



# Kaivalya

**Civil Services Mentors Hub**

*The Personalized E-learning Platform*

## Dnyan Magazine-April 2024

**For UPSC & MPSC Rajyaseva New Pattern**

**Table of Contents**

<b>1</b>	<b>Governance, Constitution, Polity</b>	<b>5</b>
1.1	Performance of the 17th Lok Sabha (June 2019 - February 2024)	5
1.2	The Uniform Civil Code (UCC)	9
1.3	India's Efforts to Combat Climate Change: Legal and Policy Framework	11
1.4	The Need for Holistic Climate Change Legislation in India	15
1.5	A Growing Trend of Climate Change Litigation in India and the World	16
1.6	The Prevention of Money Laundering Act (PMLA)	17
1.7	The Katchatheevu Island Dispute: A Historical and Strategic Perspective	20
1.8	Global Approaches to AI Regulation and Considerations for India	24
1.9	Addressing Sugary Processed Baby Foods in India: Regulations, Labelling, and Marketing Practices	25
1.10	Food Safety Concerns in India: A Call for a More Robust Regulatory Framework	28
1.11	The Role of the Judiciary in Ensuring Food Safety and Addressing Misleading Advertising in India	29
1.12	Electronic Voting Machines (EVMs)	30
1.13	Voter Verified Paper Audit Trail (VVPAT) in Indian Elections:	31
1.14	Arguments For and Against Full Recount VVPAT	32
1.15	Symbol Loading Units (SLU) and Their Role in Ensuring Transparency in Electronic Voting Machines (EVMs)	33
1.16	Model Code of Conduct (MCC):	35
1.17	Encouraging Youth Participation in Democratic Processes	37
1.18	Measuring Democracy	38
1.19	Supreme Court Verdict in Delhi Metro Case: A Case Study in Infrastructure Development, Delays, and Dispute Resolution	40
<b>2</b>	<b>International relations</b>	<b>44</b>
2.1	India-Nepal Relationship:	44
2.2	Pakistan's Hybrid Regime and its Impact on India	45
2.3	A Fragile Corridor: Attacks Expose Vulnerabilities of CPEC and Pakistan	47
2.4	India's Shifting Strategic Landscape: A Reconceptualization of Global Regions	48
2.5	What is the "India Out" Campaign?	49
2.6	The Shifting Geopolitical Landscape in Asia: The US, China, and India's Strategic Calculus	51
2.7	India's Evolving Relationship with the Arctic	52
2.8	India's Evolving Position on the South China Sea Dispute	53
2.9	Landmark Climate Ruling by the European Court of Human Rights	53
2.10	A World in Disarray	54
2.11	The North Atlantic Treaty Organization (NATO)	55
<b>3</b>	<b>Society and Social Justice</b>	<b>57</b>
3.1	Unpaid Care Work: Holding Back India's Women and Economy	57
3.2	Youth Suicides in India	57
3.3	The Growing Need for Standardized Home Care for India's Elderly Population	58
3.4	Universal Health Coverage (UHC)	59
3.5	The National One Health Mission	61
3.6	Reforming Private Healthcare in India	63
3.7	The Supreme Court's Directive on Hospital Charges in India	64
3.8	India Faces High Burden of Viral Hepatitis	65
3.9	The National Education Policy and the Push for Autonomous Colleges in India	66
3.10	India's Human Development Index (HDI) in the 2023/24 Report	67
3.11	Bypass Urbanism	70
3.12	Urbanization and Caste in India	71
3.13	Pradhan Mantri Awas Yojana (PMAY) Scheme	72
<b>4</b>	<b>Economic Development</b>	<b>74</b>
4.1	Analysis of the Indian Economy in 2023-24	74
4.2	The Importance of Focusing on Per Capita GDP for India's Development	74
4.3	India's Growth Model: Need for a Course Correction Towards Happiness and Inclusion	75
4.4	India's Dismal Job Growth Despite Economic Expansion	77
4.5	Human Development, Growth, and Inequality in India	80
4.6	Wealth Distribution in India: A Shift from Land Reform to Growth-Oriented Policies	81
4.7	Income Inequality in India	81
4.8	The Decline of Private Investment in India: A Hurdle to Economic Growth	82
4.9	India's Development Path: A Model for Public-Private Collaboration and Innovation	84
4.10	India Opens Sovereign Green Bonds to Foreign Investors	85
4.11	Indian Agriculture Production and the Challenges of Climate Change	85
4.12	Food Security Finances in India	87
4.13	Food Systems Transformation for a Food-Secure and Prosperous India by 2047	88
4.14	Viksit Bharat and the Need for Robust Agricultural Policies	89

4.15	CDP-SURAKSHA: A Digital Platform for Instant Disbursement of Horticulture Subsidies to Farmers .....	89
4.16	India's Ambitious Solar Power Push: Can Domestic Manufacturing Keep Up? .....	91
4.17	Approved List of Models and Manufacturers of Solar Photovoltaic Modules (Requirement for Compulsory Registration) Order, 2019 .....	92
4.18	India Tightens Tax Treaty with Mauritius to Address Loopholes .....	93
4.19	The Reserve Bank of India: A Historical Overview (1935-2024) .....	95
4.20	Tamil Nadu's Model of Decentralized Industrialization: A Case Study .....	96
<b>5</b>	<b>Science and Technology .....</b>	<b>98</b>
5.1	India's E-Vehicle Policy 2024 .....	98
5.2	Patents Rules, 2024.....	99
5.3	India's Liberalized FDI Policy in the Space Sector.....	101
5.4	ISRO's PSLV-C58/XPoSat Mission: A Milestone in Space Debris Mitigation .....	102
5.5	Eliminating Orbital Debris.....	103
5.6	Gopi Thotakura: A Pioneering Space Tourist and the Evolving Landscape of Space Tourism .....	103
5.7	NexCAR19: A Groundbreaking CAR-T Cell Therapy for Cancer Treatment in India .....	104
5.8	Nuclear Energy: A Potential Solution to Climate Change, Despite Low Adoption Rates.....	105
5.9	Dark Energy Spectroscopic Instrument (DESI).....	106
<b>6</b>	<b>Geography, Environment, Biodiversity and Disaster Management .....</b>	<b>108</b>
6.1	Green Credit Programme in India.....	108
6.2	The Challenge of Phasing Out Coal Power and Meeting Climate Change Goals.....	109
6.3	Challenges and Opportunities in Large-Scale Renewable Energy Deployment in India.....	110
6.4	Rising Temperatures and Heatwaves.....	111
6.5	Heat Action Plans (HAPs): Strategies for Mitigating Heatwave Risks .....	113
6.6	Anticyclones .....	114
6.7	The Unprecedented Rainfall Event in Dubai .....	116
6.8	2024 Year Marked by Climate Extremes and Record-Breaking Temperatures.....	116
6.9	Glacial Lake Outburst Floods (GLOFs): A Growing Threat in the Himalayas .....	118
6.10	Agroforestry Practices in India .....	120
6.11	Unclassed Forests and the Forest (Conservation) Act Amendment (FCAA) 2023 .....	122
6.12	The Necessity and Challenges of a Global Plastic Waste Treaty .....	123
6.13	Kallakkadal: Coastal Flooding Phenomenon in Kerala .....	125
6.14	Taiwan Earthquake and the Ring of Fire .....	125
<b>7</b>	<b>Security.....</b>	<b>127</b>
7.1	India's Focus on the Andaman and Nicobar Islands .....	127
7.2	The Armed Forces (Special Powers) Act, 1958 (AFSPA):.....	129
7.3	The Maoist Insurgency or Naxal Movement in India .....	130
7.4	Basics of Left-Wing Extremism in India: .....	132
7.5	Atmanirbhar Bharat in Defence: Fostering Self-Reliance and Modernization .....	134
7.6	The Indian Army's Focus on Disruptive Technology Absorption .....	135
7.7	Understanding Doxxing and Strategies for Victims: Safeguarding Digital Security and Legal Remedies .....	136
<b>8</b>	<b>Ethics .....</b>	<b>137</b>
8.1	Daniel Kahneman's Enduring Influence in Psychology and Beyond.....	137
8.2	The Right to Disconnect in the Digital Age.....	138

**Copyright © 2024 Kaivalya Civil Services Mentors Hub. All rights reserved.**

This document is protected by copyright. No reproduction, storage, or transmission of any part is permitted without prior written authorization from Kaivalya Civil Services Mentors Hub. This applies to all methods, including electronic, mechanical, photocopying, and recording.

### **About us**

We are a civil services **coaching cum mentoring institute** that builds the capacity of students cum aspirants to ensure empowerment in civil services careers. Our sustainable and holistic interventions in Prelims, Mains, and Interview & Resilience, provide innovative solutions to deep-rooted learning curve development problems in the world of civil services.

Along with access to the confederation of expertise, we integrate internal knowledge and a strong network of partnerships to deliver outcomes at scale to varied stakeholders.

#### Our core values

##### **Respect**

Upholding the dignity of each individual aspirant

##### **Integrity**

Adhering to an ethical code of conduct in all actions towards cracking exam

##### **Commitment**

Fulfilling our duties and social responsibilities for the good of aspirants.

##### **Excellence**

Setting high-performance standards and being accountable to them for the results.

#### Vision

- Work as a catalyst in bringing sustainable change in the lives of students cum aspirants with a life-cycle approach to learning curve development.
- Enable the civil services aspirants to engage proactively in the change process through the philosophy of exam-driven change.
- Adopt the highest standards of mentoring to emerge as a leading knowledge and technology-driven, innovative and scalable learning development institution.

#### Mission

- Kaivalya-Civil Services Mentors Hub Institutions is here to empower underprivileged student aspirants, youth and female candidates through relevant education, and innovative civil services exam cycle programmes. Kaivalya-Civil Services Mentors Hub Institution is to deploy the best possible methodology and technology for achieving the ideal EROI (Educational return on investment), to practice and promote good exam skill sets. To link competitiveness with educational development initiatives; also to sensitize privileged student aspirants, youth and female citizens in general to promote Civil services Led & Driven Change.

#### People behind

Kaivalya-Civil Services Mentors Hub Institution is a civil services aspirants-driven organization – right from the aspirants who started it with a vision, to the aspirants who work with us to bring change at the grassroots in learning curves, to the aspirants who support our work, and most importantly the aspirants who we mentor on the ground through our work and educational skill sets. Committed, responsible aspirants who are passionate about making a difference in the world around them are the backbone of the Kaivalya-Civil Services Mentors Hub Institution.

*“A mentor is someone who allows you to see the hope inside yourself.” — Oprah Winfrey*

Our mentors at Kaivalya-Civil Services Mentors Hub Institution do the same for you. An initial push, some guidance when needed, a sharing of knowledge gained through years of experience—our mentors work pro bono to help further your cause and to help you realise your full potential, individually and as an organisation.

Rather than learning through trial and error, these stalwarts of mentoring provide you with a safe space to explore your abilities and opportunities. At the same time, you can look towards them for direction and as role models. They help shape your present situation and also mould your future opportunities.

#### **Who We Are:**

- We are run by a team of experienced mentors, for civil service aspirants.
- From our founders to our mentors and supporters, we're all driven by the same goal: your success.

#### **What We Do:**

- We aim to improve the learning experience for future civil servants.
- We help you avoid mistakes and learn faster.
- We provide a safe space to explore your abilities and find opportunities.
- We guide you towards your goals and shape your future.

#### **Our Mentors:**

- They offer support and encouragement.

- They share their years of experience to help you succeed.
- From our experienced mentors, you can take personal mentorship, learn from their experience and avoid making mistakes on your own.
- They help you reach your full potential as an individual and future civil servant.
- They believe in you and your potential.
- Our mentors guide you and act as *Sarathi* for your success.

**About Our Mentors:**

1. One of our mentors is a Mechanical engineering graduate. Combining his experience in the UPSC Civil Services Mains exam appeared five times (including scoring above 290 in History Optional subject) and Mpsc Rajyaseva (Two Interviews), he possesses a strong foundation for competitive exam preparation. Since 2016, he has been a dedicated mentor, specializing in History Optional, Ethics, and Current Affairs. Throughout his tenure at esteemed Delhi institutes like ForumIAS, GSScore, VisionIAS, and Unacademy, he has mentored countless students. This experience has provided invaluable insights into what works and what doesn't in the Mains exam, allowing him to craft effective study materials and design question papers (for both GS and the History optional) that target the UPSC's core requirements. By guiding you through thousands of evaluated copies, he can share the secrets of toppers and equip you with the knowledge and strategies necessary to excel in your UPSC and MPSC Rajyaseva as per new pattern endeavours.
2. One of our mentors is an MBBS Doctor. He is a seasoned UPSC and MPSC mentor with a proven track record. He has cleared both UPSC and MPSC prelims and mains, and his multiple UPSC interview appearances provide him with deep selection process insight. Since 2017, He has been a mentor at prestigious UPSC institutes in Delhi and Bangalore, including ForumIAS and InsightsIAS, where his leadership has been instrumental in their growth and organization. Specializing in Anthropology (optional subject), He brings additional expertise in Indian Polity, Society, International Relations, and Ethics Case studies honed through his teaching experience in these subjects.

**Introducing Gyan Magazine: Your Guide to UPSC & MPSC Rajyaseva (New Pattern)**

Gyan magazine is our new initiative designed to empower aspirants preparing for the UPSC and MPSC Rajyaseva exams (new pattern). The magazine features an in-depth analysis of current affairs with national and international significance – all aligned with the latest syllabus demands.

**Stay Informed Every Month (Starting March 2024)**

Gyan is a monthly publication delivering high-quality content specifically tailored for Marathi-speaking aspirants.

**Key benefits of Gyan magazine:**

- **Comprehensive Coverage:** Get an in-depth analysis of current issues critical to the UPSC and MPSC Rajyaseva exams.
- **Marathi Language:** Access high-quality content designed specifically for Marathi-speaking aspirants.
- **Monthly Delivery:** Stay updated with the latest information with regular monthly issues.

**Join us on your path to success with Gyan magazine!**

**Please note: Current affairs coverage will reflect the previous month.** For example, the April issue of Gyan Magazine will analyze March's current events, but will still be titled "Gyan Magazine - March 2024" for clarity.

**Help Us Improve!**

We at Kaivalya Civil Services Mentors Hub are committed to providing exceptional resources for aspiring civil servants. To ensure this document effectively meets your needs, we kindly request your feedback, particularly focused on identifying any limitations it may have.

**Specifically, we'd love to hear from you about:**

- **Clarity:** Were there any sections that you found confusing or difficult to understand?
- **Comprehensiveness:** Did the document address all the key aspects of the topic you were expecting?
- **Applicability:** Were there any concepts or information that seemed irrelevant or not applicable to the civil service exam?
- **Actionable Insights:** Did the document provide you with clear and actionable steps or strategies to improve your preparation?
- **Missing Information:** Is there any critical information you feel is missing from the document?

**Additionally, please share any suggestions you may have for improvement, no matter how big or small.**

By understanding these limitations, we can refine the document to be a more valuable tool for your success. Thank you for your time and feedback!

Please write to us at [supportdesk@civilservicesmentorshub.com](mailto:supportdesk@civilservicesmentorshub.com) or message us on Telegram at [9511900488](https://t.me/9511900488).



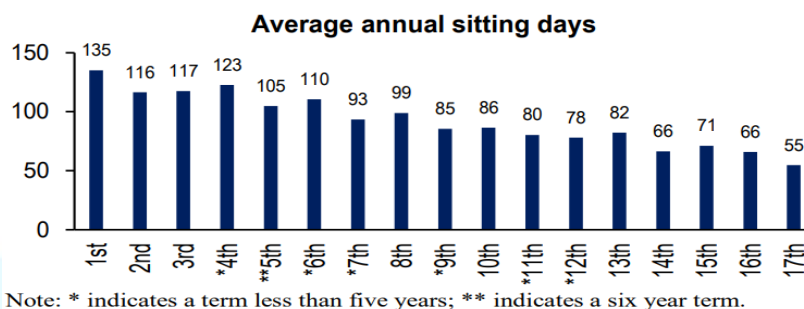
1.1 Performance of the 17th Lok Sabha (June 2019 - February 2024)

Functioning of Parliament:

- Overall Functioning:** The 17th Lok Sabha functioned for 88% of its scheduled time, surpassing the Rajya Sabha's record of 73%. Notably, Parliament moved to a new building in September 2023.

Number of Sittings:

- Lowest in Full-Term Lok Sabhas:** This Lok Sabha held the fewest sittings (274) compared to all previous full-term Lok Sabhas. Only four previous Lok Sabhas, which were dissolved before completing their terms, had fewer sittings.
- Impact of COVID-19:** The year 2020 witnessed the fewest sittings (33 days) due to the COVID-19 pandemic.
- Early Adjournments:** 11 out of 15 sessions were adjourned early, resulting in 40 scheduled sittings (13%) not taking place. However, the first and last sessions were extended to compensate.
- No Deputy Speaker:** This is the first time in history that Lok Sabha did not elect a Deputy Speaker for its entire duration, as mandated by Article 93 of the Constitution.

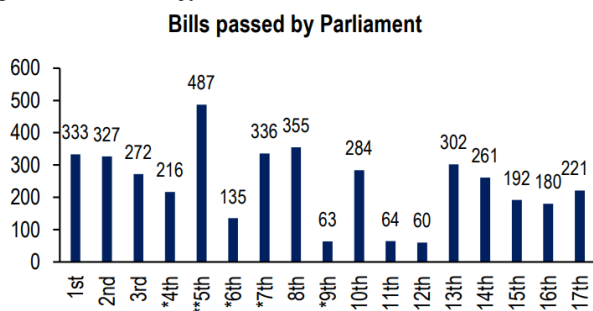


Discipline and Disruptions:

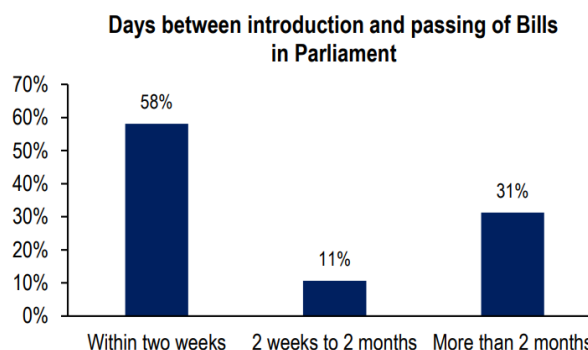
- Suspensions:** A total of 206 MPs were suspended across both houses during the 17th Lok Sabha. Notably, 146 MPs were suspended in the Winter Session 2023 for serious misconduct, even leading to the passage of key legislations such as criminal law reforms amidst these disruptions.

Legislative Output:

- Number of Bills Passed:** 179 Bills (excluding Finance and Appropriation Bills) were passed during this term. The Ministries of Finance and Home Affairs contributed the most Bills (15% each), followed by Law and Justice (9%) and Health and Family Welfare (9%).
- Landmark Bills:** The 17th Lok Sabha witnessed the passage of several significant bills, including:
  - Women's Reservation Bill, 2023
  - J&K Reorganisation Bill, 2019
  - Appointment of CEC Bill, 2023
  - Three Labour Codes
  - Digital Data Protection Bill, 2023
  - Three Farm Laws (later repealed)
  - Three Bills replacing the IPC, 1860, CrPC, 1973, and the Indian Evidence Act, 1872
- Speedy Passage:** Most introduced Bills were passed during this term. Notably, 58% of Bills were passed within two weeks of their introduction, with the J&K Reorganisation Bill and Women's Reservation Bill being passed within two days.
- Limited Debate:** However, 35% of Bills were passed with less than an hour of discussion in Lok Sabha, mirroring a similar figure (34%) in Rajya Sabha.

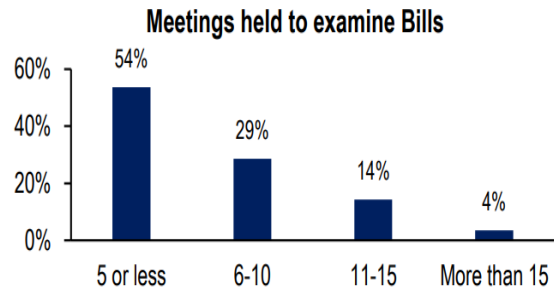
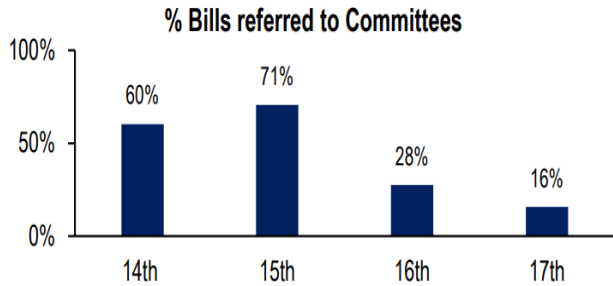


Note: \* indicates a term less than five years; \*\* indicates a six-year term. This figure includes Finance and Appropriation Bills.



**Committee Scrutiny:**

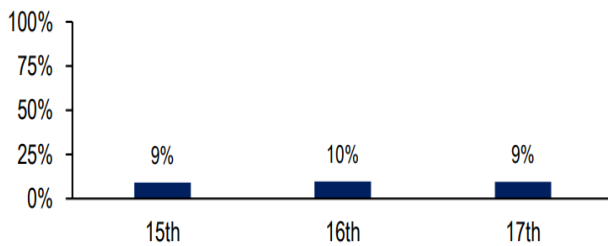
- **Low Scrutiny Rate:** Only 16% of Bills were referred to Committees for detailed examination, a lower figure compared to previous Lok Sabhas.
- **Joint Parliamentary Committees (JPCs):** Four Bills were referred to JPCs, with one additional Bill (Surrogacy (Regulation) Bill, 2019) going to a Rajya Sabha Select Committee.
- **Timely Reports:** 50% of Committee reports on Bills were presented within 115 days. However, significant variations existed:
  - The Personal Data Protection Bill Committee took the longest, meeting 78 times over two years.
  - The Committees examining the Anti-Maritime Piracy Bill and the DNA Technology Regulation Bill took more than 1.5 years to submit reports.
- **Depth of Scrutiny:** Committees on average held nine meetings per Bill report. Excluding the Data Protection Bill, only the Biological Diversity Bill was discussed for at least 15 meetings. The three criminal law reform Bills were examined together over 12 meetings.



**Voting and Lapsed Bills:**

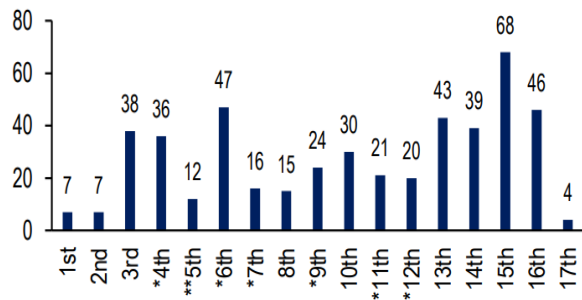
- **Minimal Recorded Voting:** The majority of Bills were passed without recorded voting. Only 9% of Bills involved at least one instance of recorded voting (including amendments and final passage). This figure was roughly the same during the 16th and 15th Lok Sabhas.
- **Lapsing Bills:** The fewest Bills (four) are set to lapse with the dissolution of this Lok Sabha, a record low.
- **Pending Bills:** Notably, the Pesticides Management Bill (2020) introduced in Rajya Sabha remains pending, along with 19 bills introduced there during previous Lok Sabhas. The oldest pending bill is a constitutional amendment from 1992.

**Bills passed with at least one instance of recorded voting**



Note: This figure excludes Constitutional Amendment Bills, where recorded voting is mandatory.

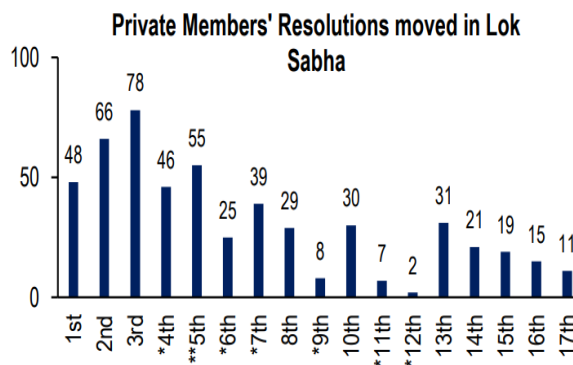
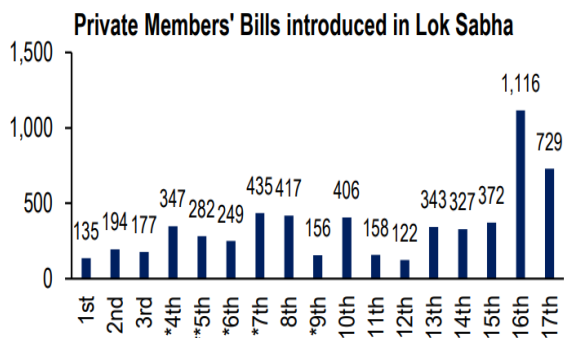
**Bills lapsing at the dissolution of Lok Sabha**



Note: \* indicates a term less than five years; \*\* indicates a six year term.

**Limited Scope for Private Members' Initiatives:**

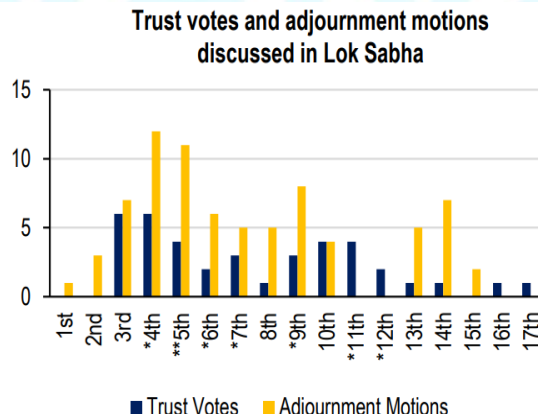
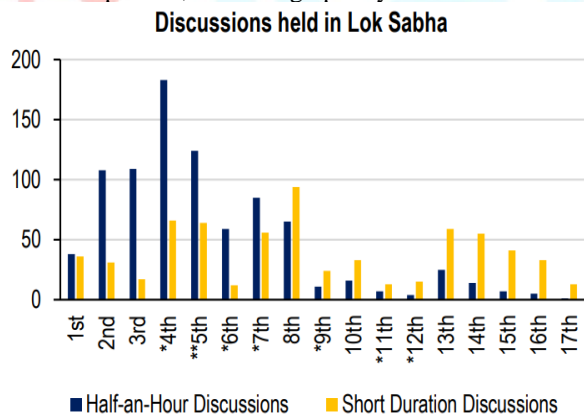
- **High Number of Introduced Bills:** 729 Private Members' Bills (PMBs) were introduced in the 17th Lok Sabha, which is higher than all previous Lok Sabhas, except the 16th. However, only two PMBs were debated in the Lok Sabha, and 14 in the Rajya Sabha. This reflects limited opportunities for individual MPs to propose legislation.
- **Focus of Introduced Bills:** Home Affairs (14%), Law & Justice (11%), Health (8%), and Education (8%) were the most frequent topics for PMBs introduced in the Lok Sabha. Notably, 16% aimed to amend the Constitution.
- **Limited Success of Resolutions:** Only 11 private member resolutions were introduced in the Lok Sabha, with only three being debated and none adopted. Over time, the adoption rate of such resolutions has declined, with only two successful resolutions since 1999.
- Till date, only 14 PMBs have been passed and received assent. None have been passed in both Houses since 1970.



Note: \* indicates a term less than five years; \*\* indicates a six year term.

**Nature of Discussions Beyond Legislation:**

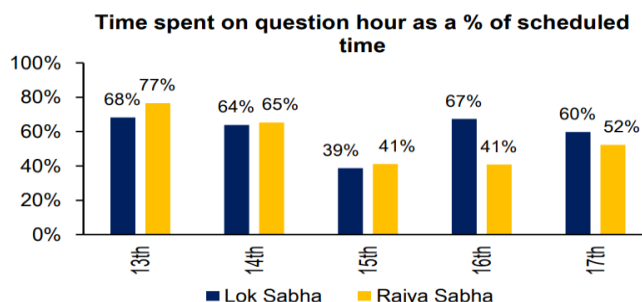
- **Time Allocation for Discussions:** Around 31% and 32% of the total functioning time in Lok Sabha and Rajya Sabha, respectively, was dedicated to discussions beyond legislation and budgets. These included debates on the President's Address, matters of public importance, and trust votes.
- **Special Discussions:** The 17th Lok Sabha held special discussions on topics like Parliament's 75th anniversary and India's space achievements. However, other discussions like those on beneficiaries of rural housing schemes were limited (one half-hour discussion in Lok Sabha). Both houses held short duration discussions on various issues, including climate change, price rise, and the situation in Ukraine.
- **Motions of No Confidence and Adjournment Motions:** A no-confidence motion was debated in the Lok Sabha for 20 hours in August 2023. Notably, neither the 16th nor 17th Lok Sabha considered any adjournment motions, which are used to halt regular proceedings and discuss urgent matters. Prior Lok Sabhas witnessed more frequent use of these motions (two in 15th and seven in 14th).
- **Ministerial Statements:** Compared to previous terms, fewer suo-motu statements by Ministers were made in the Lok Sabha (28) regarding matters of public interest (62 in 16th, 98 in 15th). These statements covered topics like the COVID-19 pandemic, border developments, and foreign policy.



Note: \* indicates a term less than five years; \*\* indicates a six year term.

**Question Hour Performance:**

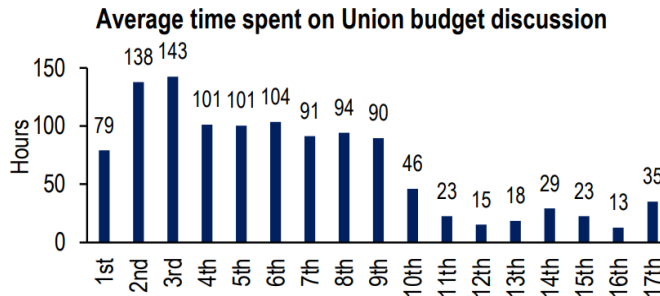
- **Limited Functioning:** Question Hour, a crucial platform for MPs to hold the government accountable, functioned for only 60% of scheduled time in the Lok Sabha and 52% in the Rajya Sabha.
- **Reduced Ministerial Responses:** Only 24% of questions listed for oral response received answers from Ministers in the Lok Sabha (compared to 31% in Rajya Sabha). Notably, the pandemic led to a complete cancellation of Question Hour in the Monsoon Session 2020 (written responses were allowed for unstarred questions) and no questions were permitted in the Special Session 2023.





**Budget Discussions:**

- **Declining Time Allocation:** Over the years, the time dedicated to discussing the annual budget in the Lok Sabha has shrunk. The 17th Lok Sabha spent an average of 35 hours discussing the budget.
- **Limited Scrutiny:** On average, around 80% of the budget was passed without any discussion. In 2023, the entire budget was passed without discussion, which has occurred twice in the last decade (2013 and 2018).



Note: This includes time spent on the general budget and the discussion on departmental expenditure. From 2017, the Railway budget was merged with the general budget. Interim budgets have been excluded from the computation.

**Committee Activity:**

- **Number of Meetings:** During the 17th Lok Sabha, Parliamentary Committees (both Financial and Department-related Standing Committees) held approximately 1,700 meetings, with an average duration of two hours per meeting. Financial Committees focus on government finances and expenditures, while DRSCs examine specific sectors and budgets of individual ministries. Additionally, Committees assess the government's implementation of their prior recommendations (Action Taken Reports or ATRs).
- **Committee Reports:** The three Financial Committees presented around 180 reports, and the 24 DRSCs submitted about 1,100 reports. Notably, 19% of DRSC reports focused on topics beyond Bills and budgets. Half of all Committee reports were related to Action Taken Reports.
- **Timely Reports on Expenditure:** Between 2020 and 2023, 32% of reports on proposed expenditures were presented before the budget was passed, allowing for some pre-budgetary scrutiny.

**Types of reports presented by Committees during the 17th Lok Sabha**

Report Type	Financial Committees	DRSCs
Action Taken Reports	46%	48%
Demands for Grants (or budgets)	3%	31%
Subjects	51%	19%
Bills	0%	2%

[https://prsindia.org/files/parliament/vital\\_stats/Functioning-17th\\_Lok\\_Sabha.pdf](https://prsindia.org/files/parliament/vital_stats/Functioning-17th_Lok_Sabha.pdf)

**Performance Analysis of the 17th Lok Sabha (June 2019 - February 2024)**

This analysis dissects the functioning of the 17th Lok Sabha, highlighting both its achievements and limitations.

**Positives:**

- **High Overall Functioning:** The Lok Sabha functioned for a commendable 88% of its scheduled time, exceeding the Rajya Sabha's record. This signifies a commitment to legislative activity.
- **Passage of Landmark Bills:** Several crucial bills were passed, including the Women's Reservation Bill, the J&K Reorganisation Bill, and criminal law reforms. This legislative output addressed key national concerns.
- **Speedy Passage of Bills:** A significant number of bills were passed expeditiously, with many being approved within two weeks of introduction. This demonstrates efficiency in the legislative process.
- **Low Lapsing Bills:** The number of bills lapsing with the dissolution of the Lok Sabha was the lowest ever, indicating effective management of legislative business.
- **Increased Committee Activity:** Parliamentary Committees held a substantial number of meetings (around 1,700) to scrutinize government proposals and budgets.

- **Timely Committee Reports on Expenditure:** Over 30% of reports on proposed expenditures were presented before budget finalization, enabling informed budgetary decisions.

#### Limitations:

- **Limited Sittings and Early Adjournments:** Despite the high overall functioning percentage, the 17th Lok Sabha had the fewest sittings compared to previous full-term Lok Sabhas. Additionally, early adjournments of sessions resulted in missed opportunities for deliberation.
- **No Deputy Speaker:** The absence of a Deputy Speaker for the entire term is a constitutional violation that could potentially impact the smooth functioning of the House.
- **High Disruptions and Suspensions:** The frequent disruptions and suspensions of MPs raise concerns about decorum and hinder productive legislative debate.
- **Limited Scrutiny of Bills:** Only a small fraction of bills were referred to Committees for detailed examination, potentially compromising the quality of legislation. Delays in committee reports further restrict proper scrutiny.
- **Limited Debate on Bills:** A large number of bills were passed with minimal discussion, particularly in the Lok Sabha. This raises questions about the depth of legislative consideration.
- **Reduced Scope for Private Members' Initiatives:** Limited opportunities were available for individual MPs to introduce and debate their proposed legislation (Private Members' Bills)
- **Reduced Question Hour Performance:** Question Hour, a key tool for holding the government accountable, functioned for a smaller portion of its scheduled time. Additionally, a decline in ministerial responses to oral questions undermines its effectiveness.
- **Decreased Time for Budget Discussions:** The time spent on discussing the annual budget has significantly shrunk, potentially limiting a comprehensive examination of government spending plans. In one instance, the entire budget was passed without discussion.
- **Missed Discussion on Student Suicides:** The Winter Session 2023 of the Rajya Sabha missed a crucial opportunity to discuss student suicides due to competitive exams. This exemplifies a missed chance to address societal concerns through parliamentary channels.

#### Way Forward:

The constructive suggestions to build upon the 17th Lok Sabha's achievements:

- **Optimizing Session Scheduling:** Reviewing session schedules to minimize early adjournments and ensure a consistent calendar for legislative business.
- **Enhancing Committee Scrutiny:** Encouraging the referral of a higher proportion of bills to committees for in-depth examination, potentially establishing timeframes for committee reports to expedite the process.
- **Facilitating Meaningful Debates:** Allocating dedicated time for debates on key bills, potentially through structured discussions or thematic sessions, while promoting a culture of respectful discourse within the House.
- **Empowering Private Members:** Exploring avenues to increase opportunities for individual MPs to introduce and debate their proposed legislation, fostering a more inclusive legislative environment.
- **Strengthening Question Hour:** Implementing measures to improve the functioning of Question Hour, such as ensuring the availability of Ministers for oral responses and exploring innovative formats to enhance its effectiveness.
- **Prioritizing Budget Scrutiny:** Dedicating a sufficient timeframe for detailed discussions on the annual budget to enable a thorough examination of government spending proposals.

By implementing these suggestions, future Lok Sabhas can build upon the positive aspects of the 17th Lok Sabha's performance and create a more robust and inclusive legislative environment that fosters informed decision-making. The focus should be on fostering collaboration between the government and opposition, while ensuring effective parliamentary oversight and meaningful engagement from individual MPs. This collaborative approach, coupled with a commitment to constructive debate and efficient processes, can lead to a stronger and more responsive legislature.

### 1.2 The Uniform Civil Code (UCC)

On February 7, 2024, the Legislative Assembly of the state of Uttarakhand in India passed the Uniform Civil Code (UCC) Bill. On March 13, the bill was granted assent by President Droupadi Murmu. It aims to replace the religious personal laws that govern marriage, relationships, and inheritance among other matters. Uttarakhand becomes the first state in the country after independence to adopt UCC.

The Uttarakhand Uniform Civil Code (UCC) Bill 2024 is a significant piece of legislation that has been passed by the Uttarakhand Assembly. Some of the key features of the bill:

- **Applicability:** The bill applies to all residents of Uttarakhand, except the tribal community.
- **Marriage:** The bill mandates the compulsory registration of marriages within 60 days of solemnization.
- **Live-in Relationships:** The bill aims to regulate live-in relationships by imposing an obligation to register them.
- **Prohibition of Bigamy or Polygamy:** The bill prohibits bigamy or polygamy.
- **Legal Recognition of Children:** The bill eliminates distinctions between legitimate and illegitimate children.
- **Inheritance:** The bill ensures equal property rights for sons and daughters.

- **Criminalization of Some Marriage Practices:** The bill criminalizes certain existing personal law practices governing marriage and divorce.
- **Divorce Proceedings:** Men and women have been accorded similar rights with respect to divorce

### What is the UCC?

The UCC proposes a **singular set of secular laws** governing personal matters like marriage, divorce, inheritance, adoption, and succession. This code would **supersede the existing religion-specific personal laws** currently followed in India.

### Historical Context

The concept of a UCC has been debated in India since the colonial era.

- **British Rule and Legal Codification:** In 1835, the British government proposed codifying Indian law, excluding the personal laws of Hindus and Muslims. This laid the groundwork for the current system of differentiated personal laws.
- **The B N Rau Committee and Hindu Law Reform:** In 1941, the British government formed the B N Rau Committee to examine the need for a common Hindu law. The committee recommended a codified Hindu law that would grant equal rights to women. This led to the Hindu Succession Act of 1956, which reformed Hindu personal law and granted women greater property rights.

### Civil vs. Criminal Law and Personal Laws

- **Criminal Law:** Deals with offenses against the state or society. Violation of a right in rem (right against the world at large) can be a crime, leading to punishment (e.g., assault). India's criminal laws are **uniform and applicable equally** to all citizens, irrespective of religion.
- **Civil Law:** Civil laws in India are currently **influenced by religion**. Personal laws, derived from religious texts and applied in civil cases, operate within the framework of the Constitution. **Civil Laws deal** with personal rights and disputes between individuals (e.g., contracts, property inheritance). Violation of a right in personam (personal right) typically leads to monetary compensation.

### Personal Laws: Definition and Scope

Personal laws are legal frameworks applicable to specific groups based on their religion, caste, or faith. These laws are formulated after considering religious texts and customs.

- **Sources:** Hindu and Muslim personal laws find their roots in their respective ancient religious texts.
- **Scope:** Personal laws govern legal issues related to inheritance, succession, marriage, adoption, co-parenting, obligations within families, property partition, maintenance, guardianship, charitable donations (Hindu law), and wills, wakfs (religious endowments), dowry, guardianship, divorce, and pre-emption (Muslim law).
- The major personal law codes in India include:
  - **Hindu Personal Laws:** Governed by acts like the Hindu Marriage Act (1955) and the Hindu Succession Act (1956).
  - **Muslim Personal Laws:** Based on Islamic religious texts and Sharia principles.
  - **Christian Personal Laws:** Regulated by the Indian Christian Marriage Act (1872) and the Indian Succession Act (1925).

### Current Status of UCC in India:

The UCC is mentioned in **Article 44** of the Indian Constitution, categorized as a **Directive Principle of State Policy (DPSP)**. DPSPs outline the guiding principles for the Indian government to strive towards in creating a just and equitable society. While not judicially enforceable, they serve as a roadmap for achieving social harmony and national integration.

### The Uniform Civil Code (UCC) in India:

- Goa's UCC, based on the **1867 Portuguese Civil Code**, governs personal capacity, acquiring rights, property ownership, and enforcing those rights.
- The **Uniform Civil Code of Uttarakhand Act, 2024** aims to create a uniform set of rules for all citizens of the state (except Scheduled Tribes) regarding marriage, divorce, inheritance, and live-in partnerships.

### UCC in Landmark Supreme Court Judgments:

- **Shah Bano Begum (1985):** Upheld Muslim women's right to post-divorce maintenance, highlighting UCC's potential for gender equality and reducing religious discrepancies.
- **Sarla Mudgal (1995):** Prevented bigamy by Hindu men through religious conversion, emphasizing UCC's role in curbing such practices.
- **Shayara Bano (2017):** Declared instant triple talaq unconstitutional for violating Muslim women's dignity and equality. The case recommended a law regulating Muslim marriages and divorces, potentially laying the groundwork for a UCC.

### What will the UCC Do?

Proponents of the UCC envision it as a mechanism to:

- **Equality Mandate:** The UCC aligns with Article 44 of the Constitution, fulfilling the directive to strive for equal legal treatment (equality before the law) for all citizens, irrespective of religion. The UCC aims to ensure equal treatment for all citizens in matters of marriage, divorce, inheritance, and adoption.
- **Progressive Alignment:** The UCC aligns with the Supreme Court's progressive rulings promoting gender equality and inter-religious harmony, as seen in landmark cases like Shah Bano (1985) and Shaira Bano (2017).
- **National Cohesion:** A UCC strengthens the concept of "one nation, one law," fostering a unified Indian identity despite its diverse religious landscape.
- **Simplify legal landscape:** The UCC would streamline the currently complex system of personal laws based on religion (e.g., Hindu Code Bill, Sharia law). This translates to faster case resolution and reduced burden on the judiciary.



- **Successful Implementation:** Goa's successful implementation of a UCC governing all citizens, irrespective of religion, serves as a strong precedent for nationwide adoption.
- **Gender Equity:** UCC aligns with Ambedkar's vision, aiming to safeguard women and religious minorities. It has the potential to eradicate discriminatory practices embedded within existing personal laws regarding marriage, divorce, and inheritance. This promotes gender equality across religious communities.
- **Secularism and Equality:** Proponents argue that the UCC aligns with India's secular character by promoting **equal treatment** for all citizens regardless of religion. They view the application of different laws based on religion as discriminatory.

**Challenges to the UCC:** The potential implementation of the UCC is a contentious issue with arguments rooted in competing principles:

- **Religious Freedom and Cultural Preservation:** Critics argue that the UCC may violate fundamental rights:
  - **Article 25 (Right to Freedom of Religion):** The UCC could be seen as restricting communities' right to practice their religion, which often extends to personal matters.
  - **Article 29 (Cultural and Educational Rights):** The UCC might be perceived as a threat to communities' ability to preserve distinct cultural practices related to marriage, inheritance, etc.
- **Constitutional Limits:** The Constitution mandates the state to "endeavor" to achieve a UCC, not enforce it.
- **Nuances of Equality:** The Indian Constitution doesn't demand absolute uniformity in law. It recognizes the distinction between "equal treatment for equals" and "alike treatment for likes." Different personal laws for communities can coexist as long as they uphold constitutional principles.
- **Law Commission's View:** In 2018, the Law Commission of India (LCI) released a consultation paper on the **Reform of Family Law** in 2018 and opined that a Uniform Civil Code (UCC) is not necessary or desirable at present.
- **Threat to Multiculturalism:** The UCC could lead to a homogenization of laws, potentially jeopardizing India's unique multicultural character. It might also contradict special provisions granted to states like Nagaland and Mizoram. Additionally, the diverse religious and cultural practices of Scheduled Tribes could be undermined by a uniform code.
- **Group vs. Individual Rights:** The UCC debate hinges on balancing group rights (preserving community traditions) with individual rights (guaranteeing equal treatment for all citizens).
- **Majority vs. Minority Concerns:** Critics apprehend that the UCC, under the guise of uniformity, might favour the majority Hindu traditions while curtailing the rights of religious minorities.
- **Judicial Uncertainty:** The lack of consistent judicial pronouncements on the UCC further fuels the controversy surrounding its implementation.
- **Challenges of Diversity:** Enacting a UCC might be impractical given India's rich tapestry of personal laws and customs.

