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Gupta seeks aid of ₹100 crore from Centre for revised PM-UDAY scheme

The Hindu Bureau
NEW DELHI

Chief Minister Rekha Gupta has written to Union Minister for Housing and Urban Affairs Manohar Lal seeking ₹100 crore in the first phase of financial assistance from the Centre for the implementation of the revised PM-UDAY (Pradhan Mantri Unauthorised Colonies in Delhi Awas Adhikar Yojana) scheme, the Chief Minister's Office (CMO) stated in an official release on Sunday.

According to the release, Ms. Gupta sought funds to set up the DRISHTI-based modern land survey and mapping system,

Delhi CM Rekha Gupta

establish PM-UDAY cells at the district level, and conduct a comprehensive public awareness campaign.

'New framework'

"The revised regulations, notified on April 6, 2026, have provided a new legal framework for granting property rights to residents of unauthorised colonies. A large-scale exercise covering physical verification of properties, digital mapping using modern technology, and updating land records across 1,511 unauthorised colonies will be undertaken. An allocation of ₹100 crore has been proposed for the first phase," the CMO statement read.

Ms. Gupta said the Revenue Department has been designated as the nodal agency for implementing the PM-UDAY scheme and will establish PM-UDAY cells in all 13 districts , each headed by an Additional District Magistrate.

Of the total amount, ₹65 crore has been earmarked for developing the modern land survey and mapping system under the DRISHTI initiative, she said. Another ₹25 crore was proposed for setting up PM-UDAY cells across Delhi's 13 districts and at the headquarters. The proposal also set aside ₹10 crore for public awareness and outreach activities, she said.

Last month, the Centre and the Delhi government had announced a major push to regularise unauthorised colonies, with 1,511 of 1,731 such colonies to be regularised on an "as-is, where-is" basis, without the requirement of approved layout plans.

UnderStand UPSC
What we UnderStand, We Conquer

1. Context (GS II – Governance | Urban Development)

The Delhi Government has sought ₹100 crore from the Centre for the revised PM-UDAY Scheme to undertake GIS-based land surveys, digital mapping, property verification and land record updation in 1,511 unauthorised colonies, enabling faster grant of property rights.

2. PM-UDAY (Pradhan Mantri Unauthorised Colonies in Delhi Awas Adhikar Yojana)

I. Launched: 2019
II. Ministry: Ministry of Housing and Urban Affairs (MoHUA)
III. Implemented by: Delhi Development Authority (DDA)
IV. Objective: Confer legal property rights to residents of unauthorised colonies.
V. Coverage: 1,731 unauthorised colonies in Delhi.
VI. Key Features: Digital mapping, online ownership documents, updated land records, easier property transactions and bank loans.

Why has China banned helium exports?

Why is helium emerging as a strategic resource? How vulnerable is the world to a helium supply shock? Why is it considered a critical input for future technologies? Why is storing and transporting helium so expensive? What makes it so hard to replace?

EXPLAINER

Vasudevan Mukunth

The story so far: On July 10, the Ministry of Commerce and General Administration of Customs, China, has temporarily but immediately banned helium exports from the country. As of 4.30 pm IST on July 10, Beijing had not published any other information as to why it took this step now or its scope.

Is China a major helium producer?
China imports more than 80% of its helium needs but produces only around 1.6% of the world's helium. The export ban follows an extended period of supply strained by Russia's export restrictions – where the Prime Minister needs to sign off on shipments through 2027 – and supply risks tied to heightened tensions in West Asia.

The world's major helium producers are the U.S. (meeting 43% of total supply), followed by Qatar, Russia, Canada, and Algeria. In 2024, the U.S. privatised its Federal Helium Reserve and, selling its assets to the Messer Group and no longer buffering shocks such as those due to the U.S.-Iran conflict.

The next year, the U.S. House Committee on Oversight and Government Reform launched an investigation into Messer's Chinese interests, stoking the risk of tit-for-tat measures. Which China's latest export ban could be.

After the U.S., Qatar has been meeting 33% of the demand, especially in Asia. After the conflict with Iran escalated, as medical chemist and *Science* columnist Derek Lowe put it, "one-third of global helium production is now literally bottled up behind the Strait of Hormuz, a much higher percentage than world oil production [where the situation is bad enough already]."

In this light, China's new export restriction could preserve the country's helium supply for its domestic chip manufacturers and its medical sector.

Helium can only be transported in vacuum-jacketed stainless steel vessels that are manufactured only by a few companies worldwide. GETTY IMAGES

How is helium obtained?
Helium is the second-lightest element, after hydrogen, and is not manufactured. It is a non-renewable resource generated deep in the earth's crust, where the radioactive decay of uranium and thorium atoms emits alpha particles, which capture electrons to form helium atoms.

