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MK Yadav Sir

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INDIAN EXPRESS

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MONEY BILL

(Syllabus: GS Paper 2 – Polity)



Key issue will be back in SC: What constitutes a Money Bill?

AJOY SINHA KARPURAM
NEW DELHI, JULY 15

THE SUPREME Court has agreed to "take the call" on hearing petitions challenging the "Money Bill route" taken by the government to push through contentious legislation in Parliament.

With the Union Budget scheduled for July 23, Senior Advocates Kapil Sibal, Abhishek Manu Singhvi, and Indira Jaising approached the Bench of Chief Justice of India (CJI) D Y Chandrachud on Monday, seeking an urgent hearing in the matter.

The CJI said he would decide when he forms the Constitution Benches.

Money Bills offer a fast-track route to enact legislation because they do not require passage in Rajya Sabha. Several important laws including amendments to the Prevention of Money Laundering Act, 2002, (PMLA) and the Foreign Contributions Regulations Act, 2010, (FCRA) as well as the Aadhaar Act, 2016, have been passed by this route in recent years, circumventing the Upper House, where the NDA may have had to struggle for numbers at the time.

The question of which Bills can be designated as Money Bills was referred to a seven-judge Bench in November 2019 by a five-judge Bench led by then CJI Ranjan Gogoi in *Rojer Mathew vs South Indian Bank Ltd.* In October 2023, CJI Chandrachud had said the seven-judge Bench would be set up soon.

Money Bill in Constitution

In the usual process of lawmaking, a Bill must be passed by majorities in both Lok Sabha and Rajya Sabha. The exception are a category of Bills known as Money Bills.

Under Article 109, a Money Bill shall be introduced only in Lok Sabha and, upon passage, transmitted to Rajya Sabha for its "recommendations". Rajya Sabha must revert within 14 days, but it is up to Lok Sabha to accept or reject any or all of its recommendations. If the Bill is not returned by Rajya Sabha within the stipulated period, it is considered passed anyway.

To ensure this process is not abused, Article 110 provides a strict definition of a Money Bill. In order for a Bill to be designated as a Money Bill, it must contain "only provisions dealing with all or any" of a specific list of subjects. These subjects include taxation, financial obligations of the Government of India, the Consolidated Fund / revenue received by the government through taxes and expenses incurred in the form of borrowings and loans) or Contingency Fund / money to meet unforeseen expenditure) of India, or "any matter incidental" to the matters listed in the Article.

EXPLAINED LAW

Under Article 110(3), "If any question arises whether a Bill is a Money Bill or not, the decision of the Speaker of the House of the People thereon shall be final."

The important cases in SC

CHALLENGE TO AADHAAR ACT: In September 2018, the court ruled in favour of the government, upholding the constitutionality of the Aadhaar law by a 4-1 majority. The petitioners argued that the Act were passed as a Money Bill, even though it contained provisions that were unrelated to the subjects listed under Article 110.

Justice Ashok Bhushan, who concurred with the majority, wrote that the main aim of the Act was to provide subsidies and benefits, which involves expenditure from the Consolidated Fund, and qualified the Act to be passed as a Money Bill.

Justice D Y Chandrachud (he was not CJI at the time), was the sole dissenting voice. He observed that the use of the Money Bill route in this case was an "abuse of the constitutional process", and that passing an ordinary Bill as a money Bill limits the role of Rajya Sabha in lawmaking.

FINANCE ACT, 2017: The Finance Act, 2017 included amendments to a number of Acts which, among other things, empowered the government to notify rules regarding the service conditions of members of Tribunals. Shortly afterward, the Centre notified the Appellate Tribunal and Other Authorities (Qualifications, Experience and Other Conditions of Service of Members) Rules of 2017 (Tribunal Rules).

A host of petitioners, including the Madras Bar Association, the All India Lawyers' Union, and Congress MP Jairam Ramesh argued that the Finance Act, 2017, must be struck down in its entirety as it contained provisions that had no connection with the subjects listed in Article 110.

In November 2019, a five-judge Bench struck down the Tribunal Rules as unconstitutional for interfering with judicial independence, but referred the Money Bill aspect to a larger seven-judge Bench. The court observed that the five-judge Bench in the Aadhaar case did not elaborate upon what makes a valid Money Bill.

SINCE 2019: In the years since the 2019 judgment, the court has stopped short of addressing the Money Bill question in several cases, given the pending seven-judge Bench case. These include the challenge to the wide powers of the Enforcement Directorate under the PMLA, where the restrictive bail conditions under Section 45 were introduced through a Money Bill (the Finance Act, 2018), and the challenge to the Centre's Electoral Bond scheme which was facilitated through amendments to key laws through the Money Bill route.

The Important Cases in Supreme Court

- **Challenge to Adhaar Act:** The SC stated that the Act's primary aim was to provide subsidies and benefits, which involve expenditure from the Consolidated Fund, thus qualifying it as a Money Bill.
- **Finance Act, 2017**: It included amendments empowering the government to set rules for the service conditions of Tribunal members.
    - In November 2019, a five-judge Bench struck down the Tribunal Rules for interfering with judicial independence but referred the Money Bill aspect to a larger seven-judge Bench, noting the Aadhaar case Bench did not clearly define a valid Money Bill.