**Overcoming Challenges to the UCC:**

- **Nuance over Uniformity:** Scholars suggest a UCC as a set of principles with **optional variations** for specific practices, prioritizing a **just code** over absolute uniformity.
- **The Indian Family Code:** A possible solution is the **Indian Family Code (IFC)**, encompassing personal matters influenced by religion. This code would **unify core principles** while potentially allowing for some variations based on community.
- **Minority Reforms: Sensitive reforms** to minority religious laws are advocated, ideally initiated from within those communities to ensure inclusivity.
- **Accommodation and Choice:** A UCC with **flexibility** is envisioned, including **optional provisions** allowing individuals to choose between the UCC and their existing personal laws.
- **Progressive Reforms Within Communities: Internal reforms** to existing personal laws are seen as an alternative, focusing on eliminating discriminatory practices within religious codes.
- **National Integration as a Foundation: Enhancing national integration** through interfaith dialogue and education is seen as crucial for creating a climate conducive to a future UCC.
- **Balancing Rights with Uniformity:** The UCC's formulation should **meticulously uphold** constitutional **safeguards** for religious freedom and cultural rights. This might involve **clearly defined exemptions** for specific religious practices.
- **Phased Implementation:** A **gradual approach** is suggested, potentially starting with a common code for a specific aspect like inheritance before broader reforms.
- **Expert Guidance:** Establishing **expert committees** comprising legal scholars, religious leaders, and diverse community representatives is seen as essential for crafting a UCC that respects both national unity and individual freedoms.

**Conclusion:**

The UCC presents a complex challenge for India. Balancing the ideals of secularism, equality, and the right to practice one's religion requires a nuanced approach. Extensive consultations with religious communities, legal scholars, and civil society are crucial before formulating a UCC that is both inclusive and respectful of diverse traditions. Only through a collaborative effort can the UCC be translated into a reality that strengthens the fabric of Indian society.

### 1.3 India's Efforts to Combat Climate Change: Legal and Policy Framework

**Landmark Judgment:**

The Supreme Court of India issued a landmark judgment, *M K Ranjitsinh Vs Union of India*, on March 21, 2024, recognizing the right of citizens to be free from the adverse effects of climate change. This right finds its basis in Articles 14 and 21 of the Indian Constitution, which guarantees equality before the law and the right to life and personal liberty, respectively.

### Case Background:

#### The Case and the Arguments:

- **Background:** The critically endangered Great Indian Bustard is found in the States of Rajasthan and Gujarat, which also hold immense potential for solar and wind energy development.
- **Petition and Arguments:** Public interest litigation was filed seeking the conservation of the bustard. The petitioners argued that overhead power transmission lines posed a threat to the birds due to collision hazards. They sought a ban on further construction of such lines.
- **Government's Response:** The government contested the blanket ban, highlighting India's international commitments to renewable energy and carbon emission reduction. They argued the designated area was larger than the bustard's actual habitat and that undergrounding power lines was impractical. Additionally, they attributed the bustard population decline to other factors like poaching and habitat loss.

#### Court's Order and Recognition of a New Right:

- **Initial Order:** The Court imposed a temporary ban on overhead power lines in a vast area, including potential bustard conservation zones. It also ordered the undergrounding of existing lines.
- **Modified Order:** In response to the government's arguments, the Court modified its order. The Court established an expert committee to assess the feasibility of undergrounding power lines and identify bustard conservation measures.
- **Recognition of the Right:** In a historic move, the Court recognized the existence of a fundamental right to be free from the adverse impacts of climate change (hereinafter referred to as "the right"). The Court based this right on the fundamental rights to equality (Article 14) and life (Article 21) enshrined in the Indian Constitution.

#### Laws and Regulations To Protect the Environment:

- Numerous laws exist to protect the environment, including:
  - Wild Life (Protection) Act (1972)
  - Water (Prevention and Control of Pollution) Act (1974)
  - Air (Prevention and Control of Pollution) Act (1981)
  - Environment (Protection) Act (1986)
  - National Green Tribunal Act (2010)
- Energy Conservation Act (2001) was amended in 2022 for carbon credit trading.
- Electricity Act (2003) with Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules (2022) to encourage green energy.

#### Government Initiatives:

- **National Missions:**
  - National Solar Mission
  - National Mission for Enhanced Energy Efficiency
  - National Mission for a Green India
  - National Mission on Strategic Knowledge for Climate Change
- These initiatives aim to reduce emissions and promote sustainable practices.

#### Current Gap:

- No single law directly addresses climate change.

#### Right to a Clean Environment:

- Though no specific climate change right exists, the Constitution provides some protection:
  - **Article 48A:** State's duty to protect and improve the environment.
  - **Article 51A(g):** Citizen's duty to protect the environment.
  - **Article 21:** Right to life and liberty (interpreted to include environmental well-being).
  - **Article 14:** Equality before law (protects equal access to a clean environment).

#### Landmark Court Cases:

- **MC Mehta vs Kamal Nath (2000):** Right to clean air, water, and soil linked to Article 21.
- **Virender Gaur vs State of Haryana (1995):** Right to a clean environment as part of Article 21.
- **Karnataka Industrial Areas Development Board vs C Kenchappa (2006):** Recognized threats from rising sea levels and temperatures.
- **Bombay Dyeing & Mfg. Co. Ltd. vs. Bombay Environmental Action Group (2006):** Climate change as a major environmental threat.

#### The Need for a Distinct Right to a Healthy Environment and Freedom from Climate Change Impacts:



- Although numerous policies and court decisions address environmental concerns, a specific right against climate change effects is not yet articulated.
- The increasing severity of climate change necessitates a distinct right based on Articles 14 and 21.

### The Supreme Court's Rationale for Linking Climate Change and Human Rights:

- **Right to Life and Health:** A clean and stable environment is essential for realizing the right to life (Article 21) and its integral component, the right to health. Climate change threatens these rights through factors like air pollution, disease shifts, extreme weather events, and food insecurity.
- **Right to Equality:** Climate change disproportionately affects disadvantaged communities, violating the right to equality (Article 14). For example, rising sea levels and resource scarcity will have a harsher impact on poorer communities and indigenous populations who rely heavily on their environment for sustenance and cultural practices.
  - **Explanation with Examples:**
    - **Unequal Impact:** Climate change can exacerbate existing inequalities. Richer communities may have more resources to adapt to climate change (e.g., purchasing clean water during shortages), while poorer communities may suffer more.
    - **Indigenous Communities:** These communities are particularly vulnerable as climate change disrupts their traditional way of life and cultural practices deeply connected to the land. The loss of their environment can lead to displacement and cultural destruction.
- **Directive Principles:** The court emphasized that the Directive Principles of State Policy in the Indian Constitution, which mandate environmental protection, must be interpreted alongside the fundamental right to life and liberty (Article 21).
- **International Recognition of the Right:**
  - **UN Human Rights Bodies:** Several UN committees recognize states' obligations to address climate change through the lens of human rights. The right to a healthy environment is considered part of a state's duty of care towards its citizens.
  - **Paris Agreement:** The agreement acknowledges the link between climate change and various human rights, including health, indigenous rights, and development. It emphasizes the need for states to consider these rights when taking climate action.
  - **UN Environment Programme (UNEP):** The UNEP report outlines human rights obligations related to climate change, encompassing mitigation and adaptation efforts.
- **Right to a Healthy Environment:**
  - **Inter-American Court of Human Rights:** This court recognized the right to a healthy environment as a fundamental human right. It highlights the connection between environmental protection and enjoyment of other rights like life, health, water, and housing.
  - **Clean Energy and Gender Equality:** Access to clean energy is crucial for environmental sustainability and upholds human rights. Unequal energy access disproportionately affects women and girls due to their domestic responsibilities. Clean energy initiatives can promote both environmental and social well-being.
  - **Growing Recognition in International Human Rights Law:** There is a growing body of international human rights law (IHRL) research and pronouncements recognizing this link.
    - Notably, a 2005 petition by an Inuit activist to the Inter-American Commission on Human Rights (IACHR) highlighted the human rights violations stemming from climate change impacts.
  - **Climate Change and Future Generations' Rights:** Framing climate change as a threat to future generations' right to a habitable planet further strengthens the human rights connection.
- **India's Challenges:**
  - **Unequal Electricity Access:** The lack of reliable electricity supply in India hinders development and disproportionately affects vulnerable communities, including women and low-income households.
  - **Indigenous Communities:** Forest dwellers and indigenous communities face significant challenges due to climate change's impact on their environment and way of life.

### Significance of the Ruling:

This judgment holds immense significance for several reasons:

- **Nudge to Parliament:** These judgments nudge the Indian Parliament to enact stronger legislation addressing these concerns.
- **Legal Avenue for Citizens:** Judicial recognition empowers citizens to seek legal recourse through courts to enforce these rights and hold authorities accountable for environmental degradation.
- **Strengthening Environmental Justice:** The judgment focuses on the diverse impacts of climate change on various communities, promoting environmental justice.
- **Expanding Article 14:** The judgment builds upon the right to life under Article 21 by recognizing the right to a clean environment. It goes beyond pollution control and proactively addresses climate justice concerns in line with India's international commitments.
- **Set a Legal Precedent:** The judgment establishes a significant legal foundation for future environmental litigation.
- **Shape Public Discourse and Policy:** It has the potential to influence public discourse on environmental issues and guide future government policies on climate change and environmental protection.

- **Addresses Growing Vulnerability:** The Court acknowledges the increasing vulnerability of Indian citizens to climate change impacts, including floods, changing rainfall patterns, and heatwaves. Multiple studies, including those by the Intergovernmental Panel on Climate Change (IPCC), warn of rising risks associated with global warming.
- **Elevates Climate Change as a National Priority:** Previously, climate change remained largely on the periphery of political discourse, even during elections. This ruling elevates it to a pressing national challenge demanding immediate attention.
- **Shifts Ownership:** Traditionally, environmental concerns were primarily addressed by academics, civil society groups, and activists. The Court's decision encourages broader ownership of climate change mitigation efforts, urging a collective national response.
- **Connecting Rights and Mitigation:** The recent climate change ruling establishes a crucial link between human rights and global warming mitigation. The Court emphasizes that a clean environment, free from the disturbances caused by climate change, is essential for the full realization of the Right to Life. It further highlights the detrimental impact of climate change on health, citing factors like shifting patterns of vector-borne diseases, rising temperatures, droughts, crop failures, and storms.
- **Right Not Articulated:** The Court recognized the right but refrained from elaborating on its specific content. This approach, while seemingly unusual in environmental law, allows for future discourse and a more informed articulation of the right.
- **Benefits of Delayed Articulation:**
  - Encourages dialogue on climate rights.
  - Provides space for a comprehensive understanding of the right's content.
  - Avoids the creation of potentially imprecise rights.
- **Non-Binding Nature:** The recognition of the right is not included in the enforceable part of the judgment, limiting its immediate legal force. However, it is likely to shape future climate litigation and policy.
- **Just Transition Framework and Inclusive Climate Action:** The judgment presents an opportunity to utilize the just transition framework for achieving climate goals while ensuring equity. This framework focuses on:
  - **Aligning climate action with social justice**
  - **Protecting vulnerable communities**
  - **Creating a fair and inclusive transition to a low-carbon economy**

#### Challenges In Implementing the Healthy Environment and Freedom from Climate Change Impacts:

- **Conflicting Message on Energy Sources:**
  - The court ruling emphasizes expanding solar energy, potentially pushing the government towards cleaner energy sources.
  - However, India's continued stance on using coal plants and fossil fuels at international forums creates a contradiction.
  - The public might perceive this as a failure to address climate change seriously.
- **Difficulty in Enforcing New Rights:**
  - Even with judicial recognition, exercising new rights like a clean environment can be challenging.
  - For example, the right to clean air exists under Article 21, yet air pollution remains a major issue in India.
- **Inconsistent Government Action:**
  - Past rulings linking environment and human rights haven't always translated to strong government action.
  - Delhi's air pollution crisis exemplifies the gap between legal pronouncements and policy implementation.
  - Environmental concerns often receive attention only during emergencies, lacking proactive measures.
- **Climate Change and Development Challenges:**
  - Climate change with its increasing extreme weather events exposes vulnerabilities in Indian infrastructure.
  - This raises questions about the ecological sustainability of current development strategies.

#### Call to Action for Stakeholders:

- **Court Mandate for Climate Action:** A recent court ruling emphasizes the need for corrective measures to address climate change. This signifies a legal requirement for states to take action.
- **Multi-Stakeholder Collaboration:** The court's ruling is a call to action for all parties involved, including the government, civil society organizations, and private businesses. This emphasizes the importance of collaboration in tackling climate change.
- **Sustainable Development in India:**
  - India's approach to sustainable development acknowledges the complex interplay between environmental protection, social justice, economic growth, and climate change.
  - National goals require balancing immediate needs with long-term sustainability, ensuring actions today don't harm future generations.
- **Policy Recommendations for India:**
  - **Enhanced State Capacity:** A comprehensive climate change regulation can strengthen government action by allocating resources and assigning clear responsibilities to agencies. This mirrors successful framework laws documented by the London School of Economics and Political Science (LSE), leading to increased staffing, funding, and ambitious climate goals.
  - **Strengthened Climate Governance:** A framework law can improve climate governance by establishing robust institutions and clear processes, facilitating more ambitious climate action.
  - **Distributed Accountability:** A framework law promotes stricter accountability across all government levels (central, state, local) for climate action.

- **Improved Policy Coherence:** A knowledge-sharing platform for India's states and union territories can enhance policy consistency and effectiveness for national climate action.

### Conclusion:

The Supreme Court's ruling represents a significant development in India's legal and environmental landscape. By recognizing the right against climate change impacts, the Court establishes a powerful framework for holding the government accountable for environmental protection and ensuring a healthy planet for future generations.

### 1.4 The Need for Holistic Climate Change Legislation in India

India faces a significant challenge in combating climate change. Despite the Supreme Court recognizing the right to protection from its effects, a critical gap exists in Indian law.

#### Need for Holistic Climate Change Legislation in India:

- **The Supreme Court's Recognition of the Legislative Gap**
  - The Supreme Court's ruling in *Great Indian Bustard* acknowledges the absence of a comprehensive law in India that addresses climate change and its associated issues.
  - While the Court recognizes the right to protection from the adverse effects of climate change, the Indian Constitution lacks an explicit legislative entry or a centralized framework for tackling environmental and climate challenges. This is despite numerous government policies and judicial decisions highlighting the detrimental consequences of climate change.
- **The Limited Environmental Vision Reflected in the Constitution:**
  - The discussion surrounding **Article 297** during the Constituent Assembly in 1949 exemplifies a limited perspective on environmental resources.
  - The initial focus on "things of value" within territorial waters expanded to encompass water ownership, reflecting a resource-centric view.
  - Ananthasayanam Ayyangar's statement regarding water ownership appears to be influenced by a colonial mindset that viewed the environment as a collection of resources for limitless human exploitation.
  - This anthropocentric approach, evident in the Constitution, fails to recognize the environment as a complex system greater than the sum of its parts.
- **Fragmented Legislative Power and The Need for Holism:**
  - The Indian legislative system exhibits fragmented power regarding environmental issues.
    - **Entry 17 of the State List** grants states legislative authority over "water," but this understanding is confined to aspects like water supply, irrigation, and storage.
    - The environment is not viewed holistically, and there is no clear source of power to safeguard it or mitigate climate change.
  - While Parliament holds the residuary power to legislate on unlisted subjects (**Article 253**), environmental legislation often relies on this for international treaty implementation.
    - The Environment Protection Act (1986), for instance, was enacted under Article 253 to enforce decisions made at the Stockholm Conference (1972).

#### Strengthening India's Federal Structure to Address Climate Change

- **Environment in Concurrent List:** The Constitution should include "environment" in the Concurrent List, allowing both central and state governments to enact environmental laws.
- **Decentralized Decision Making:** Decision-making should be decentralized, with a strong role for local governments due to the varying vulnerabilities of different regions to climate emergencies. For example, recent droughts in Bijapur contrasted with floods in Belgaum (Karnataka) highlight the localized impacts of climate change.
  - **Challenges of State Action:**
    - While some states prioritize climate action with plans and capacity building, implementation is hindered by a lack of central government funding.
    - This financial disparity creates a gap between states' ability to respond to emergencies and the resources allocated by the centre.
  - **Proposed Solution:** A fundamental reimagining of Indian federalism is necessary to address climate change. This aligns with the principle of subsidiarity, where decisions are made at the most appropriate level. This principle should be central to developing a "new India" that effectively tackles climate challenges.
- **Just Transition Framework in Climate Change Legislation:**
  - **Overcoming Adversarial Framing:** It shifts the focus from a confrontational approach to "inclusive climate action" that considers various rights and perspectives.
  - **Promoting Inclusive Climate Rights:** This framework can guide the development of more comprehensive climate rights that consider the well-being of both humans and the environment.
  - **Ecological Justice:** By applying it in climate change lawsuits, it ensures that these rights consider the interests of nature, promoting ecological justice.

By working together and embracing a just transition framework, India can strike a better balance between protecting its rich biodiversity and addressing the urgent challenge of climate change.

## 1.5 A Growing Trend of Climate Change Litigation in India and the World

On April 6, 2024, the Supreme Court issued a landmark judgment with the potential to invigorate climate litigation in India. The court established a fundamental right to be free from climate change's harmful effects, rooted in existing guarantees of life and equality.

The court acknowledged that the **right to clean air and environment** was already established in Indian legal principles. However, considering the escalating "havoc" caused by climate change, the court deemed it necessary to establish a distinct right protecting people from its detrimental effects.

### Background of the Case:

Interestingly, the case that triggered this landmark ruling focused on the conservation of the Great Indian Bustard, an endangered bird. However, the court strategically used the opportunity to broaden the case's scope and address the wider public concern over climate threats.

### Global Surge in Climate Litigation:

The Supreme Court's articulation coincides with a global phenomenon – a surge in the number of individuals and groups seeking legal recourse for climate change-related issues. This trend is fueled by two key factors:

1. **Inadequate Government and Corporate Action:** Many perceive government and corporate actions on climate change mitigation to be insufficient.
2. **Increased Impact on People:** As the consequences of climate change become more tangible, people are directly experiencing its detrimental effects. This motivates them to seek legal remedies.

### Statistics on Climate Litigation:

The 2023 edition of the **Global Climate Litigation Report**, published by the **UN Environment Programme**, highlights this trend. It identifies a significant rise in climate-related cases globally.

Year	Number of Cases	Number of Countries
2017	884	24
2020	1,550	39
2023	2,180	65

- The figures in the table represent the number of climate-related legal proceedings ongoing in courts, tribunals, and other adjudicatory bodies across the countries.
- **Developed vs. Developing Countries:** While developed countries, particularly those in the US and Europe, account for a significant portion of these cases, developing nations are also witnessing a rise in climate litigation. India, with 11 documented cases, ranks 14th on the list of countries with the highest number of climate-related legal proceedings.
- **Strategies Used in Litigation:** A common approach employed in these cases is invoking rights-based frameworks. Similar to the approach adopted by the Indian Supreme Court, petitioners often cite fundamental rights like right to life, health, and human rights to advocate for stricter climate action.
- **Examples of Successful Cases:**
  - **Urgenda Foundation vs. State of the Netherlands (2019):** The Dutch Supreme Court ordered the government to reduce greenhouse gas emissions to protect the right to life and family life under the European Convention on Human Rights.
  - **Sacchi et al. vs. Argentina et al. (2019):** A communication to the UN Committee on the Rights of the Child argued that several countries failed to adequately reduce emissions and violated children's rights. The committee acknowledged state responsibility for controlling emissions and transboundary harm but deemed the communication inadmissible due to lack of exhausted domestic remedies.
  - **Ioane Teitiota vs. The Chief Executive of the Ministry of Business, Innovation and Employment (2019):** The Supreme Court of New Zealand denied refugee status to a man from Kiribati fearing displacement due to rising sea levels. The court found no evidence of the Kiribati government failing to protect its citizens and left the door open for future successful claims based on climate change.

### Beyond Rights-Based Claims:

Climate litigation encompasses various legal strategies.

- **Rights-Based Energy Transitions:** Climate change litigation can promote a shift towards cleaner energy sources and ensure energy justice, aligning with human rights principles.



- **UNFCCC Obligations:** The UNFCCC (United Nations Framework Convention on Climate Change) emphasizes the responsibility of developed countries to take the lead in addressing climate change due to their historical emissions and capabilities.
- **Global Trend of Climate Change Litigation:** Courts worldwide are increasingly involved in cases related to climate change, environmental degradation, pollution, and infrastructure projects.
- **Targets of Climate Litigation:**
  - **Governments:** Lawsuits can target governments for failing to enforce existing climate laws and policies.
  - **Corporations:** They can be sued for:
    - **Liability:** Holding them financially responsible for climate-related damages.
    - **Compensation:** Seeking financial reimbursement for losses caused by climate change.
    - **Greenwashing:** Taking legal action against companies making false claims of environmental friendliness.

### Impact of Climate Litigation:

The rising number of climate-related cases is raising awareness within court systems, potentially leading to more rulings in favour of environmental protection. While these verdicts may enhance the accountability of governments and corporations, their impact on mitigating the global threat of climate change remains a complex issue.

### 1.6 The Prevention of Money Laundering Act (PMLA)

The Prevention of Money Laundering Act (PMLA), enacted in 2002, has undergone significant amendments under both UPA and NDA governments. These amendments strengthened the ED's powers and imposed stricter bail conditions. The Supreme Court ultimately upheld these provisions in 2021.

#### The PMLA's (2002)

- The Prevention of Money Laundering Act, 2002 (PMLA), enacted by the Parliament of India, serves as a crucial legal framework to combat money laundering.

#### Objectives:

- **Prevent and Control Money Laundering:** The Act's primary objective is to combat money laundering activities within India, specifically the laundering of illicit funds generated through international drug trafficking.
- **Confiscate and Seize Laundered Property:** It provides for the confiscation and seizure of property derived from or involved in money laundering.
- **Address Other Money Laundering-Related Issues:** The Act also deals with any other issues connected to money laundering in India.

#### Enforcement Authority:

- The Enforcement Directorate (ED) is the central agency responsible for investigating, prosecuting, and adjudicating offenses under the PMLA.

#### Key Provisions:

- **Offence of Money Laundering (Section 3):** It defines money laundering as the process of concealing, acquiring, possessing, or using proceeds of crime. It covers activities related to scheduled offenses, where the proceeds are involved in money laundering.
- **Punishment for Money Laundering (Section 4):** It prescribes 3-10 years imprisonment and a fine up to ₹5 lakh for money laundering, with harsher penalties for specific offenses.
- **Schedule of Offences:** The PMLA outlines specific predicate offenses (crimes generating the laundered money). This schedule includes drug trafficking, corruption, and other serious crimes.
- **Attachment of Assets:** The ED can freeze or attach assets suspected to be proceeds of crime. These assets remain unavailable to the owner until the case is resolved.
- **Search, Seizure, and Arrest Powers:** Similar to the police, the ED can conduct searches, seize evidence, and make arrests in money laundering cases.
- **Strict Bail Conditions:** Obtaining bail is difficult in PMLA cases. The accused must convince the court they have a weak case against them and pose no flight or witness tampering risk.
- **Presumption of Guilt (2012 Amendment):** The burden of proof falls on the accused to demonstrate the legality of suspicious funds. This creates a presumption of guilt in some cases.
- **Reporting Requirements:** Banks, financial institutions, and other designated entities must report suspicious transactions to the Financial Intelligence Unit (FIU-IND).

#### International Initiatives Leading to the PMLA (1988-1998):

- **1988:** The UN recognizes the seriousness of drug trafficking and money laundering. It adopts the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. This compels member states to take action against laundering money from drug crimes.



- **1989:** The Financial Action Task Force (FATF) is formed by seven major industrialized nations. Its purpose is to address money laundering and suggest counter-measures.
- **1990:** The UN General Assembly strengthens the call for national laws against drug money laundering by passing a resolution.
- **UN Special Session (1998):** Highlighting the international nature of drug trafficking, the UN held a special session in 1998, emphasizing the continued importance of fighting money laundering.

#### India's Response: Enacting the PMLA (1998-2005):

- **India's PMLA:** The Indian government created the Prevention of Money Laundering Act (PMLA) following the UN resolution urging national legislation against drug money laundering.
- **FATF Recommendations:** The PMLA's foundation is based on recommendations from the Financial Action Task Force (FATF), established to combat money laundering.

#### The PMLA's Legislative Basis and Scope Creep:

- **PMLA's Enactment:** The Indian Parliament passed the Prevention of Money Laundering Act (PMLA) in 2002 under Article 253 of the Constitution. While the PMLA was enacted in 2002, its enforcement only began in 2005.
- **Article 253:** This article grants Parliament the power to make laws for fulfilling India's obligations under international agreements.
- **Limits of Article 253 and Union List:** However, this power isn't unlimited. Both Article 253 and Item 13 of the Union List (in the Seventh Schedule) specify that such legislation should only address matters covered by the international agreement itself.
- **UN Resolution and Drug Money Laundering:** The UN resolution that inspired the PMLA specifically focused on combating drug money laundering.

#### Judicial Examination:

- **Strict Bail Provision in PMLA Act:** Section 45 of the Prevention of Money Laundering Act (PMLA) added in 2012 amendment sets a high bar for granting bail.
- **Supreme Court Strikes Down Provision:** In 2018's *Nikesh Tarachand Shah case*, the Supreme Court found this section violated the Constitution's guarantees of equality (Article 14) and personal liberty (Article 21).
- **Parliament Reinstates Provision:** The government quickly passed amendments to bring the provision back.
- **Supreme Court Upholds New Provision:** In 2022's *Vijay Madanlal Choudhary case*, the Supreme Court (led by Justice Khanwilkar) accepted the amended provision as reasonable for achieving PMLA's goals.

#### Current Status and Scrutiny:

- **2022 Judgment Prevails:** The Supreme Court's 2022 decision is the current legal authority on the PMLA.
- **Certain Aspects Under Review:** Some aspects, like the ED not being required to disclose an Enforcement Case Information Report (ECIR) like a police FIR, are under review.
- **Core Framework in Effect:** The Court's core legal framework established for the PMLA is currently operational.

**Evolution of a Powerful Tool:**

<b>2002 Act: Targeting Drug Money Laundering</b>	<b>2009 Amendment: Broadening the ED's Reach</b>	<b>2012 Amendment: Stricter Procedures and Wider Scope</b>
<p>The PMLA initially focused on combating drug money laundering through offenses listed in:</p> <ul style="list-style-type: none"> <li>• The Indian Penal Code (IPC)</li> <li>• The Narcotic Drugs and Psychotropic Substances Act (1985)</li> </ul>	<p><b>Schedule Expansion:</b> "Criminal conspiracy" (IPC Section 120B) is added to the PMLA's list of offenses.</p> <p><b>Enhanced Enforcement:</b> This allows the Enforcement Directorate (ED) to investigate cases involving conspiracy allegations, even if the underlying crime isn't related to money laundering.</p> <p><b>Cross-Border Tracking:</b> The ED gains the ability to track laundered money internationally.</p> <p><b>Example:</b> The ED could investigate alleged land-grabbing in Jharkhand (based on Section 120B IPC) to pursue its case against former Chief Minister Hemant Soren.</p>	<p><b>PCA Upgraded, 1988:</b> The Prevention of Corruption Act (PCA) is moved from Part B to a stricter section (Part A) of the PMLA schedule, resulting in stricter bail conditions for corruption offenses.</p> <p><b>Stricter Bail Standards (Section 45(1)):</b></p> <ul style="list-style-type: none"> <li>• Courts must consider the prosecution's arguments before granting bail.</li> <li>• Bail is granted only if there's a reasonable belief the accused is innocent and poses no future offense risk.</li> </ul> <p><b>Expanded Money Laundering Definition:</b> The definition now includes activities like concealment, acquisition, possession, and use of proceeds of crime.</p> <p><b>Presumption of Money Laundering:</b> The burden of proof shifts to the accused. They must demonstrate the legality of detected proceeds of crime.</p>

**Concerns:**

- **Strict Bail (2012):** Tougher bail rules for PMLA (Part A) lead to lengthy detentions before trial, like those faced by Bhujbal, Jain, and Sisodia. Critics see this as punishment before conviction.
- **Presumed Guilty (2012):** Accused in money laundering must prove their innocence, raising concerns about punishing those who unknowingly receive dirty money.
- **ED's Extra Powers:** The Enforcement Directorate (ED) operates outside regular police procedures. This grants them broad search, seizure, arrest, and asset freeze powers without following standard safeguards. Unlike police confessions, statements to the ED are admissible in court (confirmed in *Vijay Madanlal Choudhary* case).
- **Strict Bail Conditions Under PMLA:** The PMLA, like the Unlawful Activities (Prevention) Act (UAPA), sets a high bar for bail.
  - **"Negative" Bail Provision (Section 45):** The accused is presumed to be denied bail unless they prove two things:
    - **No "prima facie" case:** They must show there's not enough evidence to suggest money laundering involvement.
    - **No future offense risk:** They must convince the court they won't commit further crimes if released.
- **Concern About Less Serious Offenses:** A question remains about applying the strict bail rules to minor offenses listed under PMLA.
- **Balancing Individual Rights and Societal Needs:** Courts recognize the government's right to list offenses under PMLA, but they focus on technical legal aspects when considering bail in PMLA cases.
- **Shifting Bail Stance:** Supreme Court's bail approach, particularly in PMLA cases, has drastically changed. Justice Krishna Iyer (1978) emphasized liberty (*Gudikanti Narasimhulu* case), while Justice Khanwilkar represents a stricter view.
- **PCA's Inclusion (2009):** PMLA now applies to corruption offenses under the Prevention of Corruption Act (PCA), raising fairness concerns due to the differing nature of these crimes.
- **Broadened Scope:** The PMLA's reach has significantly grown beyond its initial target of drug money laundering.
- **Expanded Definition:** The definition of "proceeds of crime" now includes those not directly involved in the original crime but participate later in laundering.
- **Deviation from Core Aim:** The biggest concern is including offenses unrelated to the PMLA's original purpose of tackling drug money laundering, which as per UN resolutions and FATF recommendations, was critical to prevent threats to global economies and national security.

**Proposed Solutions for PMLA Concerns:**

- **Revise Section 45 to create a risk-based bail framework:**
  - Bail conditions based on offense severity and case strength.
  - Clear timelines for investigations to prevent lengthy detentions.
- **Shift the burden of proof back to the prosecution:**
  - When the accused demonstrates a lack of knowledge about funds.
  - Clearer guidelines for courts to assess "reasonableness" of money laundering suspicion.
- **Enhance transparency and accountability:**

- Stricter judicial oversight of ED investigations and prosecutions.
- Ensure adherence to fundamental rights during ED investigations.
- **Review the PMLA schedule:**
  - Categorize offenses based on severity.
  - Stricter bail conditions reserved only for serious offenses.
- **Promote a more balanced approach:**
  - Train judges on PMLA complexities.
  - Develop clearer guidelines for weighing bail interests.
  - Advocate for upholding the presumption of innocence and individual liberty.
- **Create a separate framework for the PCA:**
  - Ensure proportionality and fairness in applying anti-money laundering measures to corruption offenses.
- **Revisit the PMLA schedule:**
  - Align the PMLA's scope with core objectives.
  - Focus on combating drug money laundering and fulfilling international commitments.
  - Address other economic offenses through separate legislation.

Implementing these solutions requires collaboration between the government, judiciary, and legal experts. Open discussions and a commitment to upholding the principles of fairness and individual rights are crucial for ensuring the PMLA's effectiveness while protecting fundamental rights.

### 1.7 The Katchatheevu Island Dispute: A Historical and Strategic Perspective

The recent controversy surrounding the Katchatheevu island was ignited by the politicization of the issues during the Lok Sabha election.

Katchatheevu is a 285-acre island in the Palk Strait 33 km off the Indian coast, claimed by both India and Sri Lanka since at least 1921. It has religious significance due to the presence of a 120-year-old St. Anthony's Church attracting devotees from both India and Sri Lanka. The island itself holds minimal strategic or economic value, lacking resources like fresh water or infrastructure.

#### Historical Claims:

- **Ramnad Zamindari:** The author asserts Katchatheevu's history as part of the Indian territory under the Ramnad Zamindari since at least the 13th or 14th century.
- **British Leases and Legal Judgments:** Leases granted to the Dutch and British East India Companies, along with court judgments, are presented as evidence of Katchatheevu's Indian sovereignty.
- **1922 Dispute:** The disagreement with Sri Lanka arose from a claim by Ceylon's Principal Collector of Customs in 1921, contested by the Indian delegation.

#### Negotiated Outcomes:

- **Indo-Lanka Fisheries Line:** Though not an official maritime boundary, a provisional fisheries line was established three miles west of Katchatheevu.
- **Ceding Katchatheevu:** The author suggests Indira Gandhi strategically agreed to cede the island with minimal value to secure other benefits.

#### Cession of Katchatheevu by India to Sri Lanka and Katchatheevu Island Dispute:

In 1974 and 1976, under Prime Ministers Indira Gandhi (India) and Sirimavo Bandaranaike (Sri Lanka), agreements were signed to settle the dispute.

- **1974 Agreement:**
  - **Cession of Katchatheevu:** India ceded Katchatheevu to Sri Lanka in 1974.
  - **Indian Fishing Rights:** The agreement granted Indian fishermen "access to Katchatheevu for rest, drying nets, and the annual festival," but fishing rights were not explicitly mentioned.
- **1976 Agreement and Maritime Boundary:**
  - **Wedge Bank:** Negotiations led to a separate agreement in 1976, establishing the maritime boundary between India and Sri Lanka. This granted India sovereign rights over the strategically important 'Wedge Bank' near Kanyakumari, a rich fishing ground.
  - **Sri Lankan Fishing Rights in Wedge Bank:** As a goodwill gesture, India allowed a limited number of Sri Lankan boats to fish in the Wedge Bank for three years, with restrictions on catch and exploration activities.
  - They also established maritime boundaries in the Gulf of Mannar and the Bay of Bengal, defining exclusive economic zones (EEZs) for each nation.
  - Within their respective EEZs, both countries hold sovereign rights over living and non-living resources.
  - Fishing by vessels from either nation is prohibited in each other's territorial waters and EEZs.



- **Post-Agreement Scenario (1970s-1990s):**
  - **Focus on Territorial Boundaries:** Initial agreements prioritized resolving territorial claims, resulting in Katchatheevu going to Sri Lanka and the resource-rich Wedge Bank becoming part of India's exclusive economic zone.
  - **1990s and Increased Fishing Activity:** The 1990s witnessed a rise in bottom-trawling by Indian fishermen in the Palk Strait, coinciding with Sri Lanka's preoccupation with the LTTE civil war. This led to Indian boats frequently entering Sri Lankan waters.
  - **Tamil Nadu's Demands:** In 1991, the Tamil Nadu Assembly sought Katchatheevu's return and restoration of traditional fishing rights for Indian Tamil fishermen. However, the Sri Lankan civil war prevented further action.
- **Renewed Tensions After 2009:**
  - **Increased Arrests and Boat Seizures:** Following the war's end in 2009, Sri Lanka's navy stepped up patrols, arresting Indian fishermen and seizing their boats for violating maritime boundaries due to depleting fish stocks in Indian waters.
  - **Political Repercussions:** These incidents triggered fresh demands from Tamil Nadu's political parties (DMK and AIADMK) for Katchatheevu's retrieval.
- **Resurfacing Controversy:** The Bharatiya Janata Party (BJP) reignited the Katchatheevu debate in Tamil Nadu before the Lok Sabha elections, accusing the Congress and DMK parties of surrendering the island to Sri Lanka.

#### Legal Challenges and Government Position on Katchatheevu:

- **Court Challenges:**
  - **Petitions by Tamil Nadu Chief Ministers:** Both J. Jayalalithaa (2008) and M. Karunanidhi (within the last 15 years) challenged the 1974 agreement in the Supreme Court.
  - **Jayalalithaa's Arguments (2008):**
    - **Constitutional Violation:** The cession of Katchatheevu required a constitutional amendment, which did not happen.
    - **Fishermen's Rights:** The agreement infringed upon Indian fishermen's traditional fishing rights in the area.
- **Government's Position:**
  - **Disputed Territory:** India maintains Katchatheevu was a disputed territory before the agreements, so no Indian land was ceded.
  - **2014 Attorney General Statement:** The government argued retrieving Katchatheevu would likely lead to war and considered the issue closed.
  - **2022 Update:** The government maintains the agreements placed Katchatheevu within Sri Lanka's maritime boundaries. The Supreme Court case is still ongoing.

#### Berubari Union Case:

The **Berubari Union case** was a significant legal dispute between India and Pakistan concerning the possession of the Berubari Union, a small area within the Jalpaiguri district of West Bengal. Pakistan claimed that a portion of the Berubari Union belonged to it.

**Nehru-Noon Agreement (1958):** To resolve the dispute, India and Pakistan entered into the Nehru-Noon Agreement in 1958. This agreement divided Berubari Union, India kept half and gave 4 Cooch Behar enclaves to Pakistan.

#### Issues Before the Court:

The main legal questions brought before the Supreme Court of India were:

- Whether the Indian parliament had the power to cede territory to a foreign country under the Indian Constitution.
- Whether legislative action was necessary for implementing the Nehru-Noon Agreement.

#### Arguments:

- The government contended that it was not ceding territory but rather exchanging it. Therefore, no legislative intervention was required.
- The Exchange of Enclaves argued that:
  - The Preamble of the Constitution did not grant the parliament the power to alter the country's territory.

- **Article 1(3) (c)** of the Indian Constitution allowed for the acquisition of foreign territories but not the ceding of Indian territory to a foreign country.

#### Judgment:

The Supreme Court held that:

- The Indian parliament does not have the power to give territory of a state to a foreign country under **Article 3** of the Indian Constitution.
- Legislative action is necessary for implementing international agreements like the Nehru-Noon Agreement.
- Such action must take the form of a constitutional amendment under **Article 368**.

#### Implications:

- The Berubari Union case clarified that while the parliament can acquire foreign territories, it cannot cede Indian territory without a constitutional amendment.
- The judgment emphasized the importance of the legislative process and constitutional safeguards in matters of territorial exchange.

#### The context of redrawing boundaries, the exchange of enclaves between India and Bangladesh, and the Kachchatheevu Island issue:

- **Exchange of Enclaves Between India and Bangladesh:**
  - The **100th Constitutional Amendment Act of 2015** ratified the Land Boundary Agreement (LBA) between India and Bangladesh, which was signed in 1974. The amendment amended the first schedule of the constitution to exchange disputed territories between the two countries. The agreement involved the transfer of 111 enclaves from India to Bangladesh and 51 enclaves from Bangladesh to India, as well as the demarcation of a 6 km un-demarcated border. India lost around 40 square km of land to Bangladesh as a result of the agreement.
- **Kachchativu Island (India-Sri Lanka):**
  - The Berubari case **doesn't directly apply to the Kachchativu dispute because it doesn't involve ceding territory.**
  - Kachchativu is an island already awarded to Sri Lanka through historical agreements (the issue revolves around fishing rights, not ownership).

#### Reasons for Cession:

- **Strategic Security:** India gave up Kachchatheevu to minimize larger strategic threats that could arise from Sri Lanka forming partnerships or using its territory against India.
- **Postcolonial Context:** The cession of Kachchatheevu needs to be considered in the context of similar land adjustments that happened across the Indian subcontinent after colonial rule ended.
- **Improved Diplomacy:** India giving up Kachchatheevu improved India's international image and made India appear generous on the world stage.

#### Benefits of Cession:

- **Indian Ocean Peace:** Ceding Kachchatheevu is said to have helped avoid conflict in the Indian Ocean during the Cold War tensions between the US and the Soviet Union.
- **Sri Lankan Friendship:** The agreement supposedly aimed to maintain a friendly relationship with Sri Lanka despite other tensions in the region.
- **Indian Tamils in Sri Lanka:** The cession is claimed to have addressed the concerns of ethnic Tamils in Sri Lanka who have Indian roots.
- **De-escalating Sri Lankan Civil War:** Some argue that ceding the island was a move to reduce tensions between the Sinhalese majority and Tamil minority in Sri Lanka during the 1970s.
- **Pilgrim and Fisher Access:** Agreements were supposedly made to allow Indian pilgrims and fishers continued access to Kachchatheevu.

#### Criticism of Cession:

- **Nehruvian Legacy of Territorial Concessions?** Critics argue that Prime Ministers Nehru (Aksai Chin to China, Kashmir to Pakistan) and Gandhi (Kachchatheevu) took a casual approach to territorial claims, unlike the strong emphasis on national sovereignty in countries like the US and France.
- **Tamil Nadu Fishermen's Livelihood:** The agreement hurt the traditional fishing rights of Tamil Nadu fishermen, creating a major emotional issue in the state. Successive governments, including the current one, have demanded central intervention to secure fishing rights.
- **Beyond Territory - Impact on Tamils:** The Kachchatheevu dispute affects not just land but also the well-being of nearly 840,000 Indian Tamils in Sri Lanka and 100,000 Sri Lankan Tamils in India.
- **Fishermen's Harassment:** Sri Lankan authorities have frequently detained Indian fishermen who enter Sri Lankan waters. In March 2019 alone, 178 fishermen and 23 boats were apprehended.
- **Broken Promises?** Traditionally, Tamil Nadu fishermen fished near Kachchatheevu. Now, they face harassment and violence from the Sri Lankan Navy for entering Sri Lankan waters, despite agreements guaranteeing access.



- **Stalelated Resolution:** Attempts to resolve the issue, like leasing Katchatheevu or limited Indian fishing access in Sri Lankan waters, haven't been successful due to Sri Lankan opposition and Indian hesitation to reopen the agreement.

#### Root Causes of the Fisherman Problem:

- **Lax Enforcement by India:** Critics argue that the Indian government hasn't effectively enforced agreements guaranteeing Indian fisher mobility around Katchatheevu.
- **Sri Lankan Restrictions:** Sri Lanka's stricter fishing regulations and hefty fines for Indian fishermen entering their waters contradict bilateral agreements, creating tension.
- **Unsustainable Fishing Practices:** In the 1960s and 70s, India introduced bottom trawling for higher fish production. While initially boosting the economy, this method severely damaged the seabed, forcing Indian fishermen to venture deeper into Sri Lankan waters.
- **Political Priorities:** The Indian government prioritized maintaining good relations with Sri Lanka and was willing to cede Katchatheevu despite the impact on Indian fishermen. Additionally, Tamil Nadu governments haven't effectively challenged the agreement in court.
- **Competition and Sustainability:** Northern Sri Lankan Tamil fishermen, recovering from the civil war, see Indian trawling as a threat to their livelihoods and advocate for sustainable fishing practices in the region.

#### Proposed Solutions for Palk Bay Fishermen:

- **Addressing Root Causes:** Shift focus from blame to addressing shared concerns of overfishing, environmental damage, and unclear Sri Lankan fishing policies.
- **Shared Resource Management:** View the Palk Bay as a common resource, not a disputed area.
  - **Sustainable Fishing:** India bans harmful practices like bottom trawling.
  - **Equitable Sharing:** Establish a system to fairly distribute the fish stocks. This could involve:
    - **Rotational Fishing:** Indian and Sri Lankan fishermen take turns fishing in designated areas.
- **Deep-Sea Collaboration:** Encourage joint ventures between Tamil fishermen from both nations for deep-sea fishing.
  - **Trawler Modification:** Adapt existing trawlers for deep-sea operations.
  - **Ecosystem Restoration:** Cooperate on rebuilding the Palk Bay's marine environment.

#### Responses to Renewed Controversy:

The present ruling party in the centre reignited the Katchatheevu debate in Tamil Nadu before the Lok Sabha elections, accusing the opposition parties of surrendering the island to Sri Lanka.

##### Indian's Position:

- **Indian Government Position (March 2024):** Prime Minister Modi and External Affairs Minister Jaishankar raised concerns about the Katchatheevu agreements. They believe these agreements limit Indian fishermen's rights.
- **Criticism of Government Stance:** Opposition parties in India disagree with the government's current position on the Katchatheevu issue. They point out that the government previously acknowledged the agreements on Katchatheevu as valid (in 2015).
- **Diplomatic Concerns:** Senior Indian diplomats are worried that reopening the Katchatheevu agreements could damage India's reputation for trustworthiness and harm relations with Sri Lanka.
- **Fishermen's Concerns:** Fishermen from both India and Sri Lanka are worried about the current situation. They want their governments to focus on resolving the actual conflict over fishing rights and protecting the marine ecosystem.

