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## Today's Prelims Topics

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### How did a DDoS attack cripple Kaveri 2.0?

#### Context

Recently Karnataka's web-based portal Kaveri 2.0, which is used for property registrations, faced crippling server outages due to a Distributed Denial of Service (DDoS) attack.-

#### About Distributed Denial-of-Service (DDoS) Attack

- **DDoS attack** is a **malicious** attempt to disrupt a targeted server, service, or network by **flooding it with internet traffic**.
- Unlike a **DoS (Denial of Service) attack**, which comes from a **single source**, a **DDoS attack** uses **multiple compromised systems** (botnets).
- While DDoS attacks do not steal data, they can be used as a distraction while other cyberattacks (such as data breaches) take place.

#### How Can DDoS Attacks Be Prevented?

- **Traffic Filtering Mechanisms:** To differentiate between legitimate and malicious traffic.
- **Monitoring Tools:** To identify unusual traffic patterns in real time.
- **Rate Limiting:** Restricts the number of requests per user within a given time.
- **Bot Detection:** Using **CAPTCHA challenges** and **behavioral analysis** to block automated bots.
- **Regular Security Audits:** Strengthening system security against vulnerabilities.
- **Collaboration with Cybersecurity Agencies:** Sharing threat intelligence to prevent future attacks.
- **Cyber Awareness Training:** Educating users to avoid phishing and social engineering attacks that may lead to compromised accounts.

#### Source:

- [The Hindu - How did a DDoS attack cripple Kaveri 2.0?](#)

## Aravali Safari Park Project

### Context

The Haryana government has proposed a **3,858-hectare Aravali Safari Park** across **Gurugram and Nuh** districts.

### About Aravali Safari Park Project

- It is a proposed wildlife park spanning 10,000 acres in the Aravalli hills of Haryana.
- The project would include animal cages, hotels, restaurants, botanical gardens, aquariums and more.
- After completion it will be **the World's Largest Safari Park. (Currently in UAE)**
- **Concerns:**
  - Threat to groundwater reserves in the water-scarce districts of Gurugram and Nuh.
  - Violation of forest laws, as the project area falls under protected forest land.
  - Haryana's low forest cover (3.6%), which needs reforestation, not commercial projects.

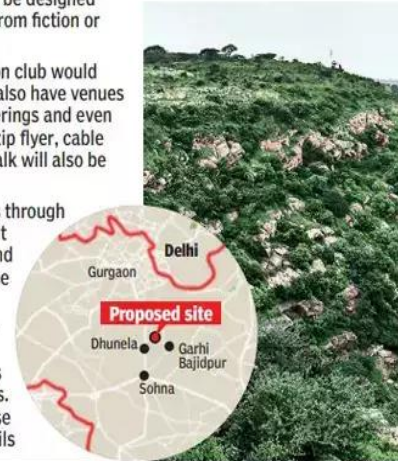
### WHAT THE PARK MAY HAVE

**Entertainment zone** | It would be designed along specific themes inspired from fiction or Indian mythological characters

**The Safari Club** | The recreation club would have leisure activities. It would also have venues to host conferences, large gatherings and even accommodation. An aquarium, zip flyer, cable car, canopy safari and tunnel walk will also be there

**Eco village** | It will take visitors through a cultural and culinary journey. It will have space for handicraft and handloom products and even fine dining. There may be open-air theatre, stalls, display galleries, kiosks and food outlets

**Infrastructure** | Road networks along with space for pedestrians. There would be elephant or horse rides as well as eco-trekking trails



### Ecological Importance of the Aravali Range

- The **Aravali hills** in **southern Gurugram and Nuh** form part of the **oldest fold mountain range in the world**.
- The **Aravali range** stretches **690 km** from **Champaner in Gujarat** to near **Delhi** in the northeast.
- **Key ecological roles of the Aravalis:**
  - **Prevents desertification** – Acts as a **barrier** against the spread of the **Thar Desert** into eastern Rajasthan.
  - **Groundwater recharge** – The **highly fractured and weathered rocks** allow water to **percolate**, replenishing **aquifers**.
  - **Rich biodiversity** – The region is **home to a diverse array of wildlife and plant species**.

### Source:

- [The Hindu - Aravali safari park](#)

## Centre is planning to raise the Deposit Insurance Limit

### Context

The Indian government is considering increasing the **bank deposit insurance cover** beyond the current **₹5 lakh per depositor**.

### About Deposit Insurance and Credit Guarantee Corporation (DICGC)

#### Deposit Insurance

- Deposit insurance is a financial safety net that protects depositors from bank failures by guaranteeing a certain amount of their money.
- In India, deposit insurance is managed by **DICGC**.

- DICGC is a wholly-owned subsidiary of the Reserve Bank of India (RBI).
- It provides insurance cover to bank depositors to ensure protection in case of bank failures.
- It was established in **1978** under **Deposit Insurance and Credit Guarantee Corporation Act, 1961**.
- **Main Function of DICGC:** Deposit Insurance
  - Provides insurance coverage to depositors in case a bank fails.
  - Currently insures deposits up to **₹5 lakh per depositor per bank** (principal + interest).
- **Banks Covered Under DICGC:**
  - Commercial Banks (Public, Private, Foreign Banks)
  - Regional Rural Banks (RRBs)
  - Local Area Banks
  - Urban Cooperative Banks (UCBs)
  - State & Central Cooperative Banks
  - **Exclusions:** Primary Cooperative Societies.
- **Deposit Insurance Coverage:**
  - **Maximum Cover:** ₹5 lakh per depositor per bank (since February 4, 2020).
  - **Covers:** Savings, Fixed, Current and Recurring Deposits.
    - **Exclusions:** Deposits in foreign branches of Indian banks, Government deposits and interbank deposits.
  - **In case of bank failure:** Depositors receive claims through DICGC within **90 days**.

#### Source:

- [The Hindu - Centre likely to raise deposit insurance limit](#)

## High levels of microbes found in river water at Kumbh

### Context

A recent report by the Central Pollution Control Board submitted to the National Green Tribunal has revealed high levels of faecal coliform in the Ganga and Yamuna rivers at Prayagraj during the ongoing Maha Kumbh Mela.

### Key Findings of the CPCB Report

- **Unsafe Water for Bathing**
  - River water at all monitored locations **failed to meet the primary water quality standards for bathing** due to excessive **faecal coliform (FC) levels**.
  - The permissible limit of **2,500 units per 100 ml** was exceeded at all points.
- **Source of Contamination**
  - The **massive influx of pilgrims** during auspicious bathing days significantly increased the concentration of faecal bacteria.
  - **Sewage discharge into the river** also contributed to the poor water quality.

### Central Pollution Control Board (CPCB)

- It is a **statutory body** constituted in 1974, under the **Water (Prevention and Control of Pollution) Act, 1974**. It is also entrusted with the powers and functions under the **Air (Prevention and Control of Pollution) Act, 1981**.
- **Functions:**
  - Preventing, controlling and abating water pollution
  - Preventing, controlling, and abating air pollution & Improving air quality.
  - Advising the central government on water and air pollution

### Source:

- [The Hindu - High levels of microbes found in river water at Kumbh](#)

## Bacteria-made Band-Aid for plants

### Context

A recent study published in Science Advances has highlighted the use of bacterial cellulose as a bandage for plants.

### Key Findings of the Study

- **Faster Wound Healing in Plants:**
  - Small **cuts were made on the leaves** of two lab plants.
  - **Bacterial cellulose patches** were applied to only **half** of the wounds.
  - **Healing Results:**
    - **Over 80%** of the treated wounds **healed within a week**.
    - **Less than 20%** of the **untreated** wounds showed healing in the same period.
  - **Conclusion:** Bacterial cellulose significantly accelerates plant wound healing.
- **Improved Vegetative Propagation:**
  - **Vegetative propagation** is a **common technique in agriculture** used to grow **genetically identical plants from cuttings**.
  - The study found that **bacterial cellulose enhances this process**, making it more **efficient**.

### What is Bacterial Cellulose?

- A **natural polymer** produced by **certain bacteria**. It is widely used in **human medicine**, especially for **wound healing**.
- Now it is being explored for **agricultural applications**.
- **Potential Agricultural Applications:**
  - **Facilitating Grafting** – Can help join plant tissues together more effectively.
  - **Preserving Cut Plant Material** – Prevents dehydration and infection in cuttings.
  - **Growth Medium in Laboratories** – Could serve as a substrate for plant tissue culture experiments.

