

1. PM Modi Visits Brazil for BRICS 2025 Summit

Introduction

Prime Minister Narendra Modi arrived in Brazil on July 6, 2025, to attend the 17th BRICS Summit in Rio de Janeiro. This is the PM Modi's 4th visit to Brazil. He will also meet President Luiz Inácio Lula da Silva in Brasília to discuss strengthening ties in trade, defence, technology, space, and more.

1. Historical Ties Since Colonial Times

- India and Brazil have shared connections since the 1500s, both being part of the Portuguese colonial empire.
- Portuguese explorer Pedro Alvares Cabral reached Brazil in 1500, shortly after Vasco da Gama's arrival in India.
- Goa and Brazil had early trade and cultural exchanges:
 - India sent coconuts and mangoes to Brazil.
 - Brazil sent cashew nuts to India.
 - Indian Nellore cattle were exported to Brazil, forming 80% of Brazilian livestock today (called 'Nelore').

PM Modi in BRAZIL FOR BRICS 2025



PM Modi to attend the **17th BRICS Summit in Rio de Janeiro**

This visit will also mark **PM Modi's fourth visit to Brazil**

2. Brazil: India's Largest Trade Partner in South America

- Diplomatic relations began in 1948, but progress was slow after Brazil opposed India's 1961 liberation of Goa.
- Relations improved from the 1990s onward after both nations implemented economic reforms.
- In 2024–25, bilateral trade hit \$12.20 billion:
 - India's exports: \$6.77 billion
 - India's imports: \$5.43 billion
- 4,000 Indians currently live in Brazil.
- Indian companies like TCS, Infosys, Sun Pharma, and Aditya Birla Group have offices in São Paulo and other cities.

3. Brazil's Economic Slowdown

- In the 2000s, both India and Brazil were rising economies.
- But Brazil has faced setbacks due to:
 - Slow GDP growth
 - Corruption scandals, especially at state-run oil giant Petrobras
 - President Dilma Rousseff was impeached in 2017 over budget manipulation.

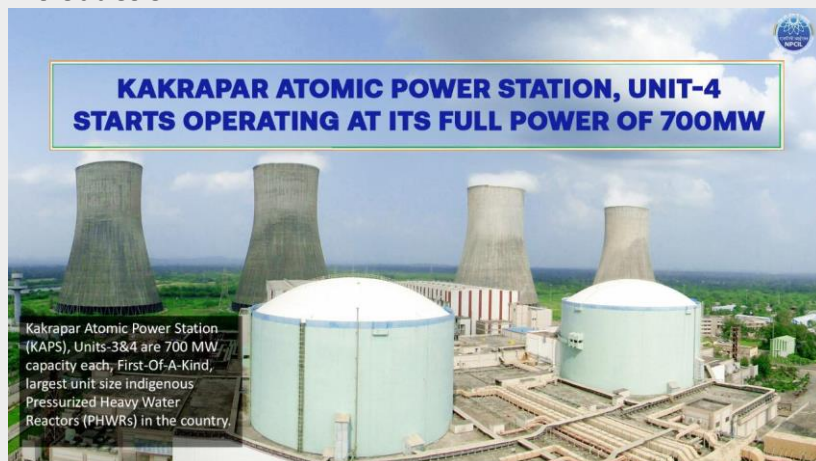
- These issues emerged ahead of the 2016 Rio Olympics, the first Olympics held in South America.

Relevance: GS Prelims & Mains Paper II; Bilateral Relations

Source: Indian Express

2. India's Indigenous Nuclear Reactors Get Operational Licence

Introduction



The Atomic Energy Regulatory Board (AERB) has granted permission to the Nuclear Power Corporation of India Ltd. (NPCIL) to operate two indigenously developed 700 MWe nuclear reactors at the Kakrapar Atomic Power Station (KAPS) in Gujarat.

Details of the Approval

- The licence covers Units 3 and 4 at Kakrapar.
- It is valid for five years, issued on July 3, 2025.
- KAPS-3 was allowed full-power operation in August 2023.
- KAPS-4 received similar clearance in August 2024, during final commissioning.

First-of-its-Kind Reactor Design

These 700 MWe Pressurised Heavy Water Reactors (PHWRs) are the first of their kind developed in India.

Because of this, the licensing process required detailed safety assessments across multiple stages — from site selection and construction to full-power operation.

Extensive Safety Reviews

- The AERB conducted multi-tiered reviews over nearly 15 years.
- Experts from technical support organisations also contributed to the safety evaluations of the reactor design and performance during commissioning.

Boost for India's Nuclear Programme

This licence is a major milestone for NPCIL, which is planning to build 10 more reactors of the same 700 MWe capacity under a fleet mode project aimed at expanding India's nuclear power capacity.

Relevance: GS Prelims; Science & Technology

Source: Indian Express

3. Why the Election Commission Is Revising Bihar's Electoral Rolls

Introduction

With Bihar Assembly elections due later this year, the Election Commission of India (ECI) has begun a "special intensive revision" of the state's electoral rolls. This involves fresh verification of all voters and is part of a nationwide exercise.

What Is a Special Intensive Revision?

- Intensive revision: Entire electoral roll is prepared afresh
- Summary revision: Existing roll is updated with changes
- Under Article 324 of the Constitution and Section 21(3) of the Representation of the People Act, the ECI can order such revisions at any time
- Last intensive revision was in 2003

Why Bihar First?

- Bihar elections are due before November 2025
- ECI says the revision is necessary due to:
 - Frequent migration and urbanisation
 - Voters being registered in multiple places
 - Need to verify that only genuine citizens are on the rolls

WHAT WILL SERVE AS PROOF OF CITIZENSHIP

In addition to the enumeration form, electors added to the rolls after 2003 will have to provide the following to prove their citizenship.

■ Those born in India before July 1, 1987 will have to submit any document from the specified list to establish their date of birth and/or place of birth;

■ Those born in India between July 1, 1987 and December 2, 2004, will have to submit an additional document establishing one parent's date and/or

place of birth; and

■ Those born in India after December 2, 2004, will have to submit documents establishing date and/or place of birth of both parents.

These categories are based on the requirements for acquisition of citizenship in the Citizenship Act, 1955

INDIANS BORN ABROAD will have to submit proof of birth registration by an Indian Mission abroad; and

CITIZENS BY NATURALISATION will have to submit their certificate for the registration of citizenship.

New Rules for Voters

All voters must:

- Submit an individual enumeration form

Voters added after January 1, 2003 must:

- Provide proof of Indian citizenship
- Valid documents include:
 - Passport

- Birth certificate
- SC/ST certificate
- Parent's name in 2003 voter roll of Bihar

Previously, voters only had to declare their citizenship without documentary proof.

Political Reactions and Concerns

- Opposition fears large-scale disenfranchisement
- Mamata Banerjee called it "more dangerous than NRC," alleging West Bengal is the real target
- Congress accused the ECI of admitting problems in electoral rolls but called the solution "worse than the disease"

Big Picture: Nationwide Exercise

Though it begins with Bihar, the ECI says this intensive verification of voter rolls will gradually be extended to all states and Union Territories, aiming to clean up duplications and ensure only citizens can vote.

Relevance: GS Prelims & Mains Paper II; Governance

Source: Indian Express

4. Rubin Observatory: A New Era in Space Exploration Begins

Introduction



The Vera C. Rubin Observatory in Chile has released its first test images and is set to revolutionize how we observe the universe. The observatory is named after Vera Rubin, the American astronomer who first provided evidence for dark matter in the 1970s.

Location and Mission

- Located 8,684 feet above sea level on Cerro Pachón in the Chilean Andes
- Will scan the entire southern sky over 10 years

Core Instrument: The Simonyi Survey Telescope

1. Wide Field of View

- Covers an area 40 times the size of the full Moon in a single shot
- Far exceeds Hubble and James Webb in how much sky it can see at once

2. Advanced Mirror System

- Uses three curved mirrors (8.4m, 3.5m, and 5m diameters) to gather and reflect light
- Creates detailed, wide-angle images of the sky

The World's Largest Digital Camera

- Camera size: As big as a small car

- Weight: 2,800 kg
- Resolution: 3,200 megapixels
- Detail: Can detect objects 100 million times dimmer than the naked eye can see
- Has 6 filters to detect different types of light (from ultraviolet to infrared)

Fastest Telescope of Its Kind

- Can move and settle on a new target in just 5 seconds
- Traditional telescopes take around 10 minutes
- Can take up to 1,000 images a night, scanning the whole sky in 3 days
- Controlled by a smart script instead of pre-set targets

Automated Sky Monitoring and Alerts

- Will generate about 10 million alerts per night, flagging any changes in the sky
- Software compares new images to past ones to detect new objects or movements

Unraveling Dark Energy and Dark Matter

- Universe is made up of:
 - 5% visible matter (stars, planets, galaxies)
 - 27% dark matter
 - 68% dark energy

Rubin Observatory will help map the structure of the universe in ultra-high detail, offering new insights into these mysterious forces.

What Experts Are Saying

It took 225 years to find the first 1.5 million asteroids. Rubin will double that in under a year. Also, Rubin will create the best possible map to understand dark matter and dark energy.

Relevance: GS Prelims & Mains Paper III; Science & Technology

Source: Indian Express

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