17th July, 2024

1. Halwa Ceremony
GS 1 (Governance)

- **Why in News:** Recently, the Union Finance Minister participated in a traditional 'halwa' ceremony, marking the final stage for preparation of Union Budget 2024-25 to be unveiled on July 23 in Lok Sabha.

Countdown begins: Union Finance Minister Nirmala Sitharaman (centre) distributing *halwa* at North Block on Tuesday. The *halwa* ceremony marks the final stage of Budget preparation. The Minister is scheduled to present the Union Budget on July 23. SPECIAL ARRANGEMENT

- **About Halwa Ceremony:**
  - The ceremony is a ritual in which traditional dessert 'halwa' is prepared and served to officials and staff members of the **finance ministry** who **are involved in the preparation** of the **Budget.**
  - It is a kind of a **'send-off' for finance ministry officials** and staff involved in the preparation of the Union government's annual financial statement.
  - They enter what is **called a 'lock-in' period**, during which they stay in the basement of North Block, cut off from the world outside to maintain the secrecy around the final budget document.
  - These stringent measures date back to a leak that occurred in 1950. A portion of the Union Budget was leaked while it was being printed at Rashtrapati Bhawan. As a result of the leak, the then Finance Minister, John Matthai, resigned.
- **Key facts about the Union Budget of India**
  - The Union Budget of India also referred to as the **Annual Financial Statement** in the **Article 112** of the Constitution of India, is the annual budget of the Republic of India.
  - It is also known as the Annual Financial Statement of the Government; however, the term "**budget" is not mentioned** in the **Constitution**.

2. Centre reconstitutes NITI Aayog
GS 2 (Governance)

- **Why in news:** The Centre has reconstituted the NITI Aayog with 15 union ministers, including those from NDA allies and four full-time members, being a part of the government think-tank. The government reconstituted NITI Aayog after changes were made in the council of ministers.


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

- **National Institution for Transforming India (NITI) Aayog**
  - **About:**
    - NITI Aayog, was formed via a resolution of the Union Cabinet on 1 January 2015. It was constituted to replace the Planning Commission - instituted in 1950.
    - It is the premier policy think tank of the Government of India, providing directional and policy inputs.
    - NITI Aayog acts as a platform to bring the States to act together in national interest and thereby fosters cooperative federalism.
  - **Composition**
    - **Chairperson**: The Prime Minister of India

- **Full time organisational framework**:
  - Vice Chairperson: Appointed by the PM, s/he enjoys the rank of a Cabinet Minister.
  - Full-Time Members: Enjoys the rank of a Minister of State.
  - Part-Time Members: Maximum 2.
  - Ex-Officio Members: Maximum of 4 members of the Union Council of Minister to be nominated by the PM.
- **Chief Executive Officer (CEO)**: Appointed by the PM for a fixed tenure, s/he enjoys the rank of Secretary to the Government of India.
- **Special Invitees**: These will be experts with relevant domain knowledge to be nominated by the PM.

- **Governing Council of NITI Aayog**
  - The council is the premier body tasked with evolving a shared vision of national priorities and strategies, with the active involvement of States.
  - It presents a platform to discuss inter-sectoral, inter-departmental and federal issues to accelerate the implementation of the national development agenda
- **Composition of Governing Council**:
  - It is **chaired by the PM** and **comprises Chief Ministers of all the States and UTs with legislatures and Lt Governors of other Union Territories.**
  - The council also comprises of Vice Chairman, NITI Aayog; Full-Time Members, NITI Aayog; and Special Invitees.