Context: THE Supreme Court has agreed to "take the call" on hearing petitions challenging the "Money Bill route" taken by the government to push through contentious legislation in Parliament.

Money Bill

- **Article 110(1)**: Money Bills, which must contain specific provisions, primarily related to taxation, government finances, borrowing, and guarantees.
- **Procedure of passing Money Bills**: It as outlined in Article 109, involves them being introduced only in the House of the People (Lok Sabha).
- After passing the House of the People, a Money Bill is sent to the Council of States (Rajya Sabha) for recommendations within 14 days.
- **Options LS have on RS recommendations:**
    - If the House of the People accepts the Council's recommendations, the Money Bill is considered passed with those amendments.
    - If the House of the People rejects the Council's recommendations, the Money Bill is passed as originally proposed by the House of the People.
    - If the Council of States doesn't return the Money Bill within 14 days, it's deemed passed in the form it was passed by the House of the People.
- **Role of Speaker (Article 110(3)**: He/She takes the final call if a bill is a money bill or not. And his decision cannot be challenged in any court of the country.
- **Criteria of Money Bill**
    - Tax imposition, abolition, remission, alteration, or regulation.
    - Government of India's borrowing of money or giving guarantees.
    - Management of the Consolidated Fund or Contingency Fund of India, as well as deposits and withdrawals.
    - Allocation of funds from the Consolidated Fund of India.
    - Identification of expenses as charges on the Consolidated Fund of India or increases in such expenses.

THE HINDU

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JUVENILE JUSTICE ACT 2015

(Syllabus GS Paper 2 – Polity)



Trying juveniles as adults is not the answer

In May, a speeding car, allegedly driven by a teenager, killed two young techies in Pune. As prescribed by the Juvenile Justice (Care and Protection of Children) Act, or the JJ Act, 2015, the adolescent was initially brought before the Juvenile Justice Board (JJB), which granted him bail under seemingly lenient conditions. This decision, coupled with the tragic outcome of the incident and emerging accusations of privilege being used to tamper with the investigation, sparked public outrage. Following the backlash, the JJB modified its order, directing the adolescent's detention in an Observation Home. This was challenged before the Bombay High Court, which directed his release on the ground that he was granted bail in accordance with due procedure.

The High Court noted that the JJ Act is "not only a beneficial legislation, but is also a remedial one." The push by some to prosecute the adolescent as an adult raises broader questions about the power of the juvenile justice system to address severe offences like drunken driving and the demand for accountability in cases involving young offenders.

Being tried as an adult

The JJ Act allows for the possibility of trying adolescents above 16 as adults if they are accused of committing a "heinous" offence. A "heinous" offence is one with a minimum punishment of seven years or more. Offences such as culpable homicide and causing death by negligence, which are common in drunken driving cases, are not "heinous" offences because they do not have a prescribed minimum punishment. The JJ Act, amended in 2021, now categorises an offence that has no minimum sentence but has a maximum sentence of more than seven years as a "serious offence" which, nonetheless, does not merit the transfer of a case to the adult criminal justice system.

In any case, when an adolescent above 16 years of age is accused of a "heinous" offence, the JJB, a quasi-judicial body, conducts a preliminary assessment to determine if they should be tried as an adult. If it concludes that there is such a need, the adolescent is transferred to a sessions court, which independently assesses the suitability of trying the adolescent as an adult.

These protections are based on the understanding that adolescence is a temporary developmental stage characterised by immature judgement and underdeveloped impulse control. This is recognised by the Supreme Court in *Dr. Subramanian Swamy v. Raju* (2014) and by the UN Committee on the Rights of the Child. Consequently, the juvenile justice system emphasises rehabilitation and social reintegration over punishment, acknowledging that adolescents, due to their high neuroplasticity, are more receptive to change.

Seeking accountability

Nonetheless, the juvenile justice system is rooted in holding offenders accountable for their actions. When an adolescent is found to have committed a crime, the JJ Act empowers the multidisciplinary JJB to tailor a response befitting the circumstances and the adolescent concerned. A conviction can result in institutionalisation of the offender, but with the express goal of rehabilitation. The JJBs can prescribe interventions such as therapy, psychiatric support, and de-addiction during and after institutionalisation. An individual care plan is prepared for the adolescent's rehabilitation keeping in mind their socioeconomic conditions and the circumstances of the crime. This approach has the potential to foster accountability and healing, creating opportunities for justice that are often unattainable within the rigid confines of the punitive adult justice system.

Specifically in cases of deaths caused by motor accidents, innovative approaches have been attempted in Indonesia and the U.S. that enable offenders to face their victims and focus on personal accountability. In some jurisdictions, convicted drunk drivers are required to face a victim impact panel (VIP) of relatives of victims who express how the incident affected their lives. A report released in 2022 by Kevin Thompson and Sarah Joyce found a reduction in recidivism amongst offenders exposed to VIPs in North Dakota. While this can never change the life-altering incident itself, it personalises the loss and grief experienced by the victim and gives an opportunity to the offender to express regret.

