SCIENCE AND TECHNOLOGY

RATING AGENCY QUESTIONS AADHAAR RELIABILITY IN INDIA'S HOT, HUMID CONDITIONS

CONTEXT: Moody's flags security and privacy issues in India's Aadhaar program, citing service denials and unreliable biometrics in humid conditions.

BACKGROUND: Moody's highlights challenges with India's Aadhaar system, which provides access to public and private services using biometric verification but faces hurdles in establishing authorization and concerns about biometric reliability, especially in hot, humid conditions. UIDAI administers Aadhaar to integrate marginalized groups and expand welfare benefits access but often leads to service denials.

Low rating

Moody's Investors Service has cautioned against centralised digital ID systems such as Aadhaar as they pose security and privacy vulnerabilities. Here are a few warnings from the firm which offers credit ratings, research, and risk analysis:

- A single entity controlling users' ID credentials can dispose of user data for internal or third-party profiling purposes
- Aadhaar system faces hurdles, including the burden of establishing authorisation
- Reliability of biometric technologies, especially for manual labourers, in hot, humid climates is questionable
- All digital IDs can have negative social repercussions

Agency's Remark

- Moody's highlights the importance of Aadhaar in India's welfare schemes and its use for payments, including in MGNREGS.
- The government extended the deadline for Aadhaar-based payments for MGNREGS beneficiaries to December 31.
- Moody's recognizes Aadhaar as the world's largest digital ID program, serving over 1.2 billion Indian residents.
- It acknowledges Aadhaar and Worldline as standout digital ID systems, but raises concerns about privacy and security.
- Moody's advocates for decentralized ID systems (DID) like digital wallets based on blockchain technology for better data control and reduced fraud.
- Successful examples of DID systems are mentioned in Catalonia, Azerbaijan, and Estonia.
- Estonia is highlighted for its Self-Sovereign Identity (SSI) approach, granting citizens complete control over their digital identities and reducing reliance on centralized entities.

INTERNATIONAL RELATIONS

AN ECONOMIC CORRIDOR, THE ISRAEL LINK AND THE GEOPOLITICS

CONTEXT: India announced the "India-Middle East-Europe Economic Corridor", an economic corridor of a rail-ship route, to transport goods to Europe from India via the United Arab Emirates-Saudi Arabia-Jordan-Israel.

As a host, India invited nine non-member countries — Bangladesh, Egypt, Mauritius, Netherlands, Nigeria, Oman, Singapore, Spain, and the United Arab Emirates — to the summit. Saudi Arabia is willing to end the diplomatic boycott of Israel. The normalisation of ties with Saudi Arabia is a precondition for this economic corridor to materialise. Saudis demand that Israel commits to the two-state solution and the well-being of the Palestinian people, even if the occupation does not end soon. It is a historical change because such an acceptance of Israel by the most important, religiously speaking, Muslim country, will help Israel with other countries such as Pakistan (already willing), Indonesia and Malaysia.

Currently, on the side-lines of the UN General Assembly, Saudi Arabia, in partnership with the Arab League and the European Union, has joined forces with Egypt and Jordan to launch a 'Peace Day Effort' aimed at incentivising Israelis and Palestinian leaders to compromise. Israel-Palestine peace is a very challenging aim and given the rise of extremism on both sides, it appears all the more impossible. Saudi Arabia is aware of it and is still interested in having deliberations to walk smoothly among Arabs and other Muslims while working with the Biden administration to make peace with the State of Israel. Such a project will change the geopolitics for the future. The fact that it challenges China's Belt and Road Initiative is beside the more significant point.

EDUCATUION

MULTIPLE ENTRY, EXIT OPTION IN HIGHER STUDIES MAY NOT SUIT INDIA: HOUSE PANEL

CONTEXT: The Parliamentary Standing Committee on Education, headed by BJP MP Vivek Thakur advised the Centre to hold discussions with all stakeholders after several organisations of students and teachers raised objections to the option of multiple entry and multiple exit (MEME) in the National Education Policy (NEP).