- **Performance of NITI:**
  - **As an action Tank:** By collecting fresh and new ideas and sharing them with the government at the Central and State level, it ensures that there is no inactivity in any organisation or institution.
  - **Improving innovation:** A commendable work has been done by the **Atal Innovation Mission** (established under NITI Aayog), which has helped in improving the innovation ecosystem in India.
  - **Bringing greater responsibility in the system:** Development Monitoring and Evaluation Office (DMEO) has been established by the NITI Aayog, which collects performance data of various Ministries on a real-time basis.
    - These data are then used at the highest policy-making levels to improve performance and establish accountability.
  - **Some important initiatives of NITI Aayog:** Some of the initiatives like Ayushman Bharat, water conservation measures, approach towards artificial intelligence, have been conceptualised in NITI Aayog and respective Ministries are taking them forward.
    - **POSHAAN ABHIYAAN** by NITI Aayog is cutting across the silos within the government and helping in reducing malnourished children in India.
- **NITI Aayog: Promoting Federalism**
  - **Cooperative Federalism**
    - NITI has provided a platform for direct issue-based interaction between States and Central Ministries thereby helping quick resolution of outstanding issues.
    - The **NITI Forum for North East** has been constituted and tangible sectoral proposals are being implemented by the States in partnership with the North East council.
    - NITI has designed some **major initiatives for island development** which are being implemented under the overall guidance of the **Ministry of Home Affairs**.
    - It is also envisaged that like the NITI Forum for the North East, other regional councils of contiguous States could be formed.
      - The first step has been taken by forming the **Himalayan States Regional Council** and forming a **coalition of all thirteen central universities in these states**.
  - **Competitive Federalism**
    - It promotes competitive federalism principally through pushing its sectoral indices which are put out in the public domain.
      - The indices on **water, education, health, innovation, export preparedness, and Sustainable Development Goals** (SDGs) have attracted significant positive attention.

- It has also introduced a competition element in 'Aspirational Districts Program' by focusing on governance improvement on the ground.
    - These districts have shown significant improvement in indicators pertaining to health and nutrition, education etc.
- Besides, several best practices in governance have emerged from these districts which are now being scaled up and replicated at the block level in some states.

- **Reconstitution of NITI Aayog**
    - **About**
        - The government reconstituted the NITI Aayog, expanding the number of special invitees from five to eleven.
        - This new group of special invitees includes five ministers from the BJP's allied parties.
    - **Key post holders**
        - Prime Minister Narendra Modi remains the **Chairperson** and economist Suman K Bery will continue to be the **Vice Chairperson of NITI Aayog**.
        - 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.
        - The four ex-officio members will be:
            - Union Ministers Rajnath Singh (Defence), Amit Shah (Home), Shivraj Singh Chouhan (Agriculture) and Nirmala Sitharaman (Finance).

3. What constitutes a Money Bill

GS 2 (Legislature)

- **Why in news:**
    - The Supreme Court has agreed to consider petitions challenging the government's use of the "Money Bill route" to pass contentious legislation in Parliament.
    - The issue 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 the case of Rojer Mathew vs South Indian Bank Ltd.
    - In October 2023, CJI Chandrachud announced that the seven-judge Bench would be established soon.

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

AJOY SINHA KARPURAM
NEW DELHI, JULY 10

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 where 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 Regulation 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.

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

EXPLAINED LAW

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.