Over millions of years, this helium migrates into the same reservoirs of natural gas, and they are extracted together. This said, natural gas is not processed to isolate the helium from it until the latter makes up at least 0.3% by volume.

But once it does, the gas is isolated using the fact that it has a different boiling point.

Some operators also recover helium from LNG plants and from the air but these quantities are too low to matter to the global demand. Helium for commercial use is usually at least 99.997% pure.

What is helium used for?
Helium has an extremely low boiling point – negative 269°C – and does not participate easily in chemical reactions. These are good properties for a coolant that needs to cool the magnets in MRI machines, the silicon wafers in the semiconductor fabricating industry, and, increasingly, some of the devices used in quantum computers. Its small atoms mean the gas escapes easily through gaps that might be too small for oxygen or nitrogen atoms – so engineers use helium as a leak-detector.

Helium is also used in the process of drawing optical fibres to rapidly and uniformly cool molten glass and to displace oxygen or nitrogen from forming bubbles inside the material. Spaceflight organisations like ISRO, NASA, and SpaceX use helium to pressurise fuel tanks in rockets. Research and the tourism sector in many parts of the world also use helium to inflate balloons and airships.

According to the U.S. Geological Survey, laboratory use-cases account for 22% of the demand for helium, followed by controlled atmospheres and semiconductors (17%), lifting gas (17%), MRI scanners (15%), aerospace (9%), and detecting leaks (5%).

How much does helium cost?
In June 2026, the spot price for highly pure helium in Northeast Asia had reportedly spiked to $150-205 per thousand cubic feet, almost double what it was in late 2025. At least one major supplier, the U.S.-based industrial supplier Airgas, has invoked force majeure and tacked on surcharges of $13.50 per hundred cubic feet to existing contracts. Liquid helium is by default expensive to store and transport because helium only liquefies at -269°C.

In fact, the helium supply chain as a whole is cost-intensive because purification, storage, and transport are each expensive and technically sophisticated. A mid- to large-scale purification and liquefaction facility will require more than $100 million while smaller ones can cost around $10 million, thanks to the need for corrosion-resistant alloys that can withstand ultra-low temperatures.

The gas can be stored in underground salt caverns, which reduce leaks significantly – but these formations are rare and developing a new one can cost more than $200 million. It can also be stored as compressed gas or cryogenic liquid. The former typically costs up to $10 million to build while bulk cryogenic liquid storage systems generally need between $0.5 million and $20 million depending on capacity. Then there are the operational expenses.

Finally, helium can only be transported in vacuum-jacketed stainless steel vessels – which are manufactured by relatively few companies worldwide, including several Chinese ones.

Finally, the contractor transporting the containers must also ensure they are delivered before the holding time expires, after which the helium will start boiling off into the atmosphere.

THE GIST

- The export ban follows an extended period of supply strained by Russia's export restrictions — where the Prime Minister needs to sign off on shipments through 2027 — and supply risks tied to heightened tensions in West Asia.
- Helium is an important coolant in the semiconductor fabricating industry, where it removes heat from silicon wafers.
- The helium supply chain as a whole is cost-intensive because purification, storage, and transport are each expensive and technically sophisticated.

1. Context (GS III – Economy | Science & Technology)

China has temporarily banned helium exports, citing domestic requirements amid tight global supplies. The move may disrupt industries such as semiconductors, healthcare, defence and space, where helium is a critical input.

2. Helium: Key Analysis

I. Why is it critical?

* Inert, non-reactive gas with very low boiling point (–269°C).
* Essential for chip manufacturing, MRI scanners, rockets and quantum technologies.

II. Why is supply vulnerable?

* Non-renewable and produced only in a few countries as a by-product of natural gas.
* Limited global producers make the supply chain fragile.

III. Why is it expensive?

* Requires cryogenic storage and specialised transport, making logistics costly.

IV. Why does the ban matter?

* May increase global prices and disrupt semiconductor, healthcare and strategic technology supply chains.

Indian lab designs quantum algorithm to beat computers

Working with IBM Quantum, BITS scientists simulated the behaviour of subatomic particles on 120 qubits of an IBM processor; in a first for Indian labs, the Quantum Advantage Tracker has deemed the result 'active'

Jacob Koshy
NEW DELHI

Ask Indrakshi Raychowdhury what a quantum computer is bad at and she points to arithmetic.

"If you try to add two numbers, a classical calculator does it easily, whereas doing it on a quantum computer is incredibly difficult," she said in a conversation with The Hindu. "But simulating a highly complex interacting quantum system, where particles mutually influence each other, is relatively easy for a quantum computer. That is highly counterintuitive, but it is where quantum advantage lies."

"Understanding exactly where quantum computers can provide this advantage is currently the biggest challenge, and it is why governments and companies are investing heavily in this space," Dr Raychowdhury, an associate professor in the physics department at BITS Pilani, added.

The problem her team solved a few weeks ago is of the useful kind. Per one expert assessment, it is only one of three problems useful to physicists that has also been so far impervious to the muscle of classical computers. That is, it demonstrates 'quantum advantage'.

Working with scientists from IBM Quantum, Dr. Raychowdhury and team simulated the behaviour of subatomic particles on 120 qubits – the computing currency of quantum computers – of an IBM processor. The calculation took the machine 20 seconds and a classical computer two hours.

The Quantum Advantage Tracker (QAT) exists to police that claim. Launched in November 2025 by IBM, with the Flatiron Institute, the startups BlueQubit and Algorithmiq, and a widening cast of academic reviewers, it is a kind of live peer review where a researcher submits a result and a committee checks it on both classical and quantum machines. The bar is high. Of some 220 items logged on its GitHub page, only around a dozen have been accepted, and just a handful survive as active claims.

"It is more thorough than a standard academic journal," Dr. Raychowdhury said. It is here that her group's entry now sits, marked 'active' – the first such from an Indian laboratory. Were the problem to be solvable by a classical machine, it would be considered 'superseded'. Since May, the result hasn't been superseded.

For all the money and noise around quantum computing, the machines have yet to solve a genuinely useful problem faster than an ordinary computer. The best-known demonstrations have been contrived. When Google reported in 2019 that its processor had finished in minutes a task a supercomputer would need 10,000 years to match, the task had no practical use and was chosen only because it suited quantum hardware.

Breaking modern encryption or simulating a large molecule from scratch, remains years away. So the field has begun to chase a narrower prize: "useful" advantage, a quantum win on a real problem whose answer can be independently checked.

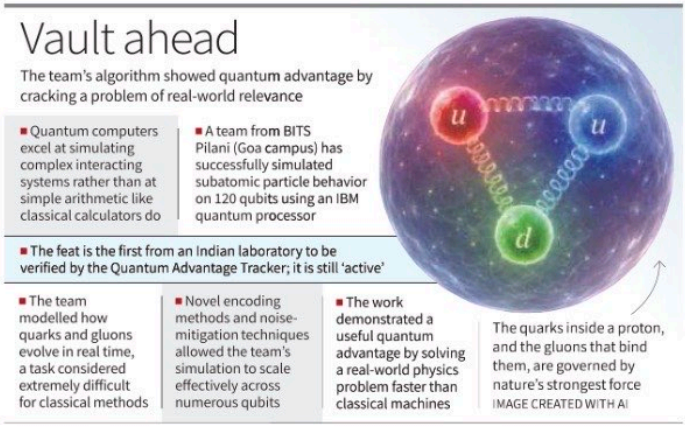
"While the media often highlights quantum applications in drug discovery or materials science, those fields are at a much more primitive stage computationally than high-energy physics," Dr. Raychowdhury said.

The team's problem of choice lies at the foundations of physics. The quarks inside a proton, and the gluons that bind them, are governed by the strong nuclear force, and working out how they move and rearrange in real time is among the toughest problems in the field. Classical methods can pin down a proton's mass with great accuracy but watching the particles evolve, frame by frame, is "exponentially hard to calculate classically," she said. A quantum computer can however be coaxed into imitating the system directly, like replacing a still photograph with a film.

"I am actually visiting CERN (Switzerland) next month," she said, where the world's most powerful particle smasher pulverises protons to physically trace how the simplest particles may evolve into weightier, more complicated ones. CERN researchers, limited by classical methods, have invited her, she said, to know whether her approach can carry their simulations further.

The model her team used was a simplified stand-in for the full theory of the strong force, which is nature's most powerful force. The team's encoding stripped away mathematical redundancy so the simulation could scale: a task others had run on at most 27 qubits was pushed to 120. "If someone gave me a 1,000-qubit computer today, our algorithm would scale to it seamlessly," she reckoned.

India is only beginning to build towards this. Its National Quantum Mission, the ₹6,003-crore programme approved in 2023, is funding quantum algorithms and runs a computing hub in Bengaluru, but the country has no high-end quantum hardware of its own, and researchers here lean on machines abroad. "Without algorithms, the hardware is useless; you can't just sit in front of a quantum computer and get an answer," she said.