Not a viral MEME

The National Education Policy, 2020 promises multiple entry and multiple exit (MEME) for students, offering 'greater attention to life aspirations and greater flexibility' for students

- NEP says it removes 'rigid boundaries' and creates new possibilities for 'life-long learning'
- An academic bank of credit will digitally store the academic credits earned by a student
- Kerala government had decided not to implement MEME in the State
- Students can opt for it at graduate, Master's and doctoral levels
- A certificate will be provided after completing one year of study, a diploma after two years, and a degree after a three-year programme
- State will allow multiple entry, but exit will be allowed either after three years with a degree or after four years with an Honour's degree

The Indian institutions were likely to face several issues in implementing this system. The NEP proposes multi-entry and multi-exit options for the students in higher education. The panel said while the MEME looked like a flexible system, which was being operated by Western educational institutions effectively, it might not work well in the country.

The estimated intake of students in higher education every year was high. The implementation of MEME would disturb the pupil-teacher ratio as it would be very difficult for the institutions to predict the in-and- out traffic and how many would join midway.

The members also expressed concern the uneven geographical distribution of higher educational institutions creating hurdles in managing MEME in several areas, mostly the countryside.

The panel asked the Centre to develop comprehensive guidelines and a well-defined framework for MEME options, including specific eligibility criteria, credit transfer mechanisms providing a clear road map for students pursuing different exit points. The implementation of a standardised Credit Accumulation and Transfer (CAT) system would allow students to earn and transfer credits seamlessly across institutions would facilitate smooth transitions between different levels of education, from certificate courses to doctoral programmes. The Kerala government has decided not to implement MEME in colleges and universities in the State.

ECONOMICS AND DEVELOPMENT

NINE NEW VANDE BHARAT TRAINS TO LINK RELIGIOUS, TOURIST SITES

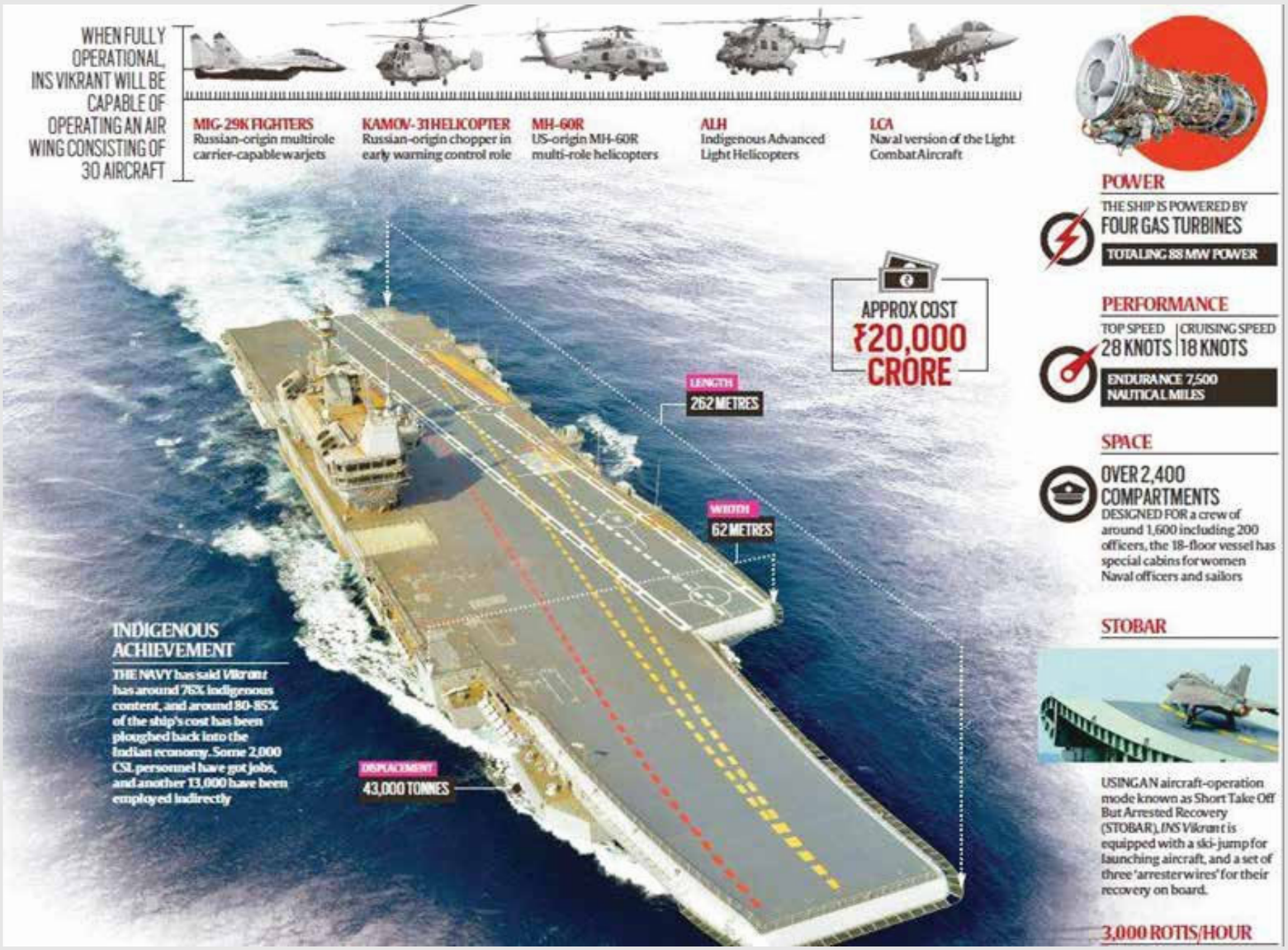
CONTEXT: Prime Minister Narendra Modi flagged off the new Vande Bharat trains by videoconferencing before flagging off nine Vande Bharat trains connecting religious and tourist destinations across 11 States.

The new Vande Bharat trains will run between Udaipur-Jaipur; Jamnagar-Ahmedabad; Patna-Howrah; Ranchi-Howrah; Rourkela-Bhubaneswar-Puri; Hyderabad-Bengaluru; Vijayawada-Chennai (via Renigunta); Tirunelveli-Madurai-Chennai; and Kasaragod-Thiruvananthapuram. These trains, equipped with advanced safety features, including Kavach, will be a key step towards providing modern, speedy and comfortable means of travel to common people, professionals, businessmen, student community and tourists.

The new trains have a host of features incorporated after passenger feedback. The seat recline angle has been raised from 17.31 degrees to 19.37 degrees, cushioning optimised and the colour of the seat in the executive class changed from red to blue. The changes also include improved accessibility of mobile charging points under the seats, extended footrest and magazine bags for executive class coach-end seats also. The new features include provision for securing points for wheel chairs. The new train sets have improved air-tightness for better air conditioning with insulation over panels, better roller-blind fabric with more tear strength with less transparency and smooth touch controls for luggage rack lights. The trains have improved aerosol-based fire detection and suppression system.

INTERNAL SECURITY

DEFENCE BOARD DISCUSSES PLAN FOR SECOND VIKRANT-LIKE CARRIER



CONTEXT: The Defence Procurement Board (DPB) discussed the Navy's proposal for acquiring a second Vikrant-like aircraft carrier, according to defence sources.

The Standing Committee on Defence noted that three Aircraft Carriers as an "unavoidable requirement" to meet any eventualities and stated that taking into account the long coastline and hostile adversities on both sides of Indian peninsula, an aircraft carrier on both sides of coast was "quintessential" to uphold operational requirements.

India's first Indigenous Aircraft Carrier (IAC) INS Vikrant was commissioned in September 2022 at an estimated to cost around ₹ 40,000 Cr. The keel of Vikrant was laid in 2009. It was launched into water in 2013 and commissioned in 2022. The 262-metre-long, 62-metre-wide INS Vikrant, displacing 44,800 tonnes, is powered by four General Electric LM2500 engines, which give it a maximum speed of 28 knots and an endurance of 7,500 nautical miles. The ship uses an aircraft-operation mode known as Short Take Off But Arrested Recovery (STOBAR) for which it is equipped with a ski-jump for launching aircraft, and a set of three "arrester wires" for their recovery onboard.

The Indian Navy operates the 44,500-tonne carrier INS Vikramaditya, which also employs the STOBAR mechanism, procured from Russia under a $2.3-billion deal and inducted in November 2013.

The Navy, which has for long based its force structure centred on three carriers, had envisaged an IAC-2 with a displacement of 65,000 tonnes and a Catapult Assisted Take Off But Arrested Recovery (CATOBAR) system for launching aircraft as well as full-electric propulsion. A much bigger carrier with newer technologies would mean much higher cost and build time due to which the Navy has settled for a repeat of a Vikrant-sized carrier.