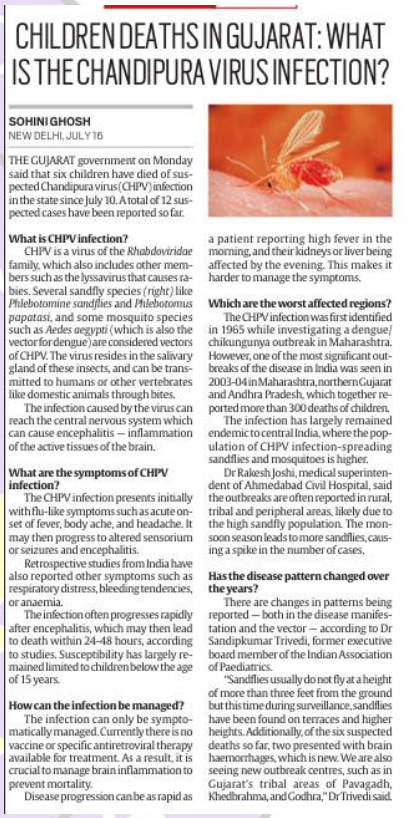
- **Money Bill**
    - Article 110 defines a money Bill as one containing provisions dealing with taxes, regulation of the government's borrowing of money, and expenditure or receipt of money from the Consolidated Fund of India, among others.
    - Article 109 delineates the procedure for the passage of such a Bill and confers an overriding authority on the Lok Sabha in the passage of 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 b
    - The **Speaker certifies a Bill as a Money Bill, and the Speaker's decision is final**.
        - **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.
    - Over the last seven years, the government has introduced multiple legislations through the money Bill route, the most notable of which are the **Aadhaar Act, 2016**, and the Finance Act, 2017.

- **Difference between money Bills and financial Bills**
  - While all **Money Bills are Financial Bills, all Financial Bills are not Money Bills.**
    - E.g., the Finance Bill which only contains provisions related to tax proposals would be a Money Bill.
    - However, a Bill that contains some provisions related to taxation or expenditure, but also covers other matters would be considered as a Financial Bill.
    - The Compensatory Afforestation Fund Bill, 2015, which establishes funds under the Public Account of India and states, was introduced as a Financial Bill.
    - The procedure for the passage of the two bills varies significantly.
  - **The Rajya Sabha has no power to reject or amend a Money Bill**.
    - After being passed by the Lok Sabha, money Bills are sent to the Rajya Sabha for its recommendations.
    - Within 14 days, the Upper House must submit the Bill back to the Lower House with its non-binding recommendations.
    - If the Lok Sabha rejects the recommendations, the Bill is deemed to have passed by both Houses in the form in which it was passed by the Lok Sabha without the recommendations of the Rajya Sabha.
    - Even if the Rajya Sabha doesn't respond with its recommendations within 14 days, the same consequences would follow.
    - However, a Financial Bill must be passed by both Houses of Parliament.
  - While an ordinary Bill can originate in either house, **a money Bill can only be introduced in the Lok Sabha**, as laid down in Article 117 (1).
  - Additionally, no one can introduce or move money Bills in the Lok Sabha, except on the President's recommendation.
  - Amendments relating to the reduction or abolition of any tax are exempt from the requirement of the President's recommendation.
  - The two prerequisites for any financial Bill to become a money Bill are that
    - It must only be introduced in the Lok Sabha and not the Rajya Sabha.
    - These bills can only be introduced on the President's recommendation.
- **Important bill passed using money bill route**
  - Money Bills offer a fast-track route to enact legislation because they do not require passage in Rajya Sabha.
  - Several important laws have been passed by this route in recent years, circumventing the Upper House.
  - These include: 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 etc.
- **What constitutes a Money Bill: The important cases in SC**
  - **Challenge to Aadhaar Act**
    - In September 2018, the Supreme Court upheld the constitutionality of the Aadhaar Act by a 4-1 majority.
    - Petitioners argued it was improperly passed as a Money Bill, including unrelated provisions.Justice Ashok Bhushan supported the majority, stating the Act's primary aim was to provide subsidies and benefits, justifying its passage as a Money Bill.
    - Justice D.Y. Chandrachud dissented, calling it an abuse of the constitutional process, which undermines the Rajya Sabha's role in lawmaking.
  - **Finance Act, 2017**
    - The Finance Act, 2017, amended various laws and **allowed the government to set rules for Tribunal members' service conditions.**
    - Petitioners argued it should be struck down for including unrelated provisions.
    - In November 2019, a five-judge Bench invalidated the Tribunal Rules for infringing on judicial independence but referred the Money Bill issue to a larger seven-judge Bench.
    - The court noted the Aadhaar case did not clearly define a valid Money Bill.