1. Context (GS III – Science & Technology)

Scientists from BITS Pilani, working with IBM Quantum, have developed a quantum algorithm that successfully simulated subatomic particle behaviour on a 120-qubit IBM quantum processor. It is the first Indian achievement to be recognised as an 'active' quantum advantage by the Quantum Advantage Tracker.

2. Quantum Advantage: Basics

I. What is it?

* Quantum advantage is achieved when a quantum computer solves a practical problem faster or better than the best classical computer.

II. Why is it important?

* Demonstrates the real-world usefulness of quantum computing beyond theory.

III. How does it work?

* Quantum computers use qubits, which can process multiple states simultaneously, unlike classical computers that use bits (0 or 1).

IV. Applications

* Drug discovery
* Material science
* Cryptography
* Climate modelling
* High-energy physics and quantum chemistry

PIB ANALYSIS

Azadi Ka Amrit Mahotsav

13 JULY 2026 | SUNDAY

1 India–New Zealand Strategic Partnership

Strengthening Comprehensive Cooperating for a Shared Future

2026 PM Visit to New Zealand → Strategic Partnership Elevated → Roadmap to 2030 Adopted → Stronger India–NZ Cooperation in Key Areas

KEY OUTCOMES / AGREEMENTS & MoUs

- Maritime Cooperation
- Mutual Logistics Support
- Hydrography & Nautical Cartography
- Maritime Security Dialogue
- Counter-Terrorism Joint Working Group
- Disaster Management Cooperation
- Animal Husbandry & Dairying
- Tourism Cooperation
- Sports Joint Action Plan
- Cultural Cooperation
- Maritime Heritage Complex (Lothal) Cooperation
- Polar Research Cooperation
- Food Technology & Academic Cooperation

BILATERAL TRADE TARGET

NZ$ 7 Billion (₹35,000 Crore) by 2030

KIWIFRUIT ACTION PLAN

Centres of Excellence Established in
- Nagaland
- Uttarakhand

GLOBAL BIOFUELS ALLIANCE

New Zealand joins Global Biofuels Alliance

INDO-PACIFIC OCEANS INITATIVE (IPOI)

Joined Maritime Security Pillar

Focus Areas:
- IUU Fishing
- Maritime Security
- Indo-Pacific Cooperation

ANTARCTIC RESEARCH COOPERATION

MoU between NCPOR, Goa & University of Canterbury, New Zealand

Focus: Antarctic research, academic exchange, capacity building

FOOD TECHNOLOGY COOPERATION

MoU between NIFTEM-K, Kundli, India & Massey University, New Zealand

Focus: Research, student mobility, innovation & academic collaboration

2 eSaras – Digital India Empowering Rural Women

Government e-Commensie Platform Connecting Rural Producers to India

KEY FACTS

- Developed by Digital India Corporation (MeitY)
- Ministry of Rural Development
- Under DAY–NRLM
- 8.99 Crore SHG Members
- 1400+ Products
- 800+ ONDC Buyers
- 50+ SARAS Melas Annually
- 11+ Buyer Applications

HOW eSARAS WORKS

Women SHGs & Rural Entrepreneurs → Digital Onboarding (LoKOS) → eSaras Platform → ONDC + UMANG + BHASHINI Integration → Customers Across India → Higher Income & Sustainable Livelihoods

TECHNOLOGY & FEATURES

- LoKOS – Trusted digital onboarding
- BHASHINI – Multilingual access
- ONDC – Wider market reach
- UMANG – Integrated digital ecosystem
- Secure Digital Payments
- Logistics Integration
- Inventory & Order Management
- Accessibility – Text-to-speech, Adjustable font size, Visual aids
- Power BI Analytics & API Integration

TARGET

6 Crore Lakhpati Didis by 2029

PRODUCT CATEGORIES

- Honey
- Pickles
- Chips
- Millet Foods
- Handloom
- Bamboo Crafts
- Terracotta
- Herbal Products
- Home Decor

SUCCESS STORY

Falak Self-Help Group (SHG), Khurja, Uttar Pradesh

- Preserves traditional GI-tagged Khurja Pottery
- Expanded sales nationwide through eSaras digital platform with logistics support

Developed by Digital India Corporation | 8.99 Cr SHG Members | ONDC + BHASHINI + UMANG Integrated Ecosystem | 6 Crore Lakhpati Didis Target by 2029 | India–NZ Strategic Partnership | Bilateral Trade Target NZ$ 7 Billion by 2030 | New Zealand joins Global Biofuels Alliance | IPOI Maritime Security Pillar | Kiwifruit Centres in Nagaland & Uttarakhand | NCPOR–Massey University, NZ MoU

Source: Press Information Bureau (PIB)

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