##### Sri Lanka's Position:

- **Closed Case:** Sri Lanka considers the 1974 agreement concerning Katchatheevu a settled issue. They refuse to discuss it in relation to the fishing rights of Tamil fishermen.
- **Environmental Damage:** Sri Lanka highlights the illegality of bottom trawling by Indian fishermen in their waters, citing international maritime law. They emphasize the negative environmental impact on the livelihoods of Sri Lankan Tamil fishermen.
- **Open Communication:** Sri Lanka's government hasn't received any official Indian communication regarding revisiting Katchatheevu. They emphasize their existing positive relationship with India.
- **No Need for Talks:** Sri Lanka's Foreign Minister sees no reason to reopen discussions on a resolved issue that is 50 years old.
- **Self-Interest Concerns:** Sri Lanka's Fisheries Minister suspects India may be acting in their own interest, potentially restricting Sri Lankan fishermen's access near Katchatheevu.

#### The Katchatheevu Controversy

##### Strategic Concerns and International Implications:

- **Calculated Cooperation:** International agreements, struck on the basis of available information, represent a negotiated balance of benefits and concessions. Upholding them, as in the ongoing India-UK Free Trade Agreement, fosters stability and strengthens future dealings.

- **Credibility Matters:** Unilateral actions to revisit agreements can be seen as aggressive, jeopardizing India's image as a responsible global power. This is particularly risky with smaller neighbours, potentially driving them towards China. Conversely, upholding agreements bolsters India's position as a leader adhering to the rules-based international order, as evidenced by its responsible nuclear non-proliferation leading to exemption from the Nuclear Suppliers' Group and subsequent nuclear deals.
- **Katchatheevu Pact A Precedent to Consider:** The 1974 pact, despite territorial concessions, streamlined administration for both India and Sri Lanka. Reopening it sets a potentially disruptive precedent for future agreements.
- **Sri Lanka Relations: Balancing Goodwill and Strategy:** Unnecessary provocations could erode the goodwill fostered by India's recent economic assistance and IMF support for Sri Lanka. This could create an opportunity for China to exploit the situation for its own strategic gain in the region.
- **Learning from Others:** Examples like the Trump administration's withdrawal from the Paris Accord and Iran nuclear deal highlight the reputational damage caused by abandoning international agreements. China's history of disregarding agreements, including those on the LAC with India, raises concerns about its commitment to the global order.

#### India's Responsible Global Leadership:

- **Maintaining Stability and Agreements:** India's leadership role requires responsible actions that promote regional stability and uphold international agreements for long-term benefits.
- **Sri Lanka's Measured Response:** Sri Lanka's calm approach to the recent controversy highlights that the issue might be unnecessarily escalated.
- **Focus on Strengthening Relationship:** India should prioritize strengthening its relationship with Sri Lanka, potentially avoiding harm to the positive developments from recent aid provided.
- **Katchatheevu Issue as a Reminder:** The Katchatheevu dispute serves as a reminder of the importance of honouring international agreements and prioritizing long-term stability over temporary political gains.

Maintaining stability, upholding agreements, and prioritizing long-term benefits are essential for India's responsible global leadership. Sri Lanka's measured response underscores the unnecessary nature of the Katchatheevu controversy. To solidify its position and goodwill, India should focus on strengthening its relationship with Sri Lanka, prioritizing long-term stability over short-term actions.

#### Conclusion:

The Katchatheevu dispute remains unresolved. While the legal challenge continues in India, the political rhetoric intensifies. Balancing resource concerns, livelihoods, and diplomatic relations with Sri Lanka presents a complex challenge for the Indian government.

## 1.8 Global Approaches to AI Regulation and Considerations for India

### The Rise of AI Regulation:

The development of Artificial Intelligence (AI) has prompted a global movement towards establishing regulations to govern its use. This is driven by the need to:

- **Mitigate Risks:** Address potential dangers associated with AI systems, such as manipulation of human behavior and mass surveillance.
- **Promote Responsible Use:** Ensure AI contributes positively to the achievement of the UN's Sustainable Development Goals (SDGs) across social, environmental, and economic dimensions.
- **Protect Workforces:** Minimize negative impacts on the labor market, particularly in developing nations where jobs are more vulnerable to AI automation.
- **Empower Businesses:** Develop regulations that balance innovation and economic growth with ethical considerations.

### Global Examples of AI Regulation:

- **United Nations Resolution on Artificial Intelligence:**
  - Acknowledges the risks of AI and emphasizes the urgency of responsible use.
  - Highlights the potential negative impact on jobs, especially in developing countries.
  - Calls for collaborative action among nations to address these challenges.
- **European Union (EU) AI Act:**
  - Categorizes AI systems based on risk levels (unacceptable, high, limited, minimal).
  - Bans applications posing high risk to citizen rights, including manipulation and mass surveillance.
  - Allows exemptions for law enforcement with prior authorization.
  - Addresses the challenges of regulating Generative AI systems like ChatGPT.
- **China's AI Regulations:**
  - Focuses on safeguards against potential harm to social and economic goals.
  - Addresses content moderation, personal data protection, and algorithmic governance.
- **United Kingdom (UK) AI Framework:**
  - Employs a principle-based and context-specific approach.
  - Requires consultations with regulatory bodies to bridge regulatory gaps.
  - Favors a decentralized and flexible approach compared to the EU's stricter legal rules.

**India's Considerations:**

India, with its large consumer base and growing tech workforce, plays a crucial role in shaping AI regulations. Key factors to consider include:

- **Balancing SDGs and Economic Growth:** Regulatory approaches must foster innovation while mitigating risks to achieve the SDGs and maintain economic prosperity.
- **Skilling the Workforce:** Preparing the workforce for future job landscapes impacted by AI is crucial.
- **Supporting AI Startups:** India's AI mission and initiatives like the ₹10,300 crore allocation aim to support the development of a robust AI ecosystem while promoting responsible innovation.

**Recommendations for India:**

A gradual, phase-wise approach to AI regulation appears most suitable for India. This approach should focus on:

- **Identifying and Mitigating Risks:** Proactively addressing potential dangers associated with AI implementation.
- **Promoting Responsible Development:** Encouraging the use of AI for solutions that benefit society while minimizing risks.
- **Building Regulatory Expertise:** Developing a robust legal and technical framework for effective AI governance.
- **Fostering Collaboration:** Working with other nations to create a global framework for responsible AI development.

By carefully considering these factors and following a well-defined approach, India can ensure that its AI regulations promote innovation, safeguard its citizens, and contribute to a future powered by responsible AI.

**1.9 Addressing Sugary Processed Baby Foods in India: Regulations, Labelling, and Marketing Practices**

In recent times, concerns have been raised about the high sugar content in popular malt-based milk beverages and baby food products marketed in India. These products are often labelled as "healthy" despite containing significant amounts of added sugar. This is problematic because it misleads consumers, particularly regarding the suitability of these drinks for children.

**The Problem of Sugary Drinks and Misleading Labels:**

- **Added Sugar in Nestle Baby Products:**
  - A study by the International Baby Food Action Network (IBFAN) and Public Eye alleges that Nestle's Cerelac baby food in developing countries, including India, contains unhealthy amounts of added sugar (2.7g per serving). Products sold in Europe and the UK from the same brand (Cerelac) were found to be free of added sugar.
  - Nestle defends its practices, claiming a 30% reduction in added sugar over the past five years.
- **Breakdown of Sugar Content in Malt-Based Drinks:**
  - Bournvita, a popular chocolate malt drink has :
    - Per 100g serving, it contains 86.7g of carbohydrates, of which a substantial 49.8g is sugar.
    - This includes 37.4g of sucrose (added sugar).
    - A recommended serving size of 20g powder provides almost 10g of total sugar.
  - Additionally, the malting process itself breaks down grain starches into sugars, further contributing to the overall sugar content.

**Global Recommendations:**

- The World Health Organization (WHO) recommends against introducing added sugars to infants before the age of 2.
- The WHO recommends reducing free sugar intake in children and adults to 10% of their total daily calorie intake.
- An even stricter conditional recommendation suggests limiting free sugar intake to 5% or 25 grams per day.

A 2021 study in India revealed a high sugar content in 28% of commercially available baby food products. These practices raise concerns about the nutritional quality of these products and their potential impact on child health.

**Steps Taken:**

- The Food Safety and Standards Authority of India (FSSAI) has initiated investigations, which is a positive step.
- However, a broader probe encompassing all baby food manufacturers, as demanded by the National Commission for the Protection of Child Rights, is crucial.

**Reasons for Concern:**

Risks of Added Sugar in Baby Food	Unethical Double Standard	Misleading Marketing Practices
<p><b>Increased Risk for Vulnerable Infants:</b></p> <ul style="list-style-type: none"> <li>• <b>Sugar in Baby Food &amp; Chronic Disease:</b> Early sugar exposure (supplements at 6 months) linked to higher diabetes &amp; obesity risk (IBFAN report).</li> </ul>	<p>Developed countries offer sugar-free infant formulas, while those in developing nations, including India, often contain added sugars.</p> <ul style="list-style-type: none"> <li>• <b>Unjustified Disparity:</b> This difference in practices raises ethical concerns. Some argue it's unfair that</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Sugary Content in Popular Brands:</b> Popular baby food brands like Cerelac, advertised as "supplementary food for babies," contain concerning amounts of added sugar, raising health risk concerns for infants.</li> </ul>

<ul style="list-style-type: none"> <li>• <b>Genetic Vulnerability in India:</b> Indians have a higher genetic risk for diabetes, making sugary baby food even more harmful for infants.</li> </ul> <p><b>Long-Term Health Consequences of Added Sugar:</b></p> <ul style="list-style-type: none"> <li>• <b>Added Sugar in Baby Food &amp; Long-Term Health:</b> Sugar in baby food linked to cravings, obesity, heart disease, and tooth decay later in life. Studies confirm risk.</li> <li>• <b>India's Children Most Vulnerable:</b> Especially concerning for India, with the world's highest childhood diabetes rate and many overweight children.</li> </ul> <p><b>Metabolic Mechanism of Harm:</b></p> <ul style="list-style-type: none"> <li>• <b>Sugar Overload &amp; Body Damage:</b> Constant sugar intake strains the pancreas, leading to excessive insulin production and eventual malfunction. This also disrupts leptin, a hormone regulating fat storage, and contributes to obesity.</li> <li>• <b>High Blood Sugar &amp; Organ Damage:</b> Exhausted pancreas and excess body fat raise blood sugar, triggering inflammation that harms kidneys, heart, and can lead to high blood pressure.</li> <li>• <b>Sugary Drinks &amp; Health Risks:</b> A child consuming sugary drinks like Bournvita (4 servings) can exceed WHO's sugar limit, increasing risk of diabetes and obesity later in life.</li> </ul> <p><b>Health Risks of Added Sugar in Baby Food:</b></p> <ul style="list-style-type: none"> <li>• <b>Sugar &amp; Unhealthy Habits:</b> Added sugar in baby food can lead to addictive eating and a preference for sweets, potentially harming future dietary choices.</li> <li>• <b>Sugar &amp; Chronic Diseases:</b> Excessive sugar intake in baby food can increase the risk of obesity, type 2 diabetes, heart disease, and even some cancers later in life.</li> <li>• <b>Sugar &amp; Tooth Decay:</b> Added sugar contributes to cavities (dental caries) which can cause pain and other dental problems.</li> <li>• <b>Sugar &amp; Nutrient Deficiencies:</b> Sugary baby foods can replace healthier options in a child's diet, potentially leading to nutrient deficiencies.</li> </ul>	<p>developing countries have formulas with added sugars, while developed countries don't.</p> <ul style="list-style-type: none"> <li>• <b>Lack of Transparency Worsens Issue:</b> In some developing countries, there's a lack of clear information about the added sugar content on labels. This makes it difficult for parents to make informed decisions about their babies' formula.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Misleading Marketing Tactics:</b> These companies are accused of unethical practices like influencing healthcare professionals and media personalities to endorse these unhealthy products.</li> <li>• <b>Downplaying Breast Milk:</b> These tactics often involve misleading claims about formula's superiority over breast milk, potentially discouraging breastfeeding practices.</li> <li>• <b>Profit Motive Behind Sugar:</b> The high sugar content in these products might be driven by the companies' desire to increase palatability and boost sales.</li> </ul>
---	---	---



**Regulatory Framework of Baby Food in India:**

FSSAI Regulations on Sugar Content and Labelling in Baby Food	The Infant Milk Substitutes, Feeding Bottles, and Infant Foods (IMS) Act (1992, Strengthened 2003)
<p><b>Labelling:</b></p> <ul style="list-style-type: none"> <li>• <b>"Low Sugar" Claims:</b> The Food Safety and Standards Authority of India (FSSAI) regulates sugar content labelling on food products. Only products with less than 5 grams of total sugar per 100 grams can be labelled "low sugar." Using this label suggests a potentially "healthy" product.                     <ul style="list-style-type: none"> <li>• Marketing products with high sugar content as "health drinks" violates FSSAI regulations.</li> </ul> </li> </ul> <p><b>Sugar in Infant Food:</b> The specific rules for sugar content in infant food are outlined in the <b>Food Safety and Standards (Foods for Infant Nutrition) Regulations, 2019</b>.</p> <ul style="list-style-type: none"> <li>• <b>Permitted Sugars:</b> These regulations allow the use of sugar in milk cereal-based complementary food for infants. However, they prioritize lactose and glucose polymers (complex carbohydrates) as the preferred carbohydrates for infant food.</li> <li>• <b>Restrictions on Sucrose and Fructose:</b> The addition of table sugar (sucrose) and fructose is only permitted:                     <ul style="list-style-type: none"> <li>• When necessary as a carbohydrate source.</li> <li>• In limited quantities, with a combined amount not exceeding 20% of the total carbohydrate content.</li> </ul> </li> </ul>	<p><b>Purpose:</b></p> <ul style="list-style-type: none"> <li>• Regulate the production, supply, and distribution of infant milk substitutes, feeding bottles, and infant foods.</li> <li>• Promote breastfeeding as the preferred feeding method for infants.</li> <li>• Ensure the proper and safe use of infant formula and complementary foods.</li> </ul> <p><b>Key Provisions:</b></p> <ul style="list-style-type: none"> <li>• <b>Bans all forms of promotion</b> for infant formula, feeding bottles, and infant foods targeted at children under 2 years old. This includes advertising, free samples, and promotional gifts.</li> <li>• <b>Protects healthcare professionals and organizations</b> from being influenced by infant formula companies. This prohibits sponsorships and financial incentives from these companies.</li> <li>• <b>Covers a wide range of products:</b> The Act applies to various items related to infant nutrition, including infant formula, complementary foods, and feeding bottles.</li> </ul>

**Loopholes and Weaknesses in Infant Food Regulations in India:**

- **Sugar Content:**

- **Missing Limits:** The current regulations for infant food focus on essential nutrients but lack specific restrictions on added sugar content. This is considered a major weakness by experts who advocate for revisions.
- **Micronutrients vs. Sugar:** While India mandates minimum micronutrient levels in baby food, there's no upper limit for added sugars.
- **Sugars Permitted:** The use of various sugars like corn syrup, malt, sucrose, and fructose is allowed under current regulations, potentially contributing to high overall sugar content.

- **Labelling:**

- **Inadequate Labelling:** Many experts find the existing FSSAI labelling rules for sugar content insufficient.
- **Proposed but Not Finalized:** The FSSAI proposed labelling regulations for "high fat, sugar and salt (HFSS)" foods in 2022, including front-of-pack warnings. However, these labelling requirements haven't been finalized.
- **Star Rating Concerns:** Critics argue that the proposed "health rating star" system might be confusing for consumers and less effective than clear warning labels.

- **Marketing Loopholes:**

- **Social Media and Influencer Marketing:** The Infant Milk Substitutes Act bans advertising infant food products. However, experts are concerned about companies potentially circumventing these regulations by using social media influencers to promote baby food, raising ethical concerns.
- **Targeting Children Through Partnerships:** A specific example highlights a partnership between Hindustan Unilever Limited (HUL) and a local government body (Zilla Parishad) to include Horlicks, marketed as a "health food drink," in take-home rations for a children's midday meal program. This program targeted children aged 3-6 across thousands of centres, potentially impacting over 145,000 children.

- **Impact on Public Health:**

- **Profit Over Public Health:** Experts from the Breastfeeding Promotion Network of India (BPNI) argue that weak regulations allow companies to prioritize profit over public health by promoting sugary products to children. This can have negative consequences for children's health.

**Recommendations for Strengthening Infant Food Regulations in India:**

- **Clear Definitions:** Establish a comprehensive regulation that clearly defines "healthy" and "unhealthy" food and beverage products across all categories, including infant food.
- **Stricter Enforcement:** Strengthen enforcement mechanisms to effectively crack down on illegal advertisements for infant food products.

- **Sugar Limits and Ingredient Bans:** Set clear limits on the amount of added sugar allowed in infant food. Consider banning certain ingredients deemed harmful for infants.
- **Protect Children's Health:** Closing these regulatory gaps is essential to safeguard the health and well-being of Indian children by ensuring they are not exposed to unhealthy and potentially harmful food products.

**Conclusion:**

Sugary processed foods, particularly those targeted towards children, pose a significant health risk in India. The current labelling practices often mislead consumers about the sugar content. Stronger regulations, including mandatory front-of-pack labelling for sugar, fat, and salt content, are necessary to empower consumers to make informed dietary choices.

**1.10 Food Safety Concerns in India: A Call for a More Robust Regulatory Framework**

**Frequent Controversies and Regulatory Scrutiny:**

- In recent weeks, allegations regarding the safety of various food products in India have raised concerns about the efficacy of the country's food safety regime.
- These controversies involve prominent brands across diverse categories, including:
  - **Infant food:** Concerns about the sugar content in Nestle's baby food products are under investigation by the Food Safety and Standards Authority of India (FSSAI).
  - **"Health drinks":** The safety of these products is also under question. (Specific details on the allegations are not mentioned but can be included if available)
  - **Spices:** Regulatory authorities in Singapore and Hong Kong have flagged potential carcinogenic additives in powdered spice mixes from leading Indian brands like MDH and Everest.
    - Additionally, a report reveals that US customs rejected 31% of MDH spice shipments in the past six months due to salmonella contamination. This rejection rate has doubled within a year, indicating a worsening trend.
  - The European Union is also reportedly scrutinizing food imports originating from India.

The Food Safety and Standards Authority of India (FSSAI)			
About	Purpose	Key Features of the FSS Act	FSSAI Functions
<p><b>Established By:</b> Food Safety and Standards Act, 2006 (FSS Act)</p> <p><b>Governance:</b></p> <ul style="list-style-type: none"> <li>• FSSAI is under the Ministry of Health &amp; Family Welfare.</li> <li>• It has a Chairperson and a Chief Executive Officer.</li> </ul>	<p>Set science-based standards for food products.</p> <p>Regulate all aspects of food - manufacturing, storage, distribution, sale, and import.</p> <p>Ensure the availability of safe and wholesome food for consumption.</p>	<ul style="list-style-type: none"> <li>• Replaces various previous food-related acts and orders under different ministries.</li> <li>• Creates a single, independent authority (FSSAI) for food safety.</li> <li>• Moves from multi-level control to a centralized system.</li> </ul>	<p>FSSAI sets food safety standards, accredits certifiers &amp; labs, advises government, collects data, creates a national network, trains businesses, contributes to international standards, and promotes public awareness</p>

**Challenges Faced by the FSSAI:**

- The FSSAI faces several challenges that hinder its effectiveness:
  - **Staff and infrastructure shortages:** These limitations have resulted in a regulatory environment perceived as paperwork-driven, lacking in frequent inspections, and devoid of expert guidance for businesses.
  - **Inadequate consumer and industry education:** The FSSAI's mandate includes educating both consumers and food businesses about food safety. However, the frequent controversies suggest shortcomings in fulfilling this responsibility.
  - **Deficiencies in data collection and analysis:** The FSSAI is tasked with collecting data on food consumption, risks, and contaminant levels. These data are crucial for setting and enforcing standards.
  - **Legal setbacks:** The FSSAI's actions have been challenged in court and struck down on procedural grounds (e.g., Vital Nutraceuticals case, 2015).

**The Need for a More Proactive Approach:**

- **Constant Updates Needed:** Food safety regulations must be constantly updated for two reasons:
  - **Science Advances:** New scientific discoveries about foodborne illnesses and contamination methods require adjustments to regulations.
  - **International Standards Differ:** Food safety standards vary between countries, and regulations need to adapt to ensure Indian exports comply with international markets.

- **FSSAI Proactive Measures:** The Food Safety and Standards Authority of India (FSSAI) should be more proactive in two areas:
  - **Scientific Knowledge Integration:** The FSSAI needs to actively update food safety standards based on the latest scientific research on food safety risks.
  - **Exporter Support:** The FSSAI should provide support and guidance to Indian food exporters. This can include resources and training to help them navigate the different food safety regulations of various international markets.

### Conclusion:

The recent controversies highlight the urgent need for a more robust and proactive food safety regulatory framework in India. Strengthening the FSSAI's capacity and effectiveness is essential to ensure consumer safety, protect India's reputation in the global food market, and support the growth of the domestic food industry.

### 1.11 The Role of the Judiciary in Ensuring Food Safety and Addressing Misleading Advertising in India

The recent observations made by the Supreme Court of India regarding misleading advertisements by food and beverage companies, particularly Patanjali Ayurved, and the broader issue of food safety regulations.

#### The Supreme Court's Observations and Concerns:

- **Patanjali Ayurved Case:** The Court, led by Justice Hima Kohli, expressed dissatisfaction with the government's inaction against Patanjali Ayurved for publicizing unsubstantiated claims about its products' curative properties for diseases like COVID-19 and diabetes.
- **Expansion of Case Scope:** The Court broadened the case's focus to encompass all Fast-Moving Consumer Goods (FMCG) companies engaging in misleading advertising practices.
- **Link Between Misleading Advertising and Non-Communicable Diseases (NCDs):** The Court highlighted the correlation between the rise of NCDs in India and the easy availability of ultra-processed foods promoted through misleading advertisements.
- **Challenge of "Junk Food" with Added Vitamins:** The Court acknowledged that some manufacturers might add minimal quantities of vitamins to their products to evade regulatory scrutiny while the overall product remains unhealthy.

#### Inadequacies in the Existing Regulatory Framework:

- **Over-Reliance on Complaint-Based System:** The existing system for regulating and penalizing misleading advertisements is largely complaint-driven. This approach is considered ineffective due to low public awareness and potential reluctance to file complaints.
- **Limitations of Advertising Standards Council of India (ASCI):** The Court noted the ASCI's lack of enforcement power, hindering its ability to compel compliance with advertising regulations.
- **Challenges of the Food Safety and Standards Authority of India (FSSAI):**
  - Despite outlining permissible ingredient limits, the FSSAI is perceived as hesitant to take action against violators.
  - Resource constraints, including insufficient staffing, funding, and technical expertise, further weaken the FSSAI's enforcement capacity.
- **Uneven Role of Civil Society:** The burden of exposing false claims often falls on individuals with varying levels of expertise, ranging from unqualified social media influencers to medical practitioners. However, these individuals are vulnerable to legal repercussions, making them hesitant to act.

#### The Need for Effective Enforcement and Addressing the Disconnect:

- **Importance of Prompt Action:** The proliferation of unverified health claims concerning food products necessitates swift and exemplary enforcement actions against violators.
- **Dissonance Between NCD Concerns and Food Availability:** The Court emphasizes a concerning disconnect between India's public health goals of reducing NCDs and the types of food readily available to consumers.

#### The Judiciary's Role: Balancing Review and Encroachment

- **Judicial Review vs. Legislative Leadership:** The Court's primary responsibility lies in reviewing existing legislation, not assuming the role of a legislative body by enacting new regulations.
- **Expectation of the Judiciary:** The focus should be on the judiciary taking prompt and exemplary action against violators in the present cases, avoiding an overreach of legislative and executive powers.

### Conclusion:

The Supreme Court's observations highlight critical issues related to misleading food advertising and its impact on public health. While the judiciary can play a role in ensuring the effectiveness of existing regulations, a more robust and proactive approach from government agencies like the FSSAI and ASCI is crucial in safeguarding consumer interests and promoting healthy food choices.

## 1.12 Electronic Voting Machines (EVMs)

### About Electronic Voting Machines (EVMs):

- EVMs comprise a robust, rectangular device designed to electronically record votes cast during elections. Voters interact with the machine by pressing one of the blue buttons corresponding to the candidate of their choice, as well as the option of "none of the above".
- The EVM system consists of three integral units:
  - **Ballot unit:** Facilitates voter selection by displaying candidate information.
  - **Control unit:** Ensures that each voter can cast only one vote, and is operated by the officer-in-charge.
  - **Voter-Verifiable Paper Audit Trail (VVPAT) unit:** Generates a paper slip visible to the voter for verification, which is then stored in a sealed drop box.
- Each ballot unit accommodates up to 16 candidate options, inclusive of the "none of the above" choice.
- A single control unit can interface with up to 24 ballot units, thereby enabling the system to handle a maximum of 384 candidates per seat.
- Notably, an EVM system can record up to 2,000 votes and is powered by batteries or power packs provided by the manufacturers.
- The cost of the complete setup amounts to approximately 34,000 rupees (\$408), with an operational lifespan of around 15 years.
- These machines, developed and supplied by government-run entities such as Bharat Electronics and Electronics Corp of India, are instrumental in recording votes efficiently and securely.
- **Adoption and Evolution:**
  - EVMs were first introduced in a trial basis in 1982 in the Paravur constituency of Kerala.
  - Full deployment in all booths occurred during the 2001 Assembly elections in Tamil Nadu, Kerala, Puducherry, and West Bengal.
  - EVMs were used in all 543 constituencies during the 2004 general elections to the Lok Sabha.
  - The Supreme Court, through various judgments, has upheld the validity of EVMs in elections.

### Features of EVMs:

- EVMs have significantly reduced booth capturing and eliminated invalid votes.
- They are eco-friendly due to reduced paper consumption and facilitate faster, error-free counting.
- Integrity is maintained through random allocation, mock polls, and sharing of EVM data with candidate agents.
- These units are strategically positioned to maintain privacy and integrity within the voting process, with the control unit stationed alongside the officer-in-charge and the other components housed within a voting compartment.
- Importantly, the entire system operates autonomously, devoid of any external wired or wireless connectivity.

### Controversies and Disputes:

- Despite their widespread usage, EVMs have faced criticism regarding their vulnerability to tampering and manipulation.
- While the Election Commission emphasizes the security features of EVMs and the integrity of the voting process, opposition parties have raised concerns about potential hacking or tampering.
- The introduction of paper slips in certain constituencies for vote verification purposes has sparked debates over the necessity of independent paper ballot counts to mitigate risks associated with electronic voting.
- The Election Commission asserts that EVMs cannot be manipulated through various means, including cellphone connections or Bluetooth devices, and highlights the judicial support for EVMs within the Indian legal system.
- **Concerns raised by activists about EVMs:**
  - Activists have raised concerns about the susceptibility of EVMs to hacking due to their electronic nature. Despite Election Commission of India (ECI) clarifications about the standalone nature of EVMs, doubts persist.
  - Sample matching of EVM count with VVPAT slips is limited and may not detect all defective EVMs during counting.
- **International practices regarding voting:**
  - Many Western democracies, including England, France, the Netherlands, and the U.S., continue to use paper ballots for elections. Germany's Supreme Court declared the use of EVMs unconstitutional in 2009.
  - Brazil uses EVMs for elections, while Pakistan and Bangladesh have not fully adopted them.

### Proposed reforms for the voting process:

- Ensure comprehensibility and verifiability for all citizens without specialized technical knowledge.
- Sample matching of EVM count with VVPAT slips should be scientifically determined by dividing states into large regions.
- In case of any error, full counting of VVPAT slips for the concerned region should be conducted.
- Introduction of 'totaliser' machines to aggregate votes from multiple EVMs before revealing candidate-wise counts, providing booth-level cover for voters.

In summary, EVMs represent a pivotal component of India's electoral infrastructure, offering a technologically advanced and efficient method for recording votes. While controversies persist, the Election Commission maintains its confidence in the reliability and integrity of EVMs, underscoring their importance in ensuring free and fair elections.



### 1.13 Voter Verified Paper Audit Trail (VVPAT) in Indian Elections:

Petitions filed by the Association for Democratic Reforms (ADR) advocated for a mandatory 100% verification of VVPAT slips after voting.

#### The Current System:

- India uses Electronic Voting Machines (EVMs) for voting.
- To ensure transparency, Voter Verifiable Paper Audit Trail (VVPAT) slips are used alongside EVMs.
- VVPATs are paper slips printed after a vote is cast on the EVM, showing the selected candidate and symbol.
- Currently, only a small sample of VVPATs are recounted and compared with EVM results.

#### What is a VVPAT Machine?

A VVPAT machine is a standalone device physically attached to the Electronic Voting Machine (EVM) ballot unit. It provides a paper-based verification mechanism for voters to confirm their electronically recorded votes.

#### How Does VVPAT Work?

- Upon casting a vote on the EVM, the VVPAT machine prints a paper slip displaying the candidate's serial number, name, and party symbol corresponding to the selected choice.
- This slip is briefly displayed behind a transparent window for approximately seven seconds, allowing the voter to visually verify their selection.
- Subsequently, the paper slip is automatically deposited into a secured compartment within the VVPAT machine.
- Voters cannot retain the VVPAT slip.

#### Historical Context of VVPAT Implementation:

- **2010:** The Election Commission of India (EC) initiated discussions with political parties to explore methods for increasing transparency in EVM-based polling.
- **July 2011:** Field trials of a VVPAT prototype were conducted in various locations across India.
- **February 2013:** Following design refinements, further trials, and political party feedback, an expert committee approved the final VVPAT design. The earliest case was *Subramanian Swamy vs the Election Commission of India*, where the Supreme Court mandated a paper trail for elections.
- **Later 2013:** The Conduct of Elections Rules were amended to incorporate the use of VVPATs alongside EVMs.
- **2013 (Nagaland):** VVPATs were first used in all polling stations of the Noksen Assembly constituency.
- **June 2017:** Nationwide adoption of VVPATs was achieved, making them mandatory for all polling booths in India.
- In *N Chandrababu Naidu v Union of India* (2019), the Court increased the mandatory VVPAT verification from one to five polling booths in each Assembly Segment.

#### VVPAT Audit as a Statistical Sampling Approach:

- **Similar to Lot Acceptance Sampling:** VVPAT audits borrow techniques from quality control's "lot acceptance sampling."
- **Process:**
  - **Random Sample Selection:** A random sample of EVMs is chosen.
  - **Manual Verification:** VVPAT slips from the sample are manually compared to the corresponding EVM counts.
  - **"Defective EVM" Definition:** Any mismatch due to malfunction or manipulation flags an EVM as "defective."
  - **Full Manual Counting Trigger:** If even one mismatch is found in the sample, all remaining VVPAT slips in the population undergo manual counting.
- **Key Elements for VVPAT Audits:**
  1. **Population Definition:** This clearly defines the group of EVMs from which the sample is drawn (e.g., Assembly constituency, state, entire India).
  2. **Sample Size:** The size should be statistically valid (ensures accurate results) and manageable for manual counting.
  3. **Decision Rule:** This pre-defined rule outlines the action taken upon finding a mismatch (e.g., triggering full manual counting).
- **Sample Size Calculation:** The **Hypergeometric Distribution Model** is used to calculate the sample size. This model considers:
  - **Desired Detection Probability:** This reflects the likelihood of detecting at least one defective EVM (e.g., 99% chance).
  - **Assumed Defect Rate (P):** This is the estimated percentage of defective EVMs within the population.

#### Purpose of VVPAT:

The VVPAT system was introduced to enhance transparency and trust in the Electronic Voting Machine (EVM) based voting process. Here's how:

- **Physical Verification:** VVPAT provides a physical record of the voter's choice, allowing for verification against the electronic record stored on the EVM.
- **Increased Voter Confidence:** By visually confirming their vote, voters gain greater confidence that their selection has been accurately recorded.

- **Reduced Dispute Potential:** The paper trail from VVPAT can be used for audits or recounts in case of discrepancies or disputes concerning electronic voting data.

#### Criticisms of ECI's VVPAT Audit Practices:

- **Criticisms from External Observers:**
  - **Actions:** ECI is accused of making VVPAT audits a formality.
  - **Transparency:** ECI lacks clarity on how they choose the group of EVMs to be checked (population) and what happens if there's a mismatch between EVM and VVPAT counts (decision rule).
  - **Sample Size:** The current practice of checking only 5 EVMs per Assembly constituency is considered statistically weak.
  - **Alternative Ideas:** ECI is criticized for not exploring other options for sample size selection, even non-statistical methods.
- **Concerns about VVPAT Audits:**
  - **Insufficient Verification:** Critics argue that the current sample size is not enough to ensure a fair election.
  - **EVM Hacking:** Some worry that EVMs might be vulnerable to hacking, although there's no evidence to support this.
  - **New Security Risks:** Introducing VVPATs might create new security challenges.
  - **Zero Tolerance Needed:** Unlike factories where a few defects are acceptable, elections require all votes to be counted correctly (zero tolerance).
- **Shortcomings of ECI's Approach:**
  - **Unclear Population:** ECI doesn't specify the group of EVMs they are checking (population) for their sample size.
  - **Sample Size Calculation Missing:** ECI doesn't explain how they arrive at the sample size of 5 per constituency.
  - **Decision Rule Unknown:** It's unclear what ECI does if there's a mismatch in their sample.
  - **Mismatch Handling Ambiguous:** ECI's handling of reported mismatches in the past is not transparent.
- **Sample Size Calculation with Hypergeometric Distribution:**
  - **Recommended Model:** This statistical model is suggested for calculating a more accurate sample size.
  - **Sample Size Impact:** The sample size increases as the total number of EVMs (population) goes up, but it levels off after a certain point.
- **Challenges with Different Population Definitions:**
  - **Assembly/Parliamentary Constituency:** Smaller population size necessitates a larger sample, making it administratively impractical.
  - **State/India as a Whole:** Larger population size allows for a smaller sample but creates a significant workload if mismatches occur, making it impractical for all but smaller states.

#### Proposed Solutions for Strengthening VVPAT Verification:

- **Sample Size:**
  - **Proportional Increase:** Some propose increasing the number of VVPATs recounted proportionately to the state size.
  - **Targeted Recounts:** Others suggest focusing on recounts in constituencies with very close election results.
- **Full Recount:** Some political parties seek a 100% VVPAT recount.
- **Machine Audit Trail:** Enhancing transparency by recording all EVM actions, not just votes cast, could help detect malicious code.
- **Regional Sampling:**
  - Divide larger states into regions with an EVM population of around 5,000 each.
  - Define "EVMs deployed in the region" as the population for sampling.
- **Supreme Court's Role:** The Court should compel the ECI to publicly disclose its:
  - Definition of the population for sampling.
  - The rationale behind the sample size.
  - Decision rules for handling VVPAT-EVM mismatches
  - Only through such transparency can the Supreme Court's 2013 VVPAT order be effectively implemented.

#### Conclusion

The current VVPAT audit system in India lacks transparency and statistical rigour. Implementing the proposed regional approach with a hypergeometric distribution model can ensure a statistically sound and administratively feasible solution for VVPAT audits, strengthening public trust in the electoral process. The Supreme Court also plays a crucial role in holding the ECI accountable for transparent and effective VVPAT audits.

#### 1.14 Arguments For and Against Full Recount VVPAT

##### Introduction:

The Supreme Court's dismissal of petitions seeking 100% cross-verification of votes counted via Electronic Voting Machines (EVMs) with accompanying Voter Verifiable Paper Audit Trail (VVPAT) underscores the importance of exercising caution in questioning the integrity of the electoral process.

## Cross-verification of votes counted via Electronic Voting Machines (EVMs) with accompanying Voter Verifiable Paper Audit Trail (VVPAT).

### Arguments in Favour:

- **Full Cross-Verification Demand:** The Association for Democratic Reforms (ADR) has called for a comprehensive cross-verification of all VVPAT slips. This is to ensure that the confidence of the voters is maintained.
- **Concerns about EVM Tampering:** The ADR has expressed worries about the possibility of EVMs being tampered with or hacked.
- **Discrepancies between EVM and VVPAT:** The ADR has pointed out instances where there were discrepancies between the results shown by the EVMs and the VVPAT slips.
- **VVPAT Slip Viewing Duration:** There have been concerns about the short duration (seven seconds) provided for voters to view the VVPAT slips.
- **Proposal for Paper Ballots:** The ADR has proposed a return to the use of paper ballots. This proposal references the practices followed in other countries.
- **Barcoding VVPAT Slips:** As part of the proposal to return to paper ballots, the ADR has suggested the use of barcoding on VVPAT slips. This would help in efficient counting of votes.
- **Enhanced Transparency:** Full VVPAT verification builds trust in the electoral process by ensuring a complete paper trail reconciliation.
- **Stronger Integrity:** Opposition parties believe a 100% recount strengthens election integrity by providing a more thorough check.
- **Transparency Over Delays:** Transparency is prioritized over potential delays in result declaration.

### Opposing Arguments:

- **The Supreme Court Views:**
  - **Limited Right to Confirm Votes:** While voters have the right to confirm their votes, it does not extend to full counting of VVPAT slips. The seven-second display of VVPAT slips and provisions for addressing mismatches are cited as adequate safeguards for voter rights.
  - **Unfounded Concerns about EVMs:** The concerns about EVM tampering are considered unfounded due to the unalterable microcontroller in EVMs. To enhance integrity, checks on the microcontroller are mandated upon request by certain candidates, and Symbol Loading Units (SLUs) are stored sealed alongside EVMs for 45 days post-election.
  - **Reliability of EVMs:** Data supports the reliability of EVMs, with only a single case of discrepancy due to a cleared mock poll acknowledged. The absence of defects in other cases reaffirms the accuracy of EVMs.
  - **Preservation of Voter Privacy:** The existing system, with its tinted glass protection, is cited as preserving voter privacy. Granting physical access to VVPAT slips is deemed prone to misuse and disputes.
  - **Benefits of EVMs:** EVMs offer benefits such as preventing booth capturing and administrative convenience. The matter of barcoding VVPAT slips has been deferred to the Election Commission of India for technical examination.
- **Unnecessary Burden:** Opponents view a full recount as excessive, reflecting a lack of faith in the existing system with established sample size procedures.
- **Statistically Sound Sampling:** The Election Commission (EC) uses an Indian Statistical Institute (ISI) 2018-recommended sample size that balances accuracy and workload.
- **Time Constraints:** The EC argues that VVPAT counting is time-consuming (1 hour/station), leading to delays (5 hours for 5 stations).
- **Infrastructure Challenges:** The EC faces manpower limitations for large-scale counting.
- **No Evidence of Tampering:** No instances of EVM tampering have been found.
- **Minor Errors in Sample Recounts:** Discrepancies identified during sample recounts are typically minor human errors.

The Supreme Court's meticulous review and dismissal of these arguments affirm the robustness of India's electoral framework, ensuring confidence in the electoral process. The court's decisions reflect a balanced approach, prioritizing voter rights while upholding the efficiency and integrity of EVM-based elections.

## 1.15 Symbol Loading Units (SLU) and Their Role in Ensuring Transparency in Electronic Voting Machines (EVMs)

### Background

- The Supreme Court of India recently tightened norms for using Electronic Voting Machines (EVMs) to ensure the sanctity of the election process.
- While the court rejected a request for 100% verification of Voter Verifiable Paper Audit Trail (VVPAT) slips against the EVM count, it mandated the Election Commission of India (ECI) to preserve Symbol Loading Units (SLUs) for 45 days after election results.

### What is a Symbol Loading Unit (SLU)?

- Introduced alongside VVPATs around a decade ago, SLUs are crucial for their functioning.
- VVPATs generate a paper slip displaying the party symbol a voter selects, verifying their vote.
- To ensure accurate symbol printing on VVPAT slips, a list of candidates and their corresponding symbols needs to be uploaded onto the VVPAT machine in the correct order. This is where SLUs come in.

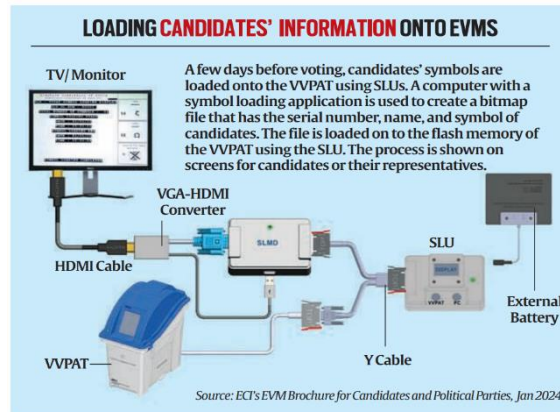
### Function of SLUs

- Resembling a matchbox in size, SLUs are connected to a laptop or personal computer.

- A symbol loading application on the computer is used to load a file containing candidate information (names, serial numbers, and symbols) in bitmap format.
- The SLU is then connected to the VVPAT machine to transfer this information under the supervision of a district election officer.

### Deployment of SLUs

- SLUs are used only a few days before polling in a constituency during EVM commissioning.
- This coincides with finalizing the list and order of contesting candidates, which is then programmed into the ballot unit (where voters cast their votes) and the VVPAT.
- Once symbols are loaded onto VVPATs using the SLU, the EVM is ready for use in the election.



### Safekeeping of SLUs

- After symbol loading is complete, a minimal number of SLUs, sufficient for all VVPATs in a constituency, are transferred to the concerned district election officer for safekeeping.
- These SLUs remain in the officer's custody until the day after voting.
- Subsequently, the SLUs are returned to the engineers of Bharat Electronics Ltd (BEL) or Electronics Corporation of India Ltd (ECIL), the two EVM manufacturers.
- In multi-phase elections, the same SLUs can be reused in subsequent phases to load symbols onto VVPATs in different constituencies.

### Significance of SLU Preservation

- The Supreme Court's order mandating the preservation of SLUs for 45 days after election results strengthens the electoral process.
- In case of any election petition challenging the results, these SLUs can be examined alongside other EVM components to ensure no tampering occurred during the symbol loading process.

### Preservation of Symbol Loading Units (SLUs)

- **Court's Mandate:** The Supreme Court directed the Election Commission of India (ECI) to enforce stricter protocols for SLUs.
- **Storage Requirement:** Following symbol loading for a particular constituency, the corresponding SLU must be immediately sealed and securely stored for 45 days after the election results are declared.
- **Purpose of Preservation:** In case of an election petition challenging the outcome, these SLUs can be examined alongside other EVM components to verify no manipulation occurred during symbol loading.
- **Impact on Reuse:** This effectively renders SLUs unusable for subsequent constituencies within the same election.
- **Increased Demand for SLUs:** The ECI will likely require an additional 2,000 SLUs (on top of the existing 5,000) to comply with this mandate.

### Verification of Microcontrollers in EVMs

- **Unprecedented Access:** In a groundbreaking move, the court granted candidates the right to request verification of the one-time programmable software embedded within the EVM's Ballot Unit (BU), Control Unit (CU), and VVPAT.
- **Grounds for Verification:** This verification process can be initiated if a candidate suspects tampering and questions the election result.
- **Verification Procedure:** The court outlined a specific protocol for verification:
  - Engineers from the EVM manufacturers will inspect the burnt memory/microcontrollers within these three EVM components.
  - Verification will be conducted on a sample basis, encompassing 5% of the EVMs from each Assembly constituency or Assembly segment within a parliamentary constituency.
- **Eligibility for Verification:** Only candidates who secured second or third place in the election can submit a written request for verification within seven days of the result announcement.
- **Cost Burden:** The financial responsibility for this verification process falls on the requesting candidate.
- **Outcome of Tampering Detection:** The court's ruling solely addresses the reimbursement of verification costs if tampering is indeed found. It remains unclear how such a discovery would impact the election result itself.

### Logistical Implications for ECI

- **Storage and Security:** The ECI now faces the challenge of securely storing a larger number of SLUs for a mandated period after each election.



- **Verification Process Management:** The ECI must establish protocols for handling verification requests from qualified candidates, which may involve deploying additional personnel.
- **Potential Legal Amendments:** The court's order necessitates an examination of the Representation of the People Act, 1951. Currently, election petitions can be filed within 45 days of the result. This law may require modification to address the potential need to unseal EVMs for verification during this period.