- **Since 2019**
  - The court has avoided addressing the Money Bill issue in several cases due to the pending seven-judge Bench review.
  - These cases include challenges to the Enforcement Directorate's wide powers under the PMLA (Finance Act, 2018) and the Centre's Electoral Bond scheme, both facilitated through the Money Bill route.

4. Chandipura Virus Infection
GS 2 (Health)

- **Why in News:** Recently, the Gujarat government said that six children have died of suspected Chandipura virus (CHPV) infection in the state since July 10.
- **About Chandipura Virus Infection:**
  - It is a virus of the **Rhabdoviridae family**, which also includes other members such as the **lyssavirus that causes rabies.**
    - 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.
  - 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 then **reach the central nervous system** which can lead to encephalitis — inflammation of the active tissues of the brain.
  - **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.
  - **Symptoms**
    - 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.**
    - Respiratory distress, bleeding tendencies, or anaemia.
    - The infection often progresses **rapidly after encephalitis,** which may then lead to mortality within 24-48 hours of hospitalization.
  - This infection has largely remained limited to **children below 15 years.**
  - **Treatment:** The infection can only be symptomatically managed as currently there **is no specific antiretroviral therapy** or vaccine available for treatment.
  - Affected regions in India
    - The CHPV infection was **first isolated 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 states such as Maharashtra, northern Gujarat and Andhra Pradesh.
    - The infection has largely remained **endemic to the central part of India**, where the population of CHPV infection-spreading sandflies and mosquitoes is higher.



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.

5. Analysing the Progress of Quantum Technology in India
GS 3 (Science and Tech)

- **Why in News:**
  - In 2023, India launched the National Quantum Mission and became one of the few countries in the world to have a dedicated programme to harness the power of quantum technologies.
  - But India is far behind China and the US despite having a fairly strong research base in quantum science.
- **What is Quantum Technology?**
  - It is a class of technology (developed in the early 20th century) that **works by using the principles of quantum mechanics** - the physics of subatomic particles, including quantum entanglement and quantum superposition.
  - Hence, it is based on **phenomena exhibited by microscopic particles** (like photons, electrons, atoms, etc) which are quite distinct from the way normal macroscopic objects behave.
  - As behaviour of these microscopic particles **can't be described by Classical Physics** (based on Newtonian Mechanics), consequently Quantum Mechanics came into picture.
  - **The principles behind quantum technology:**
  - **Applications:** In more reliable navigation and timing systems, more secure communications, more accurate healthcare imaging through **quantum sensing** (perform a measurement of a physical quantity), more powerful computing (**quantum computer**), etc.
  - **Progress in India:** India is currently at the forefront of tapping the quantum revolution through massive investments in the field. **The Union Budget 2020-21** proposed to spend
    - ₹8,000 crore on the newly launched National Mission on Quantum Technologies and Applications (**NMQTA**) and
    - ₹ 3660 Crore for National Mission on Interdisciplinary Cyber Physical Systems (**NM-ICPS**).

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 had a 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 ~ 271.4°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	23,935	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 ithaca 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 $1.75 billion. The United Kingdom has put in about $4.1 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 101 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 100 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.

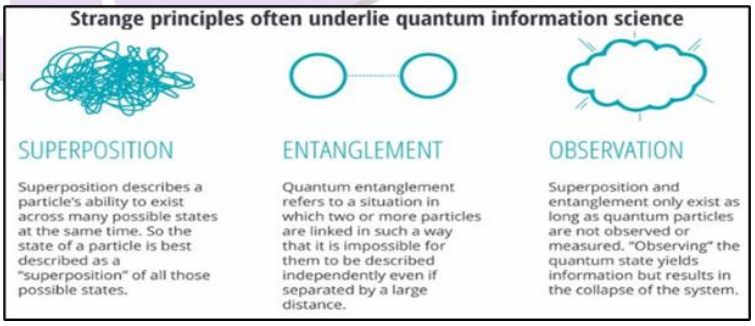
The report also found that outside the European Union, India had the largest number of graduate students in disciplines aligned to quantum technologies. These include biochemistry, electronics, chemical engineering, statistics, and information and communication technologies. There were more than 82,000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