Practices like this recognise the victim and their family as central to the process of justice dispensation in contrast to the traditional penal system where the victim is reduced to a witness or is not involved at all as the state takes over prosecution. They can help tackle the needs of the victims that may range from compensation to an apology or explanation or acknowledgement of responsibility by the offender. They also expose adolescents to an education regarding accountability and sensitivity to fellow human beings to foster their transformation into responsible adults. Facing the victims or their families can be a powerful and transformative experience for offenders. Responses of the juvenile justice system can include the family members and communities of both the offender and the victim and can involve counselling the offender's family. This approach recognises that crime is often the outcome of a complex interplay of societal and psychological factors.

However, the potential of the juvenile justice system remains unfulfilled. Trying adolescents as adults sidesteps the problem of weak implementation of the juvenile justice system. The issue lies not in the perceived leniency or "misuse" of the system, but rather in the failure to fully implement its foundational principles.

Anindita Pattanayak

a legal researcher at Enfold Proactive Health Trust

The issue lies not in the perceived leniency or "misuse" of the juvenile justice system, but rather in the failure to fully implement its foundational principles

Context: In May, two young techies in Pune lost their lives to a speeding car driven by a teenager, who was subsequently granted bail by the Juvenile Justice Board under conditions criticized for leniency, as per the Juvenile Justice Act, 2015.

Juvenile Justice Act, 2015

- **About:** It was enacted by Parliament to replace earlier legislation, including the Juvenile Delinquency Law and the Juvenile Justice (Care and Protection of Children) Act, 2000.
- It allows for the possibility of trying adolescents above 16 as adults if they are accused of committing a "heinous" offence.
    - A "heinous" offence is one with a minimum punishment of seven years or more.
    - Offences such as culpable homicide and causing death by negligence, which are common in drunken driving cases, are not "heinous" offences because they do not have a prescribed minimum punishment.
- **Objective**: To consolidate and amend the law relating to children alleged and found to be in conflict with law and children in need of care and protection.
- **Juvenile trial:** The child is defined in the JJ Act, 2015 as a person who has not completed 18 years of age.
- **Differentiated Trial:** According to Section 15(1) of the Act, in case of a heinous offence alleged to have been committed by a child age group of 16-18 years the Juvenile Justice Board "shall conduct a preliminary assessment.
- **Section 18 (3)**: The sole aim of preliminary assessment is to determine whether the child in the age of 16-18 years should be tried as an adult in case of heinous offence.
- **Role of JJ Board**: The Juvenile Justice Board (JJB) is solely responsible for conducting preliminary assessment, which it must complete within three months from the date of first production of the child before it.
- **Punishment**: It prescribes punishment for the various offences against children such as enhanced punishment for cruelty to children from six months to three years.
- The selling or buying of children will be a punishable offence with imprisonment of five years.

Juvenile Justice (Care and Protection of Children) Amendment Act, 2021

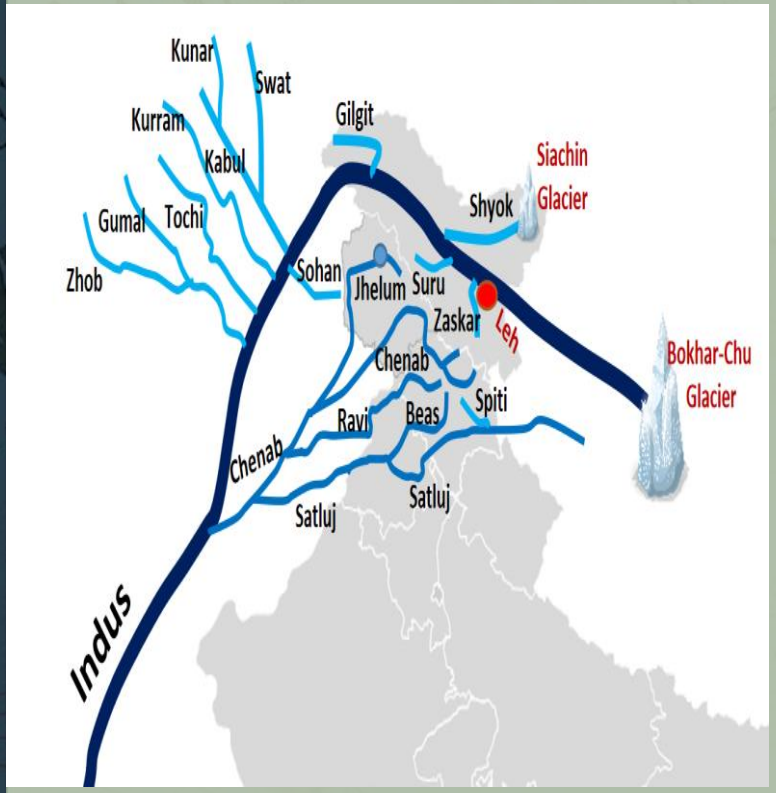
- The recent amendment aims to delineate between heinous and serious offences more clearly under the JJ Act, impacting the adjudication of cases involving adolescents aged 16 and above.
- **Classification of "Serious" Offences**: The 2021 amendment of the JJ Act classifies offences with a maximum sentence exceeding 7 years but lacking a minimum sentence as "serious" offences, which still do not warrant transfer to the adult criminal justice system.