### Source:

- [Indian Express - Bacteria made Band-Aid for plants](#)

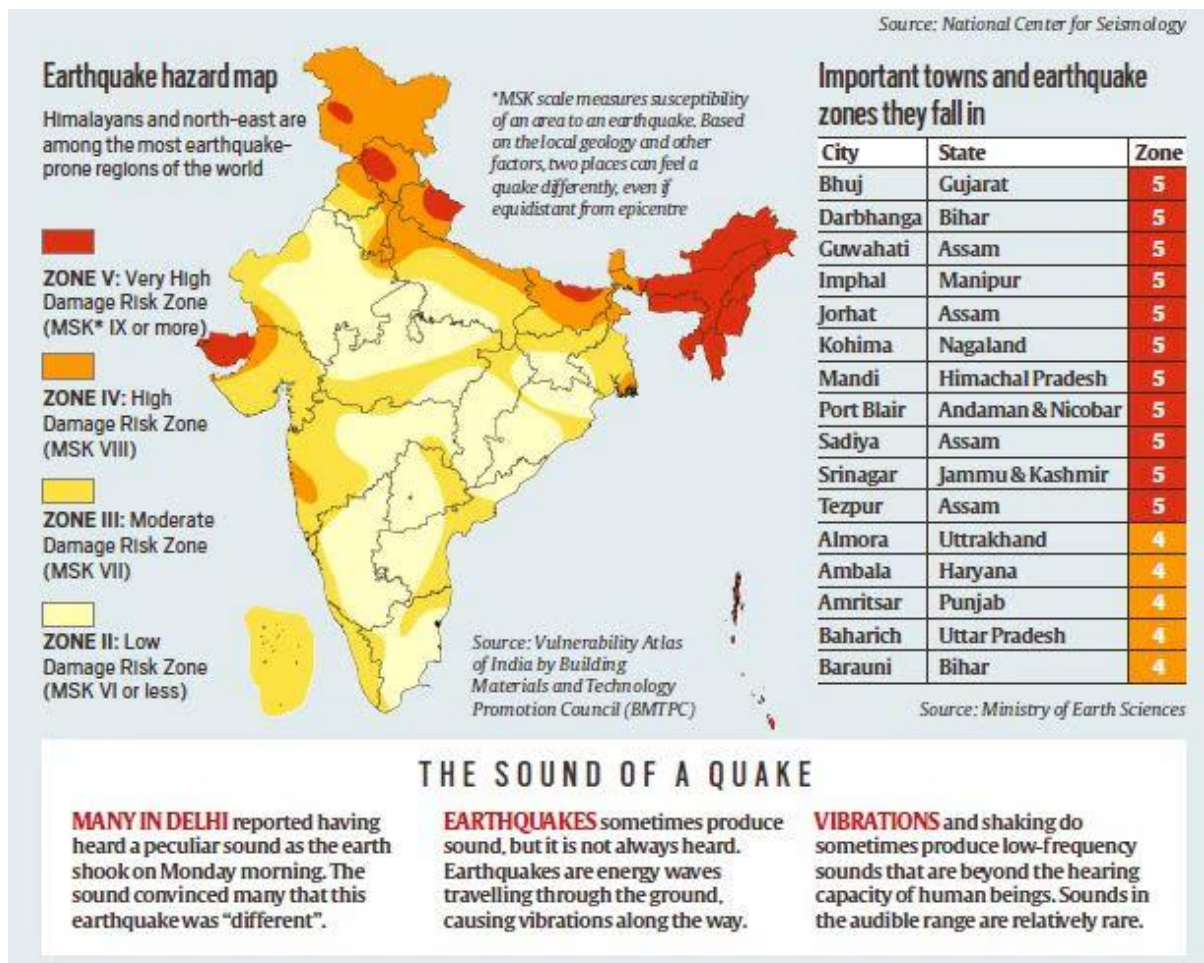
## How tremors in Delhi are different from earthquakes in the Himalayan region

### Context

A magnitude 4 earthquake originated in Delhi, marking the strongest local tremor in the last five years.