- **What is the Indian Government's National Quantum Mission (NQM)?**
  - NQM will be led by the Department of Science and Technology (DST) for **strengthening India's R&D in the quantum arena**, and focuses on **four key domains:** computing, communications, sensors, and materials.
  - It will target **developing intermediate scale quantum computers** with 50-1000 physical qubits in eight years in various platforms like superconducting and photonic technology.
  - **Other objectives of the mission:**
    - **Satellite based secure quantum communications** over a range of 2000 km within India and with other countries.
    - **Develop magnetometers** with high sensitivity in atomic systems and **Atomic Clocks** for precision timing, communications and navigation.
    - It will also support design and synthesis of quantum materials such as **superconductors, novel semiconductor structures and topological materials** for fabrication of quantum devices



  - **Four 'Thematic Hubs' (T-Hubs)** will be set up in top academic and national R&D institutes in the domains of quantum computing, communication, sensing and metrology.

        - The hubs will focus on **generation of new knowledge** through basic and applied research as well as promote R&D.
    - The Mission will have wide-scale applications ranging from **healthcare and diagnostics, defence, energy and data security.**
- **Analysing the Progress of Quantum Technology in India:**
    - **India lagging behind other nations:**
        - A new report has found that countries like **China and the US have a huge head start** in quantum technologies over India.
        - Not only have these nations **invested significantly more funds to research**, they have a larger number of professionals in this field, have been publishing more scientific papers, and have registered many more patents.
    - **India still remains in competition:**
        - Indian scientists are at the **forefront of research into quantum communications and quantum sensing.**
        - Even in areas such as computing and materials, **the gap is not such that it cannot be bridged.**
        - Outside the European Union, India had the largest number of graduate students in disciplines (biochemistry, electronics, statistics, ICT, etc) aligned to quantum technologies.
        - There were more than 82,000 such students enrolled, which is more than in China or the US.
    - **Way ahead for India:**
        - In a decade or two, a quantum-enabled transition can lay the groundwork for a new economy by surpassing the limitations of existing technology. This is why India wants to rapidly build its capabilities in these areas.
        - **Partnering in technology development** would ensure early success, leading to swift economic progress and access to cutting-edge technologies for India.
        - **The NQM needs to identify and promote young talent**, helping to raise a separate cadre of quantum scientists.
    - **Conclusion:** There is much ground to cover, and the NQM is only the first step. But the good thing is that India is not exactly starting from zero.

6. PM SHRI (PM Schools for Rising India) Scheme
GS 2 (Governance)

- **Why in News:** After Punjab, West Bengal, and Delhi refused participation in the PM-SHRI scheme, the Education Ministry has stopped funds to the three states under the Centre's flagship Samagra Shiksha Abhiyan (SSA).
- **About PM SHRI Scheme:**
    - It is a **centrally sponsored scheme** by the Government of India.
    - Its objective is to **establish over 14,500 PM SHRI Schools**, **overseen by the Central Government**, **State/UT Governments**, **local bodies**, as well as **Kendriya Vidyalaya Sangathan** (KVS) and **Navodaya Vidyalaya Samiti** (NVS).

PM SHRI, the 'showcase' schools scheme that Centre is pushing in states

ABHINAYA HARIGOVIND
NEW DELHI, JULY 16

THE CENTRE has stopped funding for the umbrella program for school education in three opposition-ruled states that have refused to implement its PM SHRI scheme. The Samagra Shiksha Scheme, for which funding has been stopped in West Bengal, Punjab, and Delhi, supports implementation of the Right of Children to Free and Compulsory Education (RTE) Act, 2009.