### Conclusion

The Supreme Court's verdict aims to bolster public confidence in the integrity of EVMs. While the process for voters remains unchanged, the ECI faces new logistical requirements regarding SLU storage, verification procedures, and potential legal adaptations.

### The Indelible Ink:

#### Introduction:

The indelible ink applied to voters' fingers serves as a vital deterrent against fraudulent voting.

#### Manufacturing of Indelible Ink:

- **Sole Manufacturer:** Mysore Paints & Varnish Ltd., a Karnataka government enterprise, is the sole manufacturer of indelible ink in India.
- **Production for 2024 Elections:** Approximately 26.5 lakh (2.65 million) small bottles of ink, each with a 10 ml capacity, have been produced for the current election cycle.

#### History and Development:

- **Developed in the 1950s:** The Election Commission of India (ECI) recognized the need to combat fraudulent voting and requested the Council of Scientific & Industrial Research (CSIR) to develop the ink in the 1950s.
- **Patented by NRDC:** The National Research Development Corporation (NRDC) holds the patent for the indelible ink formula.
- **Manufacturing License Granted:** Mysore Paints & Varnish Ltd. has been licensed to manufacture the ink since 1962.

#### Legal Basis for Indelible Ink:

- **Representation of the People Act (ROPA) 1951:** Section 61 of the ROPA empowers the ECI to establish rules for marking voters' fingers with indelible ink before issuing ballot papers.
- **Historical Use with Ballot Papers:** Prior to the introduction of electronic voting machines (EVMs), indelible ink was applied to voters' index fingers before receiving paper ballots to prevent multiple voting.

#### Chemical Composition and Properties:

- **Silver Nitrate:** The primary component of indelible ink is silver nitrate, which is colorless.
- **Ultraviolet Light Activation:** Upon exposure to ultraviolet light, such as sunlight, the silver nitrate reacts, making the mark visible.
- **Durability:** At a concentration of approximately 20% silver nitrate, the ink becomes difficult to remove for at least 72 hours after application.
- **Water-based and Quick Drying:** The ink is water-based and contains a solvent like alcohol to facilitate faster drying.

#### International Use and Application Variations:

- **Export to over 25 Countries:** India exports indelible ink to over 25 countries.
- **Variations in Application:** The application procedure for indelible ink varies across countries. Examples include:
  - Dipping finger in the ink (Cambodia and Maldives)
  - Applying ink with a brush (Burkina Faso)
  - Using nozzles (Turkey)
- **Cost:** Each bottle of indelible ink is currently sold for Rs 174.

### 1.16 Model Code of Conduct (MCC):

The Model Code of Conduct (MCC) is a comprehensive set of guidelines issued by the Election Commission of India to regulate the behavior of political parties and their candidates during elections. It covers various aspects such as speeches, polling day activities, conduct in polling booths, content of election manifestos, processions, and overall conduct of political candidates.

<b>Evolution</b>	<ul style="list-style-type: none"> <li>• Originating from the Assembly elections in Kerala in 1960, the MCC has evolved over time under different Chief Election Commissioners, expanding in scope and applicability.</li> <li>• Initially introduced as the 'Minimum Code of Conduct' during the Mid-Term Elections in 1968-69, it underwent revisions in 1979, 1982, 1991, and 2013 to adapt to changing electoral dynamics.</li> </ul>
<b>Activation and Applicability</b>	<ul style="list-style-type: none"> <li>• The MCC comes into effect immediately after the Election Commission announces the schedule for elections. It applies to political parties, candidates, and the government from the announcement of election dates until the declaration of results.</li> </ul>

<b>Objectives of MCC</b>	<ul style="list-style-type: none"> <li>• The MCC ensures orderly, transparent, and peaceful election campaigns, polling, and counting.</li> <li>• Its main goal is to uphold free and fair elections.</li> <li>• It ensures transparency and fairness in the electoral process.</li> <li>• The MCC promotes ethical behavior during elections.</li> <li>• It prevents malpractices, safeguarding the electoral process's integrity.</li> <li>• The MCC upholds democratic values.</li> <li>• It prohibits activities that could unfairly influence voters.</li> <li>• The MCC prevents disruption of peace during the election process.</li> <li>• It creates a conducive environment for informed voting.</li> </ul>
<b>What Does MCC Do?</b>	<ul style="list-style-type: none"> <li>• <b>Campaigning Restrictions:</b> The MCC prohibits parties and candidates from engaging in activities that may incite hatred or tension between communities, ensuring a harmonious electoral environment.</li> <li>• <b>Expenditure Limits:</b> Setting expenditure limits for election campaigns under the MCC curtails corruption and ensures equal opportunities for all candidates, promoting fairness in elections.</li> <li>• <b>Focus on Ethics:</b> The MCC includes a code of ethics emphasizing honesty, integrity, and respect for democratic values among political parties and candidates, guiding their behavior throughout the electoral process.</li> <li>• <b>Prohibition of Misuse of Power:</b> The MCC prohibits the misuse of government resources for campaigning, making communal appeals for votes, and organizing events without prior authorization, ensuring a level playing field for all candidates.</li> </ul>
<b>Monitoring Mechanism</b>	<p>Despite lacking statutory backing, the MCC has gained strength through strict enforcement by the Election Commission of India.</p> <ul style="list-style-type: none"> <li>• The ECI employs a robust monitoring mechanism, including flying squads, static surveillance teams, and expenditure observers, to ensure MCC compliance and fair elections.</li> <li>• Rapid response teams comprising officials and security personnel enforce compliance and maintain peace during elections.</li> </ul>
<b>Penalties for Violations</b>	<ul style="list-style-type: none"> <li>• Violations of MCC guidelines can lead to penalties such as candidate disqualification, election cancellation, or legal action against offenders.</li> <li>• Complaints regarding MCC violations can be lodged with the ECI or the Chief Electoral Officer of the respective state.</li> <li>• Breaching the MCC does not result in direct legal consequences, but some of its provisions can be enforced through existing statutes like the Indian Penal Code of 1860, the Code of Criminal Procedure of 1973, and the Representation of the People Act of 1951.</li> <li>• Compliance with the MCC is voluntary, and adherence relies on the commitment of political parties and candidates to uphold its principles.</li> </ul>

<b>Challenges in Enforcement</b>	<b>Proposed Solutions</b>
<ul style="list-style-type: none"> <li>• <b>Enforcement Complexity:</b> MCC regulates political parties, candidates, and government. Some strictly adhere, others exploit loopholes, undermining enforcement.</li> <li>• <b>Blurred Lines in Media:</b> Distinction between news and promotional material is blurred. Biased reporting can skew perception, compromising electoral integrity.</li> <li>• <b>Expenditure Monitoring:</b> Controlling and monitoring election expenditure is challenging. Unchecked spending can distort competition and undermine democracy.</li> <li>• <b>Electoral Malpractices:</b> Financial exploitation and technological manipulation pose threats to the MCC's efficacy.</li> <li>• <b>Navigating Ambiguities:</b> Political leaders often navigate the ambiguities between compliance and circumvention of MCC provisions, leveraging their prestige and demagoguery.</li> <li>• <b>Lack of Defined Consequences:</b> A critical deficiency of the MCC is the lack of clearly defined consequences for violations, which diminishes its deterrent effect.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Enhanced Enforcement:</b> Strengthen MCC enforcement to ensure compliance with its principles.</li> <li>• <b>Proactive Monitoring:</b> The Election Commission should actively monitor election expenditure and media coverage.</li> <li>• <b>MCC Updates:</b> Regularly update the MCC to address new challenges, including guidelines for digital campaigning.</li> <li>• <b>Graded Penalties:</b> The MCC should adopt a graded approach to penalties, escalating sanctions for repeat offenders.</li> <li>• <b>Vicarious Liability:</b> Emphasize penalties for violations by party functionaries or star campaigners to promote accountability.</li> <li>• <b>Procedural Reforms:</b> Expedite adjudication of violations and maintain a comprehensive database to enhance transparency.</li> <li>• <b>EC and Law Enforcement Collaboration:</b> Collaboration between the EC and law enforcement</li> </ul>

agencies is crucial for swift legal action against violations.

In conclusion, the reformulation of the MCC represents a pivotal step towards fortifying electoral democracy in India. By addressing existing lacunae and enhancing enforcement mechanisms, the EC reaffirms its commitment to upholding the principles of fairness, transparency, and accountability in electoral governance.

### 1.17 Encouraging Youth Participation in Democratic Processes

#### Introduction:

Today's youth demonstrate concern for societal issues but exhibit reluctance towards exercising their voting rights, presenting a significant gap to be addressed.

Data from the Election Commission of India reveals that less than 40% of eligible voters aged 18 to 19 have registered for the 2024 elections nationwide. Particularly low registration rates are observed in Delhi, Bihar, and Uttar Pradesh, despite their sizable youth populations.

#### Significance of Youth Participation:

- **Young people are a big voting bloc in India.** This means their voices can significantly impact election results.
- **Voting lets young people have a say in their future.** By choosing leaders, they influence the direction of the country.
- **Every vote strengthens democracy.** Each vote is like a thread woven into the fabric of how we govern ourselves together.
- **An active young electorate keeps democracy healthy.** When young people participate, it makes democracy more dynamic and effective.
- **Voter Apathy's Consequences:**
  - **Low voter turnout allows unfairness to persist.** When people don't vote, problems like injustice and inequality can continue unchallenged.
  - **It weakens democracy's core.** Voting is how we make collective decisions. If people don't vote, a small group can make choices for everyone.

#### Reasons for Youth Disengagement:

- **They feel like politicians don't care about the issues they care about.** Young people might not see candidates addressing their concerns.
- **Politics can feel distant and unimportant.** A top-down approach, where decisions are made without public input, discourages participation.
- **Schools might not prepare them to be informed voters.** If young people don't understand elections and how they impact their lives, they may not be motivated to vote.

#### Bridging the Voter Engagement Gap:

- **Election Commission's Initiatives:** The Election Commission of India (ECI) has launched various initiatives to boost voter engagement. These include:
  - Facilitating voters at polling stations
  - Implementing targeted outreach and communication strategies
  - Involving stakeholders
  - Conducting systematic voter education programs
- **Empowering Youth through Voting:** Voting provides a platform for the youth to bring about societal change. It involves:
  - Making young voters aware of local and national issues to foster informed decision-making
  - Upholding democratic principles through participation in elections
  - Recognizing the collective voice of the populace as crucial for effective governance
- **Addressing Youth-centric Concerns:** There are concerns that need to be addressed, such as:
  - Political campaigns often neglect issues relevant to young adults, leading to voter disinterest
  - Stereotypes that label Generation Z as apathetic, ignoring their passion for social causes and activism
  - Technological advancements that blur traditional boundaries, enabling youth to advocate for diverse issues
- **Utilizing Technology for Enhanced Participation:** Technology can be leveraged to increase participation, such as:
  - Using digital platforms like social media to engage tech-savvy youth
  - Introducing online voting options to align with the preferences of the digital-native generation, potentially increasing voter turnout
  - Implementing security measures similar to those in online banking to ensure the integrity of online voting systems
- **Educational Reform and Civic Empowerment:** The education system plays a crucial role in civic empowerment. It involves:
  - Prioritizing political literacy in the curriculum to equip young individuals with the knowledge to differentiate between political parties and understand the significance of their choices

- Progressive schools fostering a sense of responsibility and empowerment among students, encouraging them to advocate for their rights and issues.

### Conclusion:

In conclusion, fostering a culture of civic engagement and ensuring widespread participation in the electoral process are essential for upholding the integrity of democracy and safeguarding the rights and aspirations of all citizens.

## 1.18 Measuring Democracy

Assessing a country's democracy is multifaceted. While helpful, various democracy indices employ different methodologies and interpretations, leading to a range of perspectives. Understanding the nature of these indices is crucial to properly interpreting their rankings and insights into a nation's democratic health.

A 2023 Pew Research Center survey reveals a concerning trend: a rise in citizen preference for authoritarian rule over multi-party democracy in several countries.

- This disillusionment is particularly strong in developing nations like India (85%), Indonesia (77%), South Africa (66%), and Brazil (57%).
- Even developed nations like the United Kingdom (37%) and the United States (32%) show significant support for authoritarianism.

### Possible Reasons for Rise in Authoritarian Preference:

- **Shift to Authoritarianism:** Some, especially those less fortunate, see democracies as slow and prefer faster decision-making of authoritarian regimes.
- **Economic Discontent:** Citizens perceive democratic governments failing to address widening income inequality, where wealth concentrates with the rich while average citizens struggle.
- **Market Ideology's Shortcomings:** The dominant free-market model, relying on an "invisible hand" to regulate, fails to tackle inequality and environmental degradation.
- **Globalization's Unequal Power:** Globalized corporations prioritize profit over citizens' well-being and environmental concerns, wielding undue influence on governments.
- **Environmental Threats:** Unsustainable consumption, especially fossil fuels, threatens the planet's future. Water scarcity poses another major crisis, as seen in India's water stress and declining environmental ranking.
- **Overspecialization:** A focus on specific fields (e.g., climate science) can lead to neglecting the bigger picture, like social and economic consequences of proposed solutions.
- **Appeal of Charismatic Leaders:** In uncertain times, people may turn to leaders promising simplistic solutions, leading to potentially harmful policies based on incomplete knowledge.

### Methodology of Democracy Measurement:

- Researchers employ various approaches to assess democracy, incorporating factual data, expert judgment, and a combination of both.
- Four primary data types utilized by these indices include:
  - **Observational Data (OD):** Objective facts like voter turnout rates.
  - **In-house Coding:** Researchers analyze country-specific information from academic sources and news outlets.
  - **Expert Surveys:** Selected experts within a country provide subjective evaluations.
  - **Representative Surveys:** A chosen group of citizens offer their judgments.
- The United Nations High Commissioner for Human Rights advocates for observational, objective data to enhance the broad acceptability of assessments. However, others argue that fact-based metrics are insufficient and that expert input is necessary to capture governance realities.

### Focus of Democracy Indices:

- While all indices agree that democracy involves citizen participation in free and fair elections (electoral democracy), some delve deeper into other dimensions:
  - **Participatory Democracy:** Functionality of citizen groups and civil society organizations.
  - **Deliberative Democracy:** Decision-making based on reason and public interest, not coercion or minority interests.
  - **Egalitarian Democracy:** Equitable distribution of economic and social resources.

### Importance of Democracy Indices:

- **Track Democracy Trends:** Democracy indices capture important overall trends in how democracy is functioning globally.
- **Comparative Analysis:** These indices offer methods to compare the strengths and weaknesses of different governments, allowing for a clearer understanding of how various regimes function democratically.
- **Monitoring Progress:** By comparing democratic components across time and geographical regions, indices allow us to track progress (or decline) in democratic practices over time and across different parts of the world.



### Criticisms of Democracy Indices:

- **Inconsistent Methodology:** Indices vary widely in approach, with some using just a few indicators and others employing hundreds. The weighting of these indicators and how they're combined also differ across projects (e.g., V-Dem uses experts to evaluate sets of indicators).
- **Potential Subjectivity:** A major concern is that subjectivity can undermine the accuracy of the indices. Even with expert involvement and statistical models, evaluations rely on human judgment, which can be subjective.
- **Limited Scope:** Some indices exclude non-independent states and microstates, potentially overlooking the democratic health of smaller countries.
- **Ideological Biases:** The lack of a universally agreed-upon definition of democracy can lead to perceived ideological biases. For instance, a country experiencing a coup might rank higher than India due to differing criteria used by different indices.

#### Resilience of Indian Democracy in the Face of Misconceptions

Evaluating a country's democracy can be complex. Different organizations utilize varying methodologies to assess democratic health. This can be seen in the diverse rankings assigned to India by several prominent Democracy Indices.

##### Democracy Indices and India's ranking:

- **According to the 2023 Pew Research Center Global Attitudes Survey:**
  - **Reduced Support for Democracy:** Compared to the global average, Indians are significantly less likely to favour representative democracy.
  - **Rise of Authoritarianism:** A striking 85% of respondents endorsed rule by a strong leader (authoritarian) or military rule. This is one of the highest rates among the 24 countries surveyed.
  - **Importance of Opposition Wanes:** Fewer Indians believe opposition parties are crucial for a functioning democracy, ranking third-lowest globally.
  - **Expert Rule Gains Traction:** Support for governance by experts (technocracy) has risen significantly, from 65% in 2017 to 82% in 2023.
- **The V-Dem (Varieties of Democracy) Project's 2023 Report** terms India an "electoral autocracy" and ranks it at a low 104th position, between Niger and Ivory Coast. It highlights a sharp decline in democratic scores since 2013.
- **Freedom House's Freedom in the World 2021 Report** downgraded India's status from a "free democracy" to a "partly free democracy".
- **The Economist Intelligence Unit's Democracy Index 2020** ranked India as a "flawed democracy" at 53rd position. It flagged factors like the Citizenship Amendment Act (CAA), National Register of Citizens (NRC) and the revocation of special status in Jammu and Kashmir as reasons for the decline.

##### Addressing Misconceptions about Indian Democracy:

- **Strong Performance in Objective Measures:** The Indian government emphasizes its performance on objective metrics of democracy, such as fair elections and high voter participation.
- **World's Largest Democracy:** India boasts the largest democratic exercise globally, with an electorate of 969 million voters, surpassing the combined electorate of several major countries.
- **Technological Innovation:** India facilitates these large-scale elections through over 5.5 million electronic voting machines across 1.05 million polling stations, showcasing its technological prowess in managing elections.
- **Diverse Political Landscape:** The presence of several thousand registered political parties and numerous candidates reflects the vibrant and diverse political landscape of India.
- **Misconception of Democratic Backsliding:** This term is inaccurately applied to India. India's electoral system remains competitive with both major parties (BJP and Congress) actively participating and winning elections.
- **Misconception of Shrinking Freedom of Expression:** This claim is refuted by the vibrant diversity of opinion across various media platforms, including traditional and digital media, alongside a strong social media presence.
- **Independent Institutions:** India's judiciary and Election Commission maintain high integrity. Examples include the Supreme Court's recent ruling against the government on electoral bonds and the Election Commission's impartial enforcement of the model code of conduct.
- **Accountability and the Rule of Law:** Individuals and parties, regardless of political affiliation, are held accountable for alleged corruption and tax evasion, reflecting a commitment to the rule of law, a hallmark of mature democracies.
- **Judicial Independence:** Western media pronouncements advocating for bypassing legal processes in India can be seen as undermining the independence of the Indian judiciary, which functions as the guardian of the Constitution.

##### India's View on Democracy Indices:

- **Criticisms of Methodology:** India criticizes the methods used in global democracy indices, citing concerns about sample size, potential cultural bias, and how the indices are calculated.
- **Downgrades and Negative Press:** Recent downgrades in India's democracy ranking (to "partly free," "flawed democracy," or even "electoral autocracy") along with critical commentary from think tanks and agencies are seen as threats to India's sovereign ratings and global standing.
- **Media Misconceptions:** India believes the global media often misunderstands the complexities of Indian democracy, leading to inaccurate assessments and exaggerated concerns.

- **Inconsistent Rankings:** India highlights inconsistencies in how some indices rank countries. For example, Mexico's high V-Dem ranking (81) despite high levels of political violence (22 mayoral assassinations) and poor press freedom (more journalist deaths than war zones) contradicts its ranking above India in the Press Freedom Index.

#### Way Forward:

- **India's Democracy Index Initiative:** In response to concerns, the Indian government plans to develop its own democracy index. This initiative aims to counter recent downgrades and present an alternative perspective on India's democratic health.

#### Conclusion:

Indian democracy is demonstrably vibrant and competitive. The Indian state upholds the rule of law while respecting constitutional values. Those who portray India's democracy negatively fail to recognize these crucial distinctions and may be unwittingly promoting partisan agendas.

**Building a Strong Democracy:** Two key works offer a framework for strengthening democracies:

- **"Strengthening Democracy by Design"** by Thomas & Upchurch (2018) identifies four pillars of a robust democracy:
  - **Participation:** Citizens have opportunities to be involved in government decisions.
  - **Equality:** All citizens have the same rights and freedoms to participate in government.
  - **Knowledge:** Citizens are informed about government and public affairs.
  - **Accountability:** The government is answerable to the people and acts fairly.
- **"The Civic Bargain"** by Manville & Ober (2023):
  - A democracy needs a system where citizens with different interests can cooperate, respect each other's views, and work together for the common good.

#### Strategies for a Thriving Democracy:

- **Priorities for Governance:** Effective governance must prioritize inclusivity, address societal needs (economic inequality, social justice, and environmental sustainability), and combat political polarization.
- **Education and Critical Thinking:** Investing in education that fosters critical thinking, media literacy, and conflict resolution skills is essential.
- **Constitutional Literacy and Dialogue:** Integrating the study of the Constitution and promoting dialogue and negotiation can strengthen democratic foundations.
- **Citizen Engagement and Shared Responsibility:** Democracy requires an ongoing commitment from both citizens and governments to create an inclusive space where everyone feels heard and their concerns are addressed.
- **Need for Holistic Approach:** Systems thinking is crucial for understanding the complex web of social, economic, political, and environmental factors that influence democracy. Traditional approaches may not be sufficient for the challenges we face today.
- **Systems Thinking for Complex Issues:** The rise of authoritarianism and growing global challenges highlight the limitations of traditional approaches. Systems thinking, with its emphasis on interconnectedness, offers a framework to address these complexities.
- **Collaboration Over Specialization:** Moving beyond limitations of specialization and promoting cooperative solutions are essential for building a sustainable democratic future.

As authoritarianism rises and global challenges multiply, traditional approaches prove inadequate. Systems thinking, emphasizing interconnectedness and a holistic view, offers a framework to tackle these complexities. Surpassing the limitations of specialization and fostering collaborative solutions are essential to building a sustainable future for all.

### 1.19 Supreme Court Verdict in Delhi Metro Case: A Case Study in Infrastructure Development, Delays, and Dispute Resolution

#### Delhi Airport Metro Express Dispute

- The Delhi Metro Rail Corporation (DMRC) entered into a public-private partnership (PPP) with the Delhi Airport Metro Express Private Limited (DAMEPL), a Reliance Infrastructure company, in 2008.
- DAMEPL was responsible for designing, installing, and operating the Delhi Airport Metro line for 30 years.
- A dispute arose between DMRC and DAMEPL in 2012, with DAMEPL seeking to terminate the agreement citing technical issues and requesting to defer concession fee payments.

#### Case Background and Dispute

- The Delhi Metro Rail Corporation (DMRC) and Delhi Airport Metro Express Pvt. Ltd. (DAMEPL) entered into a Public-Private Partnership (PPP) agreement for the Airport Metro Express Line in 2011.
- DMRC was responsible for civil structures, while DAMEPL handled tracks, signaling, and rolling stock.
- In 2012, DAMEPL suspended operations citing defects in DMRC's civil works and requested repairs within 90 days, threatening termination if not addressed.
- DMRC fixed the defects, and both parties submitted a joint application for safety inspection and operation resumption in November 2012.

- The Commissioner of Metro Rail Safety (CMRS) issued a safety certificate upon a joint application, allowing operations to resume.
- Train operations restarted in 2013, with speeds reaching 80 kmph by March. However, DAMEPL ceased operations again in June 2013.
- DMRC took over the line and subsequent claims and counterclaims led to arbitration.

#### Arbitration Award and Legal Proceedings

- In 2017, an arbitral tribunal ruled in favor of DAMEPL, awarding them nearly Rs. 8,000 crore, including termination payment, interest, and operational expenses.
- DMRC challenged the award in the Delhi High Court (Single Judge Bench), which upheld it based on the "reasonable and plausible" standard.
- DMRC appealed to the Delhi High Court (Division Bench), which set aside the arbitration award citing:
  - Lack of consideration of safety aspects by the tribunal.
  - Unclear interpretation of a key contractual clause (Clause 29.5.1(i)).
  - Ambiguity regarding the termination date.
- DAMEPL filed Special Leave Petitions in the Supreme Court (SC).
  - A two-judge bench in September 2021 restored the arbitral award, emphasizing minimal judicial interference with arbitration.
  - DMRC's review petition against this judgment was dismissed in November 2021.
- DMRC filed a curative petition as a last resort, citing a miscarriage of justice.

#### DMRC's Curative Petition and its Significance

- DMRC filed a curative petition, a last resort to challenge the SC's judgment, citing a "fundamental error."
- In April 2024, the SC, exercising its extraordinary curative jurisdiction (powers under **Article 142**), allowed the petition and restored the 2019 High Court verdict, saving DMRC from paying the hefty arbitration award.
- The Court's reasoning for allowing the petition included:
  - The Court found that the earlier two-judge Bench erred in disregarding the CMRS safety certificate, considered crucial evidence by the Delhi High Court Bench.
  - The arbitral award's failure to consider crucial evidence and inconsistencies.
  - The Division Bench's correct assessment of the award's "perversity" and "patent illegality."
  - The restored award placing an undue financial burden on a public utility (DMRC). DMRC was relieved of the ₹7,687 crore burden.
- This decision essentially restored the parties to the position they held after the Delhi High Court's Division Bench judgment, favoring DMRC.
- The Court emphasized applying the principle of "fiat justitia ruat coelum" (let justice be done though the heavens fall) to prevent a grave miscarriage of justice.

#### Curative Jurisdiction: A Departure from Finality

- The Supreme Court's curative jurisdiction allows intervention in rare cases to prevent abuse of process or gross miscarriage of justice.
- Curative petitions are exceptional remedies, with narrow grounds for filing. These include violations of natural justice principles (e.g., unheard party, biased judge).
- The SC established this concept in the *Rupa Ashok Hurra case (2002)*, balancing the need for finality in judgments with correcting significant miscarriages of justice.
- Curative petitions are typically used in death penalty cases, and the SC has applied them sparingly in other high-profile cases like the Bhopal gas tragedy compensation.
- Arbitration awards are generally subject to limited grounds for challenge under Indian law.

#### Arguments Against Curative Jurisdiction:

- **Undermines Finality of Judgments:** Creates uncertainty and weakens public trust in the Court's pronouncements.
- **Inconsistency with Lawmaker's Intent:** Arbitration laws promote minimal judicial intervention in arbitral awards.
- **Erosion of the Court's Role as a Legal Beacon:** Frequent changes in interpretation create an image of a court swayed by trends, not principles.
- **Focus on Individual Cases vs. National Law:** The Court should prioritize establishing legal principles for the nation, not rectifying single errors.

**Special Leave Petition (SLP), Review Petition, Curative Petition, and Writ Petition - are ways to approach the Indian Supreme Court, but they serve different purposes:**

#### 1. Writ Petition (Article 32 for Fundamental Rights and Article 226 for other rights):

- **Purpose:** To enforce Fundamental Rights (Article 32) or other legal rights (Article 226) violated by the government or any authority.
- **Who can file:** Any individual or entity whose rights are infringed.
- **Example:** A citizen files a writ petition challenging the government's demolition of their house without due process.

#### 2. Special Leave Petition (SLP) (Article 136):

- **Purpose:** To appeal against a High Court judgment. It's not guaranteed to be heard by the Supreme Court.
- **Grounds:** The SLP must raise a substantial question of law of national importance.
- **Who can file:** A party to the High Court case.
- **Example:** A company loses a case in the High Court and files an SLP arguing the court misinterpreted a key legal principle.

### 3. Review Petition (Article 137):

- **Purpose:** To ask the Supreme Court to review its own judgment in a case it has already decided.
- **Grounds:** Very limited. Must show a clerical error, a mistake apparent on the face of the record, or that the judgment fails to consider a relevant law.
- **Who can file:** A party to the Supreme Court case.
- **Example:** After losing a case, a party discovers a crucial piece of evidence not presented earlier and files a review petition seeking reconsideration.

### 4. Curative Petition (Article 137):

- **Purpose:** An extremely rare remedy used as a last resort after a review petition is rejected.
- **Grounds:** To allege a "grave injustice" has occurred due to a flaw in the judgment that the review process couldn't address.
- **Who can file:** A party to the Supreme Court case.
- **Example:** A party believes the Supreme Court's judgment was based on forged evidence and uses a curative petition as a last resort to challenge it.

### Significance of the Supreme Court Verdict in the Delhi Metro Case:

This landmark verdict by the Supreme Court carries significant weight for various stakeholders involved in India's infrastructure development through Public-Private Partnerships (PPPs).

- **Impact on Infrastructure Development:**
  - **Supports Faster Development:** Aligns with the government's push for quicker infrastructure projects.
  - **Highlights Risk of Manipulation:** Raises concerns about vulnerabilities in processes used for Public-Private Partnerships (PPPs).
- **Focus on Fair Arbitration:**
  - **Overtaken Flawed Award:** Supreme Court (SC) declared the 2017 arbitration award unfair, illogical, and illegal.
  - **Importance of Evidence:** Award overlooked crucial facts and evidence presented by the Delhi Metro Rail Corporation (DMRC).
  - **Prevents Undeserved Gains:** Ensures private companies (like DAMEPL) don't benefit unfairly at the expense of public service providers (DMRC).
  - **Well-Reasoned Decisions:** Emphasizes the need for well-supported arbitration awards that address both factual and legal aspects.
  - **Discourages Prolonged Disputes:** Highlights how arbitration errors can lead to lengthy court battles, discouraging its use.
  - **Limited Curative Power:** Acknowledges the existence of curative jurisdiction for extreme cases, but stresses it's a last resort not available to everyone.
- **Landmark Curative Use:**
  - **Rare Correction:** Showcases the uncommon use of curative power to rectify a perceived "grave injustice" in a final SC verdict.
  - **Judicial Self-Restraint Debate:** Reignites discussions about the SC's self-derived powers, with some advocating for judicial restraint.
  - **Investor Confidence:** Raises concerns about the potential impact on investor confidence due to such interventions by the SC.

### Supreme Court Verdict in Delhi Metro Case - Policy Implications and Lessons Learned

- **Lessons for Arbitration and Contracting:**
  - **Fair Arbitration Practices:** Robust and transparent arbitration processes are crucial for resolving disputes effectively and efficiently.
  - **Scrutiny of Agreements:** Highlights the importance of tribunals carefully examining agreements and contractual clauses to avoid misinterpretations.
  - **Precedence for Infrastructure Disputes:** Sets a precedent for future infrastructure and PPP disputes.
  - **Contract Clarity:** Emphasizes the importance of clear and unambiguous contractual language to minimize disputes.
  - **Evidence Analysis by Tribunals:** Stresses the need for thorough evidence analysis by arbitration tribunals.
  - **Judicial Intervention for Flawed Awards:** Reinforces courts' ability to intervene in cases of "patent illegality" or demonstrably flawed arbitration awards.
- **Need for Robust Policy and Regulation:**
  - **Highlighting Inefficiency:** The case (2008-2024) exposes the inefficiency of dispute resolution, discouraging private investment in infrastructure.



- **Delays and Infrastructure Growth:** Delays hinder project progress and capital allocation, impacting infrastructure development.
- **Independent Regulator's Potential Value:** Underscores the potential benefit of an independent regulator for faster dispute resolution.

**Looking Forward To Building Confidence:**

- **Preventing Future Injustice:** Robust systems are needed to prevent similar miscarriages of justice and encourage infrastructure investment.
- **Upholding Legal Principles and Timely Resolution:** The SC's intervention emphasizes the importance of upholding legal principles and ensuring timely dispute resolution.
- **Challenges and Private Investment:** This case exemplifies the challenges associated with infrastructure development in India, particularly regarding delays and dispute resolution.
- **Efficient Legal Framework for Investment:** The emphasis on preventing future errors underscores the critical role of efficient legal and regulatory frameworks in attracting private investment.

The Delhi Metro case serves as a valuable guide for future disputes arising in infrastructure projects and public-private partnerships. It highlights the need for a comprehensive approach that emphasizes fair arbitration practices, well-drafted contracts, and a strong judiciary to ensure a prosperous infrastructure development landscape in India.

## Foundation Course - General Studies (UPSC & MPSC Rajyaseva - New Pattern 2025)

**Course Motto:** "Building a Strong Foundation for Your Civil Services Dream"

**Course Objective:**

This comprehensive foundation course is designed to equip you with the **solid conceptual understanding** and **analytical skills** needed to excel in both the Preliminary and Mains examinations of UPSC and MPSC Rajyaseva (New Pattern 2025).

**Course Highlights:**

- **Focus on Fundamentals:** We emphasize building a strong foundation in core subjects through in-depth coverage of relevant NCERTs and Maharashtra State Board Books.
- **Answer Writing Program:** Sharpen your answer writing skills with a dedicated program that provides guidance, feedback, and practice opportunities.
- **Personalized Mentorship:** Get personalized support and guidance from experienced mentors to help you navigate your preparation journey effectively.
- **Live Interactive Classes:** Students will have access to live classes conducted on an online platform, allowing for real-time interaction with experienced faculty.

**Enroll today and unlock your full potential!**

**[Kaivalya-Civil Services Mentors Hub (9511900488)]**

## 2 International relations

**2.1 India-Nepal Relationship:**

India and Nepal, two South Asian neighbours, share a unique relationship of friendship and cooperation characterized by open borders and deep-rooted people-to-people ties of kinship and culture. This relationship has been nurtured by mutual respect for each other's territorial integrity and sovereignty, and a broad understanding of each other's aspirations, concerns and interests.

**The key dimensions of the India-Nepal relationship:**

- **Historical Ties:** India and Nepal share deep historical, cultural, and economic ties that span centuries. The two countries not only share an open border and unhindered movement of people, but they also have close bonds through marriages and familial ties, popularly known as Roti-Beti ka Rishta.
- **Treaty of Peace and Friendship of 1950:** This treaty forms the bedrock of the special relations that exist between India and Nepal. It talks about the reciprocal treatment of Indian and Nepali citizens in the two countries, in residence, property, business, and movement.
- **Geostrategic Importance:** Nepal is strategically important to India due to its location between India and China. It acts as a buffer state against any possible aggression from China.
- **Economic Cooperation:** India is Nepal's largest trade partner and the largest source of foreign investments. India has also built several hydroelectric projects in Nepal.
- **Defence Cooperation:** India has been assisting the modernisation of Nepal Army (NA) by supplying equipment and providing training. The Gorkha regiments of the Indian Army are raised partly by recruitment from hill districts of Nepal.
- **Connectivity and Development Partnerships:** India's development assistance to Nepal is a broad-based programme focusing on the creation of infrastructure at the grass-roots level.
- **Political Developments:** The electoral outcomes in the recent elections in Nepal were on the expected lines. However, the post-election developments have created some uncertainties in the India-Nepal Relationship.

**Challenges in the Relationship:**

- **Border Disputes:** The unresolved border disputes, particularly the Kalapani-Limpiyadhura-Lipulekh trijunction, have been a major point of contention between India and Nepal.
- **Anti-India Sentiment:** There is a growing anti-India sentiment in Nepal, fueled by perceptions of Indian interference in Nepal's internal affairs.
- **China's Growing Influence:** China's increasing economic and political influence in Nepal is seen as a challenge to India's traditionally strong presence in the country.
- **Political Instability in Nepal:** The frequent changes in government in Nepal due to internal political instability have made it difficult for India to maintain a consistent relationship.
- **Trade Imbalance:** Despite being Nepal's largest trading partner, there is a significant trade imbalance between the two countries, which is a matter of concern for Nepal.
- **Lack of Infrastructure:** The lack of proper infrastructure at border points hampers the smooth movement of goods and people between the two countries.
- **Issues of Indian-Origin Madhesis:** The issues of Indian-origin Madhesis in Nepal, including their political representation and citizenship rights, have been a sensitive issue in India-Nepal relations.
- **Water Resource Management:** Issues related to water resource management, including the sharing of river waters and the development of hydropower, have been contentious.

The political instability of Nepal over the past few decades	It's implications for India's interests and the India-Nepal relationship
<ul style="list-style-type: none"> <li>• <b>Chronic Political Instability:</b> Over the last three decades, Nepal has witnessed chronic political instability, including a 10-year violent insurgency, which has severely impacted the country's development and economy.</li> <li>• <b>Turbulent Shifts:</b> Nepal's domestic politics have been undergoing turbulent and significant shifts. For instance, in December 2020, Prime Minister KP Sharma Oli dissolved the House of Representatives, leading to snap elections in April and May 2021.</li> <li>• <b>Internal Rifts:</b> The dissolution of the parliament was a result of a serious internal rift within the ruling Nepal Communist Party (NCP) that threatened to depose the Prime Minister from power.</li> <li>• <b>Political Uncertainty:</b> The future of the government remains uncertain due to personal disputes among top leaders, leading to a split in the NCP.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Geostrategic Concerns:</b> Nepal's political turmoil disrupts its ability to harness its hydropower potential, a focal point of India-China competition. This weakens India's energy security and regional influence.</li> <li>• <b>Shifting Relations:</b> Nepal's evolving democracy, influenced by China, necessitates India to redefine its long-standing relationship.</li> <li>• <b>Territorial Tensions:</b> Political instability fuels territorial disputes, exemplified by Prime Minister Oli's disputed territorial claims, potentially used to garner domestic support.</li> <li>• <b>Diplomatic Hurdles:</b> Instability presents diplomatic challenges for India. The 2015 border blockade, triggered by Nepal's internal issues, strained relations.</li> </ul>

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• <b>High Turnover of Governments:</b> Since 2000, twenty different governments have ruled Nepal, the highest turnover rate in all of South Asia.</li> <li>• <b>Influence of External Factors:</b> While India has interfered in Nepal's domestic politics in the past, there is little evidence it had a hand in the NCP's split.</li> <li>• <b>Undermining of Democratic Fabric:</b> The internal political instability and the political dimensions of the current predicament along with the domestic and geopolitical implications are leading to a serious and long-term weakening of Nepal's democratic fabric.</li> <li>• <b>Lack of Progress:</b> Despite the formation of a strong government after decades of political instability, the expected socioeconomic transformation of Nepal has not materialized.</li> <li>• <b>Public Trust:</b> The recurring pattern of instability and the political manoeuvres have undermined public trust in the electoral process</li> </ul> | <ul style="list-style-type: none"> <li>• <b>China's Ascendancy:</b> Political instability creates openings for China. Shortly after the blockade ended, Nepal's Prime Minister signed a transit agreement with China, signifying reduced dependence on India.</li> <li>• <b>Security Implications:</b> Nepal's geopolitical location and unresolved borders with India and China can have security ramifications for India.</li> </ul> |
|--|--|

#### The way forward:

The way forward for India-Nepal relations amidst the ongoing political instability in Nepal could involve the following strategies:

- **Sustained Dialogue:** Maintain open communication with Nepal regardless of leadership to address issues and build trust.
- **Respectful Engagement:** Uphold Nepal's sovereignty and avoid internal interference to improve relations and curb anti-India sentiment.
- **Economic Partnership:** Deepen economic cooperation through hydropower investments, infrastructure development, and trade facilitation.
- **People-to-People Links:** Strengthen societal bonds via cultural exchanges, tourism initiatives, and educational collaborations for a robust bilateral foundation.
- **Border Resolution:** Collaborate with Nepal through diplomatic channels to resolve border disputes and foster better ties.
- **Balancing with China:** Employ a strategic approach to balance relations with Nepal in the face of China's growing influence.
- **Security Collaboration:** Enhance security cooperation with Nepal to address shared threats like border management and counter-terrorism.
- **Democracy Support:** Encourage the strengthening of Nepal's democratic institutions to promote long-term political stability.

In conclusion, while there are challenges in the India-Nepal relationship, there are also opportunities for both countries to work together for mutual benefit. It requires patience, understanding, and respect for each other's interests and concerns.

## 2.2 Pakistan's Hybrid Regime and its Impact on India

Pakistan's recent elections have resulted in a military-backed government lacking popular legitimacy. This hybrid regime presents challenges for both Pakistan's internal stability and its relationship with India.

#### Pakistan's Hybrid Regime:

- **Pakistan's New Government:** In February 2024, Pakistan's military allegedly orchestrated elections, leading to the formation of a new government. The key figures include **Shehbaz Sharif** as Prime Minister, **Asif Ali Zardari** as President, and **Maryam Nawaz** as the Chief Minister of Punjab. Former Prime Minister **Imran Khan** and his party (PTI) were sidelined through alleged manipulation and legal challenges.
- **Military's Dominance and Civilian Facade:** The Pakistani military, likened to a corporate board with the army chief as CEO and corps commanders as the board, is seen as the dominant power player. Civilian leaders like Shehbaz Sharif (COO) and Muhammad Aurangzeb (CFO) are perceived as executing specific tasks under the military's direction.
- **Failed Democracy and Public Discontent:** The alleged rigging of elections and marginalization of the popular will underscore the deficiencies in Pakistan's democratic system. The public's frustration with a stolen mandate and limited agency is palpable. The army's attempts to suppress dissent and dismiss criticism further undermine democratic processes.
- **Economic Challenges and IMF Involvement:** The new government inherits a severe economic crisis, necessitating stringent reforms such as energy price hikes and privatization. The IMF loan comes with conditions, but a key reform – removing military control of economic activities – remains unaddressed. India has warned the IMF against allowing Pakistan to misuse funds for military purposes or Chinese debt repayment.
- **Recent Attacks:** Pakistan experienced attacks on a hydropower project in Dasu (Khyber Pakhtunkhwa), a naval airbase in Turbat (Balochistan), and the port city of Gwadar (Balochistan) – a crucial part of CPEC – within a single week. These attacks, which resulted in the deaths of Chinese nationals and Pakistani personnel, expose deeper vulnerabilities in Pakistan's political economy and overall development strategy.
- **Violence in Tribal Areas:** Violence has surged in Pakistan's tribal belt, primarily due to the Taliban and IS-K (Islamic State Khorasan Province). The Tehrik-i-Taliban Pakistan (TTP), the "ideological twin" of the Afghan Taliban, is mainly responsible. According to PIPS data, the TTP carried out 95 attacks in 2020, killing 140 people, and 44 attacks in the first half of this year.

- **External Conflict:** Regionally, Pakistan faces a resurgence of extremist groups along its border with Afghanistan, escalating tensions with Taliban-led Afghanistan. Despite a declared ceasefire on the Line of Control in Kashmir in 2021, relations with India remain stagnant and vulnerable to crises that pose a threat to regional and international security.
- **Security Concerns:** Militant groups continue to launch attacks, often targeting security forces. Pakistan's armed forces recently said there had been 436 terror attacks so far in 2023.
- **Human Rights Issues:** The government of Prime Minister Shehbaz Sharif has been accused of clamping down on the media, nongovernmental organizations (NGOs), and political opposition.

### Impacts of Pakistan's New Government:

#### On India's Interests:

- **Heightened Security Concerns:** The dominance of the Pakistani military raises concerns about the safety of Pakistan's nuclear arsenal and potential support for terrorist organizations targeting India.
- **Strained Relations:** The alleged manipulation of elections and sidelining of Imran Khan, popular in some sections of Indian society, can further complicate India-Pakistan dialogue.
- **Economic Instability Spillover:** Pakistan's economic woes could impact regional trade and potentially lead to increased migration and instability on the borders.
- **Uncertainty in Afghanistan:** The Taliban's resurgence and Pakistan's complex relationship with them create an unpredictable situation that could affect India's security interests in Afghanistan.
- **Limited Leverage on Terrorism:** Dealing with a military-backed government might make it harder for India to pressure Pakistan to crack down on terror groups effectively.
- **Potential Misuse of IMF Funds:** India's concerns about Pakistan misusing IMF loans for military purposes or Chinese debt repayment could create tension with international institutions.

#### On India-Pakistan Relations:

- **Stalled Dialogue:** The lack of a legitimate civilian government in Pakistan might make India hesitant to engage in meaningful dialogue on critical issues like Kashmir.
- **Increased Mistrust:** Allegations of rigged elections and the marginalization of political parties can further erode trust between the two countries.
- **Cross-Border Tensions:** Unrest in Pakistan and the rise of extremist groups could lead to increased ceasefire violations and border skirmishes.
- **Limited People-to-People Contact:** The strained political climate might hinder cultural and economic exchanges, further distancing the populations.
- **Reduced Trade Opportunities:** Pakistan's economic troubles could limit bilateral trade and economic cooperation.
- **Potential for Miscalculation:** Uncertainty in Pakistan's leadership and its relationship with India can increase the risk of miscalculations that lead to escalation.