### Why Delhi is Earthquake-Prone

- **Seismic Zone Classification:**
  - Delhi falls under **Zone 4** of India's earthquake hazard map.
  - This zone is classified as having a **high to moderate earthquake risk**, making the region more vulnerable to strong seismic activity compared to other areas in the country.
- **Aravalli-Delhi Fold Belt:**
  - Delhi is situated in the **Aravalli-Delhi Fold Belt**, a seismically active geological zone that stretches from Rajasthan to Haryana and Delhi.
  - This region is characterized by deformed layers of rock, which were created due to tectonic processes that occurred hundreds of millions of years ago.
- **Local Stress Pockets:**
  - These rock deformations have created local stress pockets. Over time, this stress can be released in the form of earthquakes, though not as frequently or intensely as in the Himalayan region.
- **Proximity to the Himalayan Fault:**
  - Although Delhi is not as close to the active fault lines of the **Himalayan region**, it is still connected to a broader tectonic system.
  - Earthquakes originating in the **Himalayan region** can affect Delhi, though it is more likely to experience smaller or moderate quakes.



#### Shallow Earthquakes

- Shallow earthquakes are those that originate **within 70 km of the Earth's surface**.
  - Intermediate earthquakes** occur in between 70 to 300 km and **deep earthquakes** occur in between 300 to 700 km.
- They generate seismic waves that reach the surface more quickly and intensely, making them potentially more destructive in populated areas.

Source:

- [The Hindu - Shallow earthquake](#)

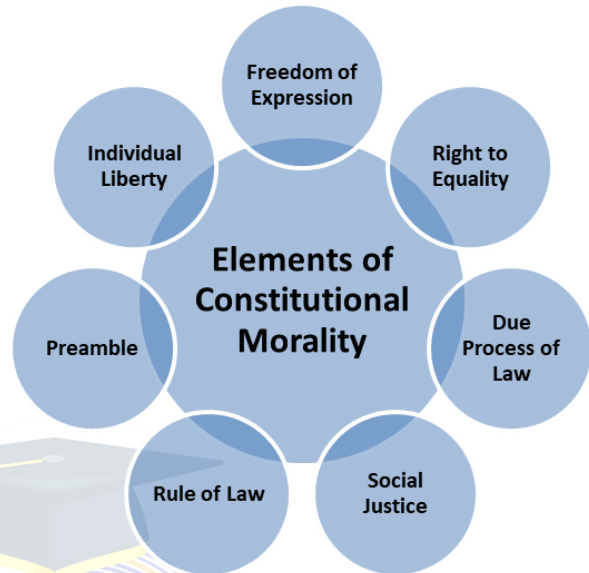
## Constitutional Morality

### Context

Recently, the concept of Constitutional Morality has been increasingly used in the Indian judiciary to interpret laws and assess the constitutional validity of statutes.

### About Constitutional Morality

- Constitutional Morality refers to the **guiding values enshrined** in the Constitution that must be protected to uphold the integrity and vision of the Constitution.
- It goes beyond the literal interpretation to encompass a commitment to values such as **sovereignty, social justice and equality in constitutional adjudication**.
- Constitutional morality offers a **mature form of constitutionalism**, balancing respect for the Constitution with the ability to challenge and reform it when necessary.
- This balance prevents a shift towards **fundamentalism** while allowing for **stability and change**.
- **Distinction from Constitutional Patriotism:**
  - The concept of constitutional morality is distinct from **Jürgen Habermas' constitutional patriotism**, which emphasizes solidarity and allegiance based on shared norms and values in a constitution.
  - While constitutional morality focuses on **process** and **critique**, constitutional patriotism leans more towards a **singular national identity**.
- **Historical Origin:**
  - **Constitutional Morality** was first conceptualized by **George Grote**, a British classicist, in his historical work *A History of Greece*.
  - **Dr. Ambedkar**, in his speech on The Draft Constitution (1948), also emphasized that **constitutional morality must be cultivated to sustain democracy**.



### Important Cases with Respect to Constitutional Morality

- **Navtej Singh Johar v. Union of India (2018):**
  - The Supreme Court, in its judgment, invoked **constitutional morality** to argue that the law must evolve in line with the **fundamental rights** guaranteed by the Indian Constitution.
- **Joseph Shine v. Union of India (2018):**
  - The Supreme Court struck down Section 497, holding it unconstitutional, and emphasized that **constitutional morality** mandates that laws should not infringe upon an individual's **right to equality and dignity**.
- **Union of India vs. Government of the NCT of Delhi (2018):**
  - SC ruled that high-ranking officials must adhere to constitutional morality and uphold the ideals outlined in the Constitution to prevent the arbitrary use of authority.

### Source:

- [The Hindu - Constitutional morality: the origins and nuances](#)



## News in Shorts

### BHARAT TEX 2025

- It is the **2nd edition** of one of the **largest global textiles events**.
- It is organized by the consortium of 12 Textile Export Promotion Councils and supported by the **Ministry of Textiles**.
- It aims to showcase India's textile industry to the world by bringing together key stakeholders, including manufacturers, buyers, industry experts and innovators.
- The event has attracted participation from over **120 countries & Featuring more than 5,000 exhibitors**.
- The fair will cover Apparel, Home Furnishings, Technical Textiles, Sustainable Textiles and Fashion Accessories.

Source:

- [PIB - BHARAT TEX](#)

### Ramkrishna Paramhans

- He was born in **1836 in Kamarpukur, West Bengal**. His original name was **Gadadhar Chattopadhyay**.
- Ramakrishna began his career as a priest at the Dakshineswar Kali Temple in Kolkata.
- He advocated for **direct experience of God** rather than mere bookish knowledge and emphasized **selfless devotion (bhakti) and surrender to God**.
- He passed away in **1886 due to throat cancer**.



#### Influence on Swami Vivekananda

- Swami Vivekananda (Narendranath Datta) became his **most famous disciple**.
- Inspired Vivekananda to spread **Vedanta and Indian spirituality worldwide**.
- His teachings were later spread by **Ramakrishna Mission**, founded by **Swami Vivekananda**.

Source:

- [The Hindu - Ramkrishna Paramhansa](#)

## Editorial Summary

### Lighten the pollution burden of thermal power States

#### Context

Despite the commitments to updated Nationally Determined Contribution (NDC) under the Paris Agreement to the UNFCCC in August 2022, thermal power plants remain a significant source of electricity in India.

#### Key Commitments in India's Updated NDC

- Adopting a climate-friendly and cleaner path to economic development
- Reducing emissions intensity of GDP by 45% by 2030 (compared to 2005 levels)
- Achieving 50% cumulative installed electric power capacity from non-fossil fuel sources by 2030.
- Creating a carbon sink of 2.5–3 billion tonnes of CO<sub>2</sub> equivalent by 2030
- Enhancing energy efficiency and promoting sustainable lifestyles (Mission LiFE)
- Better adapt to climate change by enhancing investments in development programs.
- Mobilize domestic and new funds from developed countries.
- Build capacities, create domestic framework and international architecture for quick diffusion of climate technology.

#### Thermal Power Production: Disproportionate Pollution Burden

- **High Dependence on Thermal Power:** Thermal power (mainly coal-based) contributes significantly to India's electricity generation, leading to high carbon emissions.
  - E.g., India accounts for 20,794.36 kg of carbon emission from electricity generation.
- **Dominant share of coal:** Approximately 59.12% of the total energy supply in India comes from coal. In 2022-23, about 73.08% of electricity was generated from coal, while only 1.48% came from oil and natural gas.
- **Disparities in Electricity Production and Consumption:** Some States (e.g., Chhattisgarh, Odisha, Jharkhand) produce more power than they consume, while others (e.g., Gujarat, Maharashtra) import power.
- **Uneven distribution of pollution:** States that produce thermal power bear a disproportionate pollution burden compared to those that consume it.

#### Facts

- India has a total installed capacity of 2,37,268.91 MW by thermal power plants.
- **Key thermal power producing states:** Maharashtra (31,510.08 MW), Uttar Pradesh (26,729.374 MW), and Gujarat (26,073.41 MW) had the highest non-renewable electricity generation capacities in 2022-23.
- **Highest share of thermal power:** Tripura (96.96%), followed by Bihar (95.57%), Chhattisgarh (94.35%), Jharkhand (92.69%), Delhi (87.96%), West Bengal (87.72%), and Uttar Pradesh (81.84%).
- **Net electricity sellers:** Chhattisgarh is the highest net seller of electricity (535.29 MW), followed by Madhya Pradesh (379.19 MW), Himachal Pradesh (153.43 MW), Rajasthan (135.14 MW), Odisha (95.40 MW) and Meghalaya (55.22 MW) in 2022-23.
- **Net electricity importers:** Gujarat is the highest importer of electricity (528.17 MW), followed by Haryana (212.63 MW), Maharashtra (187.50 MW), Delhi (162.97 MW), Punjab (160.82 MW), and Tamil Nadu (128.37 MW) in 2022-23.

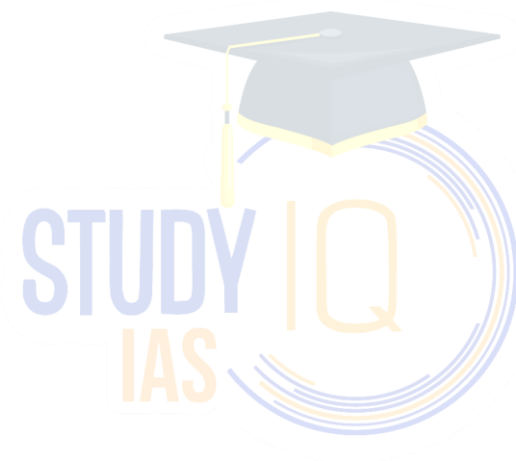
- **Lack of Compensation for Pollution Burden**

- **Constitutional constraints:** States can tax electricity consumption and sale but not generation, while the central government does not impose a specific tax on electricity production.
- **GST exemption:** Electricity as a commodity is exempt from the Goods and Services Tax (GST), and services related to its transmission or distribution are also GST-exempt.

#### Proposed Solutions for Compensation

- **Taxing thermal power generation:** Allowing States where central sector power plants are located to tax thermal power generation, or the Union government can collect and transfer the generation tax to the producing States.
- **Compensation through the Finance Commission:** Utilizing the Finance Commission of India to develop a fiscal road map that compensates thermal power-producing States for the burden of other States' electricity consumption

Source: [The Hindu: Lighten the pollution burden of thermal power States](#)



## Social Justice for Muslims should not be about reservations

### Context

The idea that "Reservation for Muslims is a bad idea" and "Affirmative action for Muslims is necessary" may seem contradictory.

### More in News

- The contradiction arises from a limited imagination of social justice, where affirmative action is equated solely with reservation in government jobs and education.
- Social justice debates in India are often reduced to battles over quotas, leading to multiple communities demanding reservations, including ex-servicemen, sexual minorities, and displaced persons.

### Background

- The demand for reservation for Muslims has intensified since the **Sachar Committee Report (SCR)** in 2006, which highlighted severe educational and economic disadvantages faced by Muslims, categorizing them as a "socio-religious group."
  - Although the SCR did not recommend reservations, it set the stage for subsequent demands.
- In 2007, the National Commission for Linguistic and Religious Minorities suggested a 15% quota for minorities, with 10% specifically for Muslims in jobs and education.
- This has been supported by various Muslim leaders and intellectuals amid rising socio-political challenges.

### New Approach: Rethinking Affirmative Action for Muslims

- A recent report titled "**Rethinking Affirmative Action for Muslims in Contemporary India**", authored by **Hilal Ahmed, Mohd Sanjeer Alam, and Nazima Parveen**, suggests a more nuanced approach. It makes three key arguments:
  - **Affirmative action for Muslims is necessary** due to their socio-economic disadvantages.
  - **Reservation for the entire Muslim community is not a viable solution** for legal, sociological, and political reasons.
  - **A "bouquet of policies" should be adopted** to address specific disadvantages faced by various Muslim communities.

### Key Arguments Against Blanket Reservation

- **Legal-constitutional Issues:** The Indian Constitution does not explicitly allow reservations based on religion. The judiciary has historically rejected proposals to classify religious communities as "socially and educationally backward classes" due to constitutional constraints.
- **Sociological Diversity:** The Muslim community is not monolithic; it comprises numerous biradaris (sub-groups) with diverse socio-economic profiles. This diversity complicates the implementation of uniform reservation policies.
- **Political Ramifications:** Proposals for blanket reservations could provoke counter-mobilization against Muslims, exacerbating existing tensions in a politically charged environment.

### Recommendations for Alternative Policies

The report advocates for a multi-faceted approach rather than blanket reservations:

- **Religion-Agnostic Quota Approach:**
  - **Inclusion in OBC Lists:** Ensure that all backward Muslim communities are recognized in Other Backward Classes (OBC) lists.
    - Currently, only about half of Muslims qualify for OBC benefits, despite evidence suggesting that over 75% of Muslims meet the criteria.

- **Segmentation of OBC Categories:** Create distinct categories within OBCs, such as “extremely backward” and “backward,” to better reflect the varied socio-economic conditions among different Muslim communities.
- **Addressing Untouchable Muslim Communities:** Remove restrictions preventing “untouchable” Muslim communities from being classified as Scheduled Castes (SC). This would allow Dalit Muslims to access reservation benefits.
- **Anti-Discrimination Measures:** Establish an Equal Opportunity Commission to monitor and enforce anti-discrimination laws aimed at protecting minority rights.
- **Infrastructure and Sectoral Support:** Implement a spatial approach to enhance public infrastructure in areas with high concentrations of Muslim populations.
  - Promote state support for industries predominantly employing Muslims, such as weaving and carpet-making, to stimulate economic growth within these communities.
- **Engagement with Private Sector:** Encourage private sector diversity through government incentives without enforcing strict quotas that may lead to backlash.
- **Community Involvement:** Foster collaboration with NGOs and community organizations to address local needs effectively without relying solely on state mechanisms.

### Conclusion

While there is a pressing need for affirmative action to address the socio-economic disadvantages faced by Muslims in India, a nuanced approach is essential. The report emphasizes that blanket reservations may not be the most effective solution due to legal, sociological, and political challenges. Instead, it proposes targeted policies that recognize diversity within the community while promoting equitable opportunities across various sectors. This framework aims to provide a sustainable path toward social justice without deepening societal divides or political tensions.

Source: [Indian Express: Social Justice, not just quota](#)

## Value Addition

### Recent Visit of PM Modi To US

#### Defense Partnership

- **Framework for the Future:** Commitment to sign a new ten-year Framework for the U.S.-India Major Defense Partnership in the 21st Century this year.
- **Integration of U.S. Defense Items:** Acknowledgment of the significant integration of U.S.-origin defense items into India's inventory. Examples mentioned: C-130J Super Hercules, C-17 Globemaster III, P-8I Poseidon aircraft, CH-47F Chinooks, MH-60R Seahawks, and AH-64E Apaches, Harpoon anti-ship missiles, M777 howitzers, and MQ-9Bs.
- **Expanded Defense Sales & Co-Production:** Plans to expand defense sales and co-production. New procurements and co-production arrangements planned this year for "Javelin" Anti-Tank Guided Missiles and "Stryker" Infantry Combat Vehicles in India.
- **P-8I Aircraft:** Expect completion of procurement for six additional P-8I Maritime Patrol aircraft.
- **Streamlining Regulations:** Review of arms transfer regulations, including International Traffic in Arms Regulations (ITAR).
- **Reciprocal Defense Procurement (RDP) Agreement:** Call for opening negotiations this year for a Reciprocal Defense Procurement (RDP) agreement.
- **Defense Technology Cooperation:** Pledge to accelerate defense technology cooperation across space, air defense, missile, maritime, and undersea technologies. The U.S. will review its policy on releasing fifth-generation fighters and undersea systems to India.
- **Autonomous Systems Industry Alliance (ASIA):** New initiative to scale industry partnerships and production in the Indo-Pacific. Partnership between Anduril Industries and Mahindra Group, and L3 Harris and Bharat Electronics mentioned.
- **Military Cooperation:** Elevate military cooperation across all domains through enhanced training, exercises, and operations.
- **"Tiger Triumph" Exercise:** Forthcoming "Tiger Triumph" tri-service exercise (first inaugurated in 2019) with larger scale and complexity to be hosted in India.
- **Logistics and Intelligence Sharing:** Commitment to support and sustain overseas deployments of the U.S. and Indian militaries in the Indo-Pacific, including enhanced logistics and intelligence sharing.

#### Trade and Investment

- **"Mission 500":** A bold new goal for bilateral trade – aiming to more than double total bilateral trade to \$500 billion by 2030.
- **Bilateral Trade Agreement (BTA):** Plans to negotiate the first tranche of a mutually beneficial, multi-sector Bilateral Trade Agreement (BTA) by the fall of 2025.
- **Addressing Trade Barriers:** The United States welcomed India's recent measures to lower tariffs on U.S. products of interest in the areas of bourbon, motorcycles, ICT products and metals, as well as measures to enhance market access for U.S. agricultural products, like alfalfa hay and duck meat, and medical devices. India also expressed appreciation for U.S. measures taken to enhance exports of Indian mangoes and pomegranates to the United States.
- **Greenfield Investments:** Commitment to drive opportunities for U.S. and Indian companies to make greenfield investments in high-value industries in each other's countries.
- **Ongoing Investments:** Investments by Indian companies worth approximately \$7.35 billion (Hindalco's Novelis, JSW, Epsilon Advanced Materials, and Jubilant Pharma).

### Energy Security

- **U.S.-India Energy Security Partnership:** Re-commitment to the U.S.-India Energy Security Partnership, including in oil, gas, and civil nuclear energy.
- **International Energy Agency:** The U.S. side affirmed its firm support for India to join the International Energy Agency as a full member.
- **Energy Trade:** Commitment to increase energy trade, with the United States as a leading supplier of crude oil, petroleum products, and liquefied natural gas to India.
- **Civil Nuclear Agreement:** Commitment to fully realize the U.S.-India 123 Civil Nuclear Agreement. Plans to build U.S.-designed nuclear reactors in India. The Government of India will take up amendments to the Atomic Energy Act and the Civil Liability for Nuclear Damage Act (CLNDA) for nuclear reactors.

### Technology and Innovation

- **U.S.-India TRUST ("Transforming the Relationship Utilizing Strategic Technology") initiative:** A new initiative to promote the application of critical and emerging technologies.
- **AI Infrastructure Roadmap:** Commitment to work with private industry to put forward a U.S.-India Roadmap on Accelerating AI Infrastructure by the end of the year.
- **INDUS Innovation:** A new innovation bridge modeled after the successful INDUS-X platform, that will advance U.S.-India industry and academic partnerships and foster investments in space, energy, and other emerging technologies.
- **Supply Chains:** Commitment to build trusted and resilient supply chains, including for semiconductors, critical minerals, advanced materials and pharmaceuticals. Plan to encourage public and private investments to expand Indian manufacturing capacity, including in the U.S., for active pharmaceutical ingredients for critical medicines.
- **Critical Minerals:** Accelerate collaboration in research and development and promote investment across the entire critical mineral value chain, as well as through the Mineral Security Partnership. Launch of the Strategic Mineral Recovery initiative, a new U.S.-India program to recover and process critical minerals (including lithium, cobalt, and rare earths) from heavy industries.
- **Civil Space Cooperation:** Plans for a NASA-ISRO effort through AXIOM to bring the first Indian astronaut to the International Space Station (ISS), and early launch of the joint "NISAR" mission.
- **Science and Research:** New partnership between the U.S. National Science Foundation and the Indian Anusandhan National Research Foundation in researching critical and emerging technologies.
- **Export Controls:** Governments will redouble efforts to address export controls, enhance high-technology commerce, and reduce barriers to technology transfer.

### Multilateral Cooperation

- **Indo-Pacific Region:** A close partnership between the U.S. and India is central to a free, open, peaceful and prosperous Indo-Pacific region.
- **Quad Partnership:** Reiteration that the Quad partnership is underpinned by the recognition of ASEAN centrality.
- **Quad Leaders' Summit:** Prime Minister Modi looks forward to hosting President Trump in New Delhi for the Quad leaders' Summit.
- **Middle East Cooperation:** Resolved to increase cooperation, enhance diplomatic consultations, and increase tangible collaboration with partners in the Middle East. Plan to convene partners from the India-Middle East-Europe Corridor and the I2U2 Group within the next six months in order to announce new initiatives in 2025.
- **Indian Ocean Region:** The US appreciates India's role as a developmental, humanitarian assistance and net security provider in the Indian Ocean Region.