Samagra Shiksha funds for the third and fourth quarters of 2023-24 and the first quarter of 2024-25, amounting to Rs 330 crore, Rs 515 crore, and Rs 1,000 crore for Delhi, Punjab and West Bengal respectively, have not been released.

While the Education Ministry has given no official explanation, a senior official told *The Indian Express* that states cannot receive Samagra Shiksha funds without implementing PM SHRI (PM Schools for Rising India), which is part of the program.

PM SHRI scheme

The scheme, approved in 2022, seeks to develop 14,500 schools to "showcase" the National Education Policy (NEP), 2020, and be "exemplars" for other schools in their region. The scheme is for existing elementary, secondary, and senior secondary schools run by the central government and state and local governments around the country.

The PM SHRI dashboard online currently lists 10,077 schools, of which 839 are Kendriya Vidyalayas and 599 Navodaya Vidyalayas, both run by the Centre. The remaining 8,639 schools are run by state or local governments.

The Centre had declared a total project cost of Rs 27,360 crore for five years until 2026-27, of which the Centre would bear Rs 18,128 crore. At the end of the five-year period, states and Union Territories (UTs) would be required to "continue to maintain the benchmarks achieved by these schools".

The government told Lok Sabha in February that Rs 3,395.16 crore had been approved for 6,207 PM SHRI schools for 2023-24, of which the Centre's share was Rs 2,520.46 crore and that of the states Rs 874.70 crore.

Selection of schools

EXPLAINED EDUCATION

UP has the most PM SHRI schools (1,865) followed by Maharashtra (910) and Andhra Pradesh (900). No state or local government-run schools in the non-BJP states of Punjab, Delhi, Tamil Nadu, Kerala, West Bengal, and Bihar, as well as Odisha, which got a BJP government only last month, have been included in the scheme.

PM SHRI schools are selected through the "challenge mode" – schools that meet certain minimum benchmarks (including a pucca building in good condition, barrier-free access ramps, at least one toilet each for boys and girls) can apply online.

They are evaluated on a set of parameters that include infrastructure, teaching staff, and learning outcomes. Schools in urban areas must score at least 70%; those in rural areas 60% to be selected. States are supposed to send a list of recommended schools to the Ministry, and an expert committee headed by the School Education and Literacy Secretary draws up the final list. Up to two schools – an elementary school and a secondary/ senior secondary school can be selected per block/ urban local body.

The state, UT, or Kendriya Vidyalaya Sangathan/ Navodaya Vidyalaya Samiti is required to sign a Memorandum of Understanding (MoU) with the Ministry of Education committing to implement the provisions of the NEP "in entirety within the entire State/ UT", and to prefix PM SHRI to the name of the selected school.

States/ UTs have to work to ensure zero dropout rates in all grades within two years of implementation, comply with norms for pupil-teacher ratio, and implement "innovative pedagogy" such as activity-based, sports-based, art-based, and toy-based learning.

Samagra Shiksha

The PM SHRI scheme is to be implemented at the state/ UT level through the existing administrative structure available for Samagra Shiksha, which the government describes as "an overarching program for the school education sector...from pre-school to Class 12... prepared with the broader goal of improving school effectiveness measured in terms of equal opportunities for schooling and equitable learning outcomes".

Samagra Shiksha, which was proposed by the Union Budget of 2018-19, subsumed the erstwhile Sarva Siksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA), and Teacher Education (TE) schemes.

The scheme is funded in a 60:40 ratio by the Centre and states, barring the 11 Northeastern and Himalayan states, which have to bear only 10% of the cost.

Three outlier states

Delhi and Punjab have declined to participate in PM SHRI because the Aam Aadmi Party governments in these states are already implementing similar schemes for exemplar schools called "Schools of Specialised Excellence" and "Schools of Eminence" respectively. West Bengal has objected to the requirement of prefixing PM SHRI to the names of the schools, especially since the state bears 40% of the cost.