#### On Regional Security:

- **Potential for Wider Destabilization:** The involvement of ISIS-K in terror attacks in Pakistan and neighboring countries like Iran and Russia highlights the risk of regional destabilization if these issues remain unaddressed.
- **Strengthened Taliban:** A military-backed government in Pakistan might feel less pressure to control the Afghan Taliban, potentially destabilizing the region.
- **Increased Extremism:** The rise of extremist groups in Pakistan's tribal areas can spill over into neighbouring countries, fueling radicalization and violence.
- **Arm Race Concerns:** The dominance of the military in Pakistan might lead to an increase in defense spending, raising concerns about a regional arms race.
- **Destabilization of Afghanistan:** Continued violence in Afghanistan can create a power vacuum, allowing terrorist groups to flourish and pose a threat to regional security.
- **Impact on CPEC:** Attacks on CPEC projects can create instability in Pakistan and discourage foreign investment in the region.
- **International Pressure:** Pakistan's internal issues might attract international scrutiny and pressure for democratic reforms, potentially leading to regional instability.

#### India can adopt several strategies to mitigate the impact of Pakistan's instability on its security:

- **Strengthening Internal Security:** India can enhance its internal security mechanisms to prevent cross-border terrorism and insurgency. This includes improving intelligence gathering, border security, and counter-terrorism operations.
- **Regional Cooperation:** Reducing tensions between India and Pakistan requires a regional effort. India can work with other countries in the region to promote peace and stability. For instance, India and Pakistan's membership in the Shanghai Cooperation Organization (SCO) provides a platform for dialogue and cooperation.
- **Diplomatic Engagement:** India can continue to engage with Pakistan diplomatically to resolve contentious issues and reduce tensions. This includes dialogue at various levels - bilateral, multilateral, and back-channel.
- **Economic and Trade Ties:** Establishing sound economic and trade ties with Pakistan could also help in reducing tensions. Economic interdependence can act as a deterrent against conflict and promote peace.



- **Addressing the Kashmir Issue:** The Kashmir issue is a major point of contention between India and Pakistan. Finding a mutually acceptable solution to this issue can significantly reduce tensions.
- **Engaging with the International Community:** India can engage with the international community, including the IMF, to ensure that funds given to Pakistan are not misused for military purposes or Chinese debt repayment.

These strategies, however, require a concerted and sustained effort from all stakeholders. It's important to note that the situation is complex and evolving, and the strategies should be adaptable to the changing dynamics of the region.

### 2.3 A Fragile Corridor: Attacks Expose Vulnerabilities of CPEC and Pakistan

The **China-Pakistan Economic Corridor (CPEC)** is about 3,000 km long a massive infrastructure project that aims to connect Gwadar Port in southwestern Pakistan with China's northwestern region of Xinjiang, via a network of highways, railways, and pipelines. The project is a part of China's larger Belt and Road Initiative (BRI) to improve connectivity, trade, and communication. The main objectives of CPEC are:

1. Securing Energy Import and Trade Boost for China
2. Infrastructure Development for Pakistan

#### India has been opposing the CPEC for several reasons:

- **Infringement:** CPEC traverses through Pakistan-controlled Kashmir, a region claimed by India. This, India views as a direct violation of its territorial integrity.
- **Illegitimate Expansion:** India firmly rejects proposals for third-party involvement in CPEC, asserting such actions as illegitimate infringements on its sovereignty.
- **Unacceptable Extensions:** Any attempts by China and Pakistan to extend CPEC, particularly into Pakistan-occupied Kashmir (PoK), are deemed by India as inherently illegal and unacceptable.

#### Recent Terror Attacks and Vulnerability of Chinese Personnel

- **Multiple Attacks:** Pakistan has witnessed a series of high-profile terrorist attacks within a short timeframe. The Majeed Brigade of the Balochistan Liberation Army (BLA) claimed responsibility for attacks on the Turbat naval airbase and the Gwadar Port Authority Complex, both with significant Chinese involvement. A separate attack in Khyber Pakhtunkhwa targeted Chinese engineers working on the Dasu Hydropower Project under the China-Pakistan Economic Corridor (CPEC).
- **History of Violence:** This is not the first instance of violence against CPEC projects. In 2021, a suicide bombing targeted the Dasu hydropower project, leading to casualties among Chinese personnel.
- **Pattern of Targeting:** These attacks highlight the vulnerability of Chinese personnel and investments in Pakistan. This poses a significant security concern for China, considering the large number of Chinese nationals working on CPEC projects.

#### China's Reaction and Strategic Costs of CPEC:

- **China's Strong Response:** China has condemned the attacks in strong terms, urging Pakistan to apprehend the perpetrators and reaffirming its commitment to the partnership.
- **Rhetoric vs. Reality:** Despite the emphasis on an "iron-clad friendship," the attacks raise questions about the growing strategic and political costs associated with CPEC.
- **Strategic Importance of CPEC:** China remains deeply invested in Pakistan, particularly through CPEC projects. The Gwadar port development, offering access to the Arabian Sea and Indian Ocean, holds immense strategic value for China.
- **Public and Private Concerns:** While publicly advocating for continued cooperation, China is reportedly pressuring Pakistan behind the scenes for a more effective response to these threats.

#### Sources of Vulnerability:

- **Anti-China Sentiment:** Groups like the Tehreek-i-Taliban Pakistan (TTP), ISIS-K, and Baloch separatist insurgents harbor anti-China sentiments. They view CPEC as a threat to their ideologies or regional aspirations.
- **Security Challenges Beyond Military Response:** Pakistan's security issues extend beyond military threats. The country faces internal conflicts on its western borders and a long-standing Baloch separatist movement. These require a multifaceted approach beyond traditional military responses.
- **Overreliance on China:** Pakistan's leadership has placed excessive reliance on CPEC as a solution to its economic woes. This dependence, coupled with a prolonged economic crisis, has exacerbated vulnerabilities on multiple fronts.
- **Security Issues:** The volatile security situation, including frequent terror attacks, is a major factor hindering CPEC's progress. This delays project completion and discourages further investment.
- **Additional Challenges:** Other factors like Pakistan's economic absorption capacity, bureaucratic hurdles, and internal disagreements over project benefits further complicate CPEC's implementation.
- **Denial and Deflection:** Pakistan's response to terrorism often involves blaming India, neglecting introspection on its own policies that have fueled extremism.
- **Roots of Discontent:** Pakistan's alienation of ethnic minorities like Balochs, its history of using religious extremism as a state policy, and its strained relations with neighbors like Afghanistan have created fertile ground for terrorism.
- **Unsuccessful Afghan Strategy:** Pakistan's heavy investment in the Taliban regime hasn't yielded the desired strategic depth. The resurgence of Tehreek-e-Taliban Pakistan (TTP) operating from Afghan soil further weakens Pakistan's security.

- **Exploitative Resource Development:** Pakistan's long-standing exploitative policies in Balochistan, further exacerbated by Chinese projects lacking local benefits, have fueled resentment among the Baloch population.
- **China's Strategic Concerns:** China's growing presence in Balochistan, particularly potential naval expansion from Gwadar, raises concerns for regional powers due to its proximity to the Strait of Hormuz.

**Need for Systemic Overhaul:** Pakistan needs a systemic overhaul to address these vulnerabilities.

- **Economic Diversification:** Opening up the economy and diversifying trade partnerships is crucial. Exploring improved trade relations with India could signal economic maturity and a willingness to prioritize national interests.
- **Broad-Based Economic Growth:** A more diversified economy will not only strengthen Pakistan's economic position but also enhance security. Concentrated reliance on a single project like CPEC makes it a prime target for disruption, potentially triggering wider instability.
- **Reviewing Trade Suspension:** Pakistan's new Foreign Minister's suggestion of reviewing the suspension of trade with India offers a potential opportunity. However, India's response will depend on concrete actions taken by Pakistan to address terrorism emanating from its territory.
- **Prioritizing Regional Security:** India, while taking necessary steps to protect itself from the spillover of terrorism, should also be receptive to a constructive approach from Pakistan to ensure regional stability.

The recent attacks highlight the need for Pakistan to address its economic overreliance on China and explore avenues for economic diversification. A more robust and diversified economic base is essential for Pakistan's long-term security and stability.

#### 2.4 India's Shifting Strategic Landscape: A Reconceptualization of Global Regions

The rise of a multipolar world order and shifting geopolitical realities are prompting India to reassess its foreign policy strategy.

Traditionally focused on South Asia, India is now adopting a more geographically expansive approach.

India's foreign policy is undergoing a significant shift, moving from a South Asia-centric approach to a more geographically expansive strategy.

##### **India's Expanding Strategic Gaze Beyond South Asia:**

- **Island Nations as Strategic Assets:** India recognizes the growing importance of island nations in the Indian Ocean and South Pacific, fortifying ties with countries like the Maldives and Mauritius, and collaborating with Australia in the eastern Indian Ocean. This reflects India's growing maritime interests and global ambitions.
- **The Rise of the Indo-Pacific:** The concept of the Indo-Pacific, encompassing both the Indian and Pacific Oceans, has gained traction due to deteriorating relations with China and a growing partnership with the US. The Quadrilateral Security Dialogue (Quad) serves as the institutional embodiment of this focus.
- **Balancing Act in Eurasia:** While not as prominent as the Indo-Pacific, India's membership in the Shanghai Cooperation Organisation (SCO) reflects its interest in continental Asia and a multipolar world order. However, recent tensions with China and Russia are causing India to reassess its approach in Eurasia.
- **Europe's Growing Significance:** Previously neglected, Europe has witnessed a surge in engagement with India, evident from frequent high-level visits, trade agreements with the European Free Trade Association (EFTA), and a growing partnership with France. India is strategically engaging with various European regions like the Nordics and the Med 9 countries.
- **A More Integrated View:** India's expanding strategic focus encompasses the Middle East, Africa, and the Indian Ocean. This is reflected in its economic corridor plans with Europe, engagement with the Abraham Accords countries, deepening ties with the Gulf states, naval presence in the Red Sea, and growing focus on Africa.
- **The Decline of SAARC:** The failure of the South Asian Association for Regional Cooperation (SAARC) has led India to prioritize sub-regional cooperation within the eastern subcontinent and the Bay of Bengal littoral, marking a shift away from a solely South Asia-centric approach.
- **Regions as Evolving Concepts:** The document acknowledges that "regions" are not static but shaped by political, economic, and ideological factors. The Indo-Pacific is just the latest example, following constructs like "South Asia" and "East Asia."
- **Emerging Geopolitical Concerns:** Two new regions, Zomia (the highlands of Northeast India, Myanmar, and Southeast Asia) and Khorasan (eastern Persian borderlands), are identified as potential areas of future strategic focus for India due to concerns about political vacuums, extremism, and border security.

India's shift from a South Asia-centric approach to a more geographically expansive strategy in its foreign policy has several implications.

Positive Implications:	Negative Implications:
<ul style="list-style-type: none"> <li>• <b>Global Influence:</b> Broader engagement strengthens India's position on the world stage (e.g., QUAD, International Solar Alliance).</li> <li>• <b>Diversified Partnerships:</b> Reduces dependence on any single region (e.g., growing partnerships with African nations).</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Regional Tensions:</b> Shift in focus may strain relations with neighbors with territorial disputes (e.g., Pakistan, China).</li> <li>• <b>Resource Challenges:</b> Implementing a broader foreign policy requires significant investment (e.g., new embassies, diplomat training).</li> </ul>

- **Strategic Autonomy:** More freedom to pursue national interests (e.g., neutrality in Russia-Ukraine conflict).
- **Enhanced Security:** Network of partnerships fosters intelligence sharing and defense cooperation (e.g., collaboration with France on maritime security).
- **Economic Growth:** Increased international engagement opens doors for trade and investment (e.g., free trade agreements with ASEAN and Japan).
- **Cultural Exchange:** Engagement with diverse cultures promotes mutual understanding (e.g., global popularity of yoga and cinema).

- **Geopolitical Conflicts:** Expanding global presence could lead to competition with other major powers (e.g., friction with China's Belt and Road Initiative).
- **Diplomatic Complexity:** Managing relations with a wider network is challenging (e.g., navigating cultural differences and conflicting interests).
- **Risk of Overextension:** Spreading resources too thin could lead to decline in effectiveness (e.g., neglecting regional security in South Asia).
- **Domestic Neglect:** Excessive focus on external affairs could neglect domestic issues (e.g., balancing defense spending with social programs).

#### Solutions:

- **Balanced Approach:** Maintain commitment to regional stability while pursuing global ambitions (continued engagement with South Asian neighbors).
- **Strategic Partnerships:** Prioritize building partnerships with countries that share India's values and interests (e.g., deepening ties with democracies in the Indo-Pacific).
- **Domestic Development Focus:** Ensure foreign policy supports domestic development (e.g., utilizing economic growth for infrastructure and education).
- **Public Discourse:** Encourage informed public discussion on foreign policy choices.
- **Cultural Diplomacy:** Leverage cultural exchange to improve relations and promote understanding (e.g., cultural exchanges, educational programs).

India's evolving foreign policy presents both opportunities and challenges. By carefully navigating these and implementing the proposed solutions, India can seize the advantages of a broader global presence while mitigating potential drawbacks. This will allow India to play a more significant role on the world stage while ensuring stability and prosperity at home.

#### 2.5 What is the "India Out" Campaign?

The "India Out" campaign is a movement swiftly spread to social media that has been seen in countries like the Maldives and Bangladesh, where there has been opposition to India's presence and influence.

In the **Maldives**, the campaign started around 2018 and gained traction on social media. The campaign was initially launched by then-President of Maldives, Abdullah Yameen, who opposed India's military presence in the country.

This campaign gained momentum in the Maldives in 2023 following the election of a new president who campaigned on a platform of reducing dependence on India. Reasons behind the campaign include:

- Concerns about growing Indian investment and perceived encroachment on Maldivian sovereignty.
- Discontent with India's military presence in the region.
- Disagreement with India's foreign policy stances, particularly regarding regional issues.

In **Bangladesh**, the "India Out" campaign has been backed by opposition parties and accuses India of interfering in Bangladesh's politics. The campaign has urged citizens to boycott Indian products and has gained traction on social media. The 'India Out' campaign is gaining traction in Bangladesh due to several reasons:

- **Alleged Election Interference:** The campaign alleges that India interfered in Bangladesh's national elections, which has led to calls for a boycott of Indian goods.
- **Resentment Against India:** There is deep-seated resentment against India in Bangladesh, driven by border and water grievances, and a perception that India's Hindu nationalist ruling party looks down on its Muslim neighbours.
- **Social Media Influence:** The campaign is being driven on social media, with hashtags like **#IndiaOut**, **#BoycottIndia**, and **#BoycottIndianProducts** trending on platforms like Facebook.
- **Opposition Support:** The campaign is backed by opposition parties in Bangladesh, further fueling its momentum.
- **Economic Impact:** Some shops in Dhaka and Chittagong have reported a drop in sales of Indian products, indicating the campaign's impact.

It's important to note that these campaigns reflect the complex dynamics of regional politics and the challenges of maintaining diplomatic relations. They do not necessarily represent the official stance of the governments involved.

The 'India Out' campaign can have several impacts on India's interests:

Impacts on India's Interests	
<b>Economic Impact:</b>	<ul style="list-style-type: none"> <li>• <b>Trade Relations:</b> India is a significant trading partner for countries like Bangladesh. A successful 'India Out' campaign could potentially reduce the exports and trade surplus of India, lower its GDP, and damage its reputation and image.</li> <li>• <b>FMCG Sector:</b> The campaign specifically targets the fast-moving consumer goods (FMCG) sector, which includes packaged foods, beverages, toiletries, over-the-counter drugs, and similar consumables. Indian FMCG companies have a significant presence in these countries, and a boycott could impact their market share and growth.</li> <li>• <b>CEPA Negotiations Stalled:</b> The campaign threatens to disrupt ongoing negotiations for a Comprehensive Economic Partnership Agreement (CEPA) between India and Bangladesh.</li> <li>• <b>Infrastructure Projects at Risk:</b> It could jeopardize joint infrastructure projects and slow Bangladesh's economic progress.</li> <li>• <b>Economic Disadvantage:</b> Reduced Indian investment and trade with the Maldives could negatively impact Indian businesses and limit economic opportunities.</li> </ul>
<b>Political Impact:</b>	<ul style="list-style-type: none"> <li>• <b>Diplomatic Relations:</b> The campaign could strain India's diplomatic relations with these countries. It could lead to a reassessment of India's foreign policy and its approach towards its neighbors.</li> <li>• <b>Regional Influence:</b> The campaign could potentially reduce India's influence in the region. This could have implications for India's strategic interests, including its ability to counterbalance other regional powers.</li> <li>• <b>Reduced Influence:</b> A successful "India Out" movement would weaken India's strategic influence in the Indian Ocean region. This could create a power vacuum that other countries, like China, might be eager to fill.</li> </ul>
<b>Security Impact:</b>	<ul style="list-style-type: none"> <li>• <b>Defence Partnerships:</b> The campaign seeks to amplify animosity by instilling skepticism regarding India's investments and defence partnerships in the region. This could potentially impact India's security provisions in the region.</li> <li>• <b>Security Concerns:</b> A diminished Indian military presence in the Maldives could create security vulnerabilities for both countries, especially considering piracy and potential regional instability.</li> </ul>
<b>Reassessment of Foreign Policy:</b>	<ul style="list-style-type: none"> <li>• The campaign could prompt India to reassess its approach to the Maldives and potentially other neighboring countries. India might consider strategies that are more respectful of local sensitivities and promote genuine partnerships.</li> </ul>

**How is the Indian government responding to this campaign?**

The Indian government has been responding to the 'India Out' campaign in a few ways:

- **Rejecting the Campaign:** The Indian government has rejected the 'India Out' campaign, expressing concern at attempts to spread "misguided and unsubstantiated information to propagate hatred towards India".
- **Maintaining Diplomatic Relations:** Despite the campaign, India continues to maintain diplomatic relations with the countries involved, emphasizing the importance of these relationships.
- **Highlighting Positive Relations:** The Indian government has highlighted the positive aspects of its relations with these countries, including shared historical and cultural ties, dynamic people-to-people contacts, and consistent support.
- **Addressing Misinformation:** The Indian government has been active in addressing misinformation and clarifying its stance on various issues.

**Way Forward to Countering "India Out" Campaign:**

- **Cultural Exchange:** Encourage cultural exchange programs, arts collaborations, and people-to-people interactions to build understanding and goodwill.
- **Positive Media Narratives:** Work with media outlets in both countries to promote positive stories and counter negative narratives.
- **Easier Travel:** Simplify visa procedures to make travel and interaction between citizens easier, fostering stronger connections.

To counter these impacts, the Indian government needs to engage in proactive diplomacy, address the concerns raised by these campaigns, and work towards building stronger, more transparent relationships with these countries. It also needs to counter misinformation and highlight the mutual benefits of its presence and partnerships in these countries.



## 2.6 The Shifting Geopolitical Landscape in Asia: The US, China, and India's Strategic Calculus

### A Heightened Rivalry and India's Evolving Role

The recent summits between US President Joe Biden and leaders from Japan and the Philippines, coupled with China's strong response, signal a significant shift in the political and military landscape of Asia. While ongoing conflicts in Ukraine and Gaza demand global attention, a potential clash between China and the US-allied nations in Asia could have far greater global repercussions.

#### The Stakes:

- The United States and China are the preeminent economic and military powers in the world.
- A direct confrontation within Asia, a region experiencing phenomenal economic growth, would have a devastating impact globally. This impact would be felt through disruptions to trade, supply chains, and potentially, a wider military conflict.

**India's Position:** India's strategic importance in the current climate is undeniable due to several factors:

- A protracted military standoff with China in the Himalayas since 2020 highlights the potential for direct conflict between the two Asian giants.
- India's deepening strategic partnership with the US strengthens the potential for a countervailing force against China in the region.

Any military confrontation between the US and China would significantly impact India. Unlike in the past, India has the potential to actively shape the evolving Asian dynamic due to its growing economic and military strength, and its geographical position bordering both China and the contested Himalayan region.

#### The US Strategy:

Washington's recent summits aim to bolster its regional presence through the following actions:

- **Transformation of Japan:** Historically a pacifist nation under US military protection, Japan is poised to become a significant military force in Asia. Recent agreements with the US include:
  - Integration of military command structures: This would allow for a more unified and coordinated response in the event of a conflict.
  - Increased defense spending: This signifies Japan's commitment to a more robust military presence.
  - Development of a more potent missile arsenal: This enhances Japan's deterrent capabilities against potential threats.
  - Joint weapon development and production with the US: This strengthens the technological and military cooperation between the two allies.
- **Trilateral Summit with the Philippines:** Prime Minister Kishida of Japan and President Biden pledged to support the Philippines against Chinese territorial pressure in the South China Sea. This demonstrates US commitment to regional allies and challenges China's claims in the disputed waters.
- **Economic cooperation agenda with the Philippines:** This initiative is intended to provide an alternative to China's Belt and Road Initiative, potentially lessening the Philippines' economic dependence on China.

#### China's Response:

China vehemently opposes the US strategy of "bloc politics" and the creation of a "mini NATO" in Asia, viewing it as a deliberate attempt to isolate China regionally. Beijing seeks to counter American efforts through various diplomatic maneuvers:

- **Hosting of Russian Foreign Minister Sergei Lavrov:** This signifies China's attempt to strengthen ties with other major powers potentially opposed to US dominance.
- **Meeting with former Taiwanese President Ma Ying-jeou:** This move can be interpreted as an attempt to influence Taiwan's political direction and undermine US support for the island nation.
- **Welcoming leaders of Vietnam and Indonesian President-elect Prabowo Subianto:** China seeks to maintain and strengthen ties with Southeast Asian nations to prevent them from aligning solely with the US.
- **China aims to:**
  - **Prevent regional economic decoupling from China:** China's economic influence in Asia is significant, and a shift towards US-led economic partnerships could be detrimental to China's economic well-being.
  - **Disrupt the formation of a US-backed countervailing coalition:** China views a US-allied bloc in Asia as a threat to its regional dominance and seeks to prevent its solidification.

#### India and China: A Reset or Continued Friction?

- Some in India believe China might attempt a diplomatic outreach to prevent India's closer ties with the US.
- India has historically been receptive to such overtures, leading to disappointment in the past.
- India prioritizes genuine progress on border de-escalation before considering any political reset with China.

#### Conclusion:

The US-China rivalry in Asia presents a complex strategic environment for India. While India bolsters its partnership with the US, a cautious approach towards China remains crucial. India's strategic choices will significantly influence the balance of power in a rapidly evolving Asia.

## 2.7 India's Evolving Relationship with the Arctic

### Introduction:

As the Arctic region undergoes a period of rapid environmental change driven by global warming, the accessibility of its vast natural resources has become a topic of increasing international interest. India, a nation with a burgeoning population and a growing economy, is no exception.

### Historically Limited Engagement:

Prior to December 2023, India's engagement with the Arctic was primarily confined to summer research expeditions. This reflected a perception among some policymakers that the Arctic held limited strategic or economic relevance for India. However, recent developments have prompted a reevaluation of this position.

### Shifting Priorities:

- **Scientific urgency:** Recent data revealed a faster-than-expected rate of Arctic warming. This has raised concerns about the potential impact on India's climate, particularly the South Asian monsoon.
- **Economic opportunities:** The opening of Arctic sea routes, especially the Northern Sea Route, presents potential benefits for Indian trade. Reduced shipping times, fuel costs, and security expenses could be significant.
- **Geopolitical considerations:** China's growing presence in the Arctic, coupled with Russia's decision to grant China expanded access to the Northern Sea Route, has caused anxiety in India. The ongoing Russia-Ukraine conflict and disruption of regional cooperation forums further complicate the situation. India, which strives for good relations with both the West and Russia, must navigate these complexities strategically.

### India's Long-Term Commitment:

- India's involvement in the Arctic goes back to 1920 with the signing of the Svalbard Treaty. Since then, India has progressively expanded its presence:
- **2007:** First Indian research mission to study Arctic microbiology, atmospheric sciences, and geology.
- **2008:** Establishment of an Arctic research base, making India the only developing nation (besides China) with such a presence.
- **2013:** Granted observer status by the Arctic Council.
- **2014 & 2016:** Commissioning of a multi-sensor observatory and an atmospheric laboratory in Svalbard, focusing on Arctic ice systems and their impact on the Indian climate.

### Domestic Debate on Economic Engagement:

There is ongoing debate within India regarding the potential economic benefits of resource extraction in the Arctic.

- **Proponents:** Advocate for a pragmatic approach, including oil, gas, and mineral exploration.
  - Oil and gas reserves, which could help diversify India's energy sources and bolster energy security.
  - Mineral deposits containing critical materials essential for various industries, such as rare earth elements used in clean energy technologies and electronics.
  - Proponents argue that responsible resource extraction can contribute to India's economic growth and development.
- **Skeptics:** Warn about environmental consequences and emphasize the need for a balanced policy that prioritizes sustainability.
  - Disruption of sensitive ecosystems and wildlife habitats.
  - Increased risk of oil spills and other environmental accidents due to harsh Arctic conditions.
  - Potential acceleration of climate change through activities like methane release from melting permafrost.

### Collaboration with Arctic Nations:

India seeks partnerships with Arctic nations, particularly Norway, the current chair of the Arctic Council. Areas of potential collaboration include:

- **Green Energy and Clean Industries:** This aligns with India's goals of environmental responsibility and strengthens its "responsible stakeholder" credentials. Examples include collaboration with Denmark and Finland on waste management, pollution control, renewable energy, and green technology.
- **Scientific Research and Environmental Protection:** This is a core focus of India's Arctic Policy and aligns with Norway's expertise. Collaboration could involve participation in Arctic Council working groups and joint research initiatives.
- **Sustainable Resource Development:** While India may explore economic opportunities, it should prioritize environmentally responsible practices. Norway's experience could be valuable in designing a sustainable extraction policy.

### Conclusion:

India's Arctic strategy is evolving to address scientific, economic, and geopolitical considerations. Collaboration with Arctic nations, particularly Norway, offers opportunities for scientific advancement, environmental protection, and responsible resource development. As global tensions rise, finding constructive ways to manage the Arctic will be critical for both India and its partners.

## 2.8 India's Evolving Position on the South China Sea Dispute

### Introduction:

India's stance on the South China Sea dispute has undergone a significant shift in recent years. This evolution reflects a confluence of factors, including India's growing strategic and economic interests in the region, its complex relationship with China, and its commitment to a rules-based international order.

### Shifting Policy Orientation:

Look East Policy	Act East Policy
<ul style="list-style-type: none"> <li>• <b>Initial Focus on Economics:</b> India's earlier "Look East Policy" prioritized economic integration with Southeast Asia and securing energy resources.</li> <li>• <b>Participation in Regional Activities:</b> Indian state-owned companies engaged in oil and gas exploration projects in Southeast Asian exclusive economic zones (EEZs).</li> <li>• <b>Emphasis on Freedom of Exploration:</b> This supported the principle of freedom to exploit maritime resources within international law (UNCLOS).</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Transformation to "Act East Policy":</b> Under Prime Minister Modi, India adopted a more proactive approach with the "Act East Policy."</li> <li>• <b>Focus on Strategic Partnerships:</b> The new policy emphasizes strategic partnerships and expanded security cooperation with Indo-Pacific nations.</li> <li>• <b>Strengthening Own Capabilities:</b> India has increased its military presence and maritime domain awareness in the region.</li> </ul>

### India's Complex Relationship with China:

- **Border Disputes and Tensions:** The Galwan Valley incident in 2020 and subsequent Chinese incursions have strained relations.
- **India's Asymmetric Deterrence:** India's naval deployment in the South China Sea showcases its ability to project power.
- **China's Assertive Actions:** China's territorial claims in the South China Sea and along the Indian border threaten regional stability.

### India's Strategic Response:

- **Countering China's Influence:** India's engagement with Southeast Asian nations aims to counter China's dominance in the region.
- **Commitment to Regional Security:** India's participation in naval exercises and military cooperation with Southeast Asian nations showcases its commitment to regional security.
- **Upholding the Freedom of Navigation:** India's position on the South China Sea dispute aligns with the interests of countries relying on these vital trade routes.

### The Importance of ASEAN:

- **Recognition of ASEAN Centrality:** India's Indo-Pacific strategy prioritizes the central role of the Association of Southeast Asian Nations (ASEAN).
- **Supporting ASEAN's Position:** India advocates for a united ASEAN stance against China's unilateral actions in the South China Sea.
- **Challenges of Internal Divisions:** Differences within ASEAN can hinder collective action against China.

### India's Nuanced Approach:

- **Rules-Based International Order:** India advocates for adherence to UNCLOS and a rules-based international order in the South China Sea.
- **Safeguarding Interests:** India's position balances its need to protect its interests with its commitment to regional stability.
- **Responsible Stakeholder:** India portrays itself as a responsible stakeholder committed to maintaining peace and upholding international law.

### Conclusion:

India's evolving position on the South China Sea reflects its growing strategic and economic ambitions. By balancing its complex relationship with China and advocating for a rules-based order, India seeks to safeguard its interests and contribute to regional stability in the Indo-Pacific region.

## 2.9 Landmark Climate Ruling by the European Court of Human Rights

This passage details a landmark decision by the European Court of Human Rights (ECHR) regarding a climate change lawsuit filed by a group of Swiss women against their government.

### The Case:

- **Plaintiffs:** A group of over 2,000 senior women in Switzerland, represented by KlimaSeniorinnen Schweiz (Association of Senior Women for Climate Protection Switzerland).
- **Defendant:** The Swiss government.

- **Date Filed:** November 2016
- **Court:** European Court of Human Rights (ECHR)

#### Claim:

The plaintiffs argued that the Swiss government's inadequate climate change policies violated their fundamental rights under the European Convention on Human Rights. Specifically, they claimed that these policies failed to effectively protect them from the adverse effects of climate change, particularly heat-related health issues.

#### Basis for the Claim:

- **Right to Life and Wellbeing:** The plaintiffs argued that the right to life and well-being enshrined in the European Convention on Human Rights includes protection from the negative consequences of climate change.
- **Vulnerability of Senior Citizens:** They emphasized their medical vulnerability as elderly people, particularly susceptible to heat-related illnesses caused by climate change.
- **Scientific Evidence:** The plaintiffs cited reports by the Intergovernmental Panel on Climate Change (IPCC), a UN body specializing in climate science, to support their claims.

#### The Court's Decision:

- **Violation of European Convention:** A 17-judge panel of the ECHR ruled in favor of the plaintiffs. The court determined that Article 8 of the European Convention, which guarantees the right to respect for private and family life, encompasses the right to be protected from the serious adverse effects of climate change.
- **Inadequate Climate Policies:** The court found that the Swiss government had violated this right by failing to enact sufficient domestic laws and policies to address climate change effectively. While the ECHR did not specify what policies the government should implement, it mandated them to strengthen their climate action plans.

#### Significance of the Ruling:

- **Sets Precedent for Climate Litigation:** This landmark case is the first of its kind in Europe and sets a significant precedent for future climate litigation.
- **Implications for Other Countries:** The ECHR's ruling is binding on its 46 member states, including all EU member nations and several non-EU countries. This means that similar climate change lawsuits based on human rights violations can now be brought before national courts in these countries, potentially influencing their environmental policies.
- **Empowering Citizens:** The successful outcome of this case could embolden citizens and communities in other countries to hold their governments accountable for inaction on climate change through legal action.

#### Global Context of Climate Litigation:

- **Rising Trend:** This case highlights the growing trend of climate litigation worldwide. As of December 2022, over 2,380 climate-related cases have been filed across the globe, reflecting increasing legal efforts to hold governments and companies responsible for climate change mitigation and adaptation efforts.
- **Example from India:** The passage mentions a case filed by a 9-year-old girl in India against the National Green Tribunal, highlighting similar legal efforts in other countries.

#### Conclusion:

The ECHR's decision represents a significant victory for climate justice advocates and sets a powerful legal precedent for holding governments accountable for climate action. This ruling has the potential to influence climate policies across Europe and inspire similar legal actions around the world.

### 2.10 A World in Disarray

This report examines the current state of global affairs, characterized by a complex interplay of political, economic, and technological factors. These factors contribute to a widespread feeling of uncertainty and apprehension about the future.

#### Factors Contributing to Global Disarray:

- **Erosion of Global Order:** The established "rules-based international order" formed after World War II is perceived as weakening. New alliances are emerging, but their ability to maintain global peace remains questionable.
- **Leadership Deficits and Reckless Actions:**
  - **Irresponsible Leadership:** Certain heads of state, including (but not limited to) Zelenskyy (Ukraine), Netanyahu (Israel), and Putin (Russia), are criticized for prioritizing national self-interest and escalation over diplomacy and peaceful conflict resolution.
  - **Strategic Missteps:** The initial US strategy of strengthening NATO to counter Russia is assessed to be unsuccessful, leaving the US in a precarious strategic position.
  - **Unilateral Escalation:** Actions like the alleged use of excessive force by Israel in response to the Hamas attack are condemned for further inflaming tensions in West Asia.
- **Specific Areas of Concern:**
  - **Protracted Conflict in Ukraine:** The ongoing war in Ukraine with no clear path towards a resolution raises serious concerns about a prolonged conflict with potentially devastating consequences.



- **Escalating Tensions in West Asia:** Israeli actions in Gaza and the possibility of a wider conflict with Iran are viewed with significant alarm.
- **Shifting Power Dynamics:** The rise of China as a global power and the relative decline of the United States are seen as contributing to a multipolar world characterized by increased competition and the potential for conflict.
- **Global Economic Uncertainty:** Potential economic downturns in major economies like the US, Europe, and China raise concerns about broader global economic repercussions.
- **Energy Geopolitics:** The growing alliance between China, Russia, and Iran is perceived as a potential threat to the stability of the global oil market.
- **Technological Disruption:** The rapid development of artificial intelligence (AI) and other emerging technologies is viewed with apprehension as a potential destabilizing factor with significant implications for warfare and national security.
- **Nuclear Proliferation:** The erosion of existing arms control agreements coupled with the potential development of new nuclear weapons raise the specter of nuclear war.
- **Unintended Consequences:**
  - **Focus on Proxy Wars:** The tendency of the US and China to engage in proxy wars to achieve their objectives is criticized as a major contributor to global instability.
  - **Neglect of Economic Issues:** World leaders are seen as failing to address critical economic forecasts and inadequately preparing for potential economic downturns.
  - **Destabilizing Technologies:** The disruptive potential of advanced surveillance technologies used in modern warfare requires careful consideration.

#### The Way Forward:

- **A Global Leadership Shift:** A shift towards more responsible and collaborative global leadership is needed to navigate complex international challenges.
- **Renewed Focus on Diplomacy:** International diplomacy and conflict resolution should be prioritized as a means to de-escalate tensions and prevent war.
- **Responsible Technological Management:** The development and deployment of advanced technologies, particularly those with potential military applications, should be undertaken responsibly and with careful consideration.

#### 2.11 The North Atlantic Treaty Organization (NATO)

The North Atlantic Treaty Organization (NATO) has served as a cornerstone of European security for the past 75 years. Established in the aftermath of World War II, the alliance has evolved significantly, facing both triumphs and tribulations.

##### About NATO:

- **Founded:** April 4, 1949
- **Headquarters:** Brussels, Belgium
- **Membership:** 32 member states (as of May 2, 2024)
- **Core Principle:** Collective Security (Article 5 of the Washington Treaty)

##### Mission and Objectives:

- NATO's primary mission is to safeguard the freedom and security of its members through political and military means.
- This translates to several objectives:
  - **Collective Defense:** An attack on one member is considered an attack on all, triggering a collective response (Article 5).
  - **Crisis Management:** NATO can deploy forces for peacekeeping, conflict prevention, and crisis response operations.
  - **Cooperative Security:** NATO fosters dialogue and cooperation with partner countries to promote regional and global security.

##### Structure:

NATO has a two-pronged structure:

- **Political:** The North Atlantic Council (NAC) is the supreme decision-making body, where all member states are represented. Decisions are made by consensus.
- **Military:** The Integrated Military Structure consists of military commands responsible for planning, training, and conducting operations.

##### Rationale for Creation:

NATO emerged in the aftermath of World War II as a response to growing tensions between the Western Bloc (led by the US) and the Soviet Union during the Cold War. The alliance aimed to deter Soviet aggression in Western Europe and ensure the security of its member states.

##### Present Structure and Membership:

- NATO has grown from its original 12 members to 32, including several former Eastern Bloc countries that joined after the Soviet collapse.
- The most recent additions are Finland and Sweden (2024).
- The membership process requires unanimous approval from all existing members.

### Achievements :

- **Collective Defense:** NATO's core success lies in upholding its Article 5 commitment. The only instance of its invocation (post-9/11) demonstrated a unified response and deterred future large-scale attacks on member states.
- **Deterrence:** During the Cold War, NATO's presence served as a significant deterrent to Soviet aggression in Western Europe. This contributed to a period of relative peace and stability on the continent.
- **Promoting Democracy and Stability:** Following the Cold War, NATO expansion eastward helped solidify democratic institutions and promote regional stability in former Eastern Bloc countries.
- **Crisis Management:** NATO has played a role in managing regional conflicts, including deployments in Kosovo (1999) and Afghanistan (2001-2021). While the long-term success in Afghanistan remains debatable, it showcased NATO's ability to conduct complex operations.
- **Standardization and Interoperability:** NATO has fostered military cooperation by promoting standardized equipment, doctrines, and training procedures. This enhances the effectiveness of combined operations between member states.
- **Cooperative Security:** Beyond military aspects, NATO has fostered dialogue and cooperation on broader security issues like cyber defense and counter-terrorism, strengthening overall preparedness.

### Failures:

- **Limited Success in Out-of-Area Operations:** The effectiveness of NATO interventions outside its core European focus area, like Afghanistan, is debatable. Long-term stability was not achieved, raising questions about the alliance's capabilities in non-traditional security threats.
- **Internal Disagreements:** Funding disparities among members, with some not meeting the 2% GDP target for defense spending, have created friction and hampered collective action.
- **Strategic Disunity:** Disagreements on foreign policy issues, like the 2003 Iraq War, have exposed strategic divides within the alliance, undermining its image of a unified front.
- **Strained Relations with Russia:** NATO's eastward expansion has been viewed by Russia as a threat, contributing to heightened tensions. The 2022 Ukraine invasion further exacerbated this issue.
- **Lack of Public Support:** In some member states, public support for NATO has waned due to concerns about intervention fatigue and the costs of maintaining a strong military presence.
- **Challenges in Adapting to New Threats:** While NATO has made strides in cyber defense and counter-terrorism, its effectiveness in addressing emerging security threats like hybrid warfare and climate change remains to be seen.

### Concerns Related to NATO's Functioning:

- **Decision-Making Processes:** The requirement for unanimous agreement among all members can lead to slow and cumbersome decision-making processes, hindering timely responses to crises.
- **Democratic Deficit:** Concerns exist about a lack of democratic accountability within the alliance, particularly regarding decisions on military interventions.
- **The Role of Non-Military Measures:** While NATO has acknowledged the importance of non-military tools like diplomacy and sanctions, the balance between these and military force requires continued emphasis.
- **Transparency and Communication:** Improving communication with the public about NATO's activities, goals, and challenges is crucial for maintaining public support.
- **Technological Parity:** The rise of China and advancements in other countries' military technologies necessitate NATO to invest in maintaining a technological edge.
- **The Burden-Sharing Debate:** Finding a more equitable way to share the financial and military burden of collective defense will be critical for NATO's long-term sustainability.

### The Way Forward:

- **Strengthening Deterrence and Defense:** Investing in modern military capabilities, increased defense spending by member states, and bolstering troop presence in Eastern Europe are crucial to deterring potential aggression.
- **Enhancing Internal Cohesion:** Addressing burden-sharing concerns, fostering greater strategic cooperation, and improving communication within the alliance will be crucial for maintaining a united front.
- **Redefining the Relationship with Russia:** Finding avenues for dialogue and arms control agreements with Russia, while maintaining deterrence, is essential for long-term European security.
- **Adapting to New Threats:** Developing robust capabilities to combat cyberattacks, disinformation, and hybrid warfare is essential for the alliance's future relevance.
- **Building a Stronger Partnership with the EU:** Closer cooperation and burden-sharing between NATO and the European Union can create a more comprehensive approach to European security.

Despite these challenges, NATO remains a crucial pillar of European security. Its ability to adapt and its commitment to collective defense will be crucial in navigating the complex geopolitical landscape of the 21st century.

In conclusion, NATO remains a critical player in safeguarding European security, despite its past shortcomings and current hurdles. By strengthening its deterrence capabilities, fostering internal cohesion, adapting to new threats, and forging closer partnerships, NATO can navigate the complexities of the contemporary world. Its ability to reform and adapt will be pivotal in ensuring its continued relevance and effectiveness in a rapidly evolving global security landscape.

### Vulnerable Section of the Population

#### 3.1 Unpaid Care Work: Holding Back India's Women and Economy

India's female labour force participation rate has shown a recent upward trend, increasing from 23% in 2017-18 to 37% in 2022-23. Sustaining this momentum requires continued focus on the care economy to unlock India's female workforce potential and achieve economic growth ("Viksit Bharat") by 2047. This aligns with the national vision of utilizing its "women power" ("nari shakti").

##### Unpaid Care Work by Women:

In India, women do more unpaid care work including childcare, housework, and eldercare, taking a toll on careers and the economy. Studies show:

- A study by Karmannaya Counsel, CII, and Nikore Associates, partnered with the Ministry of Women and Child Development and the Bill & Melinda Gates Foundation found **women in India do eight times more unpaid care work than men, which translates to a notional value of 15-17% of the GDP.**
- **Time Use Survey data (2019)** shows women spend 433 minutes daily on unpaid care work compared to men's 173 minutes. This burden is especially high for socio-economically disadvantaged women. Working women often face "marriage penalties" and "motherhood penalties," leading them to temporarily leave the workforce for family reasons.
- The **IMF estimates** India's GDP could grow 27% with equal female workforce participation.

##### Limitations of the Government Initiatives:

- **New childcare law (Labour Code) excludes most women:** It only applies to companies with 50+ workers, leaving out many informal sector women.
- **Existing childcare programs face limitations:** Schemes like National Crèches and Palna aim to expand childcare, but lack enough funding and participation.
- **Upgrading existing centres has potential:** Converting Anganwadis (child development centres) into childcare centres could be a solution, but needs more resources and planning.

##### India's Path to Growth Through Womenomics:

- **Japan's "Womenomics"** reforms boosted female workforce participation by 10%, the fastest ever, by investing in childcare, promoting work-life balance (parental leave & flexibility), and encouraging gender diversity in companies. This helped address labour shortages and increase GDP per capita. India can learn from this success.
  - **Five-Pillar Strategy for India's Care Economy:** This strategy focuses on:
    - Gender-neutral and paternity leave policies.
    - Subsidies for care services.
    - Public and private sector investment in care infrastructure.
    - Skill training for care workers.
    - Quality assurance for care services and infrastructure to reduce dependency on family care and tap into the "silver economy."

The Supreme Court's verdict on childcare leave recognized that **Article 15** of the Indian Constitution guarantees women the right to work, not merely as a privilege. This is a significant step towards ensuring gender equality and boosting female workforce participation in India. However, achieving this goal requires a multi-pronged approach addressing societal attitudes, labour market reforms, and increased investment in accessible and quality childcare services.

#### 3.2 Youth Suicides in India

India, a nation with a young population, faces a critical challenge of youth suicide. While societal and academic pressures are often cited, a deeper look reveals a complex interplay of factors.

##### Alarming Statistics:

- India has the highest number of youth suicides globally.
- NCRB reports 1.71 lakh suicides in 2022, with a rate of 12.4 per 100,000 – the highest ever.
- Underreporting due to inadequate registration and stigma inflates the true numbers.
- 41% of suicides involve individuals under 30, making it the leading cause of death for young women.
- A young Indian dies by suicide every eight minutes.

##### Multifaceted Causes:

Suicidal behavior in young people is complex, arising from a combination of factors:

- **Biological:** Mental health issues play a significant role (54% of cases).
- **Psychological:** Negative family environments, academic stress, and social pressures contribute (36% - 23%).

- **Social and Cultural:** Violence, economic distress, relationship issues, and caste discrimination are contributing factors (22% - 9%).
- **Gender-Specific:** Arranged marriages, early motherhood, domestic violence, and societal expectations further burden young women.
- **Exam Pressure and Suicides:** India's focus on rote learning, exams, and parental pressure contributes to student suicides (2,095 in 2022). Media sensationalizes results, adding to the stress and stigma of failure.
- **Cyberbullying and Mental Health:** More youth are online, with risks. Nearly 20% of college students are addicted, a third experience cyberbullying, putting them at higher suicide risk. Social media use over 2 hours daily is linked to increased suicidal thoughts.
- **Copypat Suicides:** Irresponsible media coverage of celebrity suicides can lead to more suicides. After one actor's suicide, searches for "how to commit suicide" spiked on Google.