DTE July 16

SUTLEJ RIVER

(Syllabus: GS Paper 1 – Geography)

Sutlej reduced to a rivulet due to constructions: Supreme Court Judge raises concerns



Context: Supreme Court of India has expressed deep concern about the deteriorating condition of the Sutlej river, a historically perennial river in North India.

Sutlej River

- **About:** It is longest of the five tributaries of the Indus River that give the Punjab (meaning "Five Rivers") region its name.
- **Origin:** On the north slope of the Himalayas in Lake Rakshastal in southwestern Tibet.
- **Drainage Basin:** Himachal Pradesh, Punjab, Ladakh and Haryana.
- **Flow Through Punjab**: The river then flows through Punjab near Nangal before meeting the Beas River.
- **Formation of Border**: The merger of these two rivers goes on to form 105 Km of the India-Pakistan border.
- **Course:** The river continues to flow for another 350 Km before joining the Chenab River.
- **Formation of Panjnad**: The combination of the Sutlej and Chenab Rivers form the Panjnad, which finally flows into the Indus River.
- **Length:** 1550 km, out of which 529 km is in Pakistan.
- **Major Tributaries**: Baspa, Spiti, Nogli Khad, and Soan River being its main ones.
- **Water Allocation:** Water from the Sutlej River has been allocated to India according to the Indus Waters Treaty of 1960.
- **Hydroelectric Projects**: There are several major hydroelectric projects on the Sutlej, including the 1,000 MW Bhakra Dam, the 1,000 MW Karcham Wangtoo Hydroelectric Plant, and the 1,530 MW Nathpa Jhakri Dam.
    - The only trans-Himalayan river in India, the Sutlej, has turned into a rivulet because of the construction of several dams, changing the entire ecosystem and eco-chain.

PEER TO PEER LENDING

(Syllabus: GS Paper 3 – Economy)

MSMEs urge RBI to allow P2P lending, crowdfunding

Cite examples of other countries' regulatory frameworks for crowdfunding

HARSH KUMAR
New Delhi, 16 July

MONEY MATTERS

- Framework needed to give more options for raising funds
- Finance gap for MSMEs has been widening
- Sector facing credit gap of $530 billion
- Capital issues hindering their growth potential and ability to compete



Micro, small, and medium enterprises (MSMEs) have urged the Reserve Bank of India (RBI) to develop a regulatory framework for peer lending and crowdfunding to overcome credit gaps, according to an industry insider who was part of a meeting with central bank officials in Mumbai last week.

"Given the efficacy of these frameworks, it is imperative for India to adopt a comprehensive framework encompassing both equity-based crowdfunding with an upper limit of ₹10,000 for an investor to invest in MSMEs and debt-based crowdfunding models," the industry source said.

"This would empower MSMEs by giving them the choice to either raise funds by offering equity shares or by securing debt financing."

A recommendation paper by the India SME Forum submitted to the RBI said MSMEs' finance gap, estimated at $530 billion, had been widening in recent years, posing significant challenges.

"As a result, a significant portion of the MSME sector remains underserved, hindering their growth potential and ability to compete in an increasingly globalised market," it added.

The recommendation paper further added crowdfunding platforms presented a promising alternative for MSMEs. More than 80 geographies, including the United States (US), the United Kingdom (UK), the European Union, Saudi Arabia, and the United Arab Emirates, have implemented regulatory frameworks for crowdfunding, facilitating the flow of capital to small businesses. Collectively, the US, the UK, and China make up 96 per cent of the overall financial reward crowdfunding market, with the US accounting for 51 per cent, China for 28 per cent, and the UK for 17 per cent.

Crowdfunding is a method of raising capital collectively by a large number of individuals, typically through online platforms. This approach taps the resources of a wider audience (the "crowd") to fund a project, business, or venture.

P2P lending is a form of crowdfunding that enables individuals to borrow and lend without an official financial institution as an intermediary.

P2P-lending platforms connect borrowers directly with investors, facilitating loans that are often more accessible and at lower interest rates than bank loans.

Context: MSMEs have appealed to the RBI to establish a regulatory framework for peer lending and crowdfunding to address credit gaps, according to the central bank.