The states that have not signed the PM SHRI MoU have not received funds from the Centre under the Samagra Shiksha scheme. After holding out initially, Kerala, Bihar, Tamil Nadu, and Odisha agreed to participate in the scheme in March this year.

    - These schools aim to create an inclusive and welcoming atmosphere for every student, ensuring their well-being and providing a secure and enriching learning environment.
    - The goal is to offer a diverse range of learning experiences and ensure access to **good physical infrastructure and appropriate resources** for all students.
    - The overarching purpose of PM SHRI School is to nurture students in a manner that transforms them into engaged, productive and contributing citizens.
    - This aligns with the vision of the National Education Policy 2020, striving to build a society characterized by equity, inclusivity and pluralism.

- **Features of PM SHRI Schools:**
  - These schools will not only focus on enhancing cognitive development but also **creating holistic and well-rounded individuals** equipped **with key 21st-century skills.**
  - The **pedagogy adopted** in these schools will be more **experiential, holistic**, **integrated, play/toy-based** (particularly in the foundational years), **inquiry-driven, discovery-oriented**, learner-centred, **discussion-based, flexible**, and enjoyable.
  - The schools will be **upgraded with labs, libraries, and art rooms**. They will be **developed as green schools** with water conservation, waste recycling, energy-efficient infrastructure, and integration of the organic lifestyle as part of the curriculum.
  - The **focus will be on the learning outcomes** of every child **in every grade.**
  - **Assessment at all levels** will be **based on conceptual understanding** and **application of knowledge** to real-life situations **and will be competency-based**.
  - A **School Quality Assessment Framework (SQAF) is being developed**, specifying the key performance indicators to measure outcomes. A quality evaluation of these schools at regular intervals will be undertaken to ensure the desired standards.
- The **duration**of the scheme is from **2022-23 to 2026-27**, **after which** it shall be the **responsibility of the States**/UTs **to continue** to maintain the benchmarks achieved by these schools.
- The total cost of the project will be Rs 27360 crore spread over a period of 5 years, which includes the central share of Rs 18128 crore.
- The **selection of PM SHRI schools** will be done **through Challenge Mode**, wherein schools compete for support to become exemplar schools.

MCQ Current Affairs
17th July, 2024

1. What is the primary goal of the ASMITA project, recently seen in the news?
a) To digitize educational content for online learning
b) To enhance infrastructure in rural schools
c) To promote and integrate Indian languages into the education system
d) To promote sustainable agriculture practices

2. Tizu River, recently seen in the news, flows through which one of the following states?
a) Meghalaya
b) Uttarakhand
c) Sikkim
d) Nagaland

3. With reference to the PM SHRI (PM Schools for Rising India) Scheme, consider the following statements:
A. It is a centrally sponsored scheme by the Government of India.
B. PM SHRI Schools will be overseen by the Central Government, State/UT Governments, local bodies, as well as Kendriya Vidyalaya Sangathan (KVS) and Navodaya Vidyalaya Samiti (NVS).
C. The selection of PM SHRI schools will be done through Challenge Mode, wherein schools compete for support to become exemplar schools.

How many of the statements given above are correct?
a) One only
b) Two only
c) All three
d) None

4. Consider the following statements with reference to the Chandipura virus (CHPV) infection:
A. It can be transmitted through sand flies and mosquito species.
B. This infection has largely remained limited to children below 15 years.

Which of the statements given above is/are correct?

a) A only
b) B only
c) A and B
d) Neither of two

5. Consider the following statements with reference to the Halwa ceremony:
A. It is a tradition performed every year to celebrate a successful budget presentation.
B. It involves members of the finance ministry who are involved in the preparation of the budget.

Which of the statements given above is/are correct?

a) A only
b) B only
c) A and B
d) Neither of two

Answers Current Affairs
17th July, 2024

1. c
2. d
3. c
4. c
5. b