#### **New National Plan to Reduce Youth Suicide:**

India launched a strategy in November 2022 aiming for a 10% reduction in youth suicide by 2030. It focusses on the comprehensive dimensions including the following:

- **Multi-Ministry Approach:** The plan involves collaboration between Health, Education, Information & Broadcasting, and Social Welfare ministries.
- **Focus on Schools and Youth Groups:** Schools and youth organizations will play a key role in promoting mental health and reducing substance abuse.
- **Reaching Everyone:** Widespread communication to states, stakeholders, and communities is essential for success.
- **Funding and Action Needed:** Budgetary allocation and swift implementation at all levels are crucial for the plan's effectiveness.

#### **Prevention Strategies:**

- **Suicide is Preventable:** The myth that suicide is inevitable or unstoppable needs to be challenged.
- **Early Intervention is Key:** Identifying mental distress early, providing youth-friendly mental healthcare, and encouraging help-seeking are crucial.
- **Healthy Habits Help:** Promoting healthy lifestyles like diet, exercise, responsible internet use, social connections, and mindfulness can significantly improve youth mental health.
- **Supportive Families Matter:** Creating supportive home environments with reduced domestic violence and alcohol abuse is essential.
- **Education Needs Reform:** Educational reforms are needed to use alternative assessment methods and recognize diverse student strengths, reducing exam pressure.
- **Fight Discrimination:** Tackling caste, religion, and sexuality-based discrimination is crucial for youth mental well-being.

#### **Conclusion:**

Youth suicide is a major public health concern in India. A multi-pronged approach addressing social, psychological, and educational factors is vital to prevent these tragedies. Effective implementation of the National Suicide Prevention Strategy holds promise for a brighter future.

### **3.3 The Growing Need for Standardized Home Care for India's Elderly Population**

The India Ageing Report (2023) predicts the senior citizen population (above 60) will grow from present 10% (149 million in 2022) to 30% (347 million) by 2050, exceeding the current US population. Declining fertility rates and increasing life expectancy are driving this demographic shift. This demographic shift necessitates standardized home care in India.

#### **What is home care?**

Home care is also known as domiciliary care, social care or in-home care. It comprises a range of activities, especially paramedical aid by nurses and assistance in daily living for ill, disabled or elderly people.

#### **Challenges of the Changing Family Structure:**

- **Shrinking Families, Growing Burden:** India's average household size has shrunk significantly from 5.94 in 2011 to 3.54 in 2021.
- **Strain on Elder Care:** Fewer family members to care for the elderly means more stress on existing health and social care systems, especially since the elderly population is growing and often has chronic health problems.
- **Rise of External Care:** Traditional family care for seniors is declining, leading to a growing need for external home care assistance.
- **India Faces a Growing Challenge of Elderly Women:**
  - **Women Live Longer:** Women in India typically outlive men by about three years.
  - **Skewed Sex Ratio:** The number of older women compared to men is expected to rise significantly, reaching an estimated 1060 females per 1000 males by 2026.
  - **Increased Vulnerability:** Widowhood is common among older women, making them more dependent and potentially vulnerable.



### The Potential of Home-Based Care:

- **Home care offers more than just assistance with daily living:** In addition to helping with daily tasks, home care services now include routine nursing care and specialized care for patients.
- **Home care can be cost-effective:** Studies suggest that home healthcare can significantly reduce healthcare costs. Home care may be able to replace up to 65% of unnecessary hospital visits, leading to an overall cost reduction of 20%.
- **Improved Recovery:** Familiar surroundings can lead to faster recovery and better well-being for seniors.
- **Personalized Care:** Services can be tailored to individual needs, including daily living assistance, medical care, and companionship.
- **Increased Accessibility:** Home care reaches those who struggle to travel to hospitals, particularly in rural areas.
- **Focus on Independence:** Home care can support daily living activities while promoting self-sufficiency for seniors.

### Gaps in Current Home Care Practices:

- **Quality Concerns:** Home care services often lack well-defined standards and consistent practices, raising quality concerns.
- **Workforce Issues:** There's a shortage of trained and empathetic caregivers, who are vulnerable to mistreatment from families due to a lack of formal protections.
- **Limited Grievance Options:** No formal grievance redressal mechanisms exist for either caregivers or care recipients to address issues.
- **Cost and Accessibility:** Home care can be expensive, and the private sector dominates the market, limiting affordability and accessibility for many.

### Policy Recommendations for Effective Home Care:

- **Improving Home Care Standards:**
  - **Protecting Caregivers and Recipients:** Recognize the home as both a caregiving space and a workplace. Address the rights and safety of both caregivers and care recipients.
  - **Standardized Home Care Protocols:** Develop clear guidelines specifically for home care, distinct from those used in hospitals or old-age homes.
  - **Professionalize Caregiving:** Streamline vocational training for caregivers, standardize their roles, career paths, and job titles to create a respected profession.
- **Building a Supportive Framework:** Implement a comprehensive home-based care policy that includes:
  - **Qualified Providers:** Create a registry of qualified home care service providers to ensure quality care.
  - **Accountability:** Establish transparency and accountability measures for service providers to maintain high standards.
  - **Grievance Resolution:** Implement mechanisms for both caregivers and care recipients to address concerns effectively.
  - **Financial Accessibility:** Explore ways to make home care more affordable, potentially through insurance coverage for home care services.
- **Collaborative Action for Reform**
  - **Collaboration Needed for Reform:** Three government ministries namely Health & Family Welfare, Social Justice & Empowerment, and Skill Development & Entrepreneurship need to work together to drive improvements in home care for the elderly.
  - **Stalled Legislation:** The Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill, 2019, which aims to regulate home care services and set minimum quality standards, is yet to be passed, creating a roadblock for reform. This to be passed at earliest.

### Conclusion

India must address its growing elderly population alongside youth development. Robust elder care systems, as seen in Japan, are essential. A society thrives when both young and old can contribute. Caring for our seniors, who have dedicated their lives to our nation, is not just a policy, but a moral and ethical imperative.

## Health

### 3.4 Universal Health Coverage (UHC)

World Health Day, observed annually on April 7th, serves as a global rallying point for health equity, a fundamental principle of global health and justice. The World Health Organization (WHO) emphasizes health as a fundamental human right. The 2024 theme, "My Health, My Right," underscores the urgency of addressing disparities in healthcare access.

#### The COVID-19 Pandemic: A Stark Reminder

- The COVID-19 pandemic laid bare the harsh reality of unequal healthcare access. Marginalized and vulnerable communities were hit hardest, exposing deep disparities in the system. This alarming trend has widened the health equity gap, necessitating urgent action to ensure everyone has access to quality healthcare. Pandemics, climate change, and social unrest further exacerbate these existing inequalities.

## What is UHC?

- Universal Health Coverage (UHC) signifies guaranteed access to comprehensive, high-quality health services for everyone, without financial hardship.
- It ensures people receive the care they need, whenever and wherever it's needed.
- UHC encompasses the entire spectrum of essential health services, ranging from health promotion and preventive measures to treatment, rehabilitation, and palliative care.
- Delivering these services requires robust, efficient, and equitable health systems with strong community roots.

## The Core Principles of UHC:

- UHC is built on the foundation of strengthening primary healthcare. This ensures all health needs are addressed comprehensively and integrated, supported by a well-equipped healthcare workforce.
- The United Nations General Assembly unanimously endorsed a resolution in December 2012, urging countries to accelerate their progress towards achieving UHC.

## India's Commitment to UHC:

- The High-Level Expert Group Report submitted to India's Planning Commission in 2011 outlined the government's intent to increase public health funding to 2.5% of the GDP during the 12th Plan (2012-2017). The nation's economic growth makes this increase feasible.
- **The National Health Policy (2017)** aligns with the UHC target by articulating its goal as "the attainment of the highest possible level of good health and well-being, and universal access to good quality health care services without anyone having to face financial hardship as a consequence." The government aims to allocate 2.5% of GDP to healthcare by 2025.

## The Right to Health in India:

- While India lacks a constitutional provision explicitly guaranteeing the fundamental right to basic health, the Directive Principles of State Policy in Part IV of the Constitution provide a foundation for this right.
- Specific articles within the Directive Principles mandate the state to:
  - Secure the health of workers (**Article 39(e)**).
  - Ensure just and humane working conditions and maternity relief (**Article 42**).
  - Raise the standard of living and nutrition levels, and improve public health (**Article 47**).
  - Further, **Article 243G** empowers panchayats and municipalities to strengthen public health.

## Benefits of UHC:

- **Healthier Population:** UHC improves overall health and well-being for everyone.
- **Reduced Costs:** UHC protects people from Out-of-pocket health expenditures.
- **Boosts Economy:** A healthier workforce leads to increased productivity and economic growth.
- **Fairness in Healthcare:** UHC ensures everyone has access to healthcare regardless of background.
- **Early Detection:** UHC promotes preventive care for earlier disease detection and treatment, saving costs.
- **Economic Growth Engine:** A healthy population fuels economic development.
- **Empowerment:** UHC puts individuals in control of their health.
- **Reduced Inequality:** UHC helps bridge health gaps between social groups.

## Challenges in Implementing Universal Health Coverage (UHC) in India:

- **Federal System and Implementation:** Healthcare falls under state control in India, while UHC policy is national. Effective implementation requires ongoing discussions and collaboration between federal and state governments.
- **Migrant Workers and Accessibility:** India's large and mobile population poses a challenge. With millions of migrant workers (41 million interstate in 2011) and a high overall migration rate (28.9% in 2020-21), ensuring they can access primary healthcare services is crucial.
- **Rural-Urban Divide:** Rural areas face worse healthcare access compared to urban areas.
- **Slums and Health:** According to ICMR data, overcrowding, sanitation issues, and limited clean water access in slums (17% of urban areas as per Census 2011) contribute to infectious diseases, with a 1.5 times higher prevalence of tuberculosis compared to non-slum areas.
- **Social Stratification and Health:** Caste and gender disparities worsen healthcare access and outcomes.
  - **Caste:** NFHS-5 data shows higher child mortality and lower immunization rates among Scheduled Castes and Tribes.
  - **Gender:** According to NFHS-5 data, women in the lowest economic bracket are nearly twice as likely to suffer from anaemia compared to the wealthiest group.
- **Non-Communicable Diseases (NCDs):** Over 60% of deaths in India are from NCDs. Unequal access to treatment and preventive care for NCDs is a major concern. According to the Public Health Foundation of India, the economic burden of unchecked NCDs could reach \$6 trillion by 2030.
- **Doctor Shortage:** India has a critical shortage of doctors, with a doctor-to-population ratio of only 0.8 per 1000 people (below WHO recommendation). This shortage is particularly acute in rural areas, with over 75% of healthcare professionals concentrated in urban regions serving a smaller portion (27%) of the population.
- **Fragmented System:** India's healthcare suffers from inefficiencies due to a lack of coordination between different providers.

- **Funding Shortfall:** Insufficient government funding hinders progress towards Universal Health Coverage (UHC).

### A Multi-Stakeholder Approach:

Achieving Universal Health Coverage (UHC) and a more equitable healthcare system in India requires collaboration from various stakeholders:

- **Government and Policymakers:** They set the direction through funding, innovative policies, and legislation. Initiatives like Ayushman Bharat (free health coverage for the bottom 40%) and the National Health Mission (NHM) with its rural and urban components aim to bridge healthcare gaps and reach vulnerable populations.
- **Civil Society and Community Organizations:** These groups play a vital role in:
  - **Health Literacy:** Empowering communities to understand and advocate for equitable healthcare, making informed health decisions.
  - **Advocacy:** Championing the needs of underserved communities.
  - **Collaboration:** Working with international and government bodies to develop culturally sensitive health initiatives.
- **Healthcare Providers (Public and Private):** Collaboration between these sectors can improve service delivery to underprivileged communities, focusing on:
  - **Prevention:** Promoting healthy behaviours and disease risk reduction through education.
  - **Workforce Development:** Addressing the doctor shortage, particularly in rural regions.
  - **Infrastructure Enhancement:** Improving access to quality healthcare facilities and services.
- **Non-Governmental Organizations (NGOs) and Civic Societies:** They engage directly with communities, identifying and addressing specific health concerns at the local level.
- **International Institutions (WHO, The Global Fund, Gavi):** These institutions provide crucial support for health initiatives in resource-limited settings like India. They promote knowledge and resource sharing to strengthen healthcare systems.
- **Commercial Sector and Charitable Organizations:** Innovation and advancements in digital health can contribute to improved accessibility, affordability, outreach, and effectiveness of healthcare services.
- **Research Institutes and Academia:** Researchers and universities play a critical role by:
  - **Data Collection:** Providing data on health disparities and successful interventions.
  - **Evidence-Based Practices:** Contributing to sound policies and practices through their research.
- **Strengthen Primary Care:** One key focus of UHC policy should be strengthening primary healthcare to provide the foundation for the system.
- **Reduce Out-of-Pocket Costs:** Another major goal is to reduce the financial burden on patients by lowering out-of-pocket expenditures.
- **Break Poverty Cycle:** Establishing a constitutional right to health is essential to breaking the cycle of poverty and poor health, ensuring better education, opportunity, and social mobility.
- **Investment and Vision:** Successful UHC implementation requires political will, substantial investment, and a clear long-term vision.
- **National Policy Consistency:** A coherent policy framework is essential to ensure consistent UHC execution across all Indian states.
- **Address Migrant Needs:** Healthcare reforms are needed for the informal sector and the mobile migrant population. Primary care systems must adapt to their needs, ensuring service portability and treatment continuity.
- **Community-Based Care:** Establishing accessible community-based primary healthcare in urban and peri-urban areas, with seamless referral systems, is essential. This requires better integration of services.

### Conclusion:

Achieving UHC in India necessitates a coherent policy framework that ensures consistent implementation across states. This will require strong political leadership, adequate funding, and a commitment to long-term planning. By prioritizing UHC, India can ensure health for all and build a healthier and more prosperous future for its citizens.

## 3.5 The National One Health Mission

### Introduction:

The emergence of pandemics like COVID-19 and zoonotic diseases like lumpy skin disease highlights the need to strengthen the One Health approach, emphasizing the connections between human health, animal health, and the environment.

### The National One Health Mission:

National One Health Mission in India is a significant development in public health, acknowledging the interconnectedness of human, animal, and environmental health.

The mission resulted from a collaborative effort between various government ministries and scientific agencies. These include:

- **Science Funding Agencies:** Department of Science and Technology (DST), Department of Biotechnology (DBT), Council of Scientific and Industrial Research (CSIR), Department of Pharmaceuticals, AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy)
- **Health-Related Ministries:** Ministry of Health, Ministry of Animal Husbandry

- **Environment and Defense Ministries:** Ministry of Environment, Ministry of Defence

This collaboration signifies a comprehensive approach to One Health, encompassing not just human health but also animal and environmental health.

### Key Components of the Mission

- **National Institute for One Health:** Established in Nagpur, this institute serves as the central coordinating body for national and international One Health activities.
- **Integrated Disease Surveillance:** The mission aims to develop strategies for a unified system to monitor diseases across humans, animals, and the environment.
- **Joint Outbreak Response:** A coordinated approach will be established to respond effectively to disease outbreaks across sectors.
- **Research and Development (R&D):** Collaborative R&D efforts by participating departments will focus on developing tools like vaccines, therapeutics, and diagnostics to combat existing and emerging diseases.
- **Information Sharing:** Seamless information sharing across sectors is crucial for effective disease control.
- **Network of Laboratories:** A national network of high-risk pathogen laboratories (Biosafety Level 3 and 4) will be established to enhance disease outbreak response for all sectors.
- **Epidemiological and Data Analysis Capabilities:** The mission emphasizes strengthening India's capacity in epidemiology and data analysis. This includes utilizing artificial intelligence (AI), machine learning, and disease modeling.
- **Genomic Surveillance:** Expanding on the success of wastewater-based genomic surveillance during COVID-19, the mission aims to apply this approach to other areas and animal populations.

### What is One Health?

- **Integrated Approach:** One Health is a unified approach that aims to balance and optimize the health of people, animals, and ecosystems.
- **Interdependence:** It recognizes the interconnectedness of human health, animal health (domestic and wild), plant health, and the environment.
- **Collaboration Across Sectors:** One Health fosters collaboration between various sectors (health, food, water, energy, environment) to address health challenges.
- **One Health Issues:** One Health addresses a wide range of health challenges where human, animal, and environmental health intersect. Here are some key areas:
  - **Antibiotic Resistance:** Germs like bacteria become resistant to drugs, making them harder to treat.
  - **Zoonotic Diseases:** Infectious diseases jump from animals to humans (Ebola, rabies).
  - **Spreading Through Bites:** Mosquitoes, ticks transmit diseases like dengue fever, Lyme disease.
  - **Contaminated Food:** Improper food handling leads to illnesses (norovirus, salmonella).
  - **Environmental Issues:** Water/air pollution, climate change affect human and animal health.

### Benefits of One Health Approach:

- **Preventing Future Pandemics:** By taking a One Health approach, we can better prevent future pandemics.
- **Building Resilience:** This approach helps build more resilient and equitable systems, environments, economies, and societies.
- **Disease Control:** One Health helps address the entire disease control spectrum, from prevention and detection to preparedness, response, and management.
- **Focus Areas:** It tackles critical issues like emerging infectious diseases, antimicrobial resistance, and food safety.
- **Global Health Security:** One Health strengthens global health security by connecting the health of humans, animals, and the environment.
- **Scalability:** This approach can be applied at various levels: community, subnational, national, regional, and global.
- **Effective Governance:** One Health relies on strong shared governance, communication, collaboration, and coordination across sectors.
- **Holistic Solutions:** It promotes a deeper understanding of the co-benefits, risks, trade-offs involved in finding equitable and comprehensive solutions for health challenges.

### Challenges in Implementing the One Health:

the challenges India faces in implementing the One Health concept:

- **Fragmented Governance:** Different government agencies manage human health, animal health, and the environment, leading to a lack of coordination and information sharing.
- **Limited Resources:** Inadequate funding and infrastructure for implementing One Health initiatives across various sectors.
- **Shortage of Skilled Professionals:** A lack of personnel trained in One Health concepts and with expertise in collaborating across disciplines (human health, veterinary science, environmental science).
- **Weak Surveillance Systems:** Disjointed disease surveillance systems for humans and animals make it difficult to track zoonotic diseases and identify potential outbreaks early.



- **Community Awareness:** Limited public understanding of the One Health approach and the connections between human, animal, and environmental health.
- **Competing Priorities:** Addressing immediate health concerns like infectious diseases may overshadow long-term One Health goals like AMR prevention.

#### Way Forward:

The challenges can be addressed through:

- **Improved Inter-Sectoral Collaboration:** Encouraging better communication and collaboration between government agencies dealing with human health, animal health, and the environment.
- **Increased Funding:** Allocating sufficient resources to implement One Health initiatives, including infrastructure development and training programs.
- **Building Expertise:** Developing training programs to create a workforce with expertise in One Health principles.
- **Strengthening Surveillance Systems:** Integrating human and animal disease surveillance systems for better disease outbreak detection and response.
- **Public Education and Awareness Campaigns:** Raising public awareness about the importance of One Health and its benefits for human and animal health, as well as environmental sustainability.
- **Strategic Planning:** Developing a comprehensive One Health strategy that prioritizes long-term goals like AMR reduction while addressing immediate health needs.
- **Improve Policies:** Develop better policies informed by evidence from different areas (human health, animal health, environment).
- **Holistic Research:** Conduct research that considers the combined impact of these fields, particularly on the factors that trigger health crises.
- **Whole Society Approach:** The One Health Mission's success hinges on broad engagement beyond government, requiring collaboration with NGOs, academia, the private sector, and the public to create a holistic and action-driven framework.

#### Conclusion:

By adopting a One Health approach, India strives to achieve the goals of "One Earth, One Health" and "Health for All." The National One Health Mission, with its focus on collaboration, integrated disease surveillance, and R&D, represents a significant step towards this goal.

### 3.6 Reforming Private Healthcare in India

The pandemic highlighted the need for a two-pronged approach to healthcare in India: strengthening public health and regulating private healthcare. Over 70% of healthcare utilization in India occurs in the private sector. The recent rise in healthcare billionaires highlights the potential for profit in this sector.

#### Importance of Private Healthcare:

- **Dominant Player:** Private healthcare plays a crucial role, managing around 70% of healthcare utilization in India.
- **Filling the Gap:** It supplements the public healthcare system, which often faces resource constraints and infrastructure limitations.
- **Specialization and Innovation:** Private hospitals often focus on specialized care and advanced technology, offering a wider range of services and potentially better quality treatment for certain conditions.
- **Improved Patient Experience:** Private facilities may offer better amenities and a more patient-centric approach compared to some public hospitals.

#### Issues with Private Healthcare:

- **Market Failure:** Healthcare's unpredictable nature, emotional aspects, and reliance on empathy make it unlike typical market goods. Market forces alone cannot guarantee affordability and quality care.
- **Weak Regulation:** Lax regulations allow anyone to open hospitals and promote unproven treatments without consequence.
- **Conflicts of Interest:** Financial incentives for doctors tied to procedures and tests, regardless of medical necessity, create conflicts that inflate costs and potentially harm patients.
- **Limited Public Investment:** Government focus on mass health insurance schemes (like AB-PMJAY) for the poor relies on private sector cost control for success.
- **Clinical Establishment Act (CEA):** This act aimed to regulate costs, set standards, and register healthcare facilities, but implementation is weak in many states.
- **Profit Motive:** Profitable private healthcare providers are unlikely to welcome cost controls. The recent rise in healthcare billionaires highlights potential high profits in the sector.
- **Subsidies and Price Controls:** The government subsidizes private healthcare through medical professional training and infrastructure, making price controls necessary to ensure responsible use of these subsidies.

### Policy Recommendations:

Jan Swasthya Abhiyan's **People's Health Manifesto** proposes a range of reforms, including those focused on private healthcare.

- **Transparency and Standardization:**
  - **Rates:** Currently, healthcare service rates are not transparent, leading to wide variations in prices.
  - **Standardization:** The Clinical Establishments (Central Government) Rules, 2012 mandate displaying rates and charging standard government-determined fees. However, implementation is lacking.
  - The Supreme Court has recently intervened, urging the Union Health Ministry to standardize rates.
- **Regulation of Medical Education:**
  - **National Medical Commission (NMC):** Concerns exist regarding NMC's lack of stakeholder representation, centralized decision-making, and potential for further commercialization of medical education.
  - **National Eligibility-cum-Entrance Test (NEET):** This exam may disadvantage underprivileged students and encroach on state autonomy in medical admissions.
- **Patient Rights and Grievance Redressal:**
  - **Patient Rights Charter:** Effective enforcement of the Patient Rights Charter (including 20 patient rights) is crucial across all healthcare facilities.
  - **User-friendly Grievance Redressal Systems:** These systems should be operational at the district level with multi-stakeholder oversight to address patient complaints against private hospitals.
- **Controlling Commercialization of Medical Colleges:**
  - **Fees:** There's an urgent need to regulate fees of private medical colleges, ensuring they are not higher than government colleges.
  - **Expansion of Medical Education:** Focus should be on expanding public medical colleges rather than commercialized ones.
- **Combating Irrational Healthcare Practices:**
  - **Standardization of Protocols:** Measures should be taken to check unnecessary healthcare interventions often driven by commercial interests.
  - **Example:** Reduce the high rate of caesarean sections in private hospitals (48% vs. 14% in public hospitals) by promoting rational treatment practices.

### Conclusion:

Implementing these reforms would promote transparency, affordability, and patient-centered care in the private healthcare sector. This, along with a strengthened public health system, can contribute to a universal healthcare system in India.

### 3.7 The Supreme Court's Directive on Hospital Charges in India

#### The case

'Veterans Forum for Transparency in Public Life,' an NGO, represented by advocate Danish Zubair Khan, filed a Public Interest Litigation (PIL) asking the court to direct the Centre to determine the fee rates applicable to patients according to Rule 9 of the Clinical Establishment (Central Govt) Rules, 2012.

#### High and Variable Costs of Hospital Procedures:

- The Supreme Court's directive stems from concerns regarding high and variable costs of hospital procedures in India.
- The Court highlighted the issue with cataract surgery, costing around ₹10,000 in government hospitals but ranging from ₹30,000 to ₹1,40,000 in private facilities.

#### Court Order on Regulating Private Hospital Charges:

- **Directive:** The court has directed the central government to develop a mechanism to regulate healthcare procedure rates in private hospitals.
- **Legal Basis:** This directive is based on Rule 9 of the Clinical Establishments (Registration and Regulation) Act, 2010. This act mandates hospitals to charge within government-determined rates.
- **Interim Measure:** The court has suggested using the existing Central Government Health Scheme (CGHS) rates as a temporary benchmark until a permanent solution is implemented.

#### Challenges In Regulate Healthcare Procedure Rates In Private Hospitals:

- **Benchmark Pricing:** Setting benchmark prices based on market observations (yardstick competition) is difficult due to diverse patient profiles, unreliable data, and weak regulatory frameworks.
- **Regulation and Enforcement:** Weak enforcement mechanisms pose a significant hurdle. Many states haven't implemented the Clinical Establishment Act effectively, raising concerns about enforcing future regulations.
- **Financial Incentives and System Redesign:** Standardized rates alone may not address misaligned stakeholder incentives. Hospitals with lower average revenue might justify higher charges by claiming superior care quality.
- **Data Collection and Transparency:** Limited data on accurate costing hinders effective price discovery.

### Standardizing Care and Payment Systems:

- **Standard Treatment Guidelines (STGs):** Implementing STGs can define the appropriate level of care, treatment extent, and associated costs for specific medical procedures. This ensures a baseline standard while allowing for flexibility based on individual patient needs.
- **Healthcare Financing Reform:** A comprehensive overhaul of healthcare financing is necessary. This reform should:
  - **Integrate STGs:** Base reimbursement rates on STGs to ensure appropriate care is provided.
  - **Pooled Payments:** Shift towards a system where providers receive payment from a central pool covering a large population.
  - **Minimize Out-of-Pocket Costs:** Reduce the burden of out-of-pocket payments for patients.
  - **Discourage Out-of-Pocket Reliance:** Discourage healthcare providers from relying on high out-of-pocket payments from patients.
- **Supporting Existing Initiatives:** Efforts by programs like Pradhan Mantri Jan Arogya Yojana and the Department of Health Research to develop STGs and costing frameworks need further support and expansion.

### Conclusion:

The Supreme Court's directive presents an opportunity to address the issue of high and variable hospital charges in India. However, implementing effective solutions requires careful consideration of various challenges, including weak enforcement mechanisms, misaligned incentives, and limited data availability. Building upon existing healthcare financing reforms, ensuring stakeholder participation, and prioritizing data collection will be crucial for long-term success.

### 3.8 India Faces High Burden of Viral Hepatitis

The World Health Organization's (WHO) Global Hepatitis Report 2024 identifies India as the country with the second-highest burden of viral hepatitis disease globally, accounting for 11.6% of all cases in 2022.

#### WHO Report Highlights Global and Indian Situation:

- **Silent Killer:** The WHO report highlights viral hepatitis as the second leading infectious cause of death globally, claiming 1.3 million lives annually, on par with tuberculosis.
- **Rising Death Toll:** New data shows an increase in estimated deaths from viral hepatitis, jumping from 1.1 million in 2019 to 1.3 million in 2022.
- **Hepatitis B Dominates:** Hepatitis B is responsible for the majority of deaths (83%), followed by Hepatitis C (17%).
- **India's Heavy Burden:** India carries the world's second-highest burden of both Hepatitis B (30 million cases) and C (5 million cases).
- **Devastating Impact:** Liver diseases caused by these viruses claimed over 100,000 lives in India during 2022 alone.

#### Hepatitis Overview:

- **Inflammation of the Liver:** Hepatitis is an inflammation of the liver caused by various factors, including viruses and toxins.
- **Spectrum of Severity:** Hepatitis can range from mild illness to life-threatening complications.

#### Types of Hepatitis:

- **Five Main Viruses:** Five main hepatitis viruses exist (A, B, C, D, and E).
- **Transmission and Severity Variations:** Each virus has distinct ways of spreading, severity of illness, and geographic prevalence.
- **Chronic Concern:** Hepatitis B and C are particularly serious as they cause chronic infections, potentially leading to cirrhosis (scarring), liver cancer, and even death.
- **Global Burden:** An estimated 354 million people worldwide live with chronic hepatitis B or C, often lacking access to treatment.

#### Specific Viruses:

- **Hepatitis A & E:** Spread through contaminated food or water, typically causing short-term illness.
- **Hepatitis B:** Can lead to chronic infection, cirrhosis, and liver cancer. Fortunately, a vaccine is available for prevention.
- **Hepatitis C:** Also leads to chronic infection and liver damage, but unlike Hepatitis B, it can be cured with medication.

#### Factors Behind High Burden:

- **High Population Density:** India's dense population creates a greater risk of transmission through close contact.
- **Lack of Awareness:** Limited public awareness about symptoms, screening, and treatment options delays diagnosis and intervention.
- **Poor Hygiene and Sanitation:** Inadequate hygiene practices and limited access to sanitation facilities contribute to the spread of hepatitis viruses A and E.
- **Low Diagnosis Rates:** Alarming low diagnosis rates hinder effective treatment: only 2.4% of Hepatitis B and 28% of Hepatitis C cases are diagnosed.
- **Chronic Hepatitis B & C:**
  - **Silent Threat:** These infections can remain asymptomatic for extended periods, allowing for silent transmission.
  - **Limited Screening:** Insufficient screening programs miss a significant number of cases.
  - **Low Testing Awareness:** Low public awareness about the importance of testing for hepatitis B and C allows the virus to spread undetected.
  - **Transmission Chain Reaction:** Undiagnosed cases continue to transmit the virus to others.

- **Rise of Non-Viral Hepatitis:**
  - **Alcoholic Liver Disease (ALD):** Increasing alcohol consumption, particularly in urban areas, leads to a rise in ALD cases.
  - **Non-alcoholic Fatty Liver Disease (NAFLD):** The growing prevalence of obesity, metabolic disorders, and unhealthy lifestyles contributes to NAFLD.
  - **Burden on Healthcare:** Both ALD and NAFLD can progress to serious liver problems, straining healthcare systems.
- **Higher Cases in Men:** Intravenous drug use and unprotected sex (multiple partners or male-to-male sex) are more common among men, increasing their risk of hepatitis B and C transmission.

#### India's National Viral Hepatitis Control Programme (NVHCP):

- **Launched in 2018:** The Indian government established the NVHCP with ambitious goals to be achieved by 2030.
- **Program Goals:**
  - Eliminate Hepatitis C completely.
  - Significantly reduce Hepatitis B-related illness and death rates.
- **WHO Assessment:** The World Health Organization (WHO) acknowledges the program's goals but identifies a critical need for significant adjustments between 2024 and 2026 to ensure the NVHCP's success.

#### Way Forward:

The World Health Organization (WHO) report outlines a public health strategy to achieve the goal of eliminating the viral hepatitis epidemic by 2030.

#### Prevention and Treatment Measures:

- **Hepatitis B Vaccine:** Vaccination is the key to preventing hepatitis B. The report emphasizes achieving high immunization coverage rates.
- **Hepatitis C Cure:** Hepatitis C is curable with medication.
- **Treatment Affordability:** Treatment costs for hepatitis C are relatively low in India due to the availability of generic drugs.
- **Government Programs:** The government's viral hepatitis control program offers free vaccination for high-risk groups and subsidized treatment for both hepatitis B and C.
- **National Immunization:** Hepatitis B vaccination is included in national immunization programs for newborns.

#### Conclusion:

Controlling viral diseases like Hepatitis B and C demands a strong healthcare system that prioritizes increased testing, widespread public awareness campaigns, and ensuring everyone can access treatment. Addressing these gaps is essential not only for curbing Hepatitis but also for tackling other infectious diseases like tuberculosis.

### Education

#### 3.9 The National Education Policy and the Push for Autonomous Colleges in India

The National Education Policy (NEP) 2020 of India envisions a future with autonomous colleges, fostering innovation, self-governance, and academic freedom. This policy aims to achieve this through a collaborative effort between the University Grants Commission (UGC), universities, and colleges.

#### The Growing Trend of Autonomous Colleges

- **National Expansion:** Higher education in India is witnessing a surge in autonomous colleges, with the number expected to reach 1,000 across the country. States like Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, and Telangana are leading the way with a high concentration of autonomous colleges.
- **Nationwide Interest:** The presence of autonomous colleges in states with varying numbers (Chhattisgarh, Gujarat, Kerala, Madhya Pradesh, Odisha, Punjab, and West Bengal) underscores a nationwide interest in exploring the potential of autonomy. Even in regions with fewer autonomous institutions, the transformative benefits for higher education are increasingly recognized.

#### Benefits of College Autonomy

- **Enhanced Educational Quality:** Autonomous colleges can tailor their curriculum to meet the evolving needs of students and industries. This allows for experimentation with new teaching methods and research initiatives, driving knowledge advancement and societal progress.
- **Accountability and Responsibility:** Autonomy fosters a culture of accountability among colleges as they take ownership of academic and administrative decisions. This empowers colleges, leading to increased efficiency and a sense of institutional pride that motivates faculty and staff.
- **Evidence of Success:** The National Institutional Ranking Framework (NIRF) 2023 rankings provide compelling evidence for the effectiveness of college autonomy. In the "Colleges Category," 55 out of the top 100 colleges are autonomous, demonstrating a clear link between autonomy and academic excellence.



### Challenges to Autonomy

Despite the UGC's support for college autonomy, some universities are reluctant to relinquish control. Colleges face challenges even after obtaining autonomy:

- **Limited Curriculum Innovation:** Universities may impose restrictions on the extent of curriculum changes allowed by autonomous colleges, hindering their ability to innovate. A common limitation is capping curriculum changes at 25-35%.
- **Delayed Recognition:** Colleges often experience delays from universities in formally recognizing their granted autonomy. This hampers operational efficiency and undermines the spirit of autonomy by keeping colleges tethered to university bureaucracy.
- **Reluctance to Grant Complete Autonomy:** Even when the UGC grants autonomy, universities may be hesitant to cede complete control in areas like syllabus design, new course introduction, and student evaluation methods. This traditional top-down governance approach impedes colleges' ability to adapt and innovate.
- **Arbitrary Affiliation Fees:** Universities may impose arbitrary fees on autonomous colleges for affiliation purposes. This undermines college autonomy and raises transparency and fairness concerns.

### Recommendations

- **Effective Implementation:** State Councils for Higher Education must ensure effective implementation of UGC regulations on autonomy.
- **Addressing Concerns:** Universities must address the concerns of autonomous colleges within the broader higher education reform framework.
- **Streamlined Decision-Making:** Streamlining decision-making processes between colleges and universities is crucial to ensure meaningful empowerment for colleges.
- **Collaboration and Trust:** Universities must embrace a culture of trust and collaboration with autonomous colleges, allowing them the freedom to innovate and excel while upholding academic standards.

### Conclusion

The successful implementation of college autonomy requires a concerted effort from all stakeholders. By overcoming these challenges, a vibrant and dynamic higher education ecosystem can be built, fostering innovation, excellence, and inclusivity through college autonomy.

### 3.10 India's Human Development Index (HDI) in the 2023/24 Report

#### Recent Improvements in India's HDI

The recently released 2023/24 Human Development Report (HDR) titled "**Breaking the Gridlock: Reimagining Cooperation in a Polarized World**" presents positive news for India. Following a period of stagnation and a decline in 2021, India's HDI value has risen to 0.644 in 2022. This improvement places India in the "**medium human development**" category according to the UN's ranking system, **ranking 134th out of 193 countries and territories**.

#### India's Progress Across HDI Indicators

India's HDI score stands at 0.644 in 2022, placing it in the "medium human development" category according to the UN's ranking system. This score reflects a positive change of 48.4% compared to India's HDI of 0.434 in 1990. The 2022 data for India reveals positive advancements across all three key HDI indicators:

- **Life Expectancy:** India's average life expectancy has increased from 67.2 years in 2021 to 67.7 years in 2022.
- **Education:** There has been an improvement in expected years of schooling per individual, reaching 12.6 years.
- **Standard of Living:** Gross National Income (GNI) per capita has grown to \$6,951, reflecting a 6.3% increase compared to 2021.

#### How Is HDI Calculated?

##### Components of the HDI:

The HDI is calculated based on three key aspects of human development:

1. **A Long and Healthy Life:** This dimension is measured by life expectancy at birth. A higher life expectancy translates to a higher score in this component.
2. **Access to Knowledge:** This dimension is assessed by two factors:
  - Mean years of schooling for adults aged 25 and above.
  - Expected years of schooling for children entering the education system.
 Both factors are considered to reflect the average level of education within a country.
3. **A Decent Standard of Living:** This dimension is measured by Gross National Income (GNI) per capita adjusted for purchasing power parity (PPP). PPP takes into account the relative cost of living across different countries, providing a more accurate reflection of living standards.

##### Normalization and Averaging:

To ensure all components are on the same scale for a meaningful comparison, each dimension's score is normalized between 0 and 1.

- **Life Expectancy:** A life expectancy of 20 years translates to a score of 0, while a life expectancy of 85 years translates to a score of 1.

- **Education:** Both mean years of schooling and expected years of schooling are normalized separately. A score of 1 is assigned to both 15 years of mean schooling and 18 years of expected schooling. The final education score is calculated by taking the simple average of the normalized scores for these two factors.
- **Standard of Living:** A GNI per capita (PPP) of \$75,000 translates to a score of 1, while a GNI per capita (PPP) of \$100 translates to a score of 0.

#### Calculating the Final HDI Score:

Once all three components are normalized, the final HDI score is calculated by taking the geometric mean of the three normalized scores. In simpler terms, the final score is the cube root of the product of the three individual component scores. This method ensures that all three dimensions contribute equally to the overall HDI score.

#### Classification of Countries Based On the HDI Score:

The Human Development Index (HDI) classifies countries into four tiers of human development based on life expectancy, education, and income per capita:

- **Very high human development:** HDI 0.800 or greater
- **High human development:** HDI 0.700–0.799
- **Medium human development:** HDI 0.550–0.699
- **Low human development:** HDI less than 0.550

#### Strengths of the HDI:

- **Standardized Measure:** The HDI provides a single, standardized score that allows for easy comparison of human development levels across different countries. This facilitates global benchmarking and analysis of development trends.
- **Focus on Key Dimensions:** The HDI focuses on three crucial aspects of human development: a long and healthy life (life expectancy), access to knowledge (education), and a decent standard of living (GNI per capita adjusted for purchasing power). These elements are widely recognized as fundamental to human well-being.
- **Promotes Action:** The HDI rankings can serve as a catalyst for action by highlighting disparities between countries and encouraging investments in areas of weakness.

#### Limitations of the HDI:

- **Oversimplification:** The HDI offers a simplified snapshot of human development, neglecting important aspects of quality of life. Factors like security, environmental quality, and social equality are not directly captured.
- **Data Issues:** The accuracy of the HDI can be affected by variations in how countries measure and report data on life expectancy and education levels.
- **Potential Redundancy:** Some argue the HDI's strong correlation with GNI per capita (average income) makes it redundant. They propose focusing solely on GNI per capita as it might be simpler and reflect similar development trends.
- **Limited Insight into Inequality:** The HDI provides an average national score, masking inequalities within a country. The UN offers additional indices to address this limitation, focusing specifically on inequality issues like gender disparity.

#### Progress in Gender Equality:

The report also highlights India's advancements in reducing gender inequality. India's Gender Inequality Index (GII) of 0.437 surpasses the global average. This translates to a **ranking of 108 out of 166 nations on the GII list**, which evaluates countries based on:

- Reproductive health
- Empowerment of women
- Labor market participation

These improvements are attributed to the government's policy initiatives focused on empowering women, aiming for long-term socio-economic and political development.

#### India's Performance in Gender Equality Dimensions:

- **Reproductive Health:** India performs better than the average country in its human development group and the South Asian region in terms of reproductive health. This is evidenced by the decline in the adolescent birth rate from 17.1 births per 1,000 women aged 15-19 in 2021 to 16.3 in 2022.
- **Labor Market Participation:** However, a significant challenge remains regarding gender equality in the workforce. India has one of the largest gender gaps in labor force participation globally, with a 47.8 percentage point difference between women (28.3%) and men (76.1%).

#### Significant Improvements Highlighted:

India's remarkable progress in human development over a substantial period:

- **Life Expectancy:** Since 1990, life expectancy at birth in India has risen by 9.1 years. This signifies a significant improvement in the average lifespan of the Indian population.
- **Education:** Expected years of schooling, which reflects the number of years of formal education an average Indian citizen can expect to receive, have increased by 4.6 years since 1990. This suggests an improvement in access to education across the country.
- **Mean Years of Schooling:** Mean years of schooling, which represents the average number of years of education actually attained by the population, has grown by 3.8 years since 1990. This indicates not only increased access but also potentially higher completion rates in educational programs.

- **Economic Growth:** India's Gross National Income (GNI) per capita, a measure of average national income per person, has grown by approximately 287% since 1990. This substantial increase suggests significant economic development over the past few decades.

### Recommendations for Continued Progress:

Two specific areas are identified for further focus in India's development journey:

- **Women-Led Development:** A renewed focus on empowering women and fostering women-led development initiatives is seen as a key driver for further socio-economic progress.
- **Digital Public Goods:** Investing in and utilizing digital public goods, which are digital resources offering benefits to a broad population, is seen as a way to improve the lives of people and contribute to a more sustainable future for the planet.

### Global Human Development Index (HDI) and the Impact of Crises:

#### Uneven Global Recovery from Crises:

The Human Development Report (HDR) highlights a concerning trend in global human development: an uneven recovery following the COVID-19 pandemic and other crises.

- **Overall HDI Growth, Yet Incomplete Recovery:** While the global Human Development Index (HDI) value in 2023 is higher than it was in 2019, it doesn't represent a full recovery from the pandemic's impact. This indicates that the world hasn't reached the level of human development that was projected for 2023 without these crises.
- **Pre-Pandemic Projections Missed:** Before the pandemic, global development was on track to reach an average "very high" HDI by 2030, aligning with the timeframe for achieving the Sustainable Development Goals (SDGs). However, the current HDI falls short of those pre-pandemic projections. All regions of the world are lagging behind their expected development trajectory.
- **Widening Inequality: Rich vs. Poor Nations:** The report reveals a concerning disparity in recovery across nations. Wealthy countries, represented by members of the Organisation for Economic Cooperation and Development (OECD), have surpassed their 2019 HDI levels, indicating robust recovery. However, a stark contrast exists for the poorest nations. Only half of the least developed countries have managed to recover to their pre-pandemic HDI levels, which were already considerably lower than those of wealthier nations.
- **Consequences of Unequal Recovery:** This "partial, incomplete, and unequal" recovery has significant negative consequences. It widens the gap between rich and poor nations, exacerbating global inequality. This growing inequality, in turn, fuels political polarization on a global scale. The report emphasizes this situation as a "dangerous gridlock" that requires urgent international collaboration and collective action to address.

#### Progress in Asia-Pacific:

Despite the concerning global picture, the report acknowledges a positive development in the Asia-Pacific region. India, in particular, is highlighted as a standout example, demonstrating considerable improvement in its HDI value since 1990. This suggests that some countries within the region are making significant progress in human development despite the global challenges.

#### Rising Inequality and Stalling Progress:

The Human Development Report (HDR) paints a concerning picture of rising global inequality.

- **Declining Progress:** After two decades of improvement, the gap between wealthy and poor countries is widening again, starting around 2020.
- **Economic Concentration as a Culprit:** This widening gap is worsened by economic concentration.
  - Nearly 40% of global trade in goods is controlled by just a few countries.
  - The combined value of the top 3 tech companies in 2021 exceeded the GDP of over 90% of countries.
  - This highlights the concentration of wealth and economic power in a select few entities.

#### Impact of Widening Global Inequality on Human Development:

The report emphasizes the negative impact of inequality on human development.

- India, for example, experiences a 31.1% loss in its HDI value due to inequality.
- South Asia, along with sub-Saharan Africa and the Pacific, faces some of the highest HDI losses in the world attributable to inequality.

