GOVERNMENT OF INDIA

MINISTRY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF SCIENCE AND TECHNOLOGY

LOK SABHA

UNSTARRED QUESTION NO. 499

ANSWERED ON 03/12/2025

NATIONAL QUANTUM MISSION

499. SHRI TANGELLA UDAY SRINIVAS:
SHRI YADUVEER WADIYAR:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) the primary objectives of the National Quantum Mission and the manner in which it aligns with county's vision for technological leadership globally;

(b) the specific measures taken to ensure that the National Quantum Mission contributes to economic growth and job creation in emerging sectors related to quantum technology;

(c) the details of the targets set under the National Quantum Mission (NQM) and the achievement status thereof, including the number of projects started, pending and completed since inception, year, State, technology-vertical and institution-wise;

(d) the funds sanctioned, released and utilised under NQM since inception, year and State-wise;

(e) the funds sanctioned, released and utilised for each Thematic Hub (T-Hub) under NQM during the said period, year, State and T-Hub-wise;

(f) whether the Government has received proposals from any State including Andhra Pradesh for establishing new T-Hubs and if so, the details thereof and the funds sanctioned, released and utilised during the current financial year;

(g) the number of institutions supported under NQM along with institution-wise funds sanctioned, released and utilised; and

(h) whether proposals for inclusion of new institutions, particularly from Andhra Pradesh, have been received and if so, the details thereof?

ANSWER

MINISTER OF STATE (INDEPENDENT CHARGE) OF THE MINISTRY OF SCIENCE AND TECHNOLOGY AND EARTH SCIENCES

(DR. JITENDRA SINGH)

(a) The primary objectives of the National Quantum Mission (NQM) are to develop cutting-edge quantum technologies across quantum computing, quantum communication, quantum sensing–metrology, and quantum materials, and to build a strong national ecosystem spanning R&D, infrastructure, startups, and skilled human resources. The Mission directly aligns with India's broader vision of technological self-reliance, strategic capability building, and global leadership in critical and emerging technologies.

(b) The National Quantum Mission incorporates several measures to translate scientific progress into economic growth and high-quality jobs. These include dedicated support for quantum startups and MSMEs through rolling calls, incubation, and access to national fabrication facilities created by the T-Hubs, which collectively enable stronger industry participation and technology commercialization. The Mission also promotes targeted skilling initiatives—such as teaching laboratories, researcher training, and specialised programmes—to build a quantum-ready workforce. By fostering industry–academia collaboration and encouraging private-sector participation, the Mission aims to generate new employment opportunities and catalyse economic activity in emerging quantum-technology sectors.

(c) The Government of India is implementing the National Quantum Mission (NQM) with an outlay of ₹6003.65 crore for a period of eight years. Under the Mission, four Thematic Hubs (T-Hubs) have been established in the financial year 2024–25. These hubs have been incorporated as Section-8 Companies by their respective host institutions and have constituted their respective Hub Governing Boards (HGBs) for effective governance and administration. Funds have been released to all four T-Hubs to initiate their operations. The hubs are now fully functional and are engaged in a range of activities including Technology Development, Human Resource Development, Entrepreneurship Development & Industry Collaboration and International Collaborations. These T-Hubs comprised of 14 Technical Groups with 17 Project Teams. The Hubs brought together 152 researchers from 43 institutions across 17 States and 2 Union Territories. The details of the Thematic Hubs is placed below:

S. No.	Technology Vertical	Name of the Host Institute	State	Name of the Section-8 Company	Status
1.	Quantum Computing	IISc, Bengaluru	Karnataka	Foundation for QC Innovation	Ongoing
2.	Quantum Communication	IIT Madras in association with C-DoT, New Delhi	Tamil Nadu	IITM CDOT Samgnya Technologies Foundation	Ongoing
3.	Quantum Sensing & Metrology	IIT Bombay	Maharashtra	Qmet Tech Foundation	Ongoing

S. No.	Technology Vertical	Name of the Host Institute	State	Name of the Section-8 Company	Status
4.	Quantum Materials & Devices	IIT Delhi	Delhi	QMD Foundation	Ongoing

The key deliverables set under the mission are:

1. **Develop intermediate scale quantum computers with 20-50 physical qubits, 50-100 physical qubits and 50-1000 physical qubits in 3 years, 5 years and 8 years, respectively.**
2. **Develop satellite based secure quantum communications between two ground stations over a range of 2000 kilometres within India as well as long distance secure quantum communications with other countries.**
3. **Develop inter-city quantum key distribution over 2000 km with trusted nodes using wavelength division multiplexing on existing optical fibre.**
4. **Develop multi-node quantum network with quantum memories, entanglement swapping and synchronised quantum repeaters at each node (2-3 nodes).**
5. **Develop magnetometers with 1 femto-Tesla/sqrt (Hz) sensitivity in atomic systems and better than 1 pico-Tesla/sqrt (Hz) sensitivity in nitrogen vacancy-centers; gravity measurements having sensitivity better than 100 nano-meter/second2 using atoms and atomic clocks with 10^{-19} fractional instability for precision timing, communications and navigation.**
6. **Design and synthesis of quantum materials such as superconductors, novel Semiconductor structures and topological materials for fabrication of quantum devices for quantum computing and communication.**

(d), (e) and (g): The details of the funds sanctioned, released and utilized under NQM is placed at Annexure.

(f) No Sir.

(h) NQM has recently launched two Calls for Proposals—one for establishing teaching laboratories in quantum technologies and another for setting up a Technical Group in Quantum Algorithms. Institutions from across the country, including those from Andhra Pradesh, have actively participated in both calls. Out of the 433 proposals received for teaching laboratories, 134 are from Andhra Pradesh. Similarly, out of the 373 proposals received for the Quantum Algorithms Technical Group, 84 proposals have been submitted by institutions from Andhra Pradesh. All proposals are currently under evaluation by expert committees.

Annexure

(Amount in Crores)

Vertical Name & Thematic Hub	State	Institute	Total Sanctioned Amount (Till March, 2031)	FY 2024-25		FY 2025-26	
				Released Amount	Utilized Amount	Released Amount	Utilized Amount (Till November 2025)
Quantum Communication - IITM CDOT Samgnya Technologies Foundation at IIT Madras in association with C-DoT, New Delhi	Andhra Pradesh	Indian Institute of Technology Tirupati	25.28	0.08	0.02	8.20	8.08
	Bihar	Indian Institute of Technology Patna	10.90	0.08	0.00	2.56	0.05
	Chhattisgarh	Indian Institute of Technology Bhilai	1.81	0.14	0.14	0.22	0.10
	Delhi	Centre for Development of Telematics	29.03	0.57	0.56	1.95	0.50
		Indian Institute of Technology Delhi	105.23	0.43	0.00	21.01	1.18
	Jammu and Kashmir	Indian Institute of Technology Jammu	2.60	0.01	0.01	0.25	0.08
	Karnataka	Centre for Development of Advanced Computing, Bangalore	44.12	0.70	0.26	8.31	0.11
		Indian Institute of Science Bangalore	16.83	0.16	0.16	4.11	0.02
		Raman Research Institute	59.74	0.68	0.68	12.88	1.09
	Kerala	Centre for Development of Advanced Computing, Thiruvananthapuram	11.82	0.12	0.12	1.06	0.52
	Madhya Pradesh	Indian Institute of Science Education and Research Bhopal	1.14	0.03	0.00	0.11	0.05
		Indian Institute of Technology Indore	6.70	0.11	0.00	1.95	0.09
	Punjab	Indian Institute of Science Education and Research Mohali	1.87	0.03	0.00	0.19	0.04
	Tamil Nadu	IITM CDOT Samgnya	162.93	0.93	0.93	8.88	4.61

Vertical Name & Thematic Hub	State	Institute	Total Sanctioned Amount (Till March, 2031)	FY 2024-25		FY 2025-26	
				Released Amount	Utilized Amount	Released Amount	Utilized Amount (Till November 2025)
		Technologies Foundation					
		Indian Institute of Technology Madras	83.48	0.32	0.09	15.60	0.51
		Society for Electronic Transactions and Security (SETS)	10.05	0.12	0.12	2.46	0.73
	Telangana	Indian Institute of Technology Hyderabad	14.50	0.20	0.02	3.97	0.56
	Uttar Pradesh	Harish Chandra Research Institute, Prayagraj	3.02	0.03	0.00	0.25	0.00
		Indian Institute of Technology Kanpur	0.81	0.04	0.00	0.23	0.01
	Uttarakhand	Indian Institute of Technology Roorkee	17.84	0.15	0.00	6.53	0.35
	West Bengal	Indian Institute of Technology Kharagpur	4.61	0.23	0.14	0.55	0.19
Sub-total for T-Hub on Quantum Communication			614.31	5.16	3.25	101.28	18.86
Quantum Computing - Foundation for QC Innovation at IISc. Bengaluru	Assam	Indian Institute of Technology Guwahati	15.40	0.07	0.00	4.16	0.48
	Bihar	Indian Institute of Technology Patna	2.39	0.06	0.00	0.41	0.00
	Delhi	Indian Institute of Technology Delhi	74.59	0.32	0.29	24.67	0.45
	Karnataka	Centre for Development of Advanced Computing, Bangalore	29.65	0.49	0.16	2.58	0.72
		Foundation for QC Innovation	76.62	0.40	0.17	5.91	0.84
		Indian Institute of Science Bangalore	189.47	0.88	0.75	52.48	7.47
		Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)	3.12	0.00	0.00	0.68	0.00

Vertical Name & Thematic Hub	State	Institute	Total Sanctioned Amount (Till March, 2031)	FY 2024-25		FY 2025-26	
				Released Amount	Utilized Amount	Released Amount	Utilized Amount (Till November 2025)
		Raman Research Institute	18.15	0.06	0.00	4.22	0.10
	Kerala	Indian Institute of Science Education and Research Thiruvananthapuram	30.34	0.08	0.08	11.00	0.41
	Madhya Pradesh	Indian Institute of Technology Indore	3.96	0.06	0.02	1.35	0.55
	Maharashtra	Indian Institute of Science Education and Research Pune	22.38	0.05	0.00	5.95	0.31
		Indian Institute of Technology Bombay	75.89	0.11	0.00	25.42	0.11
		Tata Institute of Fundamental Research Mumbai	52.43	0.12	0.12	16.35	1.19
	Orissa	National Institute of Science Education and Research Bhubaneswar	8.32	0.09	0.03	1.56	0.12
	Punjab	Indian Institute of Technology Ropar	1.30	0.02	0.00	0.15	0.05
	Tamil Nadu	Indian Institute of Technology Madras	2.08	0.01	0.00	0.31	0.00
		Society for Electronic Transactions and Security (SETS)	4.16	0.05	0.05	0.67	0.23
	Telangana	Birla Institute of Technology and Science Pilani, Hyderabad Campus	0.71	0.02	0.00	0.07	0.04
		Tata Institute of Fundamental Research Hyderabad	10.51	0.00	0.00	4.31	0.24
	Uttar Pradesh	Indian Institute of Technology Kanpur	14.48	0.05	0.00	5.02	0.28
		Jaypee Institute of Information Technology	2.09	0.02	0.00	0.23	0.03

Vertical Name & Thematic Hub	State	Institute	Total Sanctioned Amount (Till March, 2031)	FY 2024-25		FY 2025-26	
				Released Amount	Utilized Amount	Released Amount	Utilized Amount (Till November 2025)
	Uttarakhand	Indian Institute of Technology Roorkee	15.08	0.09	0.00	5.22	0.25
Sub-total for T-Hub on Quantum Computing			653.13	3.05	1.68	172.70	13.88
Quantum Materials & Devices – QMD Foundation at IIT Delhi	Delhi	Indian Institute of Technology Delhi	61.93	0.80	0.54	19.41	1.32
		QMD Foundation	63.85	0.27	0.21	5.14	0.85
	Maharashtra	Indian Institute of Science Education and Research Pune	8.23	0.19	0.15	3.29	0.12
		Indian Institute of Technology Bombay	96.33	1.22	1.22	33.69	0.07
	Orissa	Indian Institute of Technology Bhubaneswar	7.37	0.03	0.00	1.78	0.02
	Tamil Nadu	Indian Institute of Technology Madras	3.83	0.00	0.00	1.61	0.00
	Uttar Pradesh	Indian Institute of Technology Kanpur	5.06	0.03	0.00	2.02	0.08
	Uttarakhand	Indian Institute of Technology Roorkee	22.43	0.14	0.00	6.48	0.90
	West Bengal	Indian Association for the Cultivation of Science	7.89	0.03	0.00	3.22	0.03
		Indian Institute of Technology Kharagpur	35.86	0.32	0.00	12.06	1.29
Sub-total for T-Hub on Quantum Materials & Devices			312.79	3.01	2.12	88.68	4.69
Quantum Sensing & Metrology - Qmet Tech Foundation at IIT Bombay	Delhi	Indian Institute of Technology Delhi	4.47	0.10	0.10	1.39	0.56
	Goa	Birla Institute of Technology and Science Pilani, Goa	0.91	0.01	0.01	0.11	0.10
	Gujarat	Indian Institute of Technology Gandhinagar	1.34	0.04	0.04	0.20	0.06
	Karnataka	Indian Institute of Science Bangalore	22.00	0.35	0.35	3.82	0.42

Vertical Name & Thematic Hub	State	Institute	Total Sanctioned Amount (Till March, 2031)	FY 2024-25		FY 2025-26	
				Released Amount	Utilized Amount	Released Amount	Utilized Amount (Till November 2025)
	Madhya Pradesh	Indian Institute of Science Education and Research Bhopal	21.39	0.18	0.18	6.09	0.77
	Maharashtra	Indian Institute of Technology Bombay	33.90	0.58	0.58	5.86	0.25
		Qmet Tech Foundation	288.41	0.86	0.86	11.08	3.66
		Tata Institute of Fundamental Research Mumbai	18.60	0.23	0.23	5.34	0.37
	Punjab	Indian Institute of Technology Ropar	25.25	0.20	0.20	8.08	1.80
	Tamil Nadu	Indian Institute of Technology Madras	37.80	0.31	0.31	9.19	8.05
	Telangana	Tata Institute of Fundamental Research Hyderabad	5.43	0.16	0.16	1.23	0.06
		University of Hyderabad	0.85	0.02	0.02	0.11	0.06
	Uttar Pradesh	Harish Chandra Research Institute, Prayagraj	1.12	0.02	0.02	0.16	0.02
		Indian Institute of Technology Kanpur	118.29	2.54	2.54	33.60	0.00
	West Bengal	Indian Association for the Cultivation of Science	1.00	0.05	0.05	0.08	0.02
		S.N. Bose National Centre for Basic Sciences	1.54	0.08	0.08	0.16	0.14
		TCG Centres for Research and Education in Science and Technology	7.09	0.09	0.09	1.83	1.68
Sub-total for Quantum Sensing & Metrology			589.40	5.80	5.80	88.34	18.01
Grand Total			2169.62	17.02	12.86	450.99	55.44

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