Peer to Peer Lending

- **About:** It is a form of crowdfunding facilitated through an online platform that matches lenders with borrowers for unsecured loans.
  - Also known as "social lending" or "crowd lending".
- **Participants**: Borrowers can be individuals or businesses needing a loan.
- **Safety:** It is riskier than a savings account or certificate of deposit, but the interest rates are much higher.
- **Regulation of P2P Lending Platforms**
  - **Regulatory Body**: These platforms are regulated by the Reserve Bank of India (RBI) and categorized as NBFC-P2P.
  - **Restrictions**: Platforms must not engage in direct financial activities of lending money.
- **Benefits of P2P Lending**
  - P2P lending companies operate online with lower overhead, making their services cheaper than traditional financial institutions.
  - Lenders can earn higher returns compared to savings and investment products offered by banks.
  - Borrowers benefit from lower interest rates even after platform fees.

Market Dynamics in India

- **Market Entry:** In 2016, around 30 P2P lending platforms existed in India, with varying success due to investor caution and lack of awareness.
- **Market Impact:** P2P lending platforms support borrowers who have been rejected or failed to qualify for bank loans.

Report Of India's G20 Task Force On Digital Public Infrastructure Released

Context: India's G20 Task Force on DPI report highlights India's leadership and calls for proactive extension of its digital solutions to the Global South.

G20 Task Force on DPI:

- **About**: It was formed in January 2023 to oversee India's G20 Presidency agenda on DPI and Financial Inclusion.
- **Objective**: Aims to enhance productivity by promoting the adoption of digital technologies aligned with government policies on the digital economy.
- **Highlight of the Report:**
  - The report advocates for creating a multinational body to unify and advance the Digital Public Infrastructure (DPI) ecosystem worldwide, focusing on collaboration among Global South nations.
  - **Integration of AI in DPI**: Embracing Artificial Intelligence within DPI frameworks is recommended to enhance capabilities, emphasizing ethical considerations and robust data privacy measures.
  - **Promotion of Open-Source Software and AI Models**: Encouraging the use of open-source technologies and AI models aims to foster innovation and scalability in DPI, facilitating broader participation by private entities.
  - **Ensuring Data Protection and Privacy:** Implementing stringent measures to safeguard user data is critical for establishing trust in AI-driven DPI services.
  - **Mitigating Biases in AI Algorithms**: Addressing biases in AI algorithms is essential to ensure fair and equitable treatment across all user interactions within DPI.
  - **Transparency in AI Processes**: Promoting transparency in AI operations is key to enhancing public confidence and trust in the reliability of digital services facilitated by DPI.

Digital public infrastructure (DPI):

- **About:** It is a set of technology building blocks that drive innovation, inclusion, and competition at scale, operating under open, transparent and participatory governance.
- **Examples**: Internet, powered by common protocols like HTTP, HTML, and SMTP.
- **Key Features**: It can be developed either as all government or all private.
  - Interoperability, security, maintaining registries and continuous updates are its vital aspects.

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CHPV INFECTION

(Syllabus: GS Paper 3 – Sci and Tech)

Context: The Gujarat government reported that six children have died from suspected Chandipura virus (CHPV) infection.

CHPV Infection

- **About:** CHPV is a virus of the Rhabdoviridae family, which also includes other members such as the lyssavirus that causes rabies.
- **CHPV Discovery**: The CHPV infection was first isolated in 1965 during an investigation of a dengue/chikungunya outbreak in Maharashtra.
- **Affected States**: Maharashtra, Northern Gujarat and Andhra Pradesh.
- **Vectors**: Several species of sandflies like Phlebotomine sandflies and Phlebotomus papatasi, and some mosquito species such as Aedes aegypti (which is also the vector for dengue) are considered vectors of CHPV.
- **Transmission**: The virus resides in the salivary gland of these insects, and can be transmitted to humans or other vertebrates like domestic animals through bites.
- **Infection Progression**: The infection caused by the virus can then reach the central nervous system, leading to encephalitis — inflammation of the active tissues of the brain.
- **Symptoms**: Fever, body ache, and headache. It may then progress to altered sensorium or seizures and encephalitis.
- **Additional Symptoms**: Retrospective studies from India have also reported other symptoms such as respiratory distress, bleeding tendencies, or anaemia.
- **Treatment**: Currently there is no specific antiretroviral therapy or vaccine available for treatment.

CHILDREN DEATHS IN GUJARAT: WHAT IS THE CHANDIPURA VIRUS INFECTION?

SOHINI GHOSH
NEW DELHI, JULY 16



THE GUJARAT government on Monday said that six children have died of suspected Chandipura virus (CHPV) infection in the state since July 10. A total of 12 suspected cases have been reported so far.

What is CHPV infection?

CHPV is a virus of the *Rhabdoviridae* family, which also includes other members such as the lyssavirus that causes rabies. Several sandfly species *(right)* like *Phlebotomine sandflies* and *Phlebotomus papatasi*, and some mosquito species such as *Aedes aegypti* (which is also the vector for dengue) are considered vectors of CHPV. The virus resides in the salivary gland of these insects, and can be transmitted to humans or other vertebrates like domestic animals through bites.

The infection caused by the virus can reach the central nervous system which can cause encephalitis — inflammation of the active tissues of the brain.

What are the symptoms of CHPV infection?

The CHPV infection presents initially with flu-like symptoms such as acute onset of fever, body ache, and headache. It may then progress to altered sensorium or seizures and encephalitis.

