torus (JET) facility near Oxford in central En-

gland generated 59 megajoules of sustained energy during an experiment in December, more than doubling a 1997 record, the U.K. Atomic Energy Authority said in a statement on Monday.

which are isotopes of hydrogen, are heated to temperatures 10 times hotter than the centre of the sun to create plasma. This is held in place using superconductor electromagnets as it spins around, fuses and releases tremendous energy as heat.

The record and scientific data from these crucial experiments are a major boost for the ITER, the larger and more advanced version of the JET. The ITER is a fusion research mega-project supported by seven members — China, the European Union, India, Ja-

pan, South Korea, Russia and the U.S. — and based in the south of France. It seeks to further demonstrate the scientific and technological feasibility of fusion energy.

Ian Chapman, CEO, U.K. Atomic Energy Authority, said in a statement: "These landmark results have taken us a huge step closer to conquering one of the biggest scientific and engineering challenges of them all. It is reward for over 20 years of research and experiments with our partners from across Europe..."

using atoms together in a controlled way releases nearly four million times more energy than a chemical reaction such as the burning of coal, oil or gas and four times as much as nuclear fission reactions

Fusion fuels are widely available and nearly inexhaustible. Deuterium can be distilled from all forms of water, while tritium will be produced during the fusion reaction as fusion neutrons interact with lithium.

Fusion doesn't emit harmful toxins like carbon dioxide or other greenhouse gases into the atmosphere. Its major by-product is helium: an inert, non-toxic gas.

Nuclear fusion reactors produce no high activity, long-lived nuclear waste.

Fusion doesn't employ flammable materials like uranium and plutonium (radioactive tritium is neither a fissile nor a fissionable material).

It is difficult enough to reach and maintain the precise conditions necessary for fusion—if any disturbances occur, the plasma cools within seconds and the reaction stops.

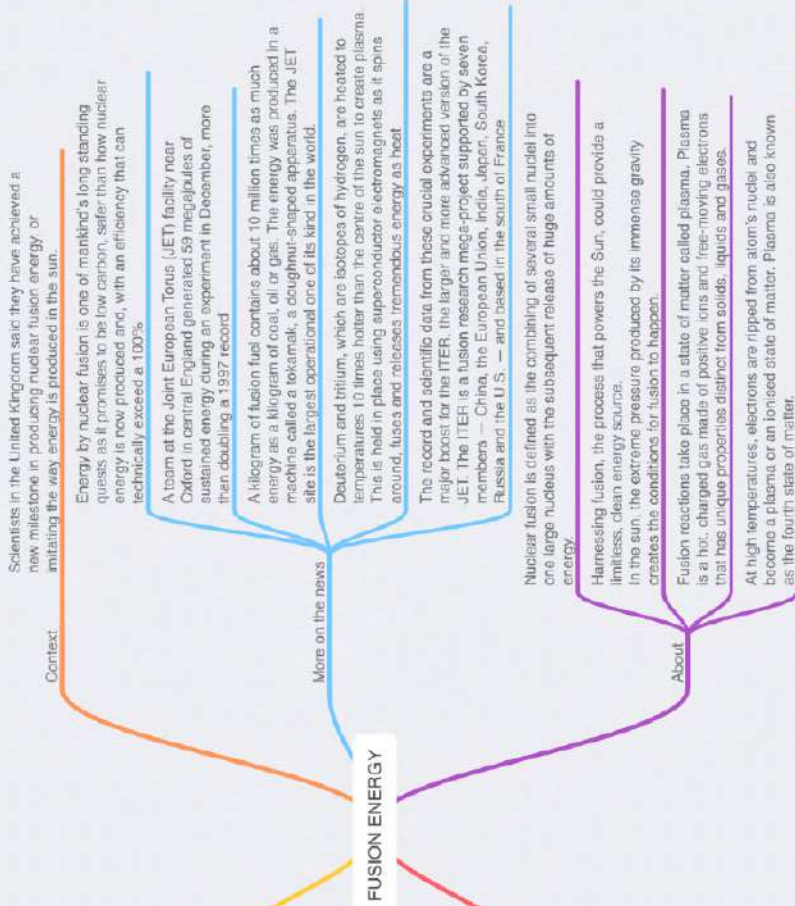
International Thermonuclear Experimental Reactor (ITER) Assembly. It aims to build the world's largest tokamak to prove the feasibility of fusion as a large-scale and carbon-free source of energy.

China's Artificial Sun: The Experimental Advanced Superconducting Tokamak (EAST) device designed by China replicates the nuclear fusion process carried out by the sun.

Recently, researchers at the Lawrence Livermore National Laboratory (which operates the National Ignition Facility in California, US) appeared to have demonstrated "fusion ignition" for the first time.

Nuclear Fusion vs Nuclear Fission

	Fission	Fusion
<u>Definition</u>	Fission is the splitting of a large atom into two or more smaller ones.	Fusion is the fusing of two or more lighter atoms into a larger one.
<u>Occurrence</u>	Fission reaction does not normally occur in nature.	Fusion occurs in stars, such as the sun.
<u>Energy Requirement</u>	Takes little energy to split two atoms in a fission reaction.	Extremely high energy is required to bring two or more protons.
<u>Energy Released</u>	The energy released by fission is a million times greater than that released in chemical reactions, but lower than the energy released by nuclear fusion.	The Energy released by fusion is three to four times greater than the energy released by fission.
<u>Energy production</u>	Fission is used in nuclear power plants.	Fusion is an experimental technology for producing power.



Cryptos are a threat to financial stability: Das

'Lack of underlying is risk to investors'

SPECIAL CORRESPONDENT
MUMBAI

RBI Governor Shaktikanta Das on Thursday said that cryptocurrencies were a threat to the country's financial stability and had no underlying value.

"Investors in cryptocurrencies, when they are investing, should keep in mind that whatever they are investing is at their own risk. They should also keep in mind that cryptocurrencies have no underlying [asset], not even a tulip."

The tulip reference is to a 17th-century market bubble when investors bet on the price of tulip bulbs.

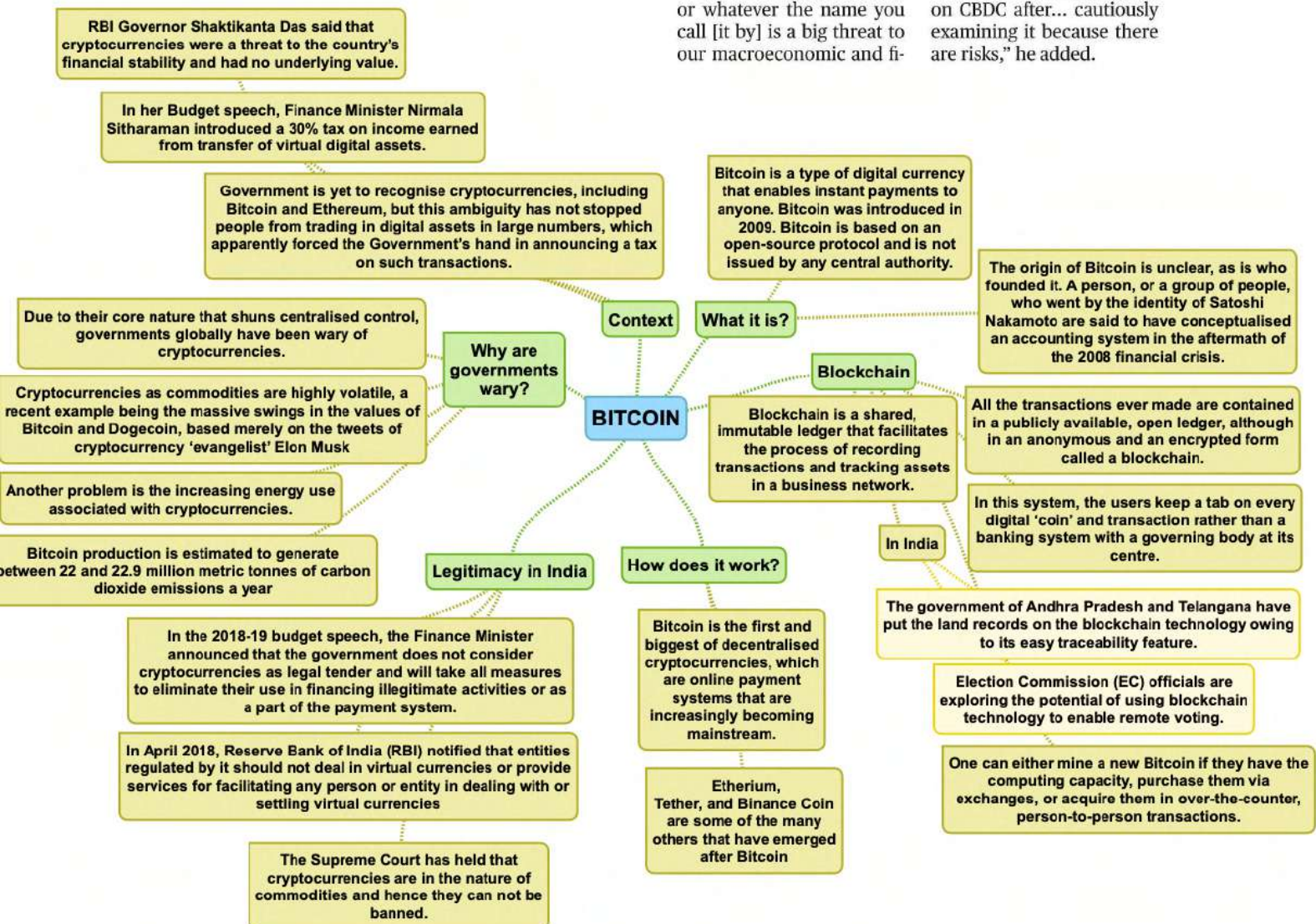
"Private cryptocurrency or whatever the name you call [it by] is a big threat to our macroeconomic and fi-



financial stability," Mr. Das said in response to a question on cryptocurrencies at a post-monetary policy press conference.

Mr. Das said the RBI was working carefully to introduce its own Central Bank Digital Currency (CBDC).

"We are making progress on CBDC after... cautiously examining it because there are risks," he added.



'133 drones sighted along Pak. border in 2 years'

Punjab says movement has increased

VHATA SINGH
NEW DELHI

Punjab government informed a Parliamentary Committee on Home Affairs that drones have been sighted near Pakistan border over 133 times in the last two years.



BSF had recovered over 4 kg of RDX and a pistol dropped by a drone along the border.

On February 9, the BSF recovered over 4 kg of RDX, a pistol and a few bomb-making materials that were dropped by a drone in an agricultural field near Panj-gram Gurtaspur district along the Punjab border. In November 2021, BSF said that at least 67 drones had been sighted along the Pakistan border that year.

Punjab informed the committee that similar drone sightings have also been observed in Jammu and Kashmir and "there is no effective anti-drone technology available in the country".

The committee recommended that MHA create a Central pool of anti-drone technology at the earliest and give its access to all States "to deal with the menace of illicit use of drones."

This coverage has been increased from 300 kg to 500 kg and will cover drone loads, while the issuance of Certificate of Airworthiness has been delegated to Quality Control of India and certification utilities authorized by it.

Abolish the need for various approvals, including certificate of conformance, certificate of maintenance, import clearance, acceptance of existing drones, operator permit, authorisation of R&D organisation and student remote pilot licence.

Fee reduced to nominal levels. No linkage with the age of the drone.

The Ministry will also facilitate development of drone corridors for cargo deliveries and a drone promotion council will be set up to facilitate a business-friendly regulatory regime.

The draft rules reduced the airport perimeter from 45 km to 12 km. The rules state that no flight permissions would be required to fly into 400 feet in green zones and upto 200 feet in the area between 6 and 12 km from the airport perimeter.

The government will be developing a digital sky platform that will have an interactive airspace map dividing the country into green, yellow, and red zones.

The draft rules also provides for safety features such as real-time tracking beacon, and geo-fencing, which are expected to be notified in future and a six-month lead time will be provided for compliance.

An Unmanned Aircraft Systems Promotion Council will be set up to facilitate a business-friendly regulatory regime.

It is very difficult to locate small drone and the drone operating them. One needs to deploy drone-detection technology and subsequent countermeasures to tackle this threat.

Drone detection can be RF-based or via conventional radars tuned to detect drones or via electro-optic payloads that use thermal imaging.

Once identified, you can launch a kinetic energy weapon against the drone or jam it or confuse it by jamming its GPS.

Israel's Iron Dome and other missile systems act with in seconds. Detection and action against drones will happen at a very fast pace but it will take some time to gain that kind of capability.

DRDO has developed an anti-drone system to neutralize enemy drone attacks. The indigenous Drone Technology is capable of counter-attacks including detection, Soft Kill (for jamming the communication links of Drones) and Hard Kill (Laser based hard kill to destroy the Drones) or enemy Drones.

DRONES

About
It is a layman terminology for Unmanned Aircraft (UA). There are three subsets of Unmanned Aircraft: Remotely Piloted Aircraft, Autonomous Aircraft and Model Aircraft. Remotely Piloted Aircraft consists of remote pilot station(s), the required command and control links and any other components, as specified in the type design.

Drones are essentially a military tool as they eliminate the risk on a pilot's life in combat zones, and since they are unmanned, they don't require fatigue-induced rest, making them fly till fuel lasts or until some mechanical problems crop up.

Drones are now used for various purposes from delivery of merchandise, taking photographs or shooting videos to military warfare and space exploration.

Defence: Drone system can be used as a symmetric weapon against terrorists' attacks. The unmanned aircraft systems or drones can be integrated into the national airspace system.
SVAMITVA Scheme: The drone technology in the SVAMITVA scheme launched by the Government of India, within less than a year, has helped out half a million village residents to get their property cards by mapping out the abadi areas.
Delivery Purposes: Recently, the Ministry of Civil Aviation has approved a project with the Telangana government for using drone technology to deliver vaccines in remote areas.

Agriculture: In the agriculture sector, micronutrients can be spread with the help of drones.
It can also be used for performing surveys for identifying the challenges faced by the farmers.
Commercial Purposes: Commercial opportunities are also there for drone technology; Telecom companies are using drones for track monitoring.
Other Purposes: Drones are also significant for the law enforcement agencies, the fire and emergency services wherever human intervention is not safe and the healthcare services.

Association of the United States Army (AUSA) in February 2021 published a report titled, 'The Role of Drones in Future Terrorist Attacks'.
Here, the AUSA said the Islamic State made the first successful use of drones for terrorism.

Earlier in 2013, Al-Qaeda attempted a terror attack using multiple drones in Pakistan without success. From 2016 on, the Islamic State made drone attacks a regular feature in its operations in Iraq and Syria.

Sighting of drones near India-Pakistan border and the Line of Control (LoC) has been frequent. Some of them have carried weapons to the Indian side.

As tools of terror

What is the use of drones?

How to prevent drone attack

What is the essential practice test?

Does it resolve conflicts between individual right and the interest of religion? What are its limitations?



The first criticism is that it was never intended to be a test to find out if a particular practice is essential to the practice of the religion, but was only meant to distinguish a matter of religion from a matter other than religion. However, a long line of judicial decisions seem to endorse the applying of this test to dispose of cases.

The second criticism is that the doctrine of essentiality appears to allow courts to go deeply into the scriptures and tenets of a religion or a religious denomination to find out if the practices or norms that are at the heart of the issue are essential. This is seen as a theological or ecclesiastical exercise, which courts are forced to wade into.

A more reasonable approach will be to apply the test of constitutional morality and legitimacy to the issue at hand. Applying the principles of equality, dignity and civil rights to a particular practice may be better to decide the constitutionality of a practice than a theological enquiry.

Is the denial of entry a violation of their freedom of conscience and freedom to practice their religion under Article 25?

Government is of the view that compelling a student to remove the head-scarf is not a violation of Article 25.

Whether the wearing of head-scarves will have an adverse impact on law and order by pitting two communities against one another, and thereby, enable the Government to prohibit religious attire in the interest of public order – one of the grounds on which a right under Article 25 can be curbed.

Whether the ban on such attire will come within the power to restrict freedom of religion in the interest of public order, health and morality.

From the Muslim students' point of view, they have a fundamental right to wear a hijab as part of their right to practise their religion.

Criticism

ESSENTIAL PRACTICE TEST

Issues for court

Context

The action of some pre-university colleges in Karnataka refusing entry to Muslim girls students wearing hijabs, or head-scarves, has now become a national controversy.

While the girls have been protesting against being denied access to education, the counter-protests by a section of Hindu students wearing saffron shawls and turbans have led to a tense situation outside some campuses.

Kerala court, by an interim order, has directed that students should not wear attire linked to any religion until it resolves the legal questions arising from the issue.

Bljoe Emmanuel vs. State of Kerala (1986) pertained to three children belonging to the Jehovah's Witnesses sect refusing to sing the national anthem during the morning assembly. The Supreme Court ruled in the students' favour, holding that their expulsion violated their freedom of expression under Article 19(1)(a) as well as their right to freely practise and profess their faith under Article 25(1).

The test in this approach is to find out whether a student who asserts religious freedom for a course of action that the authorities find objectionable genuinely and conscientiously holds that belief or not. Such a belief is constitutionally protected.

The freedom of conscience and to profess, practise and propagate religion is guaranteed by Article 25. This freedom is subject to 'public order, morality and health'.

As for the wearing of hijab, the students are relying on a Kerala High Court judgment that had in 2016 allowed two Muslim students to take the All India Pre-medical Test while wearing a hijab, after holding that it was an essential part of Islam. In a different case, the Kerala High Court declined to intervene in favour of a Muslim student who was not allowed to wear a head-scarf by a school.

The 'essential practice' doctrine can be traced to a 1954 decision of the Supreme Court in *Commissioner, Hindu Religious and Charitable Endowments, Madras vs. Sri Lakshminarayanan Thirumala Swamikal of Sri Shriur Mutt*, commonly known as the 'Shriur Mutt' case.

This litigation involved action sought to be taken by the Madras Government against a mutt over some disputes over the handling of financial affairs. The madhupathi's contention was that the Government could not interfere in the mutt's right to manage its own affairs under Article 26. Under this Article, what was precluded was the right "to manage its own affairs in matters of religion".

It was in this context that the court said: "In the first place, what constitutes the essential part of a religion is primarily to be ascertained with reference to the doctrines of that religion itself."

However, this attempt to differentiate what essentially distinguishes a religious matter from other matters was taken up in subsequent judgments to mean that courts are required to distil the essence of a religion to see whether a particular practice or act fell under the category of religion or not.

Hence, some acts obtained constitutional protection by being declared 'essential' to the practice of that religion and some were denied protection on the ground that they were not essential to it.

How do we draw the line between matters of religion and matters other than religion?

Centre extends police modernisation scheme

To focus on security, law and order

SPECIAL CORRESPONDENT
NEW DELHI

The Union government has approved the continuation of a police modernisation scheme for five years up to 2025-26 with a financial outlay of ₹26,275 crore.

The Union Home Ministry said the scheme included security-related expenditure in J&K, northeastern States and Maoist-affected areas, for raising new battalions, developing high-tech forensic laboratories and other investigation tools. A central outlay of ₹18,839 crore has been earmarked for security-related expenditure.

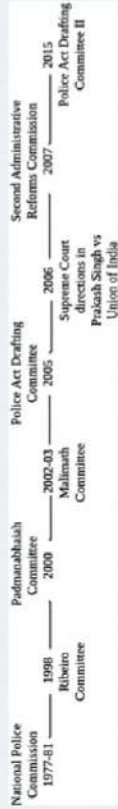
"This scheme comprises all relevant sub-schemes that contribute to the modernisation and improvement with a total central financial outlay of ₹26,275 crore," a statement by the Ministry said.

It said provision has been made under the scheme for

internal security, law and order and adoption of modern technology by the police. Assistance will be given to the States for narcotics control and strengthening the criminal justice system by developing a robust forensic set-up in the country, the statement said.

According to the statement, ₹4,846 will be given by the Centre for the modernisation of State police forces. To develop operationally independent high-quality forensic facilities in States for scientific and timely investigation, ₹2,080.50 crore will be given.

With the implementation of the 'National Policy and Action Plan' for combating Maoists or left-wing extremism (LWE), incidents of violence have come down drastically, it said. To further pursue this, six LWE-related schemes with a outlay of ₹8,689 crore have been approved.



The Modernisation of Police Forces (MPF) scheme was initiated in 1986-70 and has undergone several revisions over the years. However, there is a need to fully utilize the finances sanctioned by the government.

- MPF scheme envisages:
 - Procurement of modern weapons
 - Mobility of police forces
 - Logistics support, upgradation of police wireless, etc
 - A National satellite network

Supreme Court in the landmark Prakash Singh case (2006) gave seven directives where considerable work in police reforms is still needed. The seven directives were – setting up of State Security Commissions (SSC), fixing the tenure and selection of the DGP, a minimum tenure for the Inspector General of Police, separation of investigation and law and order functions, setting up of Police Establishment Boards, creating a Police Complaints Authority and forming a National Security Commission.

Along with Police reforms, there is a need to reform the criminal justice system too. In this context, the recommendations of the Menon and Malimath Committees can be implemented

Context

The Union government has approved the continuation of a police modernisation scheme for five years up to 2025-26 with a financial outlay of ₹26,275 crore.

The Union Home Ministry said the scheme included security-related expenditure in J&K, northeastern States and Maoist-affected areas, for raising new battalions, developing high-tech forensic laboratories and other investigation tools. A central outlay of ₹18,839 crore has been earmarked for security-related expenditure.

Police reforms aim to transform the values, culture, policies and practices of police organizations. It envisages police to perform their duties with respect for democratic values, human rights and the rule of law.

Police come under the state list of schedule 7 of the Indian constitution.

While improvements in pay scale and promotions are necessary aspects of police reforms, little has been spoken about reforms needed at the psychological level.

Public perception: people view the police as corrupt, inefficient, politically partisan and unresponsive.

Accountability to the Political Executives vs Operational Freedom

Colonial legacy

While the sanctioned police strength was 181 police per lakh persons in 2016, the actual strength was 137 police.

Modern policing requires strong communication support, state-of-the-art or modern weapons, and a high degree of mobility.

POLICE REFORMS

Way Forward

INDIAN GEOSPATIAL ECONOMY IN 2017-18



Employment

- At present, the Indian geospatial employs nearly 251,300 persons
- Of this total, nearly 67,000 are engaged in exports related services
- There are huge employment generation opportunities in India for basic services such as surveying, map digitization, content development, APIs, data analysis, etc.



- Agriculture Sector.
- Electric Utilities
- Climate Change and Disaster Management
- Earth Observation Capabilities
- Education
- Governance
- Healthcare
- Land and Forest Resource Management
- Social Sector
- Water Resource Management

- * Natural Resources Information System;
- * National Spatial Data Infrastructure;
- * Bhuvan Image Portal;
- * Delhi State Spatial Data Infrastructure;
- * National Urban Information System;
- * Establishing G2G GIS by National Informatics Centre;
- * Recent efforts at modernization of land records under NLRMP;
- * Restructured Advanced Power Development & Reform Program (R-APDRP)
- * Various City GISs (example Mumbai, Bangalore, Kanpur, Kolkata).

Major uses

Major GIS Initiatives

GEOSPATIAL TECHNOLOGY IN INDIA

Types

- Remote Sensing: imagery and data collected from space-or airborne camera and sensor platforms.
- Geographic Information Systems (GIS): can be used to detect geographic patterns in other data, such as disease clusters resulting from toxins, sub-optimal water access, etc.
- Global Positioning System (GPS): a network of satellites which can give precise coordinate locations to civilian and military users with proper receiving equipment
- Internet Mapping Technologies: software programs like Google Earth and web features like Microsoft Virtual Earth are changing the way geospatial data is viewed and shared.

- National Geospatial Policy 2016
- National Map Policy 2005
- Civil Aviation Requirement (CAR), 2012
- The Remote Sensing Data Policy (RSDP - 2001 and 2011)
- The National Data Sharing and Accessibility Policy-2012 (NDSAP-2012)
- Geospatial Information Regulation Bill, 2016

Policies in India

About

Geospatial technologies is a term used to describe the range of modern tools contributing to the geographic mapping and analysis of the Earth and human societies.

Zooming in on the potential of India's geospatial sector

But the main hurdles are the lack of awareness among potential users and inadequate skilled manpower



published many articles projecting the market to some \$1 billion by the year 2029 with 15% Compound Annual Growth Rate (CAGR). Consequently, the geospatial sector, which was considered taboo by investors, is seeing new interest.



document and make government and private users aware of it. The data available with government departments should be unlocked, and data sharing should be encouraged and facilitated. This will only be possible through an open data sharing protocol. The government needs to invest in developing standards and must mandate the adoption of standards.

There is a need to establish a geospatial data sharing ecosystem. To make all public-funded data accessible through data as a service model, with no or nominal charge. Most important is to inculcate the culture of data sharing, collaboration and co-creation.

While different types of data will be produced on a project-to-project basis, there is a need to create a geospatial data ecosystem in India. This should include the Indian national digital elevation model (INDEM), data bases for cities, and data of natural resources. So, Indian developers and startups should be engaged to build solutions templates for various business processes across departments. Local technology and solutions should be encouraged, and competition should be encouraged to produce quality output. As the new guidelines prevent high-accuracy data being stored in overseas clouds, there is a need to develop a geospatial data cloud locally, and facilitate a solution as a service. For instance, the Ministry of Environment, Forest and Climate Change can host a complete suite of geographic information systems (GIS) applications like working plan, wildlife corridor mapping, social forestry, etc. No

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

An academic programme

Though India has many who are trained in geospatial this is mostly either through a master's level programme or on-job training. Unlike the West, India lacks a strata of core professionals who understand geospatial end-to-end India should start a bachelor's programme in geospatial also in the Indian Institutes of Technology and the National Institutes of Technology. Besides these, there should be a dedicated geospatial university. Such programmes will propel research and development efforts which are crucial for the development of technologies and solutions locally.

The geospatial sector in the country is rightly positioned for investment. However, duty on the series discussed and the creation of an enabling ecosystem are essential. By the time we celebrate the 10th anniversary, we should have achieved the projected market volume and have Indian entrepreneurs stand out internationally.

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

manpower across the entire pyra

Manoj Kumar is a Professor at IIT Kharagpur and the Founder-Director of Geo-India Pvt. Ltd. **Rajesh Bhatnagar** is an officer in ISRO's Space Technology Cell.

Anti-lynching Bills passed by four States hanging fire

Lynching not defined as a crime under IPC, Centre has said

VYANTHA SINGH
KEW DEBBI

Bills passed against lynching in the past four years by at least three States ruled by BJP rivals and one by the party itself have not been implemented, with the Union government taking the view that lynching is not defined as a crime under the Indian Penal Code (IPC).

The Union Home Ministry informed Parliament in 2019 that there was "no separate" definition for lynching under the IPC, adding that such incidents could be dealt with under Sections 300 and 302 of the IPC which pertain to murder.

In 2017, the National Crime Records Bureau (NCRB) collected data on mob lynching, hate crimes and cow vigilantism, but the figures were not published and the work was discontinued as these crimes are not defined and the data were found to be unreliable.

On December 22, the Jharkhand Assembly passed the Prevention of Mob Violence and Mob Lynching Bill, 2021, providing for punishment ranging from three years to life imprisonment.

Stalled crackdown

A brief look at anti-lynching Bills passed by four States that are caught in a question of definition

JHARKHAND

The Prevention of Mob Violence and Mob Lynching Bill, 2021, provides for punishment ranging from three years in prison to life imprisonment, in case of death of the victim.

Those convicted may be fined between ₹3 lakh and ₹25 lakh depending on the severity of the crime.

RAJASTHAN

The Rajasthan Protection from Lynching Bill, 2019, provides for life imprisonment and a fine from ₹1 lakh to ₹5 lakh to those convicted in cases of mob lynching leading to the victim's death.

WEST BENGAL

The West Bengal (Prevention of) 2019, has a provision for death sentence. It proposes a jail term from three years to life imprisonment for those involved in assaulting and injuring a person. The Bill, while defining terms such as "lynching" and "mob", says the West Bengal Lynching Compensation Scheme may be framed under it.

MANIPUR

The Manipur Protection from Mob Violence and Mob Lynching Bill, 2018, proposes rigorous life imprisonment for those involved in mob violence, if it results in the death of a victim.

ing for life imprisonment and a fine ranging from ₹1 lakh to ₹5 lakh to those convicted in cases of mob lynching leading to the victim's death.

CONTINUED ON PAGE 5

As per the Constitution, 'Police' and 'Public Order' are State subjects and State governments are responsible for controlling crime, maintaining law and order and protecting the life and property of the citizens.

National Crime Records Bureau does not maintain specific data related with respect to lynching incidents in the country.

There is 'no separate' definition for such incidents under the existing IPC. Lynching incidents can be dealt with under Section 300 and 302 of IPC.

Section 302 provides that whoever commits murder shall be punished with death or imprisonment for life and shall also be liable to fine. Offence of murder is a cognisable, non-bailable and non-compoundable offence.

There shall be a "separate offence" for lynching and the trial courts must ordinarily award maximum sentence upon conviction of the accused person to set a stern example in cases of mob violence.

The state governments will have to designate a senior police officer in each district for taking measures to prevent incidents of mob violence and lynching.

The state governments need to identify districts, sub-divisions and villages where instances of lynching and mob violence have been reported in the recent past.

The nodal officers shall bring to the notice of the DGP about any inter-district co-ordination issues for devising a strategy to tackle lynching and mob violence related issues.

Every police officer shall ensure to disperse the mob that has a tendency to cause violence in the disguise of vigilantism or otherwise.

Central and the state governments shall broadcast on radio, television and other media platforms about the serious consequences of mob lynching and mob violence.

Despite the measures taken by the State Police, if it comes to the notice of the local police that an incident of lynching or mob violence has taken place, the jurisdictional police station shall immediately lodge an FIR.

The State Governments shall prepare a lynching/mob violence victim compensation scheme in the light of the provisions of Section 357A of CrPc within one month from the date of this judgment.

If a police officer or an officer of the district administration fails to fulfill his duty, it will be considered an act of deliberate negligence.

Who is responsible to manage it

Context

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

What is lynching

Need

Reasons for rise

SC Guidelines

Anti-Lynching Laws

Retail inflation easing sequentially: FinMin

'Need to monitor imported inflation'

SPECIAL CORRESPONDENT

NEW DELHI
India's retail inflation may have crossed 6% for the first time in six months this January, but the Consumer Price Index (CPI) has moderated sequentially over the past two months indicating a slowing momentum to price rise trends, the Finance Ministry said in a monthly report on Wednesday.

Easing vegetable prices on account of the fresh winter crop, and better prospects for food grains output lead to an 'optimistic view on inflation', the ministry said, though it also emphasised the need to keep a close watch on imported inflation through edible oils and crude oil and the multi-round effects they may have on the value chain.

January's 6.0% retail inflation rate is primarily attributable to food and beverages', 'clothing and footwear', as well as an unfavourable base effect, said the economic division of the Department of Economic Affairs in its report.

The average CPI inflation between April 2021 and January 2022, it pointed out, is 5.30% – well within the 6% upper limit for inflation tolerance set for the RBI's monetary policy committee. "Should retail inflation remain range-bound at 4.5% as projected by the MPC in 2022-23, liquidity levels in the economy will remain high and interface with low interest rates to provide easier financing options to industry and individuals."

'Energy prices seen key'
"Global inflation and energy prices are likely to be influential in determining India's rate of inflation, and Government expects it to decline to eventually obtain a GDP deflator of 3.0-3.5% assumed in the Budget," the



department projected.
"Combined with the expectation of WPI inflation declining significantly in 2022-23, on the back of lower global inflation and a large base effect, the GDP deflator obtains at 3.0-3.5%, as implicit in nominal GDP projection of 11.4% in Budget 2022-23," the ministry said.

"CPI core inflation, after declining from 6.2% in November, 2021, to 6.12% in December; further moderated to 5.98% in January, mainly due to decrease in inflation of all major groups except 'clothing and footwear', the ministry noted. Inflation at the wholesale level has also been moderating for two months but remains high at almost 13% in January, 'primarily owing to high prices for imported commodities including and especially crude oil,' it said.

'Weak transmission'

The large gap between inflation in wholesale and consumer prices, indicating weak transmission of input cost pressures to retail prices, is another aspect that will need to be monitored in the coming months.

Noting that the third COVID-19 wave was now subsiding in the country, the ministry said India was well poised for growth that would be 'inclusive and large enough as well, to provide for growing levels of direct income and in-kind support to the vulnerable groups of the society'.

17/2/2022: THE HINDU

Producer Price Index – It is a measure of the average change in the selling prices over time received by domestic producers for their output.

Commodity Price Indices – It is a fixed-weight index or (weighted) average of selected commodity prices, which may be based on spot or futures price

Core Price Index – It measures the prices paid by consumers for goods and services without the volatility caused by movements in food and energy prices. It is a way to measure the underlying inflation trends.

GDP deflator – It is a measure of general price inflation.

Core inflation: Based on those items whose prices are non-volatile.

Headline inflation: All commodities are covered in this.

Reflation: Price level increases when the economy recovers from recession based on value of inflation

Walking/Trotting inflation – Rate of inflation is moderate (3-7%)

Creeping inflation – If the rate of inflation is low (up to 3%)

Running/Galloping inflation – Rate of inflation is high (>10%)

Runaway/Hyper Inflation – Rate of inflation is extreme

Stagflation: Inflation + Recession (Unemployment)

Deflation: Persistent decrease in the price level (negative inflation)

Open inflation: A situation where price level rises without any price control measures by the government.

India's retail inflation may have crossed 6% for the first time in six months this January, but the Consumer Price Index (CPI) has moderated sequentially over the past two months indicating a slowing momentum to price rise trends

Context

In economics, inflation (or less frequently, price inflation) is a general rise in the price level of an economy over a period of time.

Types are demand-pull and cost-push.

Built-in Inflation involves a high demand for wages by the workers which the firms address by increasing the cost of goods and services for the customers.

It measures price changes from the perspective of a retail buyer. It is released by the National Statistical Office (NSO).

The CPI has several sub-groups including food and beverages, fuel and light, housing and clothing, bedding and footwear.

Four types of CPI are as follows:

CPI for Industrial Workers (IW),
CPI for Agricultural Labourer (AL),
CPI for Rural Labourer (RL),
CPI (Rural/Urban/Combined).

Of these, the first three are compiled by the Labour Bureau in the Ministry of Labour and Employment. Fourth is compiled by the NSO in the Ministry of Statistics and Programme Implementation.

Base Year for CPI in general is 2012. However the base year for CPI for Industrial Worker (CPI-IW) is 2016.

WPI does not capture changes in the prices of services, which CPI does.

It measures the changes in the prices of goods sold and traded in bulk by wholesale businesses to other businesses.

Published by the Office of Economic Adviser, Ministry of Commerce and Industry.

It is the most widely used inflation indicator in India.

Major criticism for this index is that the general public does not buy products at wholesale price.

The base year of All-India WPI has been revised from 2004-05 to 2011-12 in 2017.

INFLATION

Consumer Price Index

Wholesale Price Index

Important terms

Conviction rate in human trafficking cases declining

Activists call for robust inter-State investigations

SHIV SARAY SINGH
KOLAKATA

Twice every week, two women from Basund in South 24 Parganas of West Bengal, visit a local non-governmental organisation at the subdivision headquarters from their village, seeking details of the investigation in the case relating to their rescue from traffickers. These women in their twenties were rescued four to five years ago, but there has been no conviction of the accused.

The conviction rate in cases of human trafficking has been on the decline, government data show. Details of cases shared in Parliament earlier this month showed that the conviction rate has been declining over the past four years although the number of anti human-trafficking units (AHTU) in the country has increased to 696.

The conviction rate of cases related to human trafficking dropped from 27.8% in 2016 to 10.6% in 2020. Between 2018 and 2019 the conviction rate in such cases increased from 19.4% to 22.5%.

The data has been sourced from a reply by Minister of State for Home Affairs Ajay Kumar Mishra to a question in the Rajya Sabha earlier this month.

Taresh, a collective action platform, said the fall in conviction rate was due to "absence of a strong and robust mechanism to investigate human trafficking cases that often span across State borders leading to acquittal of traffickers across the country".

"Though the crime is usually an organised and an inter-State one, the investigation is rarely inter-State. And since this is a case of circumstantial evidence until

Though the crime is usually an organised and an inter-State one, the investigation is rarely inter-State

SARVESH GUPTA
LAWYER

and unless the chain of circumstance is shown to be completed, conviction cannot be based on such evidence. Therefore, the low conviction rate is due to the problem and fallacies in investigation," lawyer Kaushik Gupta, a member of Taresh, said.

Compensation delay
Subhashree Raptan, an activist from Gauribose Gram Bikas Kendra, said that despite orders from Courts, more than a dozen of survivors have not been awarded compensation by the District Legal Service Authorities in South 24 Parganas alone.

"We have to understand that after their rescue, things don't miraculously fall in place for survivors. In several cases, the survivors are rescued from other States and inter-State investigation falls flat. It is the survivor that has to fight for justice, and compensation is essential for her fight," Ms. Raptan said.

Human trafficking, also called trafficking in persons, form of modern-day slavery involving the illegal transport of individuals by force or deception for the purpose of labour, sexual exploitation, or activities in which others benefit financially.

Anti-Trafficking Nodal Cell was set up in the Ministry of Home Affairs (MHA) in 2006 to act as a focal point

Anti Human Trafficking Unit (AHTU): The Ministry of Home Affairs under a Comprehensive Scheme 'Strengthening Law Enforcement Response in India against Trafficking in Persons' (2010) has released fund for establishment of AHTU for many districts of the country.

A Memorandum of Understanding (MoU) between India and Bangladesh for Prevention of Human Trafficking

India has ratified (in 2011) United Nations Convention on Transnational Organised Crime (UNTOC)

India has ratified the SAARC Convention on Preventing and Combating Trafficking in Women and Children for Prostitution.

Various Training of Trainers (TOT) workshops on 'Combating Trafficking in Human Beings' for Police officers and for Prosecutors at Regional level, State level and District level have been organized by the government throughout the country.

HUMAN TRAFFICKING

About

Other steps

Context

Details of cases shared in Parliament showed that the conviction rate has been declining over the past four years although the number of anti human-trafficking units (AHTU) in the country has increased to 696.

The conviction rate of cases related to human trafficking dropped from 27.8% in 2016 to 10.6% in 2020.

According to the Trafficking in Persons report 2021, released by the US State Department, the Covid-19 pandemic has resulted in an increase in vulnerability to human trafficking and interrupted existing anti-traffic efforts.

Tier 2 countries are those countries whose governments do not fully comply with minimum standards but are making significant efforts to bring themselves into compliance with those standards.

Tier 2 watchlist countries are those where the absolute number of victims of severe forms of trafficking is significant or is significantly increasing.

India is placed in Tier 2 category

Article 23 prohibits human trafficking and begar (forced labour without payment).

Article 24 forbids employment of children below the age of 14 years in dangerous jobs like factories and mines.

Section 370 and 370A of IPC provide for comprehensive measures to counter the menace of human trafficking including trafficking of children for exploitation in any form including physical exploitation or any form of sexual exploitation, slavery, servitude, or the forced removal of organs.

Sections 372 and 373 dealing with selling and buying of girls for the purpose of prostitution

The Immoral Traffic (Prevention) Act, 1956 (ITPA) is the premier legislation for prevention of trafficking for commercial sexual exploitation.

There are other specific legislations enacted relating to trafficking in women and children - Prohibition of Child Marriage Act, 2006, Boreded Labour System (Abolition) Act, 1976, Child Labour (Prohibition and Regulation) Act, 1986, Transplantation of Human Organs Act, 1994.

Protection of Children from Sexual offences (POCSO) Act, 2012, is a special law to protect children from sexual abuse and exploitation.

State Governments have also enacted specific legislations to deal with the issue (e.g. The Punjab Prevention of Human Smuggling Act, 2012).

Laws in India

Hydrogen policy calls for more incentives: experts

Production target of 5 mn tonne set

JACOB KOSHY
NEW DELHI

The 'Green Hydrogen' policy announced by the government on Thursday incentivises producers of this clean energy source.

Announced by the Energy Ministry on Thursday, the policy says that manufacturers of green hydrogen or ammonia may purchase renewable power from the power exchange or set up renewable energy capacity themselves or through any other developer anywhere. Interstate transmission charges will be waived for 25 years and they can also bank unused renewable power, up to 30 days, with distribution company.

Hydrogen or ammonia is produced, mostly by steam reformation with natural gas and sometimes by electrolysis, which is splitting water with electricity using renewable energy. The power to generate both these methods is sourced from hydrocarbons or natural gas. Green hydrogen results when the electricity is produced from a non-fossil fuel source such as solar or wind energy but this is currently uneconomical and the new policy aims to make this more viable.

The Centre has set itself a target of setting up a 5 million tonnes (mt) green hydrogen production by 2030. Because hydrogen only emits water as a residue when burnt, it is pitched as a potential substitute for fossil fuel.

Grid connectivity

The manufacturers of such hydrogen and ammonia are certain that they will be green plants and also be green connectivity to the grid on priority basis and they would also be allowed



An expert said that solar alone cannot be a green hydrogen producer.

to set up bunkers near ports for storing this green ammonia for export / use by shipping.

Close to 50-70% of the cost of green hydrogen results from input power costs of renewable energy, a substantial share being from waiting off of central open access charges is a good first step in enabling lower cost distributed production of green hydrogen. However, States have their own open access charges ranging from 0.27 to 3.8 ₹ per unit (kWh), also depending on whether it is solar or wind. Therefore, a concerted effort is required to remove the disparity in these charges to avoid a distorted green hydrogen market," said Hemant Malhotra, Senior Programme Lead, Council on Energy, Environment and Water (CEEW).

To make 5 million tonnes of hydrogen a large amount of land, large infrastructure and money would be necessary to meet that target. "The reality is solar alone cannot be a sole green hydrogen producer as there are certain inherent limitations in land, in water and in capital," said Nandini Kulkarni, Chief Scientist of Policy and CEO of Farnia Green Hydrogen Limited.

GREEN HYDROGEN POLICY

Context

Green Hydrogen Policy released by Ministry of Power

- This Policy will provide clean fuel, reduce India's dependence on fossil fuel and also reduce crude oil imports.
- Green Hydrogen Manufacturers with the coordination of distribution companies can store their unused renewable power for up to 30 days.
- Companies can get distribution licenses at concessional prices.
- Manufacturing companies would get Tax free inter-state transmission for 25 years.
- Ensuring grid to market Connectivity to attract investors and ensure timely delivery.
- Single Portal for all business activities to ensure ease of doing business.
- Manufacturers will be allowed to set up infrastructure near Ports for Trading activities by paying Charges to respective Port Authorities.
- Objective of this Policy: Increasing Production to meet domestic demand and also to become an exporter of Green Hydrogen.

Features

- Green hydrogen is defined as hydrogen produced by splitting water into hydrogen and oxygen using renewable electricity.
- The new policy would help the government in meeting their target of producing 5 million tonnes of Green hydrogen by 2030.
- The announcement of Green Hydrogen Policy will support the Government efforts in achieving the commitments made at COP 26.

Green Hydrogen

- On India's 75th Independence Day (15th August, 2021) the Prime Minister announced the National Hydrogen Mission.
- Under the Mission, India is targeting to produce three-fourths of its hydrogen from renewable resources by 2050.
- The Mission under the Ministry of Power aims to support India in meeting its Sustainable climate goals.
- Hydrogen is seen as the potential fuel to replace fossil fuels in future.
- It will help India in increasing its renewable energy capacity.
- This will help the government in achieving the target of 450 GW Renewable Energy by 2030.

National Hydrogen Mission

Hydrogen in India

Barriers to uptake of green hydrogen

- According to a report titled "The Potential Role of Hydrogen in India – Harnessing the Hype" by The Energy and Resources Institute (TERI) released in December last year, demand for hydrogen could increase by at least 5-fold by 2050, continuing to grow in the second half of the century in India.
- Demand for hydrogen is at around 6 metric tonne (MT) per annum, mainly from industry sectors, such as fertilizers and refineries.
- This can increase to around 28 MT by 2050 mainly due to cost reductions in key technologies and a push to reduce carbon footprint.
- Demand will mainly grow in steel and road transport, shipping and aviation sectors.
- The report also projected that India would require 40 MT of green hydrogen to achieve net zero carbon emissions by 2050.

- HIGH PRODUCTION COSTS** Green hydrogen produced would be two to three times more expensive than grey hydrogen. In addition, adopting green hydrogen technologies for end uses can be expensive. Vehicles with fuel cells and hydrogen tanks cost at least 1.5 to 2 times more than their fossil fuel counterparts.
- LACK OF DEDICATED INFRASTRUCTURE.** Hydrogen has to date been produced close to where it is used, with limited dedicated transport infrastructure.
- ENERGY LOSSES.** Green hydrogen incurs significant energy losses at each stage of the value chain. About 30-35% of the energy used to produce hydrogen through electrolysis is lost.
- LACK OF VALUE RECOGNITION.** There is no green hydrogen market, no green steel, no green shipping fuel and basically no valuation of the lower GHG emissions that green hydrogen can deliver.

Centre moots policy on synthetic biology

It deals with engineering life forms for applications in designer medicines, foods

JACOB KOSHY
NEW DELHI

The Centre is working on a national policy on synthetic biology, an emerging science that deals with engineering life forms for a wide range of applications from making designer medicines to foods.

The 70-page 'compilation' document, as it is called, lays out the state of synthetic biology internationally with respect to research and development and the involvement of the private sector, globally, in dealing with synthetic biology.

"Though it is not customary to elaborate the principles of international law and policies, as presented in this compilation, it is important to consider these elements while developing the national policy, especially since the science and regulatory framework related to use of the science is driven by global considerations and decisions," the experts note.

As part of the 12th Five-Year Plan, India had set up a task force on systems biology



Not on the plate: A protest against genetically modified foods and agro products, in Chandigarh. • FILE PHOTO

moored the creation of an independent regulator to adjudicate research around genetic engineering that could have also encompassed synthetic biology. There's also a ban on commercial genetically modified brinjal and many States have restrictions on field trials on GM food crops.

Top technology
Synthetic biology, the report notes, is seen as one of the top 10 breakthrough technologies as part of the "new industrial revolution," that

is a world leader as a protector and supporter of "open source biological platforms". However, Parliament is yet to clear the Biotechnology Regulatory Authority of India Bill, 2013, that had

are "most likely to change the world", and the regulation of both the benefits and risks become important for the international community and the accelerating pace of scientific research and research. Irregularities about the specific benefits of synthetic biology created "complex challenges" for national regulation.

"The regulatory challenge is how to leverage its anticipated benefits while guarding against its potential risks. The laws and regulations framework governing traditional tools and products of biotechnology can be applicable to this relatively nascent field in some ways, but most often it fails to fully adapt to the evolving possibilities of synthetic biology," it notes.

Instances of application of synthetic biology include the use of gene editing systems such as CRISPR that allow defective genes in animals, plants and even people to be silenced, or changed, and control biological outcomes.

Misuse of these technologies and a failure to account for unintended consequences could cause irreversible environmental damage.

Often with little prior knowledge of the field, enthusiasts meet in makeshift labs to take crash courses in biotechnology and conduct hands-on experiments.

Many of the ethical questions relevant to synthetic biology are similar to ethical discussions related to genome editing like:

Are humans crossing moral boundaries by redesigning organisms with synthetic biology techniques?
If synthetic biology yields new treatments and cures for diseases, who in our society will have access to them?

*Drugs and Cosmetics Rules – 1988

*Protection of Plant Varieties and Farmers' Rights Act, 2001.

*Biological Diversity Act, 2002

*Food Safety and Standards Act 2006

*Convention on Biological Diversity (CBD)

*Food and Agricultural Organisation (FAO)

*Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

*International Union for the Conservation of Nature (IUCN)

*Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS)

*UN Convention on the Law of the Sea (UNCLOS)

*Biological Weapons Convention

The Centre is working on a national policy on synthetic biology, an emerging science that deals with engineering life forms for a wide range of applications from making designer medicines to foods

The 70-page 'compilation' document, as it is called, lays out the state of synthetic biology internationally with respect to research and development and the involvement of the private sector, globally, in dealing with synthetic biology

As part of the 12th Five-Year Plan, India had set up a task force on systems biology and synthetic biology research in 2011.

The term 'synthetic biology' was first used by Barbara Hobom in 1980, to describe bacteria that had been genetically engineered using recombinant DNA technology.

Synthetic biology refers to the science of using genetic sequencing, editing, and modification to create unnatural organisms or organic molecules that can function in living systems.

Synthetic biology enables scientists to design and synthesise new sequences of DNA from scratch.

The term was used to describe the synthesis of unnatural organic molecules that function in living systems.

More broadly in this sense, the term has been used with reference to efforts to 'redesign life'.

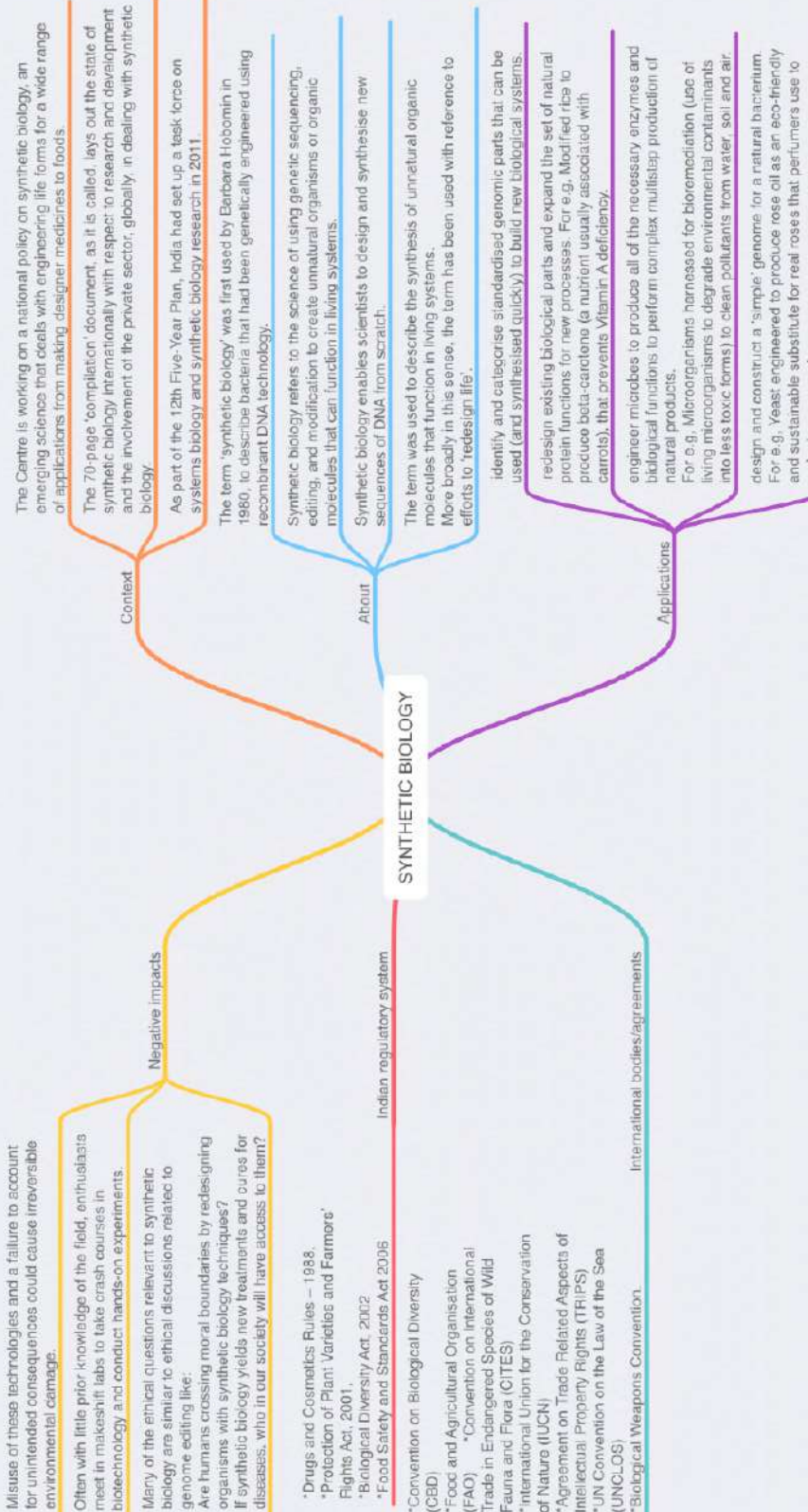
Identify and catalogue standardised genomic parts that can be used (and synthesised quickly) to build new biological systems.

redesign existing biological parts and expand the set of natural protein functions for new processes. For e.g. Modified rice to produce beta-carotene (a nutrient usually associated with carrots), that prevents Vitamin A deficiency.

engineer microbes to produce all of the necessary enzymes and biological functions to perform complex multistep production of natural products.

For e.g. Microorganisms harnessed for bioremediation (use of living microorganisms to degrade environmental contaminants into less toxic forms) to clean pollutants from water, soil and air.

design and construct a 'simple' genome for a natural bacterium. For e.g. Yeast engineered to produce rose oil as an eco-friendly and sustainable substitute for real roses that perfumers use to make luxury scents.



Govt. not against use of blockchain: Somanathan

‘Unrelated to stance on crypto assets’

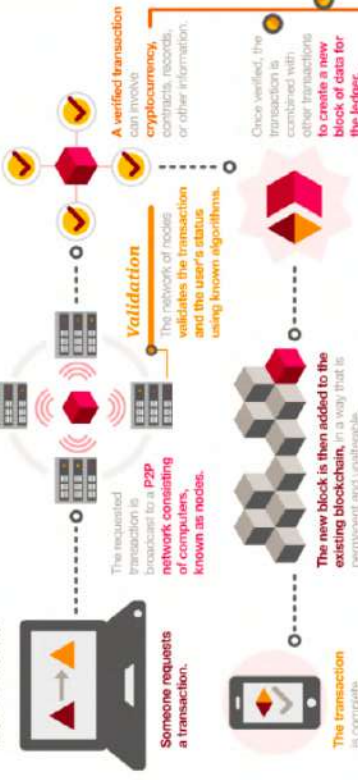
- *Blockchain technology is expensive to initially put in place.
- *The massive usage of energy for the functioning of blockchain.
- *Safeguarding the privacy of individuals and companies as blockchains are usually open ledgers for everyone to see. Knowledge of the benefits of distributed ledger technology is still limited.
- *If automated risk management, smart contracts, and similar tools are deployed across a network, cascades of rapid and hard-to-control obligations and liquidity flows could propagate across a network.
- *This interdependence will likely call for creative organizational thinking to address the need for governance and strong risk management
- *Bitcoin is just one of the applications for the technology, whose use is being tested across industries.
- *Healthcare, banking, education, agriculture, electricity distribution and land records are sectors that could benefit.
- *Blockchain-powered smart contracts, where every piece of information is recorded can enhance ease of doing business.
- *It will augment the credibility, accuracy, and efficiency of a contract while reducing the risk of frauds, substantially.
- *Blockchain could play a crucial part in health insurance claims management by reducing the risk of insurance claim frauds.
- *The technology can also be used to prevent the sale of spurious drugs in the country by tracking every step of the supply chain network.
- *Artificial Intelligence and Internet of Things (IoT) can gain immensely from blockchain applications.
- *In an IoT world, thousands of devices would need to rapidly and seamlessly transact with each other in real time.
- *The adoption of blockchain by India's banks could help avert frauds such as the one at Punjab National Bank as the technology updates information across all users simultaneously.
- *It could be used to further strengthen our national institutions, including the judiciary and the Election Commission.

Critical citizen information like land records, census data, birth and death records, business licenses, criminal records, intellectual property registry, electoral rolls could all be maintained as blockchain-powered, tamper-proof public ledgers.

A look at blockchain technology

What is it? The blockchain is a decentralized ledger of all transactions across a peer-to-peer network. Using this technology, participants can confirm transactions without the need for a central certifying authority. Potential applications include fund transfers, settling trades, voting, and many other uses.

How it works:



The Centre has no intent to bar the use of blockchain technologies for functions other than those related to payments and the creation of crypto assets, a Finance Ministry official said, allaying fears stemming from the government's ambiguous stance on the legitimacy of crypto assets.

Challenges

Context

They are a new data structure that is secure, cryptography-based, and distributed across a network. The technology supports cryptocurrencies such as Bitcoin, and the transfer of any data or digital asset.

About

Spineheaded by Bitcoin, blockchains achieve consensus among distributed nodes, allowing the transfer of digital goods without the need for centralized authorization of transactions.

BLOCKCHAIN TECHNOLOGY

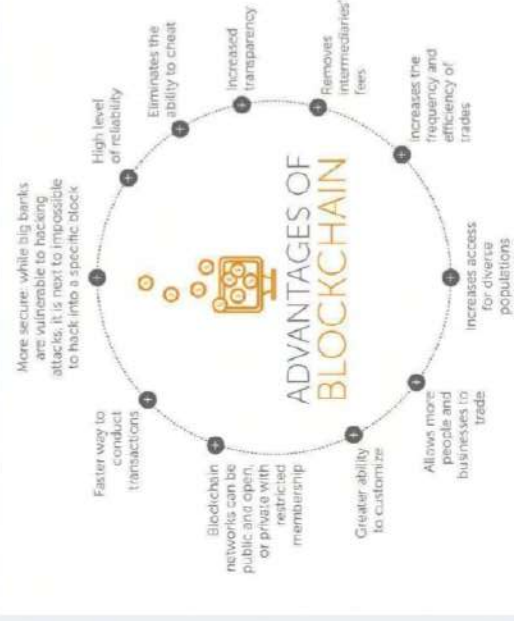
The technology allows transactions to be simultaneously anonymous and secure, peer-to-peer, instant and frictionless.

It does this by distributing trust from powerful intermediaries to a large global network, which through mass collaboration, clever code and cryptography, enables a tamper-proof public ledger of every transaction that's ever happened on the network.

A block is the "current" part of a blockchain which records some or all of the recent transactions, and once completed, goes into the blockchain as permanent database.

Each time a block gets completed, a new block is generated. Blocks are linked to each other (like a chain) in proper linear, chronological order with every block containing a hash of the previous block.

Prospects



Panel on AFSPA removal misses '45-day' deadline

It was formed after the botched Army operation in Nagaland

VIJAYTA SINGH
NEW DELHI

A committee constituted by the Union Home Ministry in December to study the withdrawal of the Armed Forces (Special Powers) Act, or AFSPA, from Nagaland, slated to submit a report within 45 days as claimed by Chief Minister Neiphiu Rio, is yet to conclude its findings.

The panel was formed in the wake of growing civilian anger against the botched ambush by an elite unit of the Army that led to the killing of 12 civilians at Oting in Nagaland's Mon district on December 4.

Solitary visit

The six-member committee, headed by Registrar-General of India Vivek Joshi, made a solitary visit to the State in January. Though Mr. Rio claimed on December 26 that the panel had 45 days (by February 9) to submit its report, the Home Ministry's order accessed by *The Hindu* says the committee is to make "suitable recommendations" within three months (March 25).

Special powers

A timeline of the events leading to the formation of the committee



Dec. 4, 2021: 13 villagers are killed in a botched operation by the Army in Oting village of Nagaland. Another person is killed later during a protest.

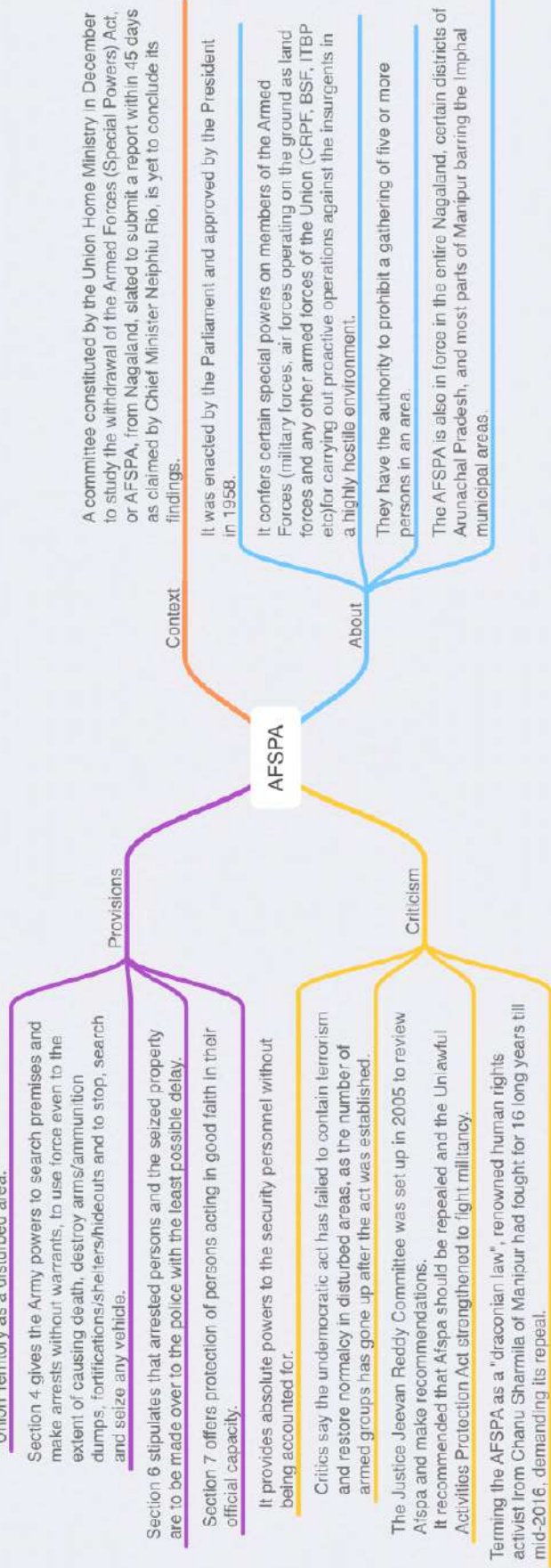
Dec. 6: Home Minister Amit Shah tells Parliament that the civilians, who were returning from a coal mine, tried to flee when the para-commandos of the Army signalled their vehicle to stop.

Dec. 8: The Konyak Naga Union issues a statement accusing the Home Minister of presenting misleading, inadmissible and false statement in Parliament.

Dec. 20: Amid massive protests, Nagaland Assembly passes a resolution

Mr. Zeliang had issued a joint statement with Mr. Rio announcing the constitution of the committee on December 26.

CONTINUED ON PAGE 8



*The Vienna Convention: It creates an obligation for signatory states to criminalize the laundering of money from drug trafficking.

*The 1990 Council of Europe Convention: It establishes a common criminal policy on Money Laundering.

*G-10's Basel Committee statement of principles: It issued a 'statement of principles' with which the international banks of member states are expected to comply.

*The International Organization of Securities Commissions (IOSCO): It encourages its members to take necessary steps to combat Money Laundering in securities and futures markets.

*The Financial Action Task Force: It has been set up by the governments of the G-7 countries

*IMF: It has pressed its 189 member countries to comply with international standards to thwart terrorist financing.

*The United Nations office on Drugs and Crime: It proactively tries to identify and stop Money Laundering.

Global efforts

Bulk Cash Smuggling, Cash Intensive Businesses, Trade-based laundering, Shell companies and trusts, Round-tripping, Bank Capture, Gambling, Real Estate, Black Salaries, Fictitious Loans, Hawala, False Invoicing.

Money laundering is a three-stage process :

Placement: The first stage is when the crime money is injected into the formal financial system.

Layering: In the second stage, money injected into the system is layered and spread over various transactions with a view to obfuscate the tainted origin of the money.

Integration: In the third and the final stage, money enters the financial system in such a way that original association with the crime is sought to be wiped out and the money can then be used by the offender as clean money.

*Criminal Law Amendment Ordinance (XXXVIII of 1944): It covers proceeds of only certain crimes such as corruption, breach of trust and cheating and not all the crimes under the Indian Penal Code.

*The Smugglers and Foreign Exchange Manipulators (Forfeiture of Property) Act, 1976

*Narcotic Drugs and Psychotropic Substances Act, 1985: It provides for the penalty of property derived from, or used in illegal traffic in narcotic drugs.

*Prevention of Money-Laundering Act, 2002 (PMLA)

*PMLA (Amendment) Act, 2012

*Financial Intelligence Unit-IND

*Enforcement Directorate (ED)

*India is a full-fledged member of the FATF and follows the guidelines of the same.

MONEY LAUNDERING

Context

The government informed the Supreme Court that ₹18,000 crore was confiscated under the Prevention of Money Laundering Act (PMLA) from fugitive businessmen Vijay Malviya, Nirav Modi and Mehul Choksi, and returned to banks.

The government said the total proceeds of crime in PMLA cases pending before the court is ₹67,000 crore.

The Solicitor-General quoted a United Nations report which said the proceeds of crime being laundered amount to \$2.1 trillion, which accounts for 3.67% of the global GDP. He said three "supra-national or transnational" crimes which have brought together the global community are narcotics, money laundering and terrorism.

Very small number of cases are being taken up for investigation under the PMLA as compared to annual registration of the cases under the Money Laundering Act in the UK (7,900), the U.S. (1,532), China (4,691), Austria (1,036), Hong Kong (1,823), Belgium (1,862) and Russia (2,764)

Money laundering is the process of making large amounts of money generated by criminal activity, such as drug trafficking or terrorist funding, appear to have come from a legitimate source.

Criminal activities like illegal arms sales, smuggling, drug trafficking and prostitution rings, insider trading, bribery and computer fraud schemes produce large profits.

Thereby it creates the incentive for money launderers to 'legitimise' the ill-gotten gains through money laundering.

The money generated is called 'dirty money' and money laundering is the process of conversion of 'dirty money', to make it appear as 'legitimate' money.

About

Economic Impacts:

Undermines legitimacy of private sector

Undermines integrity of financial markets

Loss of control of economic policy

Economic distortion and instability

Loss of revenue

Security threats to privatisation efforts

Volatility in exchange rates and interest rates due to unanticipated transfers of funds

Rise of economic prices

Affects trade and international capital flows

Social Impacts:

Increased criminality

Decreases human development

Misallocation of resources

Affects trust of local citizens in their domestic financial institutions

Declines the moral and social position of the society by exposing it to activities such as drug trafficking, smuggling, corruption and other criminal activities

Political Impacts:

Initiates political distrust and instability

Criminalisation of politics

THE HINDU

'Money laundering a global problem',

Accused run to smaller nations where they can buy citizenship, Centre tells SC



LEGAL CORRESPONDENT

The government on Wednesday informed the Supreme Court that ₹18,000 crore was confiscated under the Prevention of Money Laundering Act (PMLA) from fugitive businessmen Vijay Malviya, Nirav Modi and Mehul Choksi, and returned to banks.

Appearing before a bench of Justices Dinesh Kumar and Justice Arun Mishra, Solicitor-General Tushar Mehta submitted that money laundering is a "global problem".

The government said the total proceeds of crime in PMLA cases pending before the court is ₹67,000 crore.

Very small number of cases are being taken up for investigation under the PMLA as compared to annual registration of the cases under the Money Laundering Act in the UK (7,900), the U.S. (1,532), China (4,691), Austria (1,036), Hong Kong (1,823), Belgium (1,862) and Russia (2,764), he submitted.

He said "corruption in five years, from 1991 to 1995, from 1995 to 2000, from 2000 to 2005, from 2005 to 2010, from 2010 to 2015, from 2015 to 2020, from 2020 to 2025, from 2025 to 2030, from 2030 to 2035, from 2035 to 2040, from 2040 to 2045, from 2045 to 2050, from 2050 to 2055, from 2055 to 2060, from 2060 to 2065, from 2065 to 2070, from 2070 to 2075, from 2075 to 2080, from 2080 to 2085, from 2085 to 2090, from 2090 to 2095, from 2095 to 2100, from 2100 to 2105, from 2105 to 2110, from 2110 to 2115, from 2115 to 2120, from 2120 to 2125, from 2125 to 2130, from 2130 to 2135, from 2135 to 2140, from 2140 to 2145, from 2145 to 2150, from 2150 to 2155, from 2155 to 2160, from 2160 to 2165, from 2165 to 2170, from 2170 to 2175, from 2175 to 2180, from 2180 to 2185, from 2185 to 2190, from 2190 to 2195, from 2195 to 2200, from 2200 to 2205, from 2205 to 2210, from 2210 to 2215, from 2215 to 2220, from 2220 to 2225, from 2225 to 2230, from 2230 to 2235, from 2235 to 2240, from 2240 to 2245, from 2245 to 2250, from 2250 to 2255, from 2255 to 2260, from 2260 to 2265, from 2265 to 2270, from 2270 to 2275, from 2275 to 2280, from 2280 to 2285, from 2285 to 2290, from 2290 to 2295, from 2295 to 2300, from 2300 to 2305, from 2305 to 2310, from 2310 to 2315, from 2315 to 2320, from 2320 to 2325, from 2325 to 2330, from 2330 to 2335, from 2335 to 2340, from 2340 to 2345, from 2345 to 2350, from 2350 to 2355, from 2355 to 2360, from 2360 to 2365, from 2365 to 2370, from 2370 to 2375, from 2375 to 2380, from 2380 to 2385, from 2385 to 2390, from 2390 to 2395, from 2395 to 2400, from 2400 to 2405, from 2405 to 2410, from 2410 to 2415, from 2415 to 2420, from 2420 to 2425, from 2425 to 2430, from 2430 to 2435, from 2435 to 2440, from 2440 to 2445, from 2445 to 2450, from 2450 to 2455, from 2455 to 2460, from 2460 to 2465, from 2465 to 2470, from 2470 to 2475, from 2475 to 2480, from 2480 to 2485, from 2485 to 2490, from 2490 to 2495, from 2495 to 2500, from 2500 to 2505, from 2505 to 2510, from 2510 to 2515, from 2515 to 2520, from 2520 to 2525, from 2525 to 2530, from 2530 to 2535, from 2535 to 2540, from 2540 to 2545, from 2545 to 2550, from 2550 to 2555, from 2555 to 2560, from 2560 to 2565, from 2565 to 2570, from 2570 to 2575, from 2575 to 2580, from 2580 to 2585, from 2585 to 2590, from 2590 to 2595, from 2595 to 2600, from 2600 to 2605, from 2605 to 2610, from 2610 to 2615, from 2615 to 2620, from 2620 to 2625, from 2625 to 2630, from 2630 to 2635, from 2635 to 2640, from 2640 to 2645, from 2645 to 2650, from 2650 to 2655, from 2655 to 2660, from 2660 to 2665, from 2665 to 2670, from 2670 to 2675, from 2675 to 2680, from 2680 to 2685, from 2685 to 2690, from 2690 to 2695, from 2695 to 2700, from 2700 to 2705, from 2705 to 2710, from 2710 to 2715, from 2715 to 2720, from 2720 to 2725, from 2725 to 2730, from 2730 to 2735, from 2735 to 2740, from 2740 to 2745, from 2745 to 2750, from 2750 to 2755, from 2755 to 2760, from 2760 to 2765, from 2765 to 2770, from 2770 to 2775, from 2775 to 2780, from 2780 to 2785, from 2785 to 2790, from 2790 to 2795, from 2795 to 2800, from 2800 to 2805, from 2805 to 2810, from 2810 to 2815, from 2815 to 2820, from 2820 to 2825, from 2825 to 2830, from 2830 to 2835, from 2835 to 2840, from 2840 to 2845, from 2845 to 2850, from 2850 to 2855, from 2855 to 2860, from 2860 to 2865, from 2865 to 2870, from 2870 to 2875, from 2875 to 2880, from 2880 to 2885, from 2885 to 2890, from 2890 to 2895, from 2895 to 2900, from 2900 to 2905, from 2905 to 2910, from 2910 to 2915, from 2915 to 2920, from 2920 to 2925, from 2925 to 2930, from 2930 to 2935, from 2935 to 2940, from 2940 to 2945, from 2945 to 2950, from 2950 to 2955, from 2955 to 2960, from 2960 to 2965, from 2965 to 2970, from 2970 to 2975, from 2975 to 2980, from 2980 to 2985, from 2985 to 2990, from 2990 to 2995, from 2995 to 3000, from 3000 to 3005, from 3005 to 3010, from 3010 to 3015, from 3015 to 3020, from 3020 to 3025, from 3025 to 3030, from 3030 to 3035, from 3035 to 3040, from 3040 to 3045, from 3045 to 3050, from 3050 to 3055, from 3055 to 3060, from 3060 to 3065, from 3065 to 3070, from 3070 to 3075, from 3075 to 3080, from 3080 to 3085, from 3085 to 3090, from 3090 to 3095, from 3095 to 3100, from 3100 to 3105, from 3105 to 3110, from 3110 to 3115, from 3115 to 3120, from 3120 to 3125, from 3125 to 3130, from 3130 to 3135, from 3135 to 3140, from 3140 to 3145, from 3145 to 3150, from 3150 to 3155, from 3155 to 3160, from 3160 to 3165, from 3165 to 3170, from 3170 to 3175, from 3175 to 3180, from 3180 to 3185, from 3185 to 3190, from 3190 to 3195, from 3195 to 3200, from 3200 to 3205, from 3205 to 3210, from 3210 to 3215, from 3215 to 3220, from 3220 to 3225, from 3225 to 3230, from 3230 to 3235, from 3235 to 3240, from 3240 to 3245, from 3245 to 3250, from 3250 to 3255, from 3255 to 3260, from 3260 to 3265, from 3265 to 3270, from 3270 to 3275, from 3275 to 3280, from 3280 to 3285, from 3285 to 3290, from 3290 to 3295, from 3295 to 3300, from 3300 to 3305, from 3305 to 3310, from 3310 to 3315, from 3315 to 3320, from 3320 to 3325, from 3325 to 3330, from 3330 to 3335, from 3335 to 3340, from 3340 to 3345, from 3345 to 3350, from 3350 to 3355, from 3355 to 3360, from 3360 to 3365, from 3365 to 3370, from 3370 to 3375, from 3375 to 3380, from 3380 to 3385, from 3385 to 3390, from 3390 to 3395, from 3395 to 3400, from 3400 to 3405, from 3405 to 3410, from 3410 to 3415, from 3415 to 3420, from 3420 to 3425, from 3425 to 3430, from 3430 to 3435, from 3435 to 3440, from 3440 to 3445, from 3445 to 3450, from 3450 to 3455, from 3455 to 3460, from 3460 to 3465, from 3465 to 3470, from 3470 to 3475, from 3475 to 3480, from 3480 to 3485, from 3485 to 3490, from 3490 to 3495, from 3495 to 3500, from 3500 to 3505, from 3505 to 3510, from 3510 to 3515, from 3515 to 3520, from 3520 to 3525, from 3525 to 3530, from 3530 to 3535, from 3535 to 3540, from 3540 to 3545, from 3545 to 3550, from 3550 to 3555, from 3555 to 3560, from 3560 to 3565, from 3565 to 3570, from 3570 to 3575, from 3575 to 3580, from 3580 to 3585, from 3585 to 3590, from 3590 to 3595, from 3595 to 3600, from 3600 to 3605, from 3605 to 3610, from 3610 to 3615, from 3615 to 3620, from 3620 to 3625, from 3625 to 3630, from 3630 to 3635, from 3635 to 3640, from 3640 to 3645, from 3645 to 3650, from 3650 to 3655, from 3655 to 3660, from 3660 to 3665, from 3665 to 3670, from 3670 to 3675, from 3675 to 3680, from 3680 to 3685, from 3685 to 3690, from 3690 to 3695, from 3695 to 3700, from 3700 to 3705, from 3705 to 3710, from 3710 to 3715, from 3715 to 3720, from 3720 to 3725, from 3725 to 3730, from 3730 to 3735, from 3735 to 3740, from 3740 to 3745, from 3745 to 3750, from 3750 to 3755, from 3755 to 3760, from 3760 to 3765, from 3765 to 3770, from 3770 to 3775, from 3775 to 3780, from 3780 to 3785, from 3785 to 3790, from 3790 to 3795, from 3795 to 3800, from 3800 to 3805, from 3805 to 3810, from 3810 to 3815, from 3815 to 3820, from 3820 to 3825, from 3825 to 3830, from 3830 to 3835, from 3835 to 3840, from 3840 to 3845, from 3845 to 3850, from 3850 to 3855, from 3855 to 3860, from 3860 to 3865, from 3865 to 3870, from 3870 to 3875, from 3875 to 3880, from 3880 to 3885, from 3885 to 3890, from 3890 to 3895, from 3895 to 3900, from 3900 to 3905, from 3905 to 3910, from 3910 to 3915, from 3915 to 3920, from 3920 to 3925, from 3925 to 3930, from 3930 to 3935, from 3935 to 3940, from 3940 to 3945, from 3945 to 3950, from 3950 to 3955, from 3955 to 3960, from 3960 to 3965, from 3965 to 3970, from 3970 to 3975, from 3975 to 3980, from 3980 to 3985, from 3985 to 3990, from 3990 to 3995, from 3995 to 4000, from 4000 to 4005, from 4005 to 4010, from 4010 to 4015, from 4015 to 4020, from 4020 to 4025, from 4025 to 4030, from 4030 to 4035, from 4035 to 4040, from 4040 to 4045, from 4045 to 4050, from 4050 to 4055, from 4055 to 4060, from 4060 to 4065, from 4065 to 4070, from 4070 to 4075, from 4075 to 4080, from 4080 to 4085, from 4085 to 4090, from 4090 to 4095, from 4095 to 4100, from 4100 to 4105, from 4105 to 4110, from 4110 to 4115, from 4115 to 4120, from 4120 to 4125, from 4125 to 4130, from 4130 to 4135, from 4135 to 4140, from 4140 to 4145, from 4145 to 4150, from 4150 to 4155, from 4155 to 4160, from 4160 to 4165, from 4165 to 4170, from 4170 to 4175, from 4175 to 4180, from 4180 to 4185, from 4185 to 4190, from 4190 to 4195, from 4195 to 4200, from 4200 to 4205, from 4205 to 4210, from 4210 to 4215, from 4215 to 4220, from 4220 to 4225, from 4225 to 4230, from 4230 to 4235, from 4235 to 4240, from 4240 to 4245, from 4245 to 4250, from 4250 to 4255, from 4255 to 4260, from 4260 to 4265, from 4265 to 4270, from 4270 to 4275, from 4275 to 4280, from 4280 to 4285, from 4285 to 4290, from 4290 to 4295, from 4295 to 4300, from 4300 to 4305, from 4305 to 4310, from 4310 to 4315, from 4315 to 4320, from 4320 to 4325, from 4325 to 4330, from 4330 to 4335, from 4335 to 4340, from 4340 to 4345, from 4345 to 4350, from 4350 to 4355, from 4355 to 4360, from 4360 to 4365, from 4365 to 4370, from 4370 to 4375, from 4375 to 4380, from 4380 to 4385, from 4385 to 4390, from 4390 to 4395, from 4395 to 4400, from 4400 to 4405, from 4405 to 4410, from 4410 to 4415, from 4415 to 4420, from 4420 to 4425, from 4425 to 4430, from 4430 to 4435, from 4435 to 4440, from 4440 to 4445, from 4445 to 4450, from 4450 to 4455, from 4455 to 4460, from 4460 to 4465, from 4465 to 4470, from 4470 to 4475, from 4475 to 4480, from 4480 to 4485, from 4485 to 4490, from 4490 to 4495, from 4495 to 4500, from 4500 to 4505, from 4505 to 4510, from 4510 to 4515, from 4515 to 4520, from 4520 to 4525, from 4525 to 4530, from 4530 to 4535, from 4535 to 4540, from 4540 to 4545, from 4545 to 4550, from 4550 to 4555, from 4555 to 4560, from 4560 to 4565, from 4565 to 4570, from 4570 to 4575, from 4575 to 4580, from 4580 to 4585, from 4585 to 4590, from 4590 to 4595, from 4595 to 4600, from 4600 to 4605, from 4605 to 4610, from 4610 to 4615, from 4615 to 4620, from 4620 to 4625, from 4625 to 4630, from 4630 to 4635, from 4635 to 4640, from 4640 to 4645, from 4645 to 4650, from 4650 to 4655, from 4655 to 4660, from 4660 to 4665, from 4665 to 4670, from 4670 to 4675, from 4675 to 4680, from 4680 to 4685, from 4685 to 4690, from 4690 to 4695, from 4695 to 4700, from 4700 to 4705, from 4705 to 4710, from 4710 to 4715, from 4715 to 4720, from 4720 to 4725, from 4725 to 4730, from 4730 to 4735, from 4735 to 4740, from 4740 to 4745, from 4745 to 4750, from 4750 to 4755, from 4755 to 4760, from 4760 to 4765, from 4765 to 4770, from 4770 to 4775, from 4775 to 4780, from 4780 to 4785, from 4785 to 4790, from 4790 to 4795, from 4795 to 4800, from 4800 to 4805, from 4805 to 4810, from 4810 to 4815, from 4815 to 4820, from 4820 to 4825, from 4825 to 4830, from 4830 to 4835, from 4835 to 4840, from 4840 to 4845, from 4845 to 4850, from 4850 to 4855, from 4855 to 4860, from 4860 to 4865, from 4865 to 4870, from 4870 to 4875, from 4875 to 4880, from 4880 to 4885, from 4885 to 4890, from 4890 to 4895, from 4895 to 4900, from 4900 to 4905, from 4905 to 4910, from 4910 to 4915, from 4915 to 4920, from 4920 to 4925, from 4925 to 4930, from 4930 to 4935, from 4935 to 4940, from 4940 to 4945, from 4945 to 4950, from 4950 to 4955, from 4955 to 4960, from 4960 to 4965, from 4965 to 4970, from 4970 to 4975, from 4975 to 4980, from 4980 to 4985, from 4985 to 4990, from 4990 to 4995, from 4995 to 5000, from 5000 to 5005, from 5005 to 5010, from 5010 to 5015, from 5015 to 5020, from 5020 to 5025, from 5025 to 5030, from 5030 to 5035, from 5035 to 5040, from 5040 to 5045, from 5045 to 5050, from 5050 to 5055, from 5055 to 5060, from 5060 to 5065, from 5065 to 5070, from 5070 to 5075, from 5075 to 5080, from 5080 to 5085, from 5085 to 5090, from 5090 to 5095, from 5095 to 5100, from 5100 to 5105, from 5105 to 5110, from 5110 to 5115, from 5115 to 5120, from 5120 to 5125, from 5125 to 5130, from 5130 to 5135, from 5135 to 5140, from 5140 to 5145, from 5145 to 5150, from 5150 to 5155, from 5155 to 5160, from 5160 to 5165, from 5165 to 5170, from 5170 to 5175, from 5175 to 5180, from 5180 to 5185, from 5185 to 5190, from 5190 to 5195, from 5195 to 5200, from 5200 to 5205, from 5205 to 5210, from 5210 to 5215, from 5215 to 5220, from 5220 to 5225, from 5225 to 5230, from 5230 to 5235, from 5235 to 5240, from 5240 to 5245, from 5245 to 5250, from 5250 to 5255, from 5255 to 5260, from 5260 to 5265, from 5265 to 5270, from 5270 to 5275, from 5275 to 5280, from 5280 to 5285, from 5285 to 5290, from 5290 to 5295, from 5295 to 5300, from 5300 to 5305, from 5305 to 5310, from 5310 to 5315, from 5315 to 5320, from 5320 to 5325, from 5325 to 5330, from 5330 to 5335, from 5335 to 5340, from 5340 to 5345, from 5345 to 5350, from 5350 to 5355, from 5355 to 5360, from 5360 to 5365, from 5365 to 5370, from 5370 to 5375, from 5375 to 5380, from 5380 to 5385, from 5385 to 5390, from 5390 to 5395, from 5395 to 5400, from 54

- *To seek commercial gain by hacking banks and financial institutions.
- *To attack critical assets of a nation.
- *To penetrate into both corporate and military data servers to obtain plans and intelligence.
- *To hack sites to virally communicate a message for some specific campaign related to politics and society.

International Telecommunication Union (ITU) is a specialized agency within the United Nations which plays a leading role in the standardization and development of telecommunications and cyber security issues.

Budapest Convention on Cybercrime

Internet Governance Forum (IGF): It brings together all stakeholders i.e. government, private sector and civil society on the Internet governance debate.

Internet Corporation for Assigned Names and Numbers (ICANN): It is a non-profit organization responsible for coordinating the maintenance and procedures of several databases related to the namespaces and numerical spaces of the Internet, ensuring the network's stable and secure operation

Information Technology Act, 2000

National Cyber Policy, 2013

Cyber Swachhata Kendra

Training under the Information Security Education and Awareness Project

National Critical Information Infrastructure Protection Centre

Cyber Surakshit Bharat Initiative

National Cyber security Coordination Centre

Motives behind cyberattacks

CYBERSECURITY

Context

A new report from a Beijing-based cybersecurity firm said hackers linked with the U.S. National Security Agency (NSA) were found to have inserted "covert backdoors" that may have given them access to sensitive information in dozens of countries, including India, Russia, China and Japan.

Phishing: It is the method of trying to gather personal information using deceptive e-mails and websites.

Man-in-the-middle (MitM) attacks, also known as eavesdropping attacks, occur when attackers insert themselves into a two-party transaction. Once the attackers interrupt the traffic, they can filter and steal data.

Social engineering is an attack that relies on human interaction to trick users into breaking security procedures in order to gain sensitive information that is typically protected.

Malware, short for malicious software refers to any kind of software that is designed to cause damage to a single computer, server, or computer network. Ransomware, Spy ware, Worms, viruses, and Trojans are all varieties of malware.

Denial of Service attacks: A Denial-of-Service (DoS) attack is an attack meant to shut down a machine or network, making it inaccessible to its intended users. DoS attacks accomplish this by flooding the target with traffic, or sending it information that triggers a crash.

A SQL injection attack specifically targets such kind of servers, using malicious code to get the server to divulge information it normally wouldn't.

Cross-Site Scripting (XSS):

Similar to an SQL injection attack, this attack also involves injecting malicious code into a website, but in this case the website itself is not being attacked.

Application Security,

Information security, Network Security, Disaster Recovery Planning

Cyber Security is protecting cyber space including critical information infrastructure from attack, damage, misuse and economic espionage.

Photos, videos and other personal information shared by an individual on social networking sites can be inappropriately used by others, leading to serious and even life-threatening incidents.

Companies have a lot of data and information on their systems. A cyber attack may lead to loss of competitive information (such as patents or original work), loss of employees/customers private data resulting into complete loss of public trust on the integrity of the organization.

A local, state or central government maintains huge amount of confidential data related to country (geographical, military strategic assets etc.) and citizens. Unauthorized access to the data can lead to serious threats on a country.

THE HINDU

U.S. group hacked Indian research institutes: China firm

Websites of Institute of Microbial Technology, Indian Academy of Sciences, Banaras Hindu University among those reportedly compromised

ANANTH KRISHNAN

A new report from a Beijing-based cybersecurity firm said hackers linked with the U.S. National Security Agency (NSA) were found to have inserted "covert backdoors" that may have given them access to sensitive information in dozens of countries, including India, Russia, China and Japan.

Among the reportedly compromised websites listed in the report were those linked to one of India's top microbial research labs—the Institute of Microbial Technology (IMTech) under the Council of Scientific and Industrial Research—as well as the Indian Academy of Sciences in Bengaluru. Websites linked to Banaras Hindu University were also listed as being hacked into.



by insiders.

"In 2016 and 2017," the report said, "the 'Shadow Brokers' published two batches of hacking files claimed to be used by 'The

Equation Group'. In these hacking files, researchers from Pangu Lab found the private key that can be used to remotely trigger the backdoor. Bypassing a hacker tool belonging to 'The Equation Group', through further research, the researchers found that the multiple procedures and attack operation manuals disclosed by the 'Shadow Brokers' are completely consistent with the only identifier used in the NSA network attack platform operation manual exposed by CIA analyst Snowden in the PRISM incident in

2007." The report, which explained the technicalities of how the backdoor worked, said this was "a backdoor communication technology that has never been seen before, implying an organisational, including strong technical capabilities behind it".

"As an advanced attack tool, Bypass has allowed the world to see its complexity," it said. "What is shocking is that after analysis, it has been realised that it may have existed for more than 10 years."

ported cyber attacks from China targeting a wide range of institutions, including government departments.

The Union Power Ministry said last year that "state-sponsored" Chinese hacker groups had targeted various Indian power centres but added that the groups have been thwarted after government cyber agencies warned about their activities.

This followed a report from a U.S. cybersecurity firm linking an outage in Mumbai in 2020 to hacking attacks by China-linked groups.

Surprise enemy with Indian arms, says PM

Modi calls for vibrant defence industry

SPECIAL CORRESPONDENT

NEW DELHI

Prime Minister Narendra Modi on Friday stressed the importance of customisation and uniqueness of defence systems for having a surprise element over the adversaries.

"Uniqueness and surprise elements could only happen when the defence equipment is developed in our country. This year's Budget has a blueprint for developing a vibrant ecosystem, from research, design and development to manufacturing, within the country," he said.

Budget boost

Mr. Modi was addressing a post-Budget webinar, titled "Atmanirbhar in defence – call to action", organised by the Defence Ministry during which Defence Minister Rajnath Singh announced steps for implementing various measures announced in the Budget aimed at giving a level playing field for the private industry and start-ups.

Mr. Modi said, "Transparent, time-bound, pragmatic,

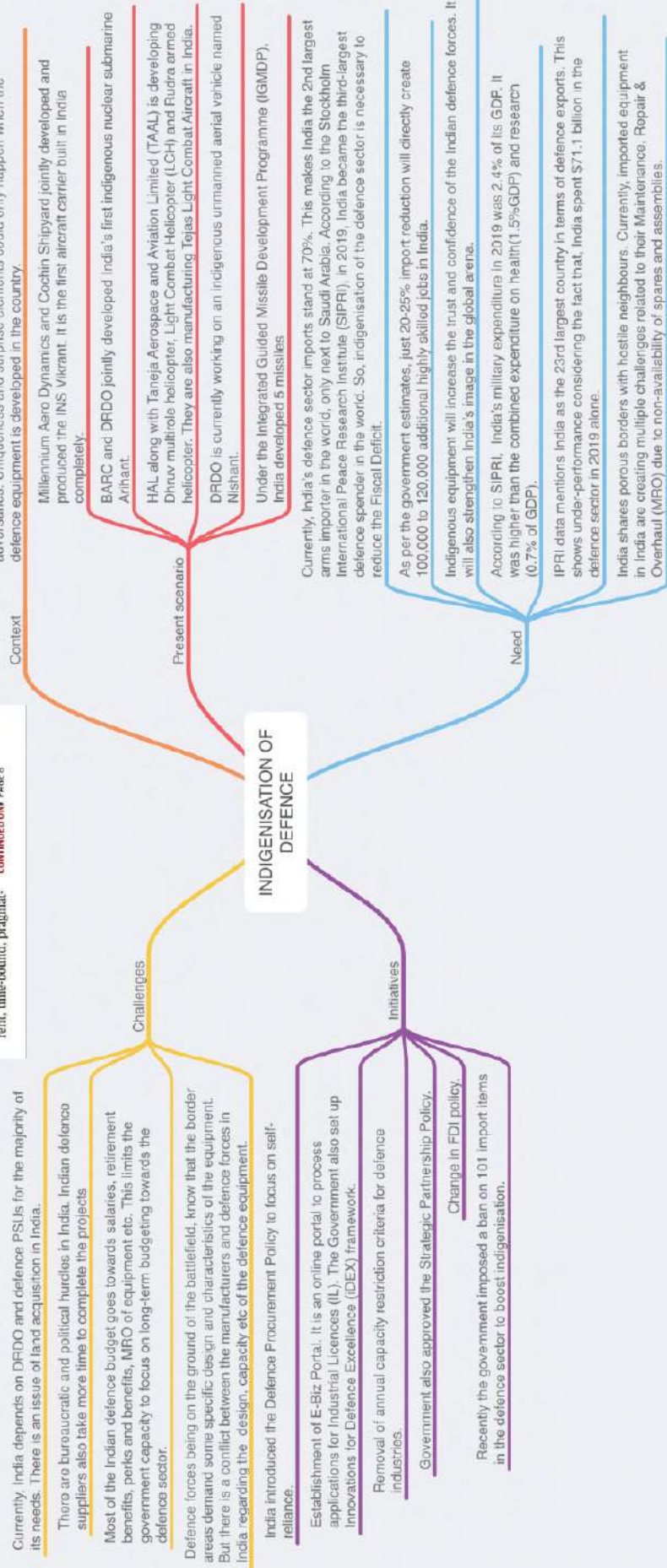


Prime Minister Narendra Modi at a webinar on the defence sector. *PH

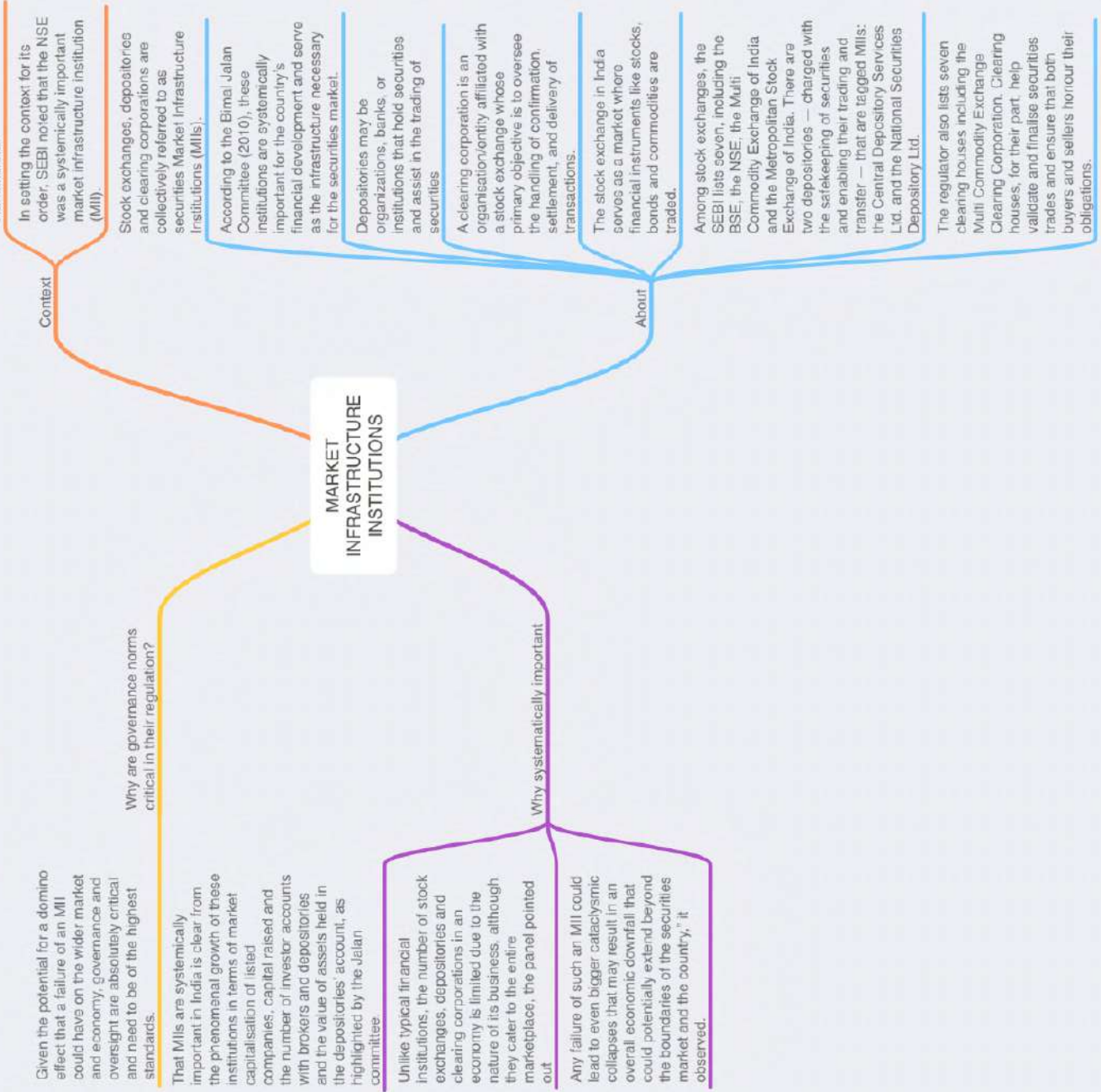
ic and fair systems of trial, testing and certification are essential to the growth of a vibrant defence industry. For this, an independent system can prove useful in solving problems." The recent years' effort to strengthen Atmanirbharta in the defence sector was clearly visible in this year's Budget, he noted.

Mr. Singh said, "For meeting the wide-ranging requirements of trial, testing and certification, the government has decided to set up an independent nodal umbrella body."

CONTINUED ON PAGE 8



National Stock Exchange (NSE), the country's largest equities and derivatives exchange, was earlier this month fined for laxity in governance pertaining to actions taken during the tenure of its former MD and CEO Chitra Ramkrishna.



Given the potential for a domino effect that a failure of an MI could have on the wider market and economy, governance and oversight are absolutely critical and need to be of the highest standards.

That MIs are systemically important in India is clear from the phenomenal growth of these institutions in terms of market capitalisation of listed companies, capital raised and the number of investor accounts with brokers and depositories and the value of assets held in the depositories' account, as highlighted by the Jalan committee.

Unlike typical financial institutions, the number of stock exchanges, depositories and clearing corporations in an economy is limited due to the nature of its business, although they cater to the entire marketplace, the panel pointed out.

Any failure of such an MI could lead to even bigger cataclysmic collapses that may result in an overall economic downfall that could potentially extend beyond the boundaries of the securities market and the country," it observed.

Context

In setting the context for its order, SEBI noted that the NSE was a systemically important market infrastructure institution (MI).

Stock exchanges, depositories and clearing corporations are collectively referred to as securities Market Infrastructure Institutions (MIs).

According to the Bimal Jalan Committee (2010), these institutions are systemically important for the country's financial development and serve as the infrastructure necessary for the securities market.

Depositories may be organizations, banks, or institutions that hold securities and assist in the trading of securities

A clearing corporation is an organisation/entity affiliated with a stock exchange whose primary objective is to oversee the handling of confirmation, settlement, and delivery of transactions.

The stock exchange in India serves as a market where financial instruments like stocks, bonds and commodities are traded.

Among stock exchanges, the SEBI lists seven, including the BSE, the NSE, the Multi Commodity Exchange of India and the Metropolitan Stock Exchange of India. There are two depositories — charged with the safekeeping of securities and enabling their trading and transfer — that are tagged MIs: the Central Depository Services Ltd. and the National Securities Depository Ltd.

The regulator also lists seven clearing houses including the Multi Commodity Exchange Clearing Corporation, Clearing houses, for their part, help validate and finalise securities trades and ensure that both buyers and sellers honour their obligations.

About

The stock exchange in India serves as a market where financial instruments like stocks, bonds and commodities are traded.