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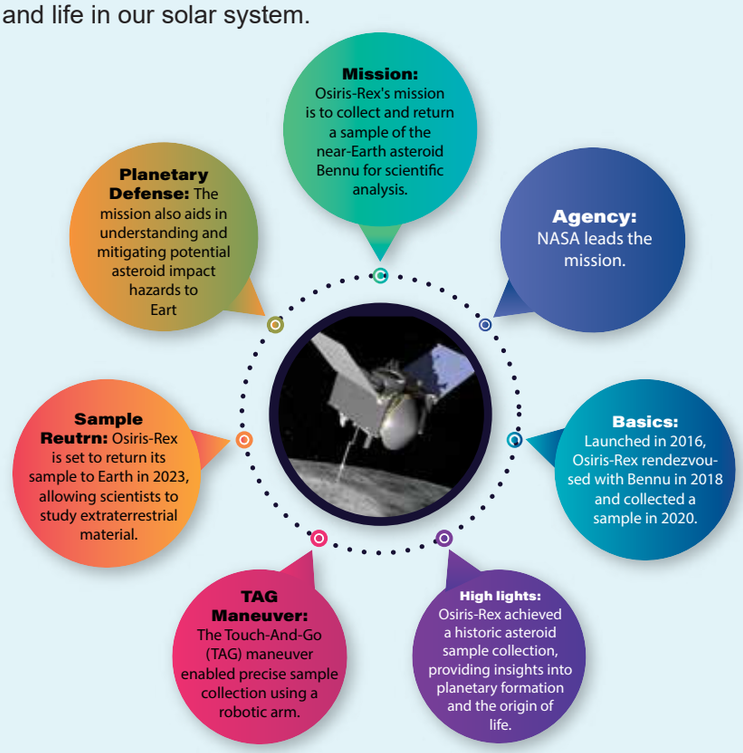
SCIENCE AND TECHNOLOGY

NASA'S INITIAL ASTEROID SAMPLES RETURN TO EARTH

CONTEXT: NASA's Osiris-Rex spacecraft safely returns asteroid samples to Utah desert after seven-year mission.

HIGHLIGHTS: NASA's OSIRIS-REx spacecraft successfully landed on Earth with a capsule containing at least a cup of rubble from the asteroid Bennu, gathered during a mission three years ago. This represents the largest sample return from beyond the moon and will provide valuable insights into the formation of Earth and life in our solar system.



What is an Asteroid and Its Study Significance?

An asteroid is a small, rocky object orbiting the Sun within the asteroid belt between Mars and Jupiter, often remnants from the early solar system.

- **Highlights:** Asteroids provide insights into the early solar system's formation and evolution, helping us understand planetary processes and the origins of celestial bodies.
- **Significance of Study:** Studying asteroids is crucial for planetary defense, as some may pose a collision threat to Earth, necessitating monitoring and mitigation strategies.
- **Size Variation:** Asteroids vary in size from a few meters to hundreds of kilometers, influencing their impact potential and suitability for future resource utilization.
- **Sample Collection:** Space missions like Osiris-Rex and Hayabusa2 have collected asteroid samples, offering a unique opportunity to analyze pristine, extraterrestrial materials.
- **Water and Life Origins:** Asteroids may contain clues about the origin of water on Earth and the potential delivery of organic molecules, contributing to the emergence of life.
- **Resource Exploration:** Future asteroid mining endeavors could harness their resources, including metals and water, to support human exploration and colonization in space.

POLITY AND GOVERNANCE

SIMULTANEOUS POLLS-BUT ONLY IN A PRESIDENTIAL SYSTEM

CONTEXT: Under One Nation-One Poll, all State elections are held simultaneously with the general election to the Lok Sabha.

Commencing simultaneous elections would require curtailment of the term of the Assemblies in several States, whose terms have not ended at the time the Lok Sabha election is to take place. In the present parliamentary system of India's democracy, House majorities at both the central and State levels can change because of splits in parties, defections or even if some Members of Parliament/Members of the Legislative Assemblies from the ruling party refusing to support the government. At present, the government can call mid-term elections.

A suggestion provided is to ensure that when a government loses the confidence of the majority of the House by a no-confidence motion, such a no-confidence motion must be accompanied with a confidence motion in an alternative government. This will ensure that some government or the other continues for the remainder of the term. However, the legislators feeling that a substantial number of Members of the House have lost the confidence of the people would not be confident of an alternative government.

Under, One Nation-One Poll, the only option would be to either continue with a minority government headed by a Chief Minister/Prime Minister who has lost the confidence of the House or to impose President's rule for the rest of the term.

1. The Minority Government rules the Centre/States without enjoying the confidence of the majority of the House, defeating the essence of democracy in a parliamentary system.
2. The Minority Government will not be able to pass legislation or even money Bills and finance Bills, without which it will become difficult to run the government.