#### Four Areas for Immediate Action:

The report proposes four areas requiring immediate action to break through the current "gridlock" and reignite global commitment to a shared future:

- **Planetary Public Goods:** Investing in global resources and initiatives (public goods) focused on climate stability, particularly relevant in the face of the Anthropocene's unprecedented environmental challenges.
- **Digital Global Public Goods:** Promoting equitable access and utilization of new technologies for human development through the creation of digital public goods.
- **New Financial Mechanisms:** Developing innovative financial tools and expanding existing ones, including novel forms of international cooperation that complement existing humanitarian aid and traditional development assistance for low-income countries.
- **Reducing Political Polarization:** Implementing new governance approaches aimed at reducing political polarization by empowering citizens' voices in decision-making processes and tackling misinformation.

### India Highlighted for Collaboration and Innovation (Human Development Report):

- **Leadership in Global Cooperation:** The report recognizes India's role in promoting international collaboration for global public goods.
  - **Examples include:**
    - Focus on Sustainable Development Goals (SDGs) during its G20 presidency.
    - Playing a key role in vaccine diplomacy during the COVID-19 pandemic.
- **Digital Public Infrastructure (DPI) Pioneer:** India's innovative use of DPI to improve citizen access to essential services is seen as a potential model.
  - This model could shape the development of global AI ecosystems that prioritize the well-being of vulnerable populations.

### Looking Forward:

The HDR report marks the beginning of a new "trilogy" exploring the layers of uncertainty in the human development landscape. These upcoming reports will delve deeper into specific challenges:

- **2023-24:** Addressing Polarization
- **2025:** Shaping a Shared Digital Future for Human Development
- **2026:** Navigating the Anthropocene Through Human Aspiration

This trilogy emphasizes the need for a comprehensive and sustained focus on tackling global challenges and promoting human development in the face of a complex and uncertain future.

## Urbanization

### 3.11 Bypass Urbanism

- "Bypass urbanism" refers to the unplanned and sporadic development of new towns, satellite cities, real estate projects, or a combination of such endeavors along or near a bypass road.
- This concept highlights the emergence of a fragmented urban landscape driven by economic interests rather than comprehensive urban planning. Its dimensions are as:
  - **Shifting Centers:** It involves the development of new urban centers on the peripheries of existing cities, often bypassing the established core areas.
  - **Fragmented Growth:** Unlike planned suburbs, bypass urbanism arises from a collection of independent projects, creating a patchwork development pattern.
  - **Loopholes and Location:** Developers exploit cheaper land and potentially weaker regulations in these peripheral areas.
  - **Socioeconomic Segregation:** These new developments typically cater to the middle and upper classes, leading to social and economic divides within the city.
  - **Neglect of Existing Areas:** The focus on peripheral development can lead to a decline in investment and resources allocated to the existing urban core.
- **Examples in India:**
  - **Ahmedabad:** The development of GIFT City (Gujarat International Finance Tec-City) on the outskirts of Ahmedabad exemplifies bypass urbanism. It caters to a specific business and lifestyle segment, creating a new financial center outside the main city.
  - **Kolkata:** The Eastern Metropolitan Bypass around Kolkata is another example. While it improved traffic flow, it also led to the development of new commercial areas on the bypass, bypassing the existing urban core.

### Causes in India:

- **Land Availability and Cost:** Existing urban areas often have high land prices and limited space. Bypassing them allows developers to acquire cheaper land on the outskirts. (e.g., Ahmedabad's GIFT City built on agricultural land)
- **Infrastructure Bottlenecks:** Congestion and lack of infrastructure expansion in core areas make peripheral development seem more attractive.
- **Aspirational Living:** Developers capitalize on the desire for modern amenities and gated communities, appealing to a specific demographic.
- **Regulatory Hurdles:** Complex regulations within city centers might incentivize bypassing them for faster project approvals in peripheral areas.
- **Investment Opportunities:** Investors see potential for high returns due to the "rent gap" between the existing land value and its future potential after development.

### Impacts (Positive):

- **Economic Growth:** Bypass projects create new jobs in construction, retail, and other sectors, boosting the local economy. (e.g., Gurgaon's development creating a business hub)
- **Improved Infrastructure:** New developments often come with better infrastructure like roads, power supply, and waste management in the peripheral areas.
- **Job Creation:** Construction and service industries associated with these projects create employment opportunities.



- **Housing Options:** Bypass developments offer a wider range of housing options, potentially catering to a growing urban population.
- **Reduced Congestion:** By attracting residents to the periphery, bypass urbanism can alleviate congestion in the core areas.
- **Modern Amenities:** These developments often come with amenities like shopping malls, parks, and recreational facilities, improving the quality of life for residents.

#### Impacts (Negative):

- **Urban Sprawl:** Uncontrolled bypass development can lead to sprawl, increasing distances between residential areas, workplaces, and amenities.
- **Environmental Degradation:** Conversion of agricultural land or green spaces on the periphery can have negative ecological consequences.
- **Socio-economic Segregation:** Bypass projects often cater to a specific income group, leading to social segregation and neglecting existing urban areas. (e.g., Noida's gated communities creating social divides)
- **Resource Strain:** Infrastructure in peripheral areas might not be equipped to handle a sudden influx of population, straining resources.
- **Neglect of Core Areas:** As development shifts to the periphery, existing neighborhoods can suffer from a decline in investment and services.

#### Solutions:

- **Urban Renewal:** Invest in revitalizing existing neighborhoods to create a more balanced and integrated city.
- **Planned Development:** Implement strategic plans for peripheral development to ensure proper infrastructure and avoid sprawl.
- **Public Transport:** Develop efficient public transport networks connecting core and peripheral areas to discourage car dependence.
- **Environmental Protection:** Enforce stricter regulations to minimize environmental damage associated with bypass developments.
- **Mixed-Income Housing:** Encourage development of mixed-income housing options within bypass projects to foster social inclusion.

By acknowledging the potential benefits and drawbacks of bypass urbanism, Indian cities can develop strategies to harness its potential for growth while mitigating its negative impacts. This will ensure a more sustainable and equitable urban future.

### 3.12 Urbanization and Caste in India

The multifaceted relationship between urbanization and caste in India, highlighting both the potential for liberation and the persistent challenges faced by Dalits (formerly untouchables) in cities.

#### Contrasting Views on Village Life

- **Caste shapes Indian cities:** Despite Ambedkar's belief that cities could liberate Dalits, caste remains the main social factor shaping Indian urban life.
- **Contrasting views on villages:**
  - **Ambedkar:** Villages reinforce caste hierarchies, acting as the "working plant" of the Hindu social order.
  - **Gandhi:** Villages are self-sufficient and equitable, advocating for decentralization through Gram Swaraj (village self-rule). Ambedkar opposed this fearing it would solidify caste dominance.

#### Ambedkar and Phule on Urbanization's Potential:

- **Ambedkar:** Cities weaken caste structures present in villages, such as segregation, limitations on Dalit jobs, and denial of land ownership.
- **Jyotirao Phule:** Cities offer liberation due to anonymity and opportunities to earn a living, potentially escaping caste identity and transitioning to a class system based on skills and resources.
- **The Core of Liberation:** The potential for liberation lies in escaping caste identity and transitioning to a class-based system based on skills and resources, not caste.

#### Limitations of Urbanization:

- **Discrimination Despite Urbanization:** Ambedkar faced housing discrimination in Baroda, highlighting the persistence of caste bias despite urbanization.
- **Industrialization and Workplace Bias:** Industrialization, a driver of urbanization, didn't eliminate prejudice. Skilled Dalit workers still faced discrimination in factories.
- **Purity-Pollution and Segregation:** The concept of "purity-pollution" translates into spatial segregation. Surveys show non-vegetarian food habits (associated with Dalits) are a reason for housing discrimination.
- **Ghettos and Identity:** Scholar Gopal Guru argues that segregated neighborhoods (ghettos) shape not only the physical space but also the identity of Dalit residents.
- **Policies and Public Spaces:** Government policies like bans on meat shops near religious places (linked to upper castes) unintentionally enforce segregation based on Brahminical values (meat as polluting).
- **Urban Governance and Segregation:**

- Urban policies and housing issues worsen segregation. Studies show Dalits and Muslims face the most severe segregation, with inadequate infrastructure and public services in their neighbourhoods.
- These communities are disproportionately affected by environmental hazards like landfills and forced evictions.

### Conclusion:

The Indian cities haven't fulfilled the aspirations of the Dalit liberation movement. While urbanization may have weakened some caste structures, others have adapted and persist. The potential for urban liberation envisioned by Ambedkar remains unrealized. Despite a century of urban development, Dalits continue to face marginalization, living as "children of India's ghettos" as Ambedkar described them.

### 3.13 Pradhan Mantri Awas Yojana (PMAY) Scheme

The Pradhan Mantri Awas Yojana (PMAY) scheme is a flagship program launched by the Government of India in 2015 to achieve "Housing for All" (HFA) by 2022 in both urban and rural areas.

#### Objectives of the PMAY Scheme:

The PMAY scheme has four key objectives:

- **Rehabilitate slum dwellers:** This involves partnering with private developers to improve living conditions in slums through redevelopment projects.
- **Promote affordable housing:** The scheme aims to make affordable housing accessible to weaker sections of society through Credit Linked Subsidy Schemes (CLSS).
- **Encourage public-private partnerships:** The PMAY scheme promotes collaboration between public and private sectors to increase the supply of affordable housing units.
- **Subsidize beneficiary-led construction:** The scheme provides financial assistance to eligible beneficiaries for constructing their own homes.

#### Implementation and Challenges:

- **Extension of the Scheme:** Despite aiming for HFA by 2022, the government extended the PMAY-Urban (PMAY-U) program until December 31, 2024, to complete already sanctioned houses.
- **Housing Shortage:** Official government estimates suggest a national housing shortage of 20 million units in rural areas and 3 million in urban centres.
- **Underestimated Urban Shortage:** Independent studies like the one by ICRIER indicate a significantly higher urban housing shortage, with numbers exceeding 6 million units in 2023 and rising from 1.88 crore in 2012 to 2.9 crore in 2018.
- **A shortfall in Deliveries:** Data from the PMAY dashboard as of April 15, 2024, reveals a significant gap between sanctioned and completed houses, with a shortfall of around 4 million units.
- **Challenges of In-Situ Slum Redevelopment (ISSR):** The ISSR vertical, considered the most critical component for addressing urban housing needs, has shown limited progress. As per a PIB press release, only 2,10,552 houses have been sanctioned for slum dwellers under ISSR.
- **Limited Impact:** A report by Newslandry suggests that even with all sanctioned houses completed by 2024, the PMAY-U would only address approximately 37% of the actual urban housing shortage, leaving nearly 2.4 crore households without proper housing.
- **Financial Investment:** Despite significant budgetary allocations exceeding \$29 billion in the past five years for both rural and urban low-cost housing, the "Housing for All" mission remains unfulfilled.

#### Challenges Hindering the Effectiveness of the PMAY Scheme:

- **Over-reliance on Private Sector for Slum Redevelopment:**
  - **Flawed Approach:** Current methods involving private developers and building high-rises create issues for residents.
  - **Unsuitable Housing:** New multi-story buildings are expensive for slum residents due to high utility costs.
  - **Design Issues:** Building layouts and limited space often make the new units undesirable.
- **Land Acquisition Hurdles for In-Situ Slum Redevelopment (ISSR):**
  - **Land Ownership Restrictions:** Land owned by entities like airports, railways, and forests hinders ISSR projects in those areas.
  - **Community Exclusion:** Residents are not involved in planning ISSR projects, leading to a disconnect.
- **Misalignment with City Master Plans:**
  - **Focus on Large Projects:** City master plans, often influenced by large consulting firms, prioritize expensive technological solutions over social housing.
  - **Neglect of Social Housing:** City plans, like Delhi's 2041 master plan, promote transit-oriented development driven by market forces, neglecting the need for government-funded social housing. This undermines PMAY's effectiveness.
- **Limited Central Government Investment and Beneficiary Burden:**
  - **Minimal Central Share:** The central government contributes only around 25% of the total investment, about ₹2.03 lakh crore.
  - **Heavy Beneficiary Contribution:** Beneficiaries themselves contribute the most, roughly 60% or ₹4.95 lakh crore.
  - **State and Local Government Expenditure:** State governments and Urban Local Bodies contribute ₹1.33 lakh crore.
- **Inadequate Focus on the Landless and Poorest:**

- **Limited Scope for Landless and Poor:** The current PMAY structure doesn't adequately address the needs of the landless and poorest.
- **Focus on Beneficiary-Led Construction (BLC):** Around 62% of sanctioned houses fall under BLC, where the government's role is limited to cost-sharing.
- **Credit-Linked Subsidy Scheme (CLSS) and Land Ownership:** CLSS beneficiaries (21% of the total) receive limited government support in the form of interest subsidies, as they are expected to already own land.
- **Minimal Support for Slum Rehabilitation:** The most vulnerable population targeted for ISSR makes up only about 2.5% of beneficiaries, highlighting the limited reach of this crucial vertical.

**Conclusion:**

The points above highlight several key challenges hindering the PMAY scheme's effectiveness in achieving its goal of "Housing for All." Over-reliance on private participation, land acquisition issues, a mismatch with city development plans, and limited support for the poorest sections of society are all critical roadblocks that require careful consideration and potential policy adjustments to ensure the scheme delivers on its core objectives.

## Struggling to Craft Compelling Answers for UPSC & MPSC Rajyaseva (New Pattern)?

**Master the Art of Answer Writing and Conquer Your Exams!**

**Introducing our Comprehensive Answer Writing Program!**

**Craft impactful answers that impress examiners and boost your chances of success in the UPSC & MPSC Rajyaseva (New Pattern - 2025) exams.**

**This program is for YOU if:**

- You struggle to balance depth and brevity in your answers.
- Integrating information from various sources feels overwhelming.
- Time management during exams is a constant challenge.
- Maintaining clarity and structure in your writing is a hurdle.

**We address these challenges and more!**

- **Learn proven strategies** to conquer common answer writing hurdles.
- **Develop the skills** to write impactful and well-structured answers.
- **Gain confidence** with regular practice and simulated tests.
- **Receive personalized feedback** from experienced mentors to refine your writing.

**Our program offers:**

- Solid foundation in answer writing principles
- Gradual skill development through structured learning
- Interactive sessions on key answer writing techniques
- Meticulously curated practice questions
- Performance tests to build exam confidence
- Personalized feedback and mentorship

**This program is more than just a solution - it's a structured learning journey!**

Gain a deeper understanding of the evaluation process and develop the adaptability you need to excel in the ever-changing UPSC & MPSC Rajyaseva landscape.

**Enroll today and unlock your full potential!**

**[Kaivalya-Civil Services Mentors Hub (9511900488)]**

#### 4.1 Analysis of the Indian Economy in 2023-24

India's GDP growth is impressive, exceeding 8% in the first three quarters of 2023-24 and potentially surpassing the 7.6% full-year estimate. However, this growth is primarily driven by investment, while consumption growth remains sluggish compared to pre-pandemic levels. This disparity suggests that the benefits of economic growth are not reaching all segments of the population.

##### Analysis of the Indian Economy:

###### Positive Indicators:

- **Strong GDP Growth:** India's GDP has grown at over 8% for the first three quarters of 2023-24, exceeding initial estimates.
- **Healthy Corporate and Banking Sectors:** Credit ratio (upgrades to downgrades) is positive, reflecting financial stability.
- **Increased Investment:** Government spending on capital expenditure (capex) remains strong, with signs of a pickup in private investment as well.
- **Improved Rural Demand:** Rural FMCG sales are increasing, indicating a rise in consumption in rural areas.
- **Robust Services Sector:** Sectors like hospitality, healthcare, and real estate are performing well.
- **Healthy Foreign Exchange Reserves:** Strong Foreign Institutional Investor (FII) inflows have boosted forex reserves to comfortable levels.
- **Moderating Inflation:** CPI inflation has fallen below the RBI's target upper band of 6%.

###### Areas of Concern:

- **Weak Consumption Growth:** Overall consumption growth remains sluggish, despite a spending surge in specific categories like automobiles and housing. Lower-income groups are showing cautious spending behavior.
- **Vulnerability to External Shocks:** Merchandise exports are weak due to the global slowdown.
- **High Food Inflation:** Prices of vegetables, pulses, and spices remain high.
- **Potential Liquidity Risks for Banks:** Deposit growth lags behind credit growth, potentially impacting banks' liquidity and net interest margins.
- **Job Market Uncertainties:** Layoffs in the IT sector could dampen urban consumer sentiment.

###### Recommendations:

- **Focus on Inclusive Growth:** The government should prioritize policies that ensure all segments of society benefit from economic growth.
- **Sustainable Growth Strategies:** Future growth plans should integrate environmental considerations.
- **Fiscal Consolidation:** Continued focus on reducing public debt incurred during the pandemic is crucial.
- **Monitoring Retail Credit:** Banks need to closely monitor their growing retail loan portfolio to prevent potential stress.

###### Conclusion:

While the Indian economy exhibits positive signs overall, achieving sustainable and inclusive growth requires addressing existing vulnerabilities and implementing well-designed policies. The upcoming government formation presents an opportunity to prioritize these considerations.

#### 4.2 The Importance of Focusing on Per Capita GDP for India's Development

Gross Domestic Product (GDP) per capita, or GDP per capita, is a measure of economic performance that is calculated by dividing a country's GDP by its population. It is an indirect indicator of per capita income and is typically expressed in local currency or a standard unit of currency in international markets. GDP per capita is an important indicator of Economic performance, Average living standards, Economic well-being, and Cross-country comparisons.

- India's current per capita GDP stands at a little over \$2,500, significantly lower than China's \$13,000.
- According to the World Bank's classification, India is currently a "lower-middle income" country, while China is considered "upper-middle income." The threshold for "high income" (roughly equivalent to "developed") stands at \$13,845, with China nearing that level.

##### India's Economic Trajectory:

- **Jump in Ranking:** India's economic size has significantly improved. Before 2014, it ranked 10th globally. By the end of 2024, it climbed to 5th, trailing only the US, China, Japan, and Germany.
- **Catching Up:** To become the 3rd largest economy by 2028, India (currently at \$3.5 trillion GDP) needs a modest 6% annual growth rate, assuming Germany (\$4.4 trillion) and Japan (\$4.2 trillion) maintain their sub-2% growth rates.
- **Growth Rate and Comparison:** India's rise (2014-15 to 2023-24) coincided with an average annual GDP growth rate of 5.9%. This is lower than the previous decade's 6.8% growth.
- **Slower Real Growth:** Though India's overall GDP has risen, its real GDP growth in dollar terms has slowed down recently (around 5.9% during 2010-2022).



- **China's Economic Rise Compared to India (1990-2022):**
  - **Similar Starting Point (1990):** In 1990, both China and India had similar economic sizes. China's per capita GDP was even lower than India's.
  - **Diverging Growth Rates:** However, China's real GDP growth rate significantly outpaced India's in the following decades. China achieved double-digit annual growth in the 1990s and 2000s, compared to India's more modest 6% growth.
  - **Dramatic Shift in Ranking:** As a consequence of this sustained high growth, China's economy surpassed India's in size and per capita income. By 2022, China's per capita GDP was over five times that of India's.
  - **Growth Lags Behind Ranking:** Despite achieving a higher global ranking in economic size (5th in 2022), India's growth performance has been slower compared to China.

#### The Significance of Per Capita GDP:

- **Focus on Average Living Standard:** This text argues that per capita GDP, reflecting average income, is crucial for India's development, especially with its large population. A high overall GDP can be misleading.
- **Dilution by Population:** A large population can dilute the benefits of a high total GDP, resulting in a lower average standard of living. Per capita GDP accounts for this by dividing total GDP by population.
- **Beyond Ranking:** Achieving the 3rd largest economy brings geopolitical advantages, but for development, the focus should be on raising average income (per capita GDP) rather than just total economic size.
- **India's Gap and Historical Comparison:** India's current per capita GDP of \$2,500 falls far short of China's \$13,000. This gap is particularly concerning considering India's lead in 1990 (\$369 vs. \$348). The contrast highlights China's faster progress.
- **India's Target: \$10,000 Per Capita GDP by 2047:** To achieve its development goals and become a "developed India" by 2047, India aims to quadruple its per capita GDP (adjusted for inflation) to \$10,000.
- **Long-Term Strategy:** Sustained growth in per capita GDP is essential for India's "Viksit Bharat" vision. The World Bank classification system emphasizes the importance of per capita income for development.
- **Core Objective:** Raising the standard of living for its citizens should be a central goal of India's long-term economic strategy.

#### Per Capita GDP Is A Key to India's Development Journey:

- **Specific Goals for Inspiration:** Setting a target of quadrupling average income by 2047 (adjusted for inflation) is a more relatable and inspiring goal compared to aiming for a high overall GDP number like \$30 trillion.
- **Learning from Success:** Prime Minister Modi's target of doubling farmers' income by 2022 (a specific per capita goal) serves as an example of how focused policymaking can be driven by clear targets.
- **Policymaking and Benchmarks:** Setting clear per capita GDP targets, both short and long term, provides valuable benchmarks for policymakers. This approach can move India beyond poverty eradication and towards sustained improvement in living standards. The success of past poverty reduction efforts shows the feasibility of such goals.
- **Long-Term Growth Over Ranking:** India's economic policy should prioritize long-term per capita GDP growth over simply chasing a higher overall GDP ranking. This focus ensures development translates into a tangible improvement in people's lives, paving the way for a truly developed India.

#### Conclusion:

India's economic policy should prioritize long-term per capita GDP growth over simply chasing a higher overall GDP ranking. This focus will ensure that economic development translates into a tangible improvement in the lives of its people and paves the way for India to become a truly developed nation.

### 4.3 India's Growth Model: Need for a Course Correction Towards Happiness and Inclusion

India's current economic growth model is a mixed middle-income developing social market economy with a notable public sector in strategic sectors. It has transitioned from a mixed planned economy and is now focusing on promoting rapid growth of both the manufacturing and services sectors. The model aims to reap the dividends of population demographics and Industrial Revolution 4.0.

#### The Shortcomings of India's Current Economic Growth Model:

- **Economic Growth vs. Happiness:**
  - Industrialist JRD Tata's quote emphasizes the importance of national happiness alongside economic prosperity.
  - Despite a projected rise in GDP and potential status as an economic superpower by 2047, India ranks a low 126th in the World Happiness Report 2024.
- **Human Development Index (HDI):**
  - India's low ranking (132nd) on the UNDP's Human Development Index (HDI) highlights the need for improvements in health, education, and income equality.
  - Public health spending remains low at 1.3% of GDP, despite the pandemic.
  - While education spending has increased, learning outcomes are poor, leaving a large portion of youth unskilled.
- **Employment Challenges:**
  - The International Labour Organization report paints a concerning picture of youth unemployment, particularly for those with secondary or high school education (unemployment rate increased from 35.2% in 2000 to 65.7% in 2022).

- The World Bank reports a declining overall employment ratio.
- Agricultural employment, which should be decreasing, has risen by 60 million in the past five years.
- Formal job creation is limited, with many finding work in the informal sector (construction and services) through daily wage labor.
- Gender disparity in employment persists.
- **Government's Response and Private Sector Constraints:**
  - The government contends that job creation is primarily the private sector's responsibility.
  - However, complex labor laws, high land costs due to outdated regulations, and other high costs of doing business disincentivize private sector investment in labor-intensive manufacturing, which could provide employment opportunities for a large segment of the workforce.
  - Companies often outsource tasks to smaller firms, further increasing reliance on low-skilled daily wage labor.
  - The government's focus on production-linked incentives in less labor-intensive sectors further limits job creation.
- **Inequality:**
  - Preliminary data from the latest household consumption survey suggests a decline in consumption inequality compared to 2011-12, but verification awaits complete data release.
  - Under-reporting of consumption, particularly at the higher end, likely underestimates true inequality.
  - A recent study by the World Inequality Lab reveals India's income and wealth inequality to be among the highest globally, with the top 1% holding 22.6% of income and 40.1% of wealth.
  - This level of inequality surpasses that of China and the US, and is comparable to South Africa and Latin America.
  - Even with potential exaggerations in the World Inequality Lab's data, India's inequality remains shockingly high.
  - The UNDP's HDI score for India falls by 31% when adjusted for inequality, highlighting its significant negative impact.
- **Concerns Regarding the Rise of Billionaires:**
  - India's high number of billionaires (271) surpasses those in California, Germany, and Japan, despite their larger GDPs.
  - Some argue that this signifies the emergence of large Indian companies capable of competing globally, similar to Korea and Japan.
  - However, such large companies, protected from competition, can become obstacles to innovation and economic growth, as seen in parts of Latin America ("regulatory capture").
- **The "Middle-Income Trap":**
  - The risk exists that India could follow the path of Latin America, where protected domestic markets hinder innovation and keep consumers burdened with high prices.
  - The alternative is to emulate the success of Korea and Japan in fostering globally competitive firms.
- **Visible Inequality and Societal Impact:**
  - India's rising inequality is evident in the lavish displays of wealth by the "nouveau riche."
  - While some view this as a sign of wealth appreciation, it becomes concerning in the absence of widespread prosperity and job opportunities.
- **Challenges of Welfarism:**
  - Government handouts (free foodgrains, gas cylinders, electricity, and water) may help win elections but do not address the root cause of unemployment.

### A Multi-Pronged Approach:

A multi-pronged approach that addresses both GDP growth and factors contributing to well-being:

- **Investing in People:**
  - **Increase public health spending:** Allocate a larger share of GDP towards public healthcare to improve overall health outcomes.
  - **Improve education quality:** Focus on improving learning outcomes and developing job-relevant skills through educational reforms.
- **Employment Generation:**
  - **Relax labor laws:** Streamline labor laws while ensuring worker protection to incentivize private sector investment in labor-intensive manufacturing.
  - **Reduce cost of doing business:** Address issues like high land costs and complex regulations to create a more business-friendly environment.
  - **Focus on skill development:** Invest in skill development programs to enhance employability of the workforce.
  - **Promote formalization of the informal sector:** Encourage the transition of informal sector jobs into formal employment with benefits and social security.
- **Reducing Inequality:**
  - **Progressive taxation:** Implement a more progressive tax system to reduce the wealth gap between the top 1% and the rest of the population.
  - **Social safety nets:** Develop robust social safety nets to support underprivileged sections of society.
  - **Investment in rural development:** Increase investment in rural infrastructure and agriculture to create sustainable employment opportunities outside urban centers.
- **Addressing the "Middle-Income Trap":**

- **Promote competition:** Encourage healthy competition within domestic markets to foster innovation and bring down prices for consumers.
- **Focus on R&D:** Increase investment in research and development (R&D) to drive technological advancements and create globally competitive industries.
- **Beyond Welfarism:**
  - **Focus on job creation:** Move away from handouts and focus on policies that create sustainable job opportunities across various sectors.
  - **Skill-matching programs:** Develop programs that connect the workforce with available job opportunities based on their skill sets.

### Conclusion:

To achieve true prosperity and happiness, India's growth model needs a significant course correction to address entrenched inequality and promote inclusive development. The nation needs to strive for a "Samrudh Bharat" (prosperous India) that is also "Sajit" (inclusive) to fulfil JRD Tata's vision of a happy country.

## 4.4 India's Dismal Job Growth Despite Economic Expansion

India faces a significant challenge in creating enough jobs to accommodate its growing working-age population. The India Employment Report 2024 highlights the concerning trend of slow job growth despite economic expansion in India.

### India's Working Age Population and Job Market Challenges:

- **Large Working-Age Population:** India has a significant advantage with a huge working-age population, estimated at around 950 million.
- **Low Labor Force Participation:** Despite the high working-age population, the Labor Force Participation Rate (LFPR) is low, at around 46.6%. This means a large portion of the working-age population is not actively working or even actively seeking work. Compared to other developing economies (closer to 70% LFPR), India lags behind.
- **Underemployment in Informal Sector:** Over half of the employed population works in the informal sector, which often has low wages and limited job security. Additionally, even "unpaid helpers in family enterprises" are counted as employed, potentially inflating official employment figures.
- **Limited Skillset for High-End Jobs:** While high-end service sector jobs are often seen as a solution, they require specialized skills that a significant portion of the workforce lacks. A 2023 India Skills Report found a major skills gap, with only around half of young Indians considered employable in the current job market.
- **Predominance of Low-Skill Service Jobs:** In the near future, low-skilled service sectors like construction, street vending, and basic repairs are likely to remain the primary source of employment for a large part of the workforce.

According to the India Employment Report 2024, economic growth during 2000-2012 (6.2% per year) failed to generate sufficient jobs, with employment growth lagging at only 1.6% annually. This worsened between 2012-2019 (average growth of 6.7%), with job growth plummeting to a mere 0.1%.

### India's economic growth from 2000 to 2019 witnessed a phenomenon of "Jobless Growth". Its Causes and Consequences:

- **"jobless growth":**
  - **Economic gains without job creation:** Economic productivity (output per worker) increased, but new job creation lagged. **Possible explanations:**
    - **Increased worker efficiency:** This is reflected in rising GDP per worker, potentially requiring fewer workers to produce the same output.
    - **Shift to capital-intensive growth:** There might have been a move towards using more machinery per worker (capital) instead of manual labor. This is particularly evident in the manufacturing sector.
  - **Manufacturing slowdown in job creation:** Employment growth in manufacturing remained stagnant at around 1.7% (2000-2019), while the sector's output grew at a much faster rate of 7.5%. This indicates a decline in the need for new workers in manufacturing.
    - **Shifting from Manufacturing:** India's development strategy traditionally focused on transitioning surplus labor from agriculture to manufacturing for industrial growth. However, the country prioritized the service sector instead, achieving success in areas like IT and IT-enabled services.
  - **Services sector as a job creator:** The services sector provided brighter job prospects with employment growth reaching nearly 3% annually during this period. India has witnessed significant success in the services sector, particularly in IT and IT-enabled services (ITES). However, concerns exist regarding the sustainability of this growth.
    - **Automation Threat in IT Sector:** The rise of automation and artificial intelligence (AI) poses a threat to jobs in the IT sector, a crucial source of formal employment for many. The slowdown in hiring and recent job cuts in the industry are early signs of this disruption.
  - **Construction benefited from growth:** The construction industry displayed a strong positive correlation with economic growth, suggesting it added jobs as the economy expanded.

- Predominance of Informal Work:** In the near future, low-skilled service sectors like construction, street vending, and basic repairs are likely to remain the primary source of employment for a significant portion of the workforce.
- Vulnerability and Low Wages:** These informal jobs often lack security, benefits, and adequate wages. The recent return migration to villages during the COVID-19 lockdown underscores the precariousness of such work.
- Missed Job Creation Opportunities in India's Growth:** India missed a key element of economic development that is **structural transformation**. This is the process of moving surplus workers from agriculture (low productivity) to higher-paying jobs in manufacturing and services.
  - Exports Could Have Helped:** Rising exports often play a role in this transformation. India's export share of GDP has grown significantly, from 6.3% in 1984 to 22% in 2022.
  - Missed Opportunity:** However, India failed to leverage this export growth to create more jobs. This is in contrast to other successful Asian economies like Japan and Vietnam, which achieved significant job creation through labor-intensive exports (goods requiring a lot of manual labor).
  - Possible Reasons for Missing Out:** There could be a few explanations for India's missed opportunity:
    - Initial Export Pessimism:** India might have initially been hesitant about the benefits of exports.
    - Global Value Chain Disconnect:** India might not have actively participated in global value chains, which are networks of specialized producers in different countries working together to create a product.
  - Future Challenges:** Looking ahead, India faces new hurdles to job creation:
    - Rising Trade Barriers:** Geopolitical tensions could lead to increased trade barriers, making it harder for India to export.
    - Automation Threat:** Even labor-intensive sectors are susceptible to job losses due to automation (replacing workers with machines).
- Stagnant Manufacturing Employment**
  - Stuck Numbers:** For over two decades, the percentage of workers employed in manufacturing has remained stagnant at around 12-14% of the total workforce.
  - Reasons for Stagnation:** Several factors contribute to this stagnation:
    - Focus on Capital Over Labor:** Manufacturing continues to favor capital-intensive methods (using machinery instead of workers) even when less efficient.
    - Skills Gap:** There's a significant and persistent skills mismatch. The education system isn't equipping graduates with the skills employers need, leading to high youth unemployment.
  - Potential Decline in Manufacturing:** While the focus on services has grown, the manufacturing sector's contribution to GDP has shrunk to 13%. There are concerns that the window of opportunity for large-scale manufacturing development might have closed.

#### Government Initiatives:

- Production Linked Incentive (PLI) Scheme:** This scheme offers incentives to companies to set up manufacturing units in India, particularly for solar modules and components. This aims to boost domestic manufacturing and create jobs.
- Atmanirbhar Bharat Rojgar Yojana (ABRY):** This program incentivizes employers to create new jobs with social security benefits, specifically targeting job recovery after the COVID-19 pandemic.
- Pradhan Mantri Kaushal Vikas Yojana (PMKVY):** This scheme offers skill development training programs to improve employability among youth.
- Focus on Renewable Energy:** The government's ambitious renewable energy targets, with a focus on solar power, could create new job opportunities in installation, maintenance, and manufacturing (if the PLI scheme is successful).
- National Career Service (NCS) Project:** This project aims to improve access to career-related services like job matching, career counseling, and skill development training.

#### Potential Avenues for Job Creation:

- Global Capability Centers (GCCs):**
  - Multinational corporations (MNCs) set up offshore units in India to provide various services (finance, HR, technology) to their headquarters.
  - There are already over 1,500 GCCs in India, employing 1.6 million people. This number is projected to grow significantly by 2030.
  - This sector creates high-quality jobs in service exports and also stimulates demand for lower-skilled jobs.
- Tech Startups:**
  - Indian startups have the potential to create many jobs, both directly by hiring employees and indirectly by influencing other related businesses.
  - Recently, there were many highly valued startups with unsustainable business models. The focus needs to shift to strong fundamentals, developing talent, and dealing with unclear regulations.
  - India should focus on startups in new sectors like Artificial Intelligence (AI), Software as a Service (SaaS), defense, and green technology. This will leverage India's strengths while also addressing important national issues.
- Green Transition:**



- India has set ambitious goals for clean energy and reducing carbon emissions. This creates an opportunity for many new jobs in the "green economy."
- An estimate suggests that India's green transition can generate 50 million net new jobs.
- **Revitalizing Manufacturing:**
  - Even with automation, manufacturing can still be a major source of jobs, especially for low-skilled and semi-skilled workers.
  - Supporting small and medium-sized manufacturers (SMMs) is crucial because they are less likely to rely heavily on automation.
  - India's digital public infrastructure, like the Open Network for Digital Commerce, can help SMMs compete better by giving them improved access to credit, resources, logistics, warehousing, and customers.
- **Other Solutions:**
  - **Focus on labour-intensive manufacturing:** Encourage industries that rely more on workers and can create more jobs.
  - **Greater participation in global value chains:** Actively integrate into global production networks to benefit from export opportunities.
  - **Invest in skill development:** Align education with the demands of the job market to reduce youth unemployment and improve employability.
  - **Re-evaluate approach to capital intensity:** Analyze if a shift towards a more balanced approach in manufacturing (using both labor and machinery effectively) could create more jobs.
  - **Addressing trade barriers:** India might need to develop strategies to navigate potential future trade barriers.
  - **Automation impact:** Mitigating the potential job losses in manufacturing due to automation is important.

### Conclusion

India's looming employment crisis demands a comprehensive and multifaceted approach. While the service sector has played a vital role in the nation's economic growth, it cannot be the sole engine of job creation. Investing in skill development, fostering innovation in promising sectors like green technology and tech startups, and revitalizing the manufacturing sector, particularly through supporting small and medium enterprises, are crucial steps towards addressing this critical challenge. The success of these endeavors hinges on effective policy support, co-investment in education and skills training, and creating a regulatory environment that incentivizes job creation.

#### Analysis of Unemployment in Indian States(2022-23)

This analysis investigates unemployment among individuals aged 15 and above in major Indian states (excluding Union Territories) using data from the Periodic Labour Force Survey (PLFS) 2022-23. It employs the Usual Principal and Subsidiary Status (UPSS) measure.

#### Data and Methodology:

- **Data Source:** PLFS 2022-23 (excluding Manipur due to incomplete fieldwork).
- **Sample:** Individuals aged 15 and above in major Indian states.
- **Unemployment Measure:** Usual Principal and Subsidiary Status (UPSS).
- **Limitations:** Estimates for smaller states may be less reliable due to lower sample size.

#### Unemployment Trends in Indian States:

- **National Unemployment:**
  - The national average unemployment rate is 3.17%.
- **High Unemployment States:**
  - Goa has the highest unemployment rate (almost 10%).
  - Four out of the top five states with high unemployment (Goa, Kerala, Haryana, and Punjab) are relatively richer states.
- **Low Unemployment States:**
  - Twelve out of 27 states have unemployment rates lower than the national average.
  - Larger states with lower unemployment rates (Maharashtra, Uttar Pradesh, Madhya Pradesh) contribute to bringing down the national average.
  - However, these states (except Maharashtra and Gujarat) also have lower per capita incomes compared to the national average.
- **Urbanization and Unemployment:**
  - Generally, highly urbanized states (Goa, Kerala) have higher unemployment rates compared to less urbanized states (Uttar Pradesh, Jharkhand, Madhya Pradesh). This is because urban areas have smaller agrarian sectors, offering fewer informal job opportunities.
  - Exceptions exist: Gujarat and Maharashtra are highly urbanized with lower unemployment than U.P. and Madhya Pradesh.
- **Education and Unemployment:**
  - There is a positive correlation - states with a more educated workforce experience higher unemployment.
  - Kerala (highly educated workforce) faces high unemployment, while Gujarat and Maharashtra (lower proportion of graduates) have lower unemployment.
  - **Possible explanations for the Education-Unemployment Paradox:**
    - **Skill mismatch:** Graduates might lack the skills required by the modern sector.

- **Aspirational mismatch:** Graduates might seek high-wage jobs commensurate with their skills, rejecting informal jobs. If the modern sector cannot absorb enough new graduates, unemployment results.

#### 4.5 Human Development, Growth, and Inequality in India

The World Inequality Lab, a global research institute, published a working paper titled "Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj" in March 2024.

Wealth inequality is even more concerning, with the top 1% holding 40.1% of the nation's wealth.

The World Inequality Database reports that the top 1% of earners in India captured 22.6% of national income in 2022-23, the highest level since 1922.

Despite being the world's fifth-largest economy, India ranks a lowly 134th out of 193 countries in the 2023-2024 Human Development Report (HDR). This ranking falls below neighbouring countries like Sri Lanka, Bhutan, and Bangladesh.

#### Shifting Inequality Trends in India:

- **Growth and Inequality:**
  - **Decline in Inequality (1960-1980):** India witnessed a decrease in inequality between 1960 and 1980. This trend is likely linked to the prevailing economic growth model at that time.
  - **Rise in Inequality (Post-1980s):** However, economic reforms initiated in the 1980s and 1990s coincided with a rise in inequality. This suggests a potential shift in the impact of economic policies on income distribution.
- **India vs. China: A Comparative Look:**
  - **Similar Starting Points:** Until 1975, India's average income (adjusted for inflation and purchasing power) was comparable to rapidly growing economies like China and Vietnam.
  - **Divergent Growth Patterns (Post-1975):** However, after 1975, China and Vietnam experienced a significantly faster pace of income growth (35-50%) compared to India.
  - **Nature of Growth Matters:** This disparity in growth rates is attributed to the nature of economic growth itself. China's growth was more broad-based, benefiting a wider segment of the population. In contrast, India's growth primarily benefited the wealthy, leading to increased inequality.
  - **Widening Gap:** By 2022, the top 1% in India captured nearly 50% more income than their counterparts in China, highlighting the significant difference in income distribution between the two countries.

#### The Interdependence of Human Development, Growth, and Inequality in India:

Human development is a foundation for achieving inclusive economic growth and reducing inequality in India.

- **Human Development for Sustainable Growth:** Investments in human development, particularly in education and healthcare, are crucial for long-term economic prosperity. This is supported by the success stories of countries like China and Vietnam, whose focus on human capital development fueled sustained economic growth.
- **Prioritizing Human Development:** The economic growth strategies should be preceded by investments in human development. This creates a skilled and healthy workforce, fostering long-term economic sustainability and a more equitable distribution of wealth.
  - **Evidence from the Indian States:**
    - **High Growth & High Human Development:** States like Kerala, Tamil Nadu, and Maharashtra serve as examples of achieving high economic growth alongside advancements in human development. These states prioritized investments in education and healthcare, leading to a skilled and healthy workforce that contributed to their economic success.
    - **Low Growth & Low Human Development:** Conversely, states with lower human development indicators, such as Jharkhand, Bihar, and Uttar Pradesh, have also witnessed slower economic growth. The lack of investment in human capital hinders their economic potential.
  - **Rejecting Trickle-Down Economics:** The scholarst criticize the "trickle-down" theory, which suggests that benefits from economic growth will eventually reach the poor. Instead, it advocates for direct investments in human development as a more effective approach to achieving inclusive growth.
  - **Inequality vs. Sustainable Growth:** Economic growth alone is insufficient. Neglecting human development, including poverty reduction and skill development, can exacerbate inequality and hinder the sustainability of economic growth.
  - **Quantifying the Impact:** The World Inequality Lab Report measures the negative impact of inequality on India's human development score. If economic inequality were factored out, India's score would improve by 31.1%, highlighting the importance of addressing inequality for human progress.
  - **A Warning for the Future:** Persistent high levels of economic inequality pose a potential threat of social and political instability.

#### Welfare Programs and Inequality in India & A Call for Structural Change

- **Limited Impact of Welfare Programs:** The programs like the Pradhan Mantri Garib Kalyan Anna Yojana (free foodgrain program) can provide temporary assistance. However, it argues that these programs are not a sustainable solution.
- **Beyond Short-Term Relief:** There is a need to move beyond temporary handouts. To achieve lasting progress, India requires more fundamental economic reforms.

- **Addressing Structural Issues:** The focus should be on addressing structural issues within the Indian economy that contribute to inequality. This could involve reforms in areas like taxation, labor markets, and access to education and healthcare.
- **Long-Term Solutions:** There is a need for policies specifically targeted at reducing income and wealth inequality in India. These policies should be designed for long-term impact, going beyond temporary relief measures.

Emphasizing human development is essential for achieving the vision of a developed India by 2047.

#### 4.6 Wealth Distribution in India: A Shift from Land Reform to Growth-Oriented Policies

The significant changes in wealth distribution and policy approaches in India since the 1950s.

##### **The Past: Land Reforms and Redistribution (1950s-1980s)**

- **Context:** India gained independence with a highly unequal society, with wealth concentrated in land ownership.
- **Policy Focus:** Land reforms were prioritized to address inequality. This included:
  - Abolition of the zamindari system (intermediaries between cultivators and the state)
  - Land ceiling laws to limit landholdings
  - Tenancy reforms to protect sharecroppers
- **Political Acceptance:** These policies enjoyed broad political support due to:
  - Widespread poverty and desire for social justice
  - Concentration of wealth in a few hands, seen as exploitative landlords
- **Challenges:** Implementation faced issues like:
  - Litigation holding up land redistribution
  - Lack of political will and administrative zeal

##### **The Shift: Financialization and Wealth Dispersion (1990s-Present)**

- **Economic Reforms:** The 1991 economic reforms marked a shift towards a market-oriented economy.
- **Changing Narrative:** Businessmen became lauded as "wealth creators" instead of being seen as exploitative.
- **Financialization of Wealth:** Physical assets like land became less dominant in household savings. Financial instruments like stocks, mutual funds, and bank deposits gained importance.
- **Apparent Decline in Top 1% Share:** Data suggests a decrease in the top 1% share of national income and wealth between 1950s and 1980s, possibly due to socialist policies. However, it rose sharply after the 1990s.
- **Nuance in the Data:** While the top 1% share has increased, the overall wealth base has also grown significantly. This accommodates a larger middle class with some wealth accumulation.

##### **Arguments Against Simple Redistribution**

- **Political Viability:** The "expropriate-and-redistribute" model is no longer politically viable due to the wider dispersion of wealth. Policies like the withdrawn land acquisition act amendments (2014) and demonetization (2016) are seen as the last attempts at such drastic redistribution.

##### **Alternative Approaches:** Need to focus on policies that promote upward mobility:

- Job creation
- Universal access to quality education
- Skill development
- Progressive taxation

##### **Conclusion**

India's political economy has undergone a significant transformation. The focus has shifted from land reform to policies promoting growth and broader wealth creation. While inequality remains a concern, addressing it through job creation, education, and progressive taxation is seen as a more sustainable approach than radical redistribution.