Retrospective studies from India have also reported other symptoms such as respiratory distress, bleeding tendencies, or anaemia.

The infection often progresses rapidly after encephalitis, which may then lead to death within 24-48 hours, according to studies. Susceptibility has largely remained limited to children below the age of 15 years.

How can the infection be managed?

The infection can only be symptomatically managed. Currently there is no vaccine or specific antiretroviral therapy available for treatment. As a result, it is crucial to manage brain inflammation to prevent mortality.

Disease progression can be as rapid as a patient reporting high fever in the morning, and their kidneys or liver being affected by the evening. This makes it harder to manage the symptoms.

Which are the worst affected regions?

The CHPV infection was first identified in 1965 while investigating a dengue/chikungunya outbreak in Maharashtra. However, one of the most significant outbreaks of the disease in India was seen in 2003-04 in Maharashtra, northern Gujarat and Andhra Pradesh, which together reported more than 300 deaths of children.

The infection has largely remained endemic to central India, where the population of CHPV infection-spreading sandflies and mosquitoes is higher.

Dr Rakesh Joshi, medical superintendent of Ahmedabad Civil Hospital, said the outbreaks are often reported in rural, tribal and peripheral areas, likely due to the high sandfly population. The monsoon season leads to more sandflies, causing a spike in the number of cases.

Has the disease pattern changed over the years?

There are changes in patterns being reported — both in the disease manifestation and the vector — according to Dr Sandipkumar Trivedi, former executive board member of the Indian Association of Paediatrics.

"Sandflies usually do not fly at a height of more than three feet from the ground but this time during surveillance, sandflies have been found on terraces and higher heights. Additionally, of the six suspected deaths so far, two presented with brain haemorrhages, which is new. We are also seeing new outbreak centres, such as in Gujarat's tribal areas of Pavagadh, Khedbrahma, and Godhra," Dr Trivedi said.

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QUANTUM COMPUTING
(Syllabus: GS Paper 3 – S&T)

India's quantum future

In 2023, India launched a mission to rapidly develop quantum technologies but it is far behind China and US in terms of filing patents and publishing research papers. However, the gap can still be bridged



AMITABH SINHA

INDIA LAUNCHED the National Quantum Mission last year, and became one of the few countries in the world to have a dedicated programme to harness the power of quantum technologies. These technologies, which use special properties of the tiniest particles of matter, can yield radical solutions to some of the most intractable problems of our age, such as clean energy and affordable healthcare.

But despite having a fairly strong research base in quantum science, India has a lot of catching up to do. A new report, surveying the existing capabilities of the country in this area, has found that countries like China and the United States have a huge head start over India. These countries have not just invested much more money for funding research, they also have more people working in this sector. They have been publishing far greater numbers of scientific papers, and register many more patents as well.

But the good thing, as Indian science leaders have been emphasising, is that quantum technologies are still under development, and India is not exactly starting from zero. In fact, in some areas, Indian scientists are very much at the forefront of global research.

The quantum mission

After several years of discussions, India in 2023 announced the setting up of the National Quantum Mission to build capabilities in quantum-related science and technology. The mission focuses on four key domains: computing, communications, sensors, and materials.

Quantum technologies try to make use of the fact that matter behaves in a very unexpected and counter-intuitive manner at its smallest scale. Sub-atomic particles such as electrons seemingly exist at multiple locations at the same time, and can influence the behaviour of a like-particle, with which they have no prior interaction, over infinitely large distances.

These strange properties have been experimentally verified hundreds of times. However, it is only in recent years that scientists have acquired capabilities to put them to some beneficial uses. Some of these properties, like the ability to exist in multiple states at the same time — a phenomenon called superposition — can be used to perform real-life tasks that conventional technologies are unable to achieve.

Quantum computers are already a reality, though their capabilities are quite limited at this point. More mature quantum computers would be able to do calculations that would be either impossible for normal computers, or would take far too long to perform.

By overcoming the limits of current technologies, a quantum-enabled transformation can build the foundations of a new economy in a decade or two. This is why India wants to try and rapidly build its capabilities in these areas. Partnering in technology development would ensure early fruits of success, which can trigger rapid economic growth. It would also make leading technologies accessible to India.



TIFR scientists wire up a dilution refrigerator used to cool superconducting qubits to ~ 271.14°C for building a small-scale quantum processor. *TIFR*

INDIA VS OTHER COUNTRIES IN QUANTUM TECHNOLOGIES

Country	Investment (in bn $)	Papers published (2000 to 2018)	Patents gained (2015 to 2020)	No. of graduating students*
India	0.75	1,711	339	82,110
China	15	12,110	23,335	57,693
United States	3.75	13,489	8,935	45,087
European Union	1.1	NA	NA	1,35,511

(in areas related to quantum science)

Source: Landscape of Indian R&D in Quantum Technologies (Citing multiple external sources)

A lot of ground to cover

The National Quantum Mission, however, is just the first step and there is a lot of ground to cover, according to the *Landscape of Indian R&D in Quantum Technologies* report. The report has been prepared by Itihaasa Research and Digital, a not-for-profit company that seeks to study the evolution of technology and business in India.

The Rs 6,000 crore (around $0.75 billion) earmarked for the mission is impressive by Indian standards but it pales in comparison to what other countries are spending on quantum-related research, the report said. China is estimated to be investing $15 billion in this effort, while the US is pumping in about $3.75 billion. The United Kingdom has put in about $4.3 billion and countries like Germany, South Korea, and France have all committed to spend more than $2 billion *(see box alongside)*.

Researchers in China and the US have been producing the largest number of research papers. Between 2000 and 2018, Indian researchers published 1,711 papers on quantum-related science, according to one publicly available database, while Chinese and American researchers published 12,110 and 13,489 papers respectively. Seven other countries have published more papers than India during this period. Among the 10% most cited papers, the US and China again lead the way, and India ranks 20th, the report said.

China and the US are also garnering a lion's share of the patents being registered. Between 2015 and 2020, Chinese and American researchers acquired 23,335 and 8,935 quantum-related patents respectively. However, Indian researchers had only 339 such patents in the same period, according to a patent database. India was ranked ninth by the number of patents obtained.

The country was lagging on a few other parameters as well but had a foundation that could be built upon.

Tough race but in competition

The new report pointed out that between 110 and 145 senior scientists were currently leading research groups on quantum-related technologies in India. These groups supported 75-100 post-doctoral fellows, and about 400 PhD students. In addition, about 200 senior scientists were working in the related fields of material sciences, electronics, computer science, and physics.

The report also found that outside the European Union, India had the largest number of graduate students in disciplines aligned to quantum technologies. These include biochemistry, electronics, chemical engineering, statistics, and information and communication technologies. There were more than 82,000 such students enrolled, which is more than in China or the US.

The report said the National Quantum Mission needed to identify and promote young talent. The mission could also raise a separate cadre of quantum scientists like the atomic energy or space science establishments had done, the report added.

Indian scientists are already at the forefront of research into quantum communications and quantum sensing, according to Abhay Karandikar, Secretary in the Department of Science and Technology. Even in areas such as computing and materials, the gap is not such that it cannot be bridged, he said.

LONGER VERSION ON indianexpress.com/explained

Context: India launched the National Quantum Mission last year and became one of the few countries in the world to have a dedicated programme to harness the power of quantum technologies.

Quantum Computing:

- It is an emerging field that harnesses the laws of **quantum mechanics** to build powerful tools to process information.
- It has the potential to solve computational problems that are beyond the reach of classical computers.
- **Classical computers** can only encode information in **bits** that take the value of 1 or 0. This restricts their ability.
- **Quantum computing**, on the other hand, uses **quantum bits or qubits** that have **special properties** that help them solve complex problems much faster than classical bits.
- One of these properties is **superposition** i.e instead of holding one binary value (0 or 1) like a classical bit, a qubit can hold a combination of 0 or 1, **simultaneously.**
- Unlike a usual bit, they can also store **much more information** than just 1 or 0, because they can exist in any superposition of these value.

Quantum Supremacy

- In 2019 **Google** announced that it had achieved **"Quantum Supremacy",** meaning that they had used a quantum computer to quickly solve a problem within 200 seconds that a conventional computer would take an impractically long time (10, 000 years) to solve.
- Google's quantum computer is called **Sycamore.**

Applications: Communication satellites, MRI scanners, Atomic clocks, Electron microscopes, Solar cells, LASERS etc.

Govt. initiatives: National mission on quantum technologies and applications, QuEST, QKD solution, QSim project, Quantum communication lab by C-DOT.

INDIA YOUNG PROFESSIONAL SCHEME
(Syllabus: GS Paper 2 – IR)

UK announces second ballot for India Young Professional Scheme 2024

Context: The UK Home Office has announced the details for the final 2024 ballot of the India Young Professional Scheme.

India Young Professional Scheme

- **About:** It originated from an India-U.K. Migration and Mobility Memorandum of Understanding signed in May 2021, and was subsequently announced in November during the G20 summit in Bali.
- **Launch**: February 2023.
- **Scope and Participation**: Allows up to 3,000 degree-holding citizens aged 18-30 from each country to work in the other for 2 years.
- **India is the first visa-national country to participate.**
- **Features**
  - Allows Indians aged 18-30 to live and work in the UK for up to 2 years.
  - Permit holders can enter and leave the UK freely during their visa validity.
- **Eligibility Criteria**: Must be an Indian national aged 18-30 with a bachelor's degree or higher.
  - Requires £2,530 in savings and no dependent children under 18.
- **Visa Conditions:** Must enter the UK within 6 months of visa issuance.
- **Activities Allowed in the UK**:
  - Permits study, including certain sensitive subjects under ATAS certification.
  - Allows work in most job sectors.
  - Allows setting up a company under specific conditions (e.g., no employees, limited equipment value).

INDIAN EXPRESS

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NITI AYOG

(Syllabus: GS Paper 2 – Polity)

Centre reconstitutes NITI Aayog, brings in allies as special invitees

AGGAM WALIA
NEW DELHI, JULY 16

THE GOVERNMENT on Tuesday reconstituted the NITI Aayog, increasing the number of special invitees from five to 11, including five ministers from the BJP's allies — H D Kumaraswamy (JD-S), Jitan Ram Manjhi (HAM), Rajiv Ranjan Singh (JD-U), K R Naidu (TDP) and Chirag Paswan (LJP-Ram Vilas).

Prime Minister Narendra Modi remains the Chairperson and economist Suman K Bery will continue to be the Vice Chairperson of NITI Aayog, according to the notification.

Scientist V K Saraswat, agricultural economist Ramesh Chand, paediatrician V K Paul and macro-economist Arvind Virmani will also continue to be full-time members of the government think-tank. BVR Subrahmanyam will also remain the CEO.

Union Agriculture Minister Shivraj Singh Chauhan has replaced his predecessor Narendra Singh Tomar as an ex-officio member. The other ex-officio members include Finance Minister Nirmala Sitharaman, Home Minister Amit Shah and Defence Minister Rajnath Singh.

Among the other special

CONTINUED ON PAGE 2

Context: The government recently reconstituted the NITI Aayog, boosting the number of special invitees to 11.

NITI Ayog

- **About**: It is the premier policy 'Think Tank' of the Union Government, providing both directional and policy inputs.
- **Full form**: National Institution for Transforming India
- **Establishment:** In 2015 via an executive resolution by replacing the Planning Commission of India
- **Objective**: To develop a common vision for both the Central and State governments, recognizing that robust states are the foundation of a robust nation.
    - To encourage an ongoing environment of competitive and cooperative federalism among the states.
- **Composition of NITI Aayog**
    - **Chairperson**: Prime Minister
    - **Vice-Chairperson**: To be appointed by Prime-Minister
    - **Governing Council:** Chief Ministers of all states and Lt. Governors of Union Territories.
    - **Regional Council:** To address specific regional issues, Comprising Chief Ministers and Lt. Governors Chaired by Prime Minister or his nominee.
    - **Ex-Officio membership:** Maximum four from Union council of ministers to be nominated by Prime minister.
    - **Special Invitees**: Experts, Specialists with domain knowledge nominated by Prime-minister.

Function

- Develop a strategic policy vision for the government, outlining the direction and framework for national development.
- Design policies and programmes addressing key challenges and opportunities across various sectors of the economy.
- Foster research and innovation to address evolving policy needs and solutions effectively.
- Enhance inter-governmental coordination to foster cooperative federalism between the central and state governments.
- Act as a think tank providing critical inputs and strategic advice, while also fostering a collaborative knowledge-sharing community of national and international experts through the Team India Hub.

HINDUSTAN TIMES July 16

VISHALGAD FORT

(Syllabus: GS Paper 1 – History)

Agitation at Vishalgad Fort in Kolhapur turns violent

Context: Violence erupted during an anti-encroachment operation at Vishalgad Fort on Sunday morning as miscreants assaulted local shopkeepers and hurled stones at policemen on duty.

Vishalgad Fort

- **Location**: It is situated in Vishalgad village, Kolhapur district, Maharashtra, also known locally as Khelna or Khilna.
- **Historical Significance**: It was established in 1058 by Shilahara king Marsinh, originally named Khilgil. Over the centuries, it saw control by various dynasties including the Seuna Yadavas, Khiljis, Vijayanagar Empire, and finally the Marathas.
- **Under Maratha Rule**: Shivaji captured Vishalgad in 1659 from the Adilshahi rulers, renaming it to Vishalgad, meaning grand fort.
    - It became a strategic stronghold during the Maratha Empire, serving as the capital of a substantial region.
- **Features of Vishalgad Fort**:
    - **Architecture and Location:** Covering 1130 square meters atop the Sahyadri ranges at 3500 feet elevation, Vishalgad offers a commanding view of its surroundings.
    - **Religious and Cultural Sites**: The fort houses notable structures like the Dargah of Hazrat Sayed Malik Rehan Meera Saheb, Amruteshwar Temple, Shri Nrusinha Temple, and Sati's Vrindavan, attracting numerous visitors.
    - **Historical Remembrance**: It includes tombs dedicated to Phulaji Prabhu Deshpande and Baji Prabhu Deshpande, revered for their service during Shivaji's reign.

Battle of Pawankhind:

- **Historical Context**: The Battle of Pawankhind occurred on July 13, 1660, as part of Shivaji's escape from the siege of Panhala fort by Siddi Johar. With just 600 soldiers, Shivaji sought refuge at Vishalgad, pursued by Siddi's formidable force of 30,000 troops.
- **Heroic Stand of Baji Prabhu**: Baji Prabhu Deshpande and his 300 soldiers famously defended Ghod Khind, allowing Shivaji time to reach Vishalgad safely. Baji Prabhu's sacrifice and valor are commemorated in Maratha history for his unwavering loyalty and bravery.

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