Need for amendments

The provisions of the Constitution that would need to be amended to switch to an essentially presidential system would be as follows:

Part V – The Union – Chapter I – Executive – Articles 52-78 and

Part V – The Union – Chapter III – Legislative Powers of the President;

Part VI – The States – Chapter II – The Executive – Articles 153-167

Part VI – The States – Chapter IV – Legislative Power of the Governor

The introduction of the presidential system would also require amendments to include several new provisions within the Constitution regarding the powers of the President, the Governors, the Council of Ministers, and provisions relating to the line of succession.

The Parliamentary democracy in India is NOT a part of the basic structure of the Constitution. The Constitution-makers adopted the parliamentary system in a diverse country such as India. In a presidential system, the power of the government is concentrated in one directly elected person whether he is the President of the country or the Governor of the State rather than being in the hands of multiple legislators. The United States is a federal country, with its States enjoying vast powers even within a presidential form. The devolution of powers to the States or to the lower tiers of government such as municipalities, and panchayats will not depend on whether the system is presidential or parliamentary.

POLITY AND GOVERNANCE

DELIMITATION IN INDIA

CONTEXT: The Constitution (One Hundred and Twenty-Eighth Amendment) Bill, 2023 promises 33 % reservation for women in the Lok Sabha, and in the Legislative Assemblies of States and the National Capital Territory of Delhi.

The exercise of delimitation also implicates the constitutional values of federalism and representation of States as consolidated units. There has been no change in the number of Lok Sabha seats since the 1970s. The Constitution (Forty-Second Amendment) Act, 1976 froze the delimitation of Lok Sabha constituencies as per the Census of 1971, up to the Census which was to be conducted in 2001. The Constitution (Eighty-Fourth Amendment) Act further pushed the delimitation till 2026. The boundaries of electoral constituencies were redrawn in 2002, there was no change in the number of seats in the Lok Sabha. Only after 2026 will we consider changing the number of seats in the Lok Sabha. Strictly speaking, the relevant numbers as to population (and its distribution) are expected to come from the 2031 Census, which will be the first census after 2026.

Using figures from 1971 to represent today's population runs contrary to the grain of the Constitution besides obviously distorting what representative democracy stands for. In the preceding decades, the population of the north has increased at a faster pace as compared with the south. In practical terms, this means that MPs in States in north India represent more voters than MPs in the south.

Delimitation in the near future

Article 81 of the Constitution says that each State gets seats in the Lok Sabha in proportion to its population. The freeze on delimitation effected in 1976 was to allay the concerns of States which took a lead in population control and which were faced with the prospect of reduction of their number of seats in the Lok Sabha. The delimitation constituencies, done solely on the basis of the population would yield more seats to States in the north, given their higher population. Besides concerns around representation, this will also lead to distrust on the part of States in the south. The recently concluded delimitation in Assam, ahead of the 2024 Assembly elections, witnessed widespread concerns around how altering the boundaries of certain districts and renaming certain constituencies can have a potentially acute impact on the representation of specific communities.

ECOLOGY AND ENVIRONMENT

CONTROVERSY SURROUNDS FUKUSHIMA NUCLEAR WASTE-WATER DISPOSAL

CONTEXT: Japan plans to release Fukushima's treated radioactive water into the sea, sparking concerns over health risks.

BACKGROUND: Japan's TEPCO is responsible for treating water at the Fukushima Daiichi power plant, which was damaged in 2011. The water undergoes various treatments, but tritium, a weak radioactive isotope, remains. TEPCO and the Japanese government argue its concentration is below international standards. Tritium, like hydrogen, can't be chemically extracted, so it's diluted with water before release into the sea.

Is the water safe?

- Levels of radiation in the wastewater aren't panic-inducing but still pose risks, according to experts.
- Tritium in tritiated water is easily absorbed and distributed in living organisms, potentially harming humans and the environment.
- The IAEA's objective to promote atomic energy may lead to downplaying of risks.
- Japan seeks to utilize the IAEA decision to justify releasing the treated wastewater into the sea. Stakeholders in Japan have reached a consensus on this approach.
- Limited space around the plant and the risk of leaks leave releasing the water as the only viable option.
- Governments recognized the need to address the wastewater issue since the earthquake, balancing cost and risk factors.

International Response

China's response to Japan's plan to release treated Fukushima wastewater into the sea should be viewed in the

context of broader geopolitics. Japan-Sino relations have been strained due to territorial disputes and China's military presence in the South China Sea. China aims to exploit regional tensions, including those between South Korea and Japan, but success in creating further divisions is uncertain.

Radioactive Waste Water and Environmental Pollution

Radioactive waste water contains harmful radioactive materials, posing serious environmental pollution risks if improperly managed, potentially impacting ecosystems, human health, and water resources.

- Dilution Effect: The release of radioactive wastewater into the sea may be considered safe due to the vastness of the ocean, as it allows for significant dilution, reducing immediate harm.
- Monitoring and Regulation: Stringent monitoring and regulation are crucial to ensure that released radioactive waste is within safe limits and does not pose a threat to marine life or coastal communities.
- Short-term Impact: While initial dispersion may seem safe, short-term impacts on local marine ecosystems can still occur, affecting aquatic organisms and local fisheries.
- Long-term Consequences: The long-term consequences of radioactive contamination, such as bioaccumulation in marine life, can pose risks to human health through the consumption of contaminated seafood.
- Ecosystem Vulnerability: Delicate and vulnerable ecosystems near discharge sites are at higher risk, emphasizing the importance of careful location selection for wastewater release.
- Technological Advancements: Advances in wastewater treatment technologies should be explored to reduce the radioactivity of released water, ensuring safer disposal.
- Public Transparency: Ensuring transparency and involving local communities in decision-making can build trust and help address concerns regarding the safety of radioactive wastewater disposal into the sea.

Radioactive wastewater poses a severe environmental threat, necessitating stringent containment and treatment measures. Its improper disposal can lead to long-lasting pollution, endangering ecosystems and human health. Effective management and regulation are imperative to mitigate these risks.

India-Canada ties in numbers

The data for the charts are sourced from the UN comtrade database and Statistics Canada

Chart 1: The share of Indians across ethnic/cultural groups who belong to the second or third generation (not born outside Canada) on the horizontal axis

The bigger and darker the circle, the more the number of people

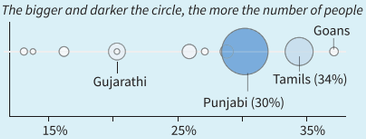


Chart 2: India overtook China and the Philippines and formed the highest share of immigrants in Canada in the 2016-2021 period

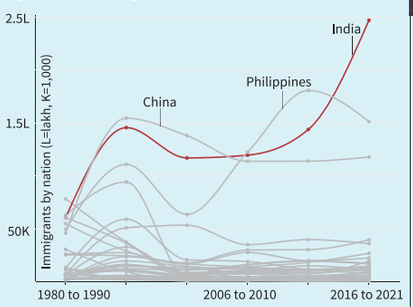


Chart 3: Applications received by Canada for permanent residency between January 2020 and July 2023

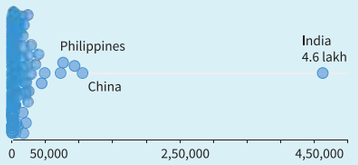
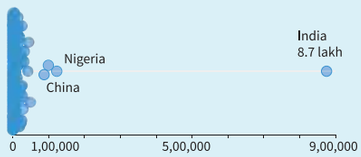


Chart 4: New study permit applications received by Canada between January 2020 and July 2023



Scene of crime: The Guru Nanak Sikh Gurdwara Sahib in Surrey, where temple president Hardeep Singh Nijjar was gunned down. AP

Chart 5: International Mobility Program work permit holders between January 2020 and July 2023

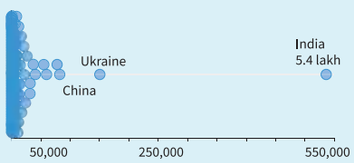


Chart 6: The chart shows the value of the items imported by Canada from India in $. The bigger and darker the circle, the more the import dependency on India

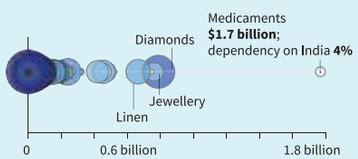
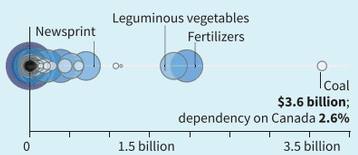


Chart 7: The chart shows the value of the items imported by India from Canada in $. The bigger and darker the circle, the more the Import dependency on Canada



ECOLOGY AND ENVIRONMENT

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