Among stock exchanges, the SEBI lists seven, including the BSE, the NSE, the Multi Commodity Exchange of India and the Metropolitan Stock Exchange of India. There are two depositories — charged with the safekeeping of securities and enabling their trading and transfer — that are tagged MIs: the Central Depository Services Ltd. and the National Securities Depository Ltd.

The regulator also lists seven clearing houses including the Multi Commodity Exchange Clearing Corporation, Clearing houses, for their part, help validate and finalise securities trades and ensure that both buyers and sellers honour their obligations.

MARKET INFRASTRUCTURE INSTITUTIONS

Why are governance norms critical in their regulation?

Given the potential for a domino effect that a failure of an MI could have on the wider market and economy, governance and oversight are absolutely critical and need to be of the highest standards.

That MIs are systemically important in India is clear from the phenomenal growth of these institutions in terms of market capitalisation of listed companies, capital raised and the number of investor accounts with brokers and depositories and the value of assets held in the depositories' account, as highlighted by the Jalan committee.

Unlike typical financial institutions, the number of stock exchanges, depositories and clearing corporations in an economy is limited due to the nature of its business, although they cater to the entire marketplace, the panel pointed out.

Any failure of such an MI could lead to even bigger cataclysmic collapses that may result in an overall economic downfall that could potentially extend beyond the boundaries of the securities market and the country," it observed.

Why systematically important?

Unlike typical financial institutions, the number of stock exchanges, depositories and clearing corporations in an economy is limited due to the nature of its business, although they cater to the entire marketplace, the panel pointed out.

Any failure of such an MI could lead to even bigger cataclysmic collapses that may result in an overall economic downfall that could potentially extend beyond the boundaries of the securities market and the country," it observed.

Role of MIs

How relevant are market infrastructure institutions to the economy? Why is regulation critical?

The story so far: The National Stock Exchange (NSE), the country's largest equities and derivatives exchange, was earlier this month fined for laxity in governance pertaining to actions taken during the tenure of its former MD and CEO Chitra Ramkrishna. Markets regulator SEBI (Securities and Exchange Board of India) passed a 190-page order sanctioning the NSE, its subsidiaries, her predecessors V.K. Saxena and a former Company Secretary V.K. Saxena, for not appointing a former Company Secretary V.K. Saxena as the primary member under investigation, and levied financial penalties on each of them. However, the regulator too has come under a cloud for not acting quickly enough on the complaint it had received from its own management and for not appointing a former Company Secretary V.K. Saxena as the primary member under investigation, and levied financial penalties on each of them. In setting the context for its order, SEBI noted that the NSE was a systemically important market infrastructure institution (MI).

What are MIs?
■ Stock exchanges, depositories and clearing houses are all Market Infrastructure Institutions and constitute a key part of the nation's vital economic infrastructure. A panel of experts headed by former RBI Governor Bimal Jalan — to examine the functioning from the ownership and governance of MIs — in its 2010 report said, "The term 'infrastructure' would mean the basic, underlying framework or features of a system and the term 'market infrastructure' denotes such facilities that are essential for the proper functioning of the system. The primary purpose of securities capital market is to enable allocation/redirection of capital/financial resources. Such movement, if pointed out, helped optimal use of capital and fostered economic development. Well-functioning MIs, constitute "the nucleus of (the) capital allocation system, are indispensable for economic growth and have a net positive effect on society like any other infrastructure institution."

Well-functioning MIs, constitute the nucleus of (the) capital allocation system, are indispensable for economic growth and have a net positive effect on society like any other infrastructure institution.

Why are they considered to be systemically important?

■ The MIs are systemically important in India is clear from the phenomenal growth of these institutions in terms of market capitalisation of listed companies, capital raised and the number of investor accounts with banks and depositories and the value of assets held in the depositories' account, as highlighted by the Jalan committee. Unlike typical financial institutions, the number of stock exchanges, depositories and clearing corporations in an economy is limited due to the nature of its business, although they cater to the entire marketplace, the panel pointed out. "Any failure of such an MI could lead to even bigger cataclysmic collapses that may result in an overall economic downfall that could potentially extend beyond the boundaries of the securities market and the country," it observed.

Why are governance norms critical in the regulation of MIs?

■ Given the potential for a domino effect that a failure of an MI could have on the wider market and economy, governance and oversight are absolutely critical and need to be of the highest standards. Take the example of technology glitches in early last year's auction of government bonds for which the Reserve Bank of India had to suspend the Finance Minister to later state that the loss for the country had been 'minuscule' due to the delay in re-auctioning of trading on the platform and that switching over to another platform should have been seamless. That MIs are systemically important in India is clear from the phenomenal growth of these institutions in terms of market capitalisation of listed companies, capital raised and the number of investor accounts with banks and depositories and the value of assets held in the depositories' account, as highlighted by the Jalan committee. Unlike typical financial institutions, the number of stock exchanges, depositories and clearing corporations in an economy is limited due to the nature of its business, although they cater to the entire marketplace, the panel pointed out. "Any failure of such an MI could lead to even bigger cataclysmic collapses that may result in an overall economic downfall that could potentially extend beyond the boundaries of the securities market and the country," it observed.

What are the specific institutions in India that qualify as MIs?

■ Among stock exchanges, the SEBI lists seven, including the BSE, the NSE, the Multi Commodity Exchange of India and the Metropolitan Stock Exchange of India. There are two depositories — charged with the safekeeping of securities and enabling their trading and transfer — that are tagged MIs: the Central Depository Services Ltd. and the National Securities Depository Ltd. The regulator also lists seven clearing houses including the Multi Commodity Exchange Clearing Corporation, Clearing houses, for their part, help validate and finalise securities trades and ensure that both buyers and sellers honour their obligations.

A day to embody the true spirit of science

India needs an intellectual ambience that is unfettered, which National Science Day, being observed today, must foster science or pseudoscience.



C.V. RAMAN

The Government is organising a Science Week. Vignay Saravathi Pujarai, the former Principal Scientific Officer to the Government of India and the Ministry of Culture, says why India is unable to break the mediocrity barrier. He concludes that tradition-bound countries such as India need to free themselves from the cultural shackles of the past and embrace a new paradigm of thinking. In an editorial in the 2019 Current Science, P. Natarajan, the former Director of the Indian Institute of Science, explains why a "good humourous disdain for per-sonal ambition" is a "prerequisite for scientific advancement".

The cultural shifts are not easy to accomplish, particularly in a tradition-bound society. And, scientists have a special duty to perform in this regard. They must have an internal ambience by actively engaging in the transformation of values, both within and outside the laboratory. A fundamental challenge, of course, is how to arrange for the transformation of values within the individuals, representative of Indian diversity and plurality. Only then will academic centres become a marketplace of ideas. National Science Day should be observed as a day of celebrating the diversity of such a marketplace, epitomising the true spirit of science, thus unleashing its tremendous, transforming power.

- He was elected as the Fellow of the Royal Society in 1924.
- He was knighted in 1928 for his discovery of the Raman Effect, becoming Sir Chandrasekhara Venkata Raman.
- In 1930 he won Nobel Prize. In 1941 he was awarded the Franklin Medal.
- He received Bharat Ratna in 1954.
- He received Lenin Peace Prize in 1957.
- He also resigned from the Fellowship of the Royal Society in 1958, the only Indian FRS to do so.

RAMAN RATH THEORY

- Raman and his student Nagesh Nath provided the correct theoretical explanation for the Rayleigh-Raman effect.
- Modulators and switching systems based on this effect have enabled optical communications components based on laser systems.

RAMAN SPECTROSCOPY

- Raman showed that the energy of photons scattered inelastically serves as fingerprint for the substance the light is scattered from.
- It is used in medicine to investigate living cells and tissues, even detecting cancer without causing harm.
- It can be used to rapidly characterize the chemical composition and structure of a sample, whether solid, liquid, gas, gel, slurry or powder.

WORK ON ACOUSTICS

- Raman worked on acoustics of musical instruments.
- He was the first to investigate the harmonic nature of the sound of Indian drums.

Raman Effect

The Raman effect forms the basis for Raman spectroscopy which is used by chemists and physicists to gain information about materials.

Spectroscopy is the study of the interaction between matter and electromagnetic radiation.

Most of this scattered light is of unchanged wavelength. A small part, however, has wavelengths different from that of the incident light and its presence is a result of the Raman Effect.

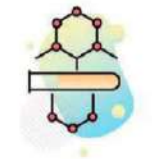


ILLUSTRATION BY THE HINDU

collective consciousness has now returned with a vengeance. And, academic freedom is now under greater pressure to bow the official line than ever before. Tradition-bound India needs to free itself from the shackles of the past and embrace a new paradigm of thinking. In an editorial in the 2019 Current Science, P. Natarajan, the former Director of the Indian Institute of Science, explains why a "good humourous disdain for personal ambition" is a "prerequisite for scientific advancement".

The cultural shifts are not easy to accomplish, particularly in a tradition-bound society. And, scientists have a special duty to perform in this regard. They must have an internal ambience by actively engaging in the transformation of values, both within and outside the laboratory. A fundamental challenge, of course, is how to arrange for the transformation of values within the individuals, representative of Indian diversity and plurality. Only then will academic centres become a marketplace of ideas. National Science Day should be observed as a day of celebrating the diversity of such a marketplace, epitomising the true spirit of science, thus unleashing its tremendous, transforming power.

- He was elected as the Fellow of the Royal Society in 1924.
- He was knighted in 1928 for his discovery of the Raman Effect, becoming Sir Chandrasekhara Venkata Raman.
- In 1930 he won Nobel Prize. In 1941 he was awarded the Franklin Medal.
- He received Bharat Ratna in 1954.
- He received Lenin Peace Prize in 1957.
- He also resigned from the Fellowship of the Royal Society in 1958, the only Indian FRS to do so.

ACHIEVEMENTS OF C.V. RAMAN

- Raman and his student Nagesh Nath provided the correct theoretical explanation for the Rayleigh-Raman effect.
- Modulators and switching systems based on this effect have enabled optical communications components based on laser systems.

RAMAN SPECTROSCOPY

- Raman showed that the energy of photons scattered inelastically serves as fingerprint for the substance the light is scattered from.
- It is used in medicine to investigate living cells and tissues, even detecting cancer without causing harm.
- It can be used to rapidly characterize the chemical composition and structure of a sample, whether solid, liquid, gas, gel, slurry or powder.

WORK ON ACOUSTICS

- Raman worked on acoustics of musical instruments.
- He was the first to investigate the harmonic nature of the sound of Indian drums.

Need for a shift

In a guest editorial in Science in 2010, L.V. Mahadevi, the former Principal Scientific Officer to the Government of India and the Ministry of Culture, says why India is unable to break the mediocrity barrier. He concludes that tradition-bound countries such as India need to free themselves from the cultural shackles of the past and embrace a new paradigm of thinking. In an editorial in the 2019 Current Science, P. Natarajan, the former Director of the Indian Institute of Science, explains why a "good humourous disdain for personal ambition" is a "prerequisite for scientific advancement".

The cultural shifts are not easy to accomplish, particularly in a tradition-bound society. And, scientists have a special duty to perform in this regard. They must have an internal ambience by actively engaging in the transformation of values, both within and outside the laboratory. A fundamental challenge, of course, is how to arrange for the transformation of values within the individuals, representative of Indian diversity and plurality. Only then will academic centres become a marketplace of ideas. National Science Day should be observed as a day of celebrating the diversity of such a marketplace, epitomising the true spirit of science, thus unleashing its tremendous, transforming power.

C.V. Raman was an eminent physicist and the first Indian to win the Nobel Prize in Physics in 1930. He was knighted in 1928 for his discovery of the Raman Effect, becoming Sir Chandrasekhara Venkata Raman. He received Bharat Ratna in 1954. He received Lenin Peace Prize in 1957. He also resigned from the Fellowship of the Royal Society in 1958, the only Indian FRS to do so.

- He was elected as the Fellow of the Royal Society in 1924.
- He was knighted in 1928 for his discovery of the Raman Effect, becoming Sir Chandrasekhara Venkata Raman.
- In 1930 he won Nobel Prize. In 1941 he was awarded the Franklin Medal.
- He received Bharat Ratna in 1954.
- He received Lenin Peace Prize in 1957.
- He also resigned from the Fellowship of the Royal Society in 1958, the only Indian FRS to do so.

ABOUT VIGNAY SARAVATHI PUJARAI

The programme has been designed to:

- Inspire India's youth and help them navigate into building a progressive nation;
- Bring to the fore stories of people in science whom made these achievements possible;
- Reinforce the commitment of the scientific community towards the economic and social development of the country;
- Present the awe inspiring futuristic mega science projects embarked by the nation and highlight the work being done by R&D organizations from across the country, as they lead science and technology efforts on the road to 2047.

The first theme is 'from the annals of the history of S&T'

The second theme is 'Milestones of Modern S&T'

The third theme is, 'Swadeshi Paramparik Inventions and Innovations'

The fourth theme, is 'Transforming India.' It will look at the road ahead for the next 25 years of Indian S&T.

Context

The Government is organising a Science Week. Vignay Saravathi Pujarai, as a prelude to National Science Day on February 28 that commemorates Sir C.V. Raman's discovery on light scattering. The event would display the country's scientific legacy and technology prowess that has helped find solutions to defence, space, health, agriculture, astronomy, and other sectors.

This event is jointly organised by:

- Department of Science and Technology,
- Department of Biotechnology,
- Council of Scientific and Industrial Research,
- Ministry of Earth Sciences,
- Department of Atomic Energy,
- Indian Council of Medical Research,
- All India Council for Technical Education, and
- Defence Research Development Organisation, under the leadership of the office of the Principal Scientific Officer to the Government of India and the Ministry of Culture.

Vignay Pujarai, an autonomous organization of DST with a mandate to promote science communication in the country, is the coordinating agency.

More on the news

National Science Day is celebrated every year on 28 February to mark the discovery of the Raman Effect by Sir C.V. Raman on 28 February 1928. It was this discovery that got Sir C.V. Raman a Nobel Prize in Physics in 1930.

National Council for Science and Technology Communication (NCSTC) of the Department of Science and Technology (DST) is the nodal agency to support and coordinate celebration of the National Science Day in the country, particularly at scientific institutions and research laboratories.

In 1996, the National Council for Science and Technology Communication (NCSTC) asked the Government of India to declare February 28 as National Science Day.

The theme of National Science Day 2022 is 'Integrated Approach in Science and Technology for Sustainable Future'.