#### 4.7 Income Inequality in India

The current public discourse on inequality often centers on direct redistribution methods, such as "tax the rich, subsidize the poor." While redistribution can play a role, the report suggests this approach might be insufficient without addressing the underlying issues within the tax system.

Arvind Panagariya argues that reducing poverty is a more pressing concern than achieving perfect equality. Here's a breakdown of the key points:

##### **Defining Inequality and Measuring It:**

- **Income Inequality:** The unequal distribution of income and wealth among a population.
- **Gini Coefficient:** A statistical measure (0-1) where 0 indicates perfect equality and 1 signifies all income concentrated in one person.
- **India's Gini Coefficient:** It has risen from 0.30 in 1993-94 to 0.36 in 2011-12, indicating increasing inequality.

### Public Perception vs. Reality:

- **Public Focuses on Immediate Concerns:** People care more about their own standard of living (consumption) than national Gini coefficients.
- **Kerala's Inequality Paradox:** Despite communist rule, Kerala has high consumption inequality (contrary to public perception).
- **Bihar's Low Inequality:** Bihar, often seen as a poor state, has the lowest consumption inequality (again, surprising to many).
- **Migration Patterns:** People migrate from poorer (Bihar) to richer (Kerala) states, highlighting the priority of poverty reduction over achieving perfect equality.

### Top 1% and Public Indifference:

- **Focus on Top Earners:** Inequality alarmists point to the rising share of the top 1% in national income.
- **Lack of Public Outrage:** The public is less concerned about inequality among the very wealthy.

### Inequality that Matters:

- **Social Comparison:** People are most bothered by inequality within their immediate social circles (colleagues, neighbors).
- **Relative Deprivation:** A villager cares more about a neighbor's sudden wealth than Mukesh Ambani's wealth increase.

### Poverty Reduction vs. Equality:

- **Development Priority:** In developing nations, reducing poverty takes precedence over achieving perfect equality.
- **Wealth Creation for Poverty Reduction:** Economic growth and wealth creation are necessary for lifting people out of poverty.
- **The Rise of Billionaires:** India's economic growth has led to more billionaires, but also a reduction in extreme poverty.

### Taxing the Rich: A Flawed Solution?

- **Wealth Creation vs. Wealth Taxes:** The wealth creation is necessary for poverty reduction. While wealth taxes might seem like a solution to inequality, they could discourage investment and entrepreneurship, hindering economic growth.
- **India's economic transformation:** Before 1990, wealth creation was low, and poverty was widespread. Today, while inequality exists, extreme poverty has significantly decreased.

### Conclusion:

A focus on poverty reduction, even if it leads to some level of inequality, is a more effective strategy for developing countries like India. Wealth creation, even if concentrated in the hands of a few, can ultimately benefit the broader population by lifting them out of poverty.

## 4.8 The Decline of Private Investment in India: A Hurdle to Economic Growth

The private investment in India is measured by Gross Fixed Capital Formation (GFCF). Private GFCF, as a percentage of Gross Domestic Product (GDP), is a key indicator of private sector investment activity. Since 2011-12, private investment in India has witnessed a concerning decline. The government has been looking to large Indian corporations to increase investment levels. In 2019, the government reduced corporate taxes from 30% to 22% with the aim of stimulating private investment.

### Understanding Gross Fixed Capital Formation (GFCF):

- **Fixed Capital Defined:** GFCF refers to the net increase in the stock of fixed capital within an economy over a specific period.
- **Examples of Fixed Capital:** Fixed capital includes physical assets like buildings, machinery, and infrastructure, which require investment for creation.
- **GFCF as an Indicator:** The level of private GFCF reflects the private sector's willingness to invest in the economy.
- **Overall GFCF:** Total GFCF also incorporates capital formation driven by government investment.

### The Significance of GFCF for Economic Growth:

- **Boosting Productivity:** Fixed capital allows workers to produce more goods and services, leading to economic growth.
- **Improved Living Standards:** Economic growth driven by investment translates into higher living standards for the population.
- **Determining Economic Output:** The amount of fixed capital within an economy significantly influences its overall productive capacity and the level of consumer goods and services available.
- **Developed vs. Developing Economies:** Developed economies generally have a higher level of fixed capital per capita compared to developing economies like India.

### Historical Trends in Private Investment in India:

- **Pre-Liberalization Era:** Prior to economic reforms in the late 1980s and early 1990s, private investment remained stagnant, hovering around 10% of GDP.
- **Shifting Investment Landscape:** Post-liberalization reforms boosted private sector confidence, leading to a significant rise in private investment.



- **Public vs. Private Investment:** Public investment as a share of GDP steadily rose until the early 1980s, surpassing private investment. However, with liberalization, private investment took the lead in fixed capital formation.
- **Golden Period (Up to 2007-08):** Private investment witnessed a steady rise, reaching a peak of approximately 27% of GDP in 2007-08, compared to around 10% in the 1980s. The global financial crisis of 2007-08 marked a turning point, followed by a decline in private investment that continues to date.
- **Recent Decline (2011-12 Onwards):** A concerning trend of declining private investment emerged, reaching a low of GFCF at 19.6% of GDP in 2020-21.

### Downward Trend Private Investment:

Private investments in India have been experiencing a downward trend for several reasons:

- **Low Consumer Spending:** Some economists believe that low consumer spending, especially since the start of the pandemic, is the main reason private businesses aren't investing much lately. They suggest that when people spend more, businesses feel confident about future sales and invest more in things like factories and equipment.
- **Policy Uncertainty:** The implementation of certain reforms has been questioned by critics, leading to policy uncertainty. This uncertainty can deter businesses from making new investments.
- **Reduced Disposable Income:** The rise in wages has been slower than the rise in inflation, resulting in reduced disposable income. This can lead to less consumer spending and, consequently, less business investment.
- **Stagnancy and Credit Defaults by MSMEs:** Micro, Small and Medium Enterprises (MSMEs) have been facing stagnancy and credit defaults, leading to negligible growth and loss of wages. This can discourage these enterprises from making new investments.
- **Lacklustre Demand Post-Pandemic:** Despite the pandemic being behind us and the big capital expenditure (capex) spend by the government, private investment remains cautious due to lacklustre demand.

### The Costs of Low Private Investment:

- **Slower Economic Growth:** The most significant cost of low private investment is potentially sluggish economic growth. A larger fixed capital base is crucial for boosting economic output.
- **Government Investment Debate:** There is disagreement on the government's push to increase public investment.
- **Crowding Out Effect:** Some argue that government investment crowds out private investment by competing for resources.
- **Complementary View:** Others see government investment as a way to compensate for the lack of private investment.
- **Efficiency Concerns:** Private investors are generally considered more efficient in allocating capital compared to public officials, potentially leading to less wasteful spending.
- **Tax Burden:** Taxes levied to finance public investment can be a drag on the economy.

### National Investment Trends:

- Gross fixed capital formation (GFCF), a measure of overall investment, shows a positive trend.
  - The investment rate has increased from 30.8% in 2022-23 to 31.3% in 2023-24, following a decline to 27.2% in 2020-21.
  - However, the share of investment in plant and machinery, crucial for industrial growth, has decreased from 36% in 2017-18 to 30.7% in 2022-23.
  - A significant portion (59%) of GFCF in 2022-23 went towards residential construction, driven by government housing initiatives.

### State Government Investment:

- State governments have shown a tendency to slow down capex to meet fiscal targets.
- In 2022-23, they spent only Rs 6.08 lakh crore compared to a revised estimate of Rs 7.32 lakh crore.
- Considering the significant share of state capex in total investments, their spending patterns significantly impact the national investment cycle.

### A Mixed Picture of Private Sector Investment:

- **Investment Announcements:** There's some positive news: New private sector investment announcements for 2023-24 (Rs 27.1 lakh crore) were the second highest in the decade, though lower than the previous year (Rs 39 lakh crore) (CMIE data). However, announced investments don't guarantee actual investment. 85% of announcements come from domestic companies, while 11% are from foreign investors.
- **Debt Issuance:** There's a slight increase in debt issuances for investment purposes, rising from Rs 9.64 lakh crore in 2022-23 to Rs 11.1 lakh crore in 2023-24. However, 71% of this debt issuance comes from the financial services sector, raising questions about broader participation from other industries.
- **Sectoral Breakdown:**
  - **Power Sector Leads:** CMIE data shows the power sector has the most announced investments, likely driven by the government's push for renewable energy and the Production Linked Incentive (PLI) scheme for solar panels.
  - **Airlines Take Flight:** Transport services, particularly airlines, also show significant investment intentions. However, these investments may involve buying equipment from outside India, limiting the benefits to domestic industries.
  - **Other Prominent Sectors:** Chemicals, machinery, metals, and auto also have announced investments.

- **Missing Players:** Notably, consumer goods and electronics industries are absent from the list of announced investments, despite the existence of a PLI scheme for electronics.

### Conclusion:

While there are signs of a pick-up in India's investment cycle, it remains uneven. Private sector investments are concentrated in specific sectors, often linked to government initiatives. Weak demand and excess capacity in consumer goods industries hinder broader participation. State government spending patterns also play a crucial role. Addressing these challenges is essential for a sustained revival of the investment cycle and overall economic growth.

## 4.9 India's Development Path: A Model for Public-Private Collaboration and Innovation

India's progress in clean energy, digital solutions, and female empowerment – areas with valuable lessons for other developing countries.

### India's Economic Growth:

- India's estimated 7.5% growth in the past fiscal year offers a bright spot in a weak global economic outlook.
- This growth is driven by a combination of public investment and private sector dynamism.

### India's Model for Development:

- India's development strategy emphasizes collaboration between the public and private sectors, innovation, and resilience.
- This approach offers practical knowledge applicable to other developing countries.
- The World Bank views India as a "development sandbox" for testing and scaling solutions through South-South knowledge exchange.

### India's Clean Energy Transition:

- India has made significant strides in clean energy, with renewables accounting for 42% of its power generation capacity.
- It ranks as the world's fourth largest renewables market and a major player in solar manufacturing.
- Over the past five years, India has consistently invested heavily in renewables, positioning itself as a leader among emerging economies.
- The country also supports electric vehicle adoption and green hydrogen production.

### Investment Opportunities in India's Clean Energy Sector:

- India's clean energy shift represents a significant opportunity for investors.
- The World Bank's \$1 billion investment in solar projects has leveraged \$40 billion in commercial investment.
- India's future energy transition requires addressing renewable energy intermittency through grid improvements and storage solutions.
- Large-scale electrification of transportation and industrial decarbonization technologies are also critical areas for advancement.

### India's Digital Public Infrastructure (DPI):

- India's DPI initiative is a pioneering example of using technology to promote social inclusion.
- Millions of citizens now utilize digital identity verification to access government services, receive social benefits, and open bank accounts efficiently.
- Digital payments have significantly reduced delays in social welfare programs.
- Case studies, like women micro-entrepreneurs in Tamil Nadu, illustrate how digital tools empower rural communities through e-commerce, finance access, and remote services like healthcare and education.
- India's DPI experience offers valuable lessons for other countries aiming to leverage the digital economy for inclusive growth and poverty reduction.

### Women's Empowerment in India:

- While India's female labor force participation remains lower than in many countries, positive signs of change are emerging.
- Initiatives like safe urban housing for working women, supported by government policies, contribute to increased female workforce participation, particularly in the industrial sector.
- The World Bank-supported National Rural Livelihoods Mission empowers rural women through self-help groups and access to finance, fostering female-led businesses in rural areas.
- Expanding these successful programs could significantly increase India's female labor force participation rate, boosting economic growth and empowering millions of women.

### India as a Model for Development:

- With its large population and aspiration to reach high-income status, India is poised to play a significant role in shaping global development strategies in the coming decades.

### Conclusion:

India's development path presents a compelling case for public-private partnerships, innovation, and targeted interventions to achieve inclusive and sustainable growth. The nation's experience in clean energy, digital solutions, and women's empowerment offers valuable lessons for other developing countries seeking to achieve similar goals.

#### 4.10 India Opens Sovereign Green Bonds to Foreign Investors

##### What are Sovereign Green Bonds (SGrBs)?

- SGrBs are a type of government debt specifically used to fund projects that accelerate India's transition to a low-carbon economy.
- These bonds represent a borrowing by the Indian government, with the promise of repayment with interest, but the funds raised are earmarked for environmentally friendly initiatives.

##### Why did India allow Foreign Institutional Investors (FIIs) to invest in SGrBs?

- **Broadening the Funding Pool:** Previously, only domestic institutions participated in SGrB issuances, limiting the available capital. By allowing FIIs to invest, India widens the pool of potential investors and increases the total funds available for green projects.
- **Supporting Ambitious Climate Goals:** The additional capital facilitates financing India's ambitious climate goals, which include achieving net-zero emissions by 2070, deriving 50% of energy from non-fossil fuels, and reducing carbon intensity by 45%. These goals were pledged by Prime Minister Narendra Modi at COP26.
- **Diversification for FIIs:** Climate finance experts believe FIIs are looking to diversify their green investment portfolios, especially with growing regulatory support for sustainable investments in developed economies. SGrBs offer an attractive option.
- **Reputational Benefits:** Investments in SGrBs can enhance the green credentials of FIIs, particularly if such opportunities are limited in their home markets. India's robust Sovereign Green Bonds Framework helps address concerns about greenwashing (falsely claiming environmental benefits for investments).

##### Previous SGrB issuances and their limitations:

- The Reserve Bank of India (RBI) issued the first SGrBs in tranches worth ₹16,000 crore in early 2023.
- While these issuances were oversubscribed, the main investors were domestic financial institutions and banks. This limited the sources from which the government could borrow for green projects.
- Additionally, SGrBs were classified under the Statutory Liquidity Ratio (SLR), a liquidity requirement for Indian financial institutions. This meant banks might prioritize investments with higher returns, potentially hindering SGrB uptake.
- **Addressing the Green Taxonomy Gap:** In the 2022-23 budget, the government announced using SGrBs to fund green projects like offshore wind, solar power, and electric vehicle adoption. However, initially, the RBI lacked a "green taxonomy," a system to categorize investments based on their environmental impact. This raised concerns about potential greenwashing.
- **Green Bonds Framework Implementation:** To address this gap, the Ministry of Finance released the first SGrB Framework in late 2022. This framework clearly defines eligible projects for SGrB funding, encompassing:
  - Renewable energy sources (solar, wind, biomass, hydropower under 25 MW)
  - Energy storage solutions
  - Public lighting upgrades
  - Sustainable building practices
  - Electricity grid improvements
  - Public transport promotion
  - Electric vehicle subsidies and charging infrastructure

### Conclusion:

Opening SGrBs to FIIs is a significant step for India's green transition. The additional capital and investor base will accelerate progress towards climate goals. A robust framework ensures transparency and avoids greenwashing. Future opportunities lie in identifying new green projects with strong environmental impact and attracting private capital, particularly in areas like distributed renewable energy and clean energy transition for small and medium enterprises (MSMEs).

#### 4.11 Indian Agriculture Production and the Challenges of Climate Change

The delicate balance between agriculture and climate is a critical factor in ensuring country's food security. While agricultural practices have significantly shaped the environment, they are also highly susceptible to changes in climate.

##### Impact of Agricultural Practices on Climate:

- **Green Revolution's Environmental Impact:** Modern agriculture, as exemplified by the Green Revolution, relies heavily on high-yielding crop varieties, irrigation systems, chemical fertilizers, and pesticides. This dependence on these inputs is argued to have negative environmental consequences.
- **Excess Production and Food Waste:** Despite concerns about global food security, there is excess food production and high wastage rates.
- **Unsustainable Urea Use in India:** India's heavily subsidized urea (a nitrogen fertilizer) has led to:

- **Imbalanced soil nutrient levels:** Too much focus on nitrogen disrupts the natural balance of nutrients in the soil.
- **Depleted soil organic carbon:** Organic carbon is essential for healthy soil, and current practices are leading to its decline.
- **Degraded soil health:** The combination of these factors contributes to a critical state of Indian soils with low organic carbon content.
- **Policy Failures and Environmental Consequences:** Inappropriate agricultural policies are blamed for environmental damage. These policies include:
  - **Free electricity for irrigation:** This incentivizes excessive water use.
  - **Open-ended procurement of paddy (rice):** This guarantees purchase of rice from farmers, regardless of how much is produced, potentially leading to overproduction.
- **Water Issues and Greenhouse Gases:** This unsustainable water use is linked to:
  - **Groundwater depletion:** Excessive irrigation is causing a decline in groundwater levels in states like Punjab, Haryana, and Rajasthan.
  - **Ecological damage:** This depletion has ecological consequences.
  - **Greenhouse gas emissions:** Paddy fields, particularly with high organic matter content, can emit methane, a potent greenhouse gas.
- **Loss of Crop Diversity:** There is a negative impact of modern agriculture on crop diversity. The dominance of rice cultivation and a focus on high-yielding varieties have led to a decrease in the variety of crops grown.

### How Climate Change Affects Crops?

- **Mechanisms of Climate Change Impact on Crops:** Climate change affects crops throughout their growth cycle in various ways:
  - **Terminal heat stress:** Extremely high temperatures during the final stage of growth can cause premature ripening and drying, reducing yields.
  - **Warm temperatures during sowing:** Unseasonably warm weather during planting and early growth can lead to fewer tillers (shoots) and early flowering, ultimately lowering yields.
  - **Changes in seasonality:** Climate change disrupts seasonal patterns, with earlier summers and delayed winters impacting crop development cycles.
- **Potential Impact of Climate Change on Crop Yields (Without Adaptation Measures):**
  - **Rainfed Rice:** Yield reductions of 20% by 2050 and 47% by 2080 are predicted.
  - **Irrigated Rice:** Yield reductions are expected to be lower than rainfed rice, with projected reductions of 3.5% by 2050 and 5% by 2080.
  - **Wheat:** Yield reductions are projected to be significant: 19.3% by 2050 and 40% by 2080.
  - **Kharif Maize:** Kharif maize, a summer crop, is also likely to be impacted, with projected yield reductions of 18% and 23% in 2050 and 2080 respectively.
  - **Regional and Temporal Variations:** These impacts are expected to vary depending on location and time of year.

### The Way Forward:

India faces limitations in land, water, and overall resources. This situation necessitates a shift towards sustainable agricultural practices to ensure future viability.

- **Policy Shift Needed:** The current focus on "peasant-positive" policies, while important, needs to be balanced with a stronger emphasis on "planet-positive" approaches.
- **Building Climate-Resilient Food Systems:** There is a critical need to build food systems that are resilient to climate change. This includes:
  - **Restoring soil health:** Improving soil quality is essential for long-term productivity.
  - **Managing groundwater depletion:** Sustainable water management practices are crucial to prevent resource depletion.
  - **Reducing greenhouse gas emissions:** Mitigating the agricultural sector's contribution to climate change is vital.
  - **Promoting biodiversity:** Encouraging a wider variety of crops can strengthen agricultural resilience.
- **Green Revolution 2.0: Focus on Sustainability:** The Green Revolution primarily focused on irrigation expansion and developing high-yielding varieties responsive to heavy fertilizer application. **Green Revolution 2.0 should prioritize:**
  - **Input use efficiency:** Developing methods to produce more wheat with less water, fertilizer, and energy.
  - **Climate resilience:** Investing in breeding programs to develop drought-resistant and heat-tolerant wheat varieties.
  - **Germplasm screening and gene identification:** Researching plant genetics to identify traits that contribute to desired characteristics in wheat.

The future of agriculture demands a sustainable path forward. By adopting practices that minimize environmental impact and promote resource conservation, we can mitigate the negative effects of agriculture on climate. Simultaneously, we must build resilience within agricultural systems to adapt to the challenges posed by climate change



## 4.12 Food Security Finances in India

### Food Security Management:

The Indian government manages a system for procuring, storing, transporting, and distributing grains (wheat, rice, coarse cereals) to ensure food security. This involves buying grains from farmers, storing them safely, and delivering them to areas with food shortages, ultimately reaching the beneficiaries.

### Financing Food Security Operations:

- **Financing Mechanism:** In the past, food security programs relied on "food credit" for funding. This credit was provided by a group of banks led by the State Bank of India (SBI).
- **High-Interest Rates:** Food credit came with a significant disadvantage of high interest rates. This was due to the uncertain nature of repayment. Repayment depended on the government receiving funds from selling grain stocks and then disbursing subsidies.
- **Impact on Other Sectors:** The high-interest rates associated with food credit had a negative effect on the availability of credit for other sectors of the Indian economy. These other sectors are often referred to as "non-food credit."
- **FCI's Dependence on Food Credit (1965-2000):** Following the establishment of the Food Corporation of India (FCI) in 1965, food credit played a substantial role in financing food security operations. By the year 2000, food credit consumption reached a significant level, accounting for 15-20% of the total credit available in the economy.
- **Diversification of Funding Sources:** To lessen dependence on high-cost food credit, efforts were undertaken to diversify FCI's funding sources. These alternative funding options included government bonds, National Small Savings Scheme, ways and means advances that helped decrease food credit reliance.
- **Delayed Subsidy Disbursement (2010-2021):** Starting from the financial year 2010-11, there were issues with the timely delivery of government subsidies to the Food Corporation of India (FCI). This resulted in a growing accumulation of subsidy arrears.
- **Staggering Arrears by 2020-21:** By the end of the financial year 2020-21, the total amount owed to FCI in unpaid subsidies had reached a substantial ₹14.37 trillion.
- **Government Clearance of Arrears (Q4 2020-21):** In a significant step, the government took action to address this issue during the fourth quarter of the 2020-21 financial year. They cleared all the pending subsidy dues in a single payment, totaling ₹13.85 trillion.

### Financial Impact of Delayed Subsidy Payments on FCI

- **Heavy Borrowing by FCI:** Delays in receiving government subsidies forced the Food Corporation of India (FCI) to borrow extensively from various lenders.
- **Accumulated Interest Burden:** By the 2020-21 financial year, this reliance on borrowing had resulted in a significant accumulated interest burden of ₹1.29 trillion for FCI.
- **Impact on Food Security Operations:** The high interest payments had a negative impact on the overall financial efficiency of food security operations managed by FCI.
- **Increased Economic Cost of Wheat and Rice:** As a consequence of the high-interest burden, the "economic cost" of wheat and rice (which includes all expenses incurred) rose significantly.

### Benefits of Improved Financial Management:

- **Reduced Food Security Operation Costs:** Clearing subsidy arrears and providing FCI with an additional ₹1.21 trillion in working capital is expected to lower the overall expenses associated with managing food security programs. A significant area of cost reduction is anticipated to be the interest component.
- **Lower Food Subsidy Requirements:** By reducing food security operation costs, the government is expected to require less financial resources for food subsidies.
- **Modernization of Food Security Infrastructure:** Improved financial efficiency within FCI due to these measures will allow for investments in modernizing food security infrastructure. This modernization should enhance FCI's operational capabilities in managing food security programs.

### Significance for India:

- **Importance:** Efficient food security management is essential for India, a developing nation with a large population. It ensures millions of people have access to food.
- **Current System:** The existing system distributes 5kg of free foodgrains to over 810 million beneficiaries on a monthly basis.
- **Supporting Farmers:** Timely payments are made directly into the bank accounts of around 12.5 million farmers at the Minimum Support Prices (MSP). This helps incentivize crop production.

### Conclusion:

The recent measures by the Indian government demonstrate a commitment to efficient public financial management for food security. This not only benefits farmers but also strengthens the world's largest food distribution system, ensuring food security for a vast population.

#### 4.13 Food Systems Transformation for a Food-Secure and Prosperous India by 2047

A team of researchers at the Indian Council for Research on International Economic Relations (ICRIER) proposes a series of recommendations to address food security challenges and achieve the vision of a prosperous "Viksit Bharat@2047" (Developed India by 2047).

##### Food Systems Transformation - A Multi-Faceted Approach

<b>Enhancing Productivity and Resource Efficiency</b>	<p><b>Goal:</b> Increase food production (including fiber and biofuels) while utilizing fewer resources (land, water, labor, fertilizers).</p> <p><b>Rationale:</b> India's population is projected to reach 1.6 billion by 2047, necessitating a rise in total factor productivity (TFP).</p> <p><b>Solutions:</b></p> <ul style="list-style-type: none"> <li>• Increased investments in agricultural research and development (R&amp;D).</li> <li>• Adoption of innovations and improved extension services for farmers.</li> </ul>
<b>Building Climate Resilience</b>	<p><b>Challenge:</b> Extreme weather events due to climate change threaten agricultural production.</p> <p><b>Evidence:</b></p> <ul style="list-style-type: none"> <li>• April-March 2024 temperatures exceeded the critical threshold of 1.5°C above pre-industrial levels.</li> <li>• El Niño effect in 2023 led to a significant drop in agricultural GDP growth.</li> </ul> <p><b>Solutions:</b></p> <ul style="list-style-type: none"> <li>• Investments in climate-resilient (smart) agriculture technologies.</li> <li>• Development of heat and flood-resistant seeds.</li> <li>• Enhanced water resource management:                         <ul style="list-style-type: none"> <li>• Augmentation of water supplies.</li> <li>• Promotion of water-saving irrigation techniques (drip, sprinklers, protected cultivation).</li> </ul> </li> </ul>
<b>Facilitating Food Security in Urbanizing India</b>	<p><b>Trend:</b> By 2047, over two-thirds of India's population will reside in urban areas.</p> <p><b>Implication:</b> Efficient food logistics infrastructure is needed to transport, store, process, and retail food in cities.</p> <p><b>Solution:</b> A large-scale logistics revolution driven by private sector investments.</p> <p><b>Policy Action:</b> The government needs to enact new laws and regulations suitable for a modern market-oriented food system to minimize post-harvest losses and build efficient value chains.</p>
<b>Empowering Smallholder Farmers</b>	<p><b>Challenge:</b> Fragmentation of agricultural landholdings into smaller and less viable units.</p> <p><b>Solution:</b> Promoting the formation of Farmer Producer Organizations (FPOs) or cooperatives, similar to the successful AMUL model in the dairy sector.</p> <p><b>Benefit:</b> FPOs can provide small farmers with the collective bargaining power and economies of scale necessary to access markets and secure better prices.</p>
<b>Ensuring Nutritional Security</b>	<p><b>Problem:</b> High rates of malnutrition, particularly among children under five, pose a long-term threat to India's workforce potential.</p> <p><b>Solution:</b> Micronutrient fortification of staple foods:</p> <ul style="list-style-type: none"> <li>• The government's zinc-rich rice and wheat initiatives are a positive step.</li> <li>• Golden rice, rich in beta-carotene (Vitamin A), should be adopted following successful trials in other countries.</li> </ul>
<b>Public-Private Partnerships</b>	<p><b>Collaboration:</b> The government and private sector can work together to achieve food systems transformation.</p> <p><b>Private Sector Role:</b></p> <ul style="list-style-type: none"> <li>• Building efficient value chains.</li> <li>• Developing climate-resilient and more nutritious seed varieties.</li> </ul> <p><b>Government Role:</b> Providing a conducive policy environment.</p>
<b>Direct Income Transfers for Farmers</b>	<p><b>Goal:</b> Improve farm incomes for a more sustainable agricultural sector.</p> <p><b>Proposal:</b> Reform of subsidy regimes:</p> <ul style="list-style-type: none"> <li>• Shift from price subsidies on fertilizers and food to direct income transfers for targeted beneficiaries.</li> <li>• Estimated savings: 25-30% of the current Rs 4 trillion food and fertilizer subsidy budget.</li> </ul> <p><b>Benefit:</b> Reinvestment of saved funds into food systems for higher resilience and better nutrition.</p>

Conclusion:

The success of these recommendations hinges on the new government's willingness to implement them. Achieving food security and a prosperous "Viksit Bharat@2047" requires a comprehensive food systems transformation strategy that addresses productivity, resource efficiency, climate resilience, market access for small farmers, nutritional security, and public-private partnerships.

#### 4.14 Viksit Bharat and the Need for Robust Agricultural Policies

##### **Inclusive Growth:**

The vision of Viksit Bharat (Developed India) necessitates inclusive development, ensuring prosperity for all citizens. Agriculture plays a crucial role in achieving this goal, as it employs a significant portion of the workforce (around 45%).

##### **Challenges and Current Scenario:**

- Despite its importance, agricultural growth in India lags behind the overall GDP growth rate. Data shows a long-term trend of a declining share of agriculture in the GDP (from 18% to a projected 7-8% by 2047). This decline might not translate into a proportional decrease in the agricultural workforce, potentially leading to a situation where a large portion of the population remains in low-income jobs.

##### **Urgent Need for Action:**

- The current agricultural growth trajectory is insufficient to achieve inclusive development in Viksit Bharat. A significant improvement in agricultural productivity and farmer income is essential. Business-as-usual policies are unlikely to deliver the desired results.

##### **Recommendations for a Sustainable Agricultural Future:**

- **Skill Development:** Enhance the skill sets of the rural population to facilitate their transition to higher-productivity jobs outside agriculture.
- **Shift Towards High-Value Agriculture:** Encourage a shift towards producing high-value crops like fruits, vegetables, poultry, and dairy products.
- **Value Chain Approach:** Implement a "plate-to-plough" value chain approach that focuses on meeting market demands.
- **Market Access:** Develop policies and institutions to enable farmers to access domestic and global markets consistently. This could involve:
  - Cooperatives
  - Farmer Producer Organizations (FPOs)
  - Digital platforms like E-NAM and ONDC
  - Contract farming arrangements with large processors, retailers, and exporters
- **Rationalization of Subsidies:** Streamline food and fertilizer subsidies and redirect the savings towards:
  - Agricultural research and development (R&D)
  - Innovation in agricultural practices
  - Extension services for farmers
  - Soil and water conservation initiatives
  - Promotion of water-saving techniques like drip irrigation and sprinklers
- **Risk Mitigation:** Implement strategies to address the increasing risks associated with extreme weather events caused by climate change.
- **Futures Trading:** Re-evaluate restrictions on futures trading, acknowledging its role in price discovery and risk management.

##### **Conclusion:**

Building a strong and resilient agricultural sector is critical for achieving the vision of an inclusive Viksit Bharat. By implementing the recommended policies and fostering innovation, India can ensure food security, improve farmer livelihoods, and contribute to a prosperous future for all.

#### 4.15 CDP-SURAKSHA: A Digital Platform for Instant Disbursement of Horticulture Subsidies to Farmers

##### **Introduction**

The Government of India has launched a new digital platform called CDP-SURAKSHA (System for Unified Resource Allocation, Knowledge, and Secure Horticulture Assistance) to streamline the disbursement of subsidies to horticulture farmers under the Cluster Development Programme (CDP). This initiative aims to improve efficiency and transparency in government assistance for this crucial agricultural sector.

##### **Significance of Horticulture Sector**

- **Production Growth:** The production of horticulture crops in India has seen a significant rise in recent years, increasing from 240.53 million tonnes in 2010-11 to 334.60 million tonnes in 2020-21.
- **Economic Contribution:** Horticulture plays a vital role in the Indian economy, contributing nearly one-third to the agriculture Gross Value Added (GVA), a measure of the value generated by the agricultural sector.

### The Cluster Development Programme (CDP)

- **Background:** The CDP is a central government initiative under the National Horticulture Board (NHB).
- **Objective:** To leverage the existing geographical specialization of horticulture and promote integrated development across various stages of the production cycle, including:
  - Pre-production activities (e.g., seed selection, soil preparation)
  - Production processes (e.g., cultivation, crop management)
  - Post-harvest handling and storage
  - Logistics and transportation
  - Branding and marketing efforts
- **Scope and Implementation:**
  - A total of 55 horticulture clusters have been identified across India.
  - Twelve clusters are currently undergoing pilot implementation at various stages of development.
  - The program aims to cover approximately 9 lakh hectares of land and benefit 10 lakh farmers across all 55 clusters.
- **Funding:** A combination of public and private investment will support the CDP:
  - **Government assistance:** Up to Rs 25 crore for mini clusters (less than 5,000 hectares), Rs 50 crore for medium clusters (5,000-15,000 hectares), and Rs 100 crore for mega clusters (over 15,000 hectares).
  - **Private investment:** An estimated Rs 8,250 crore from private sources is expected to contribute to the program's success.

### Features of CDP-SURAKSHA

- **Instant Disbursement:** The platform facilitates the instant transfer of subsidies to farmers through e-RUPI vouchers issued by the National Payments Corporation of India (NPCI).
  - e-RUPI vouchers are cashless and contactless electronic payment instruments delivered via SMS or QR code, ensuring secure and targeted use of subsidies for specific purposes.
- **Integrated System:** CDP-SURAKSHA offers a comprehensive platform integrating various functionalities:
  - Database linkage with the PM-Kisan scheme (a government program providing income support to small and marginal farmers) for beneficiary identification.
  - Cloud-based server infrastructure provided by the National Informatics Centre (NIC) for secure data storage and management.
  - Content management system for disseminating relevant information and resources.
  - Geotagging capabilities for location verification and ensuring transparency.

### Operational Mechanism

- **Stakeholder Access:** The platform provides access to various stakeholders involved in the subsidy process:
  - **Farmers:** Can register and utilize the platform for placing orders, receiving subsidies, and managing their accounts.
  - **Vendors:** Can participate by registering with the platform to supply planting materials to farmers and receive payments.
  - **Implementing Agencies (IA):** Responsible for overseeing the program's implementation at the ground level.
  - **Cluster Development Agencies (CDA):** Facilitate cluster formation among farmers and manage program activities within the cluster.
  - **National Horticulture Board (NHB) Officials:** Can monitor program progress and ensure adherence to guidelines.
- **Process Flow:**
  - Farmers register on the platform and place orders for required planting materials (seeds, seedlings, plants).
  - The system calculates the government subsidy amount automatically, and the farmer contributes their share of the cost.
  - Upon payment by the farmer, an e-RUPI voucher is generated and sent to the chosen vendor.
  - The vendor delivers the planting materials to the farmer's location.
  - Farmers verify delivery through geo-tagged photos and videos uploaded on the platform.
  - After verification, the IA releases payment to the vendor upon receiving a proper invoice.
  - The IA gathers relevant documents and submits them to the CDA for final subsidy release to the IA.

### Contrasting Old and New Systems:

This section highlights the key differences between the traditional subsidy disbursement process and the new CDP-SURAKSHA platform:

- **Old System:**
  - Farmers pay the full cost of planting materials upfront.
  - They then need to submit separate applications and potentially wait for approval to receive the subsidy amount from concerned officials. This process can be time-consuming and prone to delays.
- **New System (CDP-SURAKSHA):**
  - Farmers receive the subsidy amount upfront at the time of purchasing planting materials. This significantly reduces their initial financial burden.
  - Vendors receive payment only after successful delivery verification by the farmer through the platform. This ensures accountability and minimizes the risk of non-delivery.



### Benefits of CDP-SURAKSHA:

- **Enhanced Transparency:** The platform provides a clear audit trail for all transactions, minimizing the risk of corruption and ensuring proper subsidy utilization.
- **Streamlined Process:** The online platform simplifies the subsidy disbursement process, eliminating delays and administrative burdens for both farmers and government agencies.
- **Direct Benefit Transfer:** By providing subsidies directly to farmers through e-RUPI vouchers, the platform reduces dependence on intermediaries and ensures timely access to financial resources.
- **Empowerment of Farmers:** CDP-SURAKSHA empowers farmers by providing them with direct access to government subsidies and greater control over their purchases.

### Conclusion

The CDP-SURAKSHA platform represents a significant step towards modernizing subsidy disbursement practices within the Indian horticulture sector. By leveraging digital technology, the platform promotes efficiency, transparency, and empowerment for farmers, ultimately contributing to the growth and sustainability of the horticulture industry.

## 4.16 India's Ambitious Solar Power Push: Can Domestic Manufacturing Keep Up?

### India's Potential for Solar Energy

- **India has a massive clean energy target:** They aim for 500 GW of renewable energy capacity by 2030.
  - **Solar power is key:** At least 280 GW, or more than half, of this target is expected to come from solar.
  - **India needs a solar surge:** To reach this goal, India needs to add 40 GW of solar capacity every year until 2030.
- **Fast-growing energy needs:** India's electricity demand is projected to grow the fastest among major economies by 2026, putting pressure on the energy sector.
- **Solar is already a big player:** Even now, solar provides roughly a third of all renewable energy generation in India (April 2022 - Feb 2023).
- **India is a solar powerhouse:** The country has an estimated potential of generating 748.99 GW of solar power, according to the Ministry of New and Renewable Energy (MNRE). This indicates immense room for future growth in solar energy.

However, domestic production of solar cells and modules currently falls short of this demand.

### Current State of Domestic Manufacturing:

- **India relies heavily on solar imports:** India currently lacks the ability to manufacture key solar cell components (ingots and wafers), forcing them to import these materials and increasing their dependence on foreign suppliers.
- **China dominates solar manufacturing:** According to ICRA, a ratings agency, China controls over 80% of the entire solar panel production chain, from raw materials (polysilicon) to finished modules.
- **India lags behind:** In contrast, India's manufacturing capacity is much lower and mainly focused on the final assembly stage (modules).
- **Policy aims to change the game:** A government program, the PLI scheme, aims to shift this dynamic. ICRA's November 2023 report predicts that within 2-3 years, India will see the establishment of factories capable of producing solar panels entirely within the country (integrated module production).
- **PLI targets new facilities:** While 14 major companies have been approved under the PLI scheme with a combined manufacturing capacity of 48 GW, it's important to note that these requirements only apply to new projects.
- **Existing plants get a grace period:** Existing factories and facilities that began operating before March 2024 are still allowed to use imported modules.

### India's Export Opportunity and Future Uncertainties:

- **Boost for Indian solar exports in 2023:** In 2023, India benefited from a decline in Chinese solar module exports due to U.S. restrictions and European trade policies. India exported nearly \$1 billion worth of modules in the first half of 2023-24.
- **Clouds on the horizon:** The potential rollback of U.S. duties on China creates uncertainty for India's future solar exports.

### India's Reliance on Solar PV Imports:

- **India relies heavily on solar imports:** India's solar energy sector is heavily dependent on imports to meet its demand for solar cells and modules.
- **China is the major supplier:** China is the dominant supplier according to February 2023 parliamentary data, accounting for a significant share of both:
  - 53% of solar cell imports
  - 63% of solar PV module imports
- **Vietnam also plays a role:** Vietnam is another major supplier of solar components to India.
- **High import bill over time:** Data for the past five years shows a total import value of \$11.17 billion for solar cells and modules.
- **Limited impact on exports:** While the import value is significant, it represents a minor 0.4% of India's total exports during that period.
- **Potential risk of import dependence:** This heavy reliance on imports of solar photovoltaic (PV) cells and modules creates a potential vulnerability for India's solar sector, as it exposes them to disruptions in global supply chains.

### China's Dominance in Solar PV Manufacturing

A July 2022 report by the International Energy Agency (IEA) identified China as the world's most cost-competitive location for solar PV manufacturing across the entire supply chain. **This dominance is attributed to several factors:**

- **Lower electricity costs for manufacturers:** Electricity accounts for a significant portion of production costs, particularly for polysilicon (over 40%) and ingots/wafers (almost 20%). China benefits from lower overall electricity costs compared to many other countries.
- **Government support:** The Chinese government prioritizes solar PV as a strategic sector, providing policy support and fostering innovation throughout the supply chain.
- **Economies of scale:** China's large domestic demand for solar products allows manufacturers to benefit from economies of scale, further reducing production costs.

### Policy Responses over the Past Five Years:

India has implemented a series of initiatives over the past five years to address its overdependence on imports:

- **Approved List of Models and Manufacturers (ALMM) Order (January 2019):** This policy established a list of approved manufacturers whose products could be used in government-backed solar projects. It aimed to promote the use of higher quality solar equipment while potentially encouraging domestic manufacturing.
- **Production Linked Incentive (PLI) Scheme (Union Budget 2022-23):** Announced by Finance Minister Nirmala Sitharaman, this scheme offers financial incentives to companies to establish or expand domestic manufacturing capacity across the entire solar PV supply chain, from polysilicon (a key raw material) to finished solar modules. The PLI scheme aims to enhance India's self-sufficiency in solar technology.
- **Customs Duty on Solar PV Imports (2022):** The Indian government imposed a 40% customs duty on solar PV modules and a 25% duty on solar PV cells. This move aimed to make imported solar equipment less price-competitive compared to domestically produced alternatives, potentially incentivizing developers to utilize domestic options.

### Rationale for Policy Adjustments:

- **India initially imposed high import duties on solar panels and modules.** This aimed to boost domestic manufacturing.
- **Developers faced challenges with high initial duties:** Companies that had already secured contracts for solar projects based on the assumption of lower import duties faced financial pressure due to the initial high duties.
- **Duties were cut in half due to slowing solar growth:** However, these high duties slowed down the rate at which India was adding new solar capacity. To address this concern, the government reduced the import duties by half.
- **Balancing act: domestic manufacturing vs. project costs:** Reducing import duties aimed to find a balance between two competing goals:
  - Encouraging domestic manufacturing of solar panels and modules in India.
  - Keeping the costs of solar power projects competitive.

### Conclusion:

India's multi-pronged approach, including the ALMM order, PLI scheme, and import duty adjustments, demonstrates its commitment to addressing its dependence on solar PV imports. By promoting domestic manufacturing and innovation, India strives to achieve greater self-sufficiency in solar technology while ensuring a robust and cost-competitive solar energy sector.

### 4.17 Approved List of Models and Manufacturers of Solar Photovoltaic Modules (Requirement for Compulsory Registration) Order, 2019

In April 2024, the Ministry of New and Renewable Energy (MNRE) re-implemented the "Approved List of Models and Manufacturers of Solar Photovoltaic Modules (Requirement for Compulsory Registration) Order, 2019 (ALMM Order 2019)."

- This order mandates voluntary registration for solar module manufacturers with the National Institute of Solar Energy (NISE), a government body.
- Inclusion on the ALMM list signifies a company's legitimacy as a domestic manufacturer, distinguishing them from mere importers or assemblers.
- This list specifies manufacturers whose products are "eligible for use in Government Projects/Government assisted projects/projects under Government schemes & programmes.... including projects set up for sale of electricity to the Central and State Governments."
- This list plays a crucial role in the solar energy sector, ensuring the quality and reliability of solar panels used in various projects across the country.

### Reasons for the Policy:

- **Curbing Reliance on Chinese Imports:** The policy targets restricting imports, especially from China, which dominates the global solar panel market (nearly 80%). This decision coincides with strained diplomatic relations between India and China.
- **Ambitious Renewable Energy Goals:** India aims to source 500 GW of electricity (almost half its total requirement) from non-fossil fuel sources by 2030. Solar power is expected to contribute significantly (at least 280 GW). This necessitates an annual addition of 40 GW of solar capacity until 2030.

- **Historical Shortfall in Capacity Addition:** However, India has struggled to meet these targets. Over the past five years, annual additions barely reached 13 GW. The government attributes this gap partly to the COVID-19 pandemic but expects to achieve 25-40 GW annually in the coming years.

#### Benefits of ALMM Certification:

- **ALMM certification unlocks access to government solar programs:** Manufacturers who receive ALMM certification become eligible to bid on government tenders for major solar programs in India.
  - **Example: PM Surya Ghar Muft Bijli Yojana:** This recently announced program subsidizes rooftop solar installations for millions of households, with a significant estimated subsidy of ₹75,000 crore.
- **ALMM promotes domestic manufacturing:** Only manufacturers on the ALMM list, which is a list of approved domestic solar module and component producers, can participate in these government programs and supply components.
- **ALMM extends to other initiatives:** This requirement for ALMM certification applies not just to the PM Surya Ghar Muft Bijli Yojana program but also to other government programs promoting solar power, such as:
  - PM-KUSUM (rural electrification)
  - Production Linked Incentive Scheme (PLIS) for solar modules and components. This PLIS scheme specifically offers incentives to boost domestic production of solar modules and components.

#### Challenges and Concerns:

- **Domestic Supply Shortage:** The current domestic solar panel manufacturing capacity falls short of the required volume to meet the ambitious targets. This necessitates continued reliance on imports.
- **Disadvantage for Domestic Manufacturers:** Domestic manufacturers face a dual challenge:
  - They incur costs associated with government certification.
  - They struggle to compete with cheaper Chinese imports.
- **Demand-Supply Mismatch:** Estimates suggest that almost half of India's solar modules are still imported from China, indicating a persisting demand-supply gap. The government expects a significant rise in domestic manufacturing capacity this year.
- **Capacity Building:** However, the ALMM list currently includes only 82 certified module manufacturers, highlighting the need for further expansion. The absence of a similar list for solar cell manufacturers underscores India's distance from achieving self-reliance in solar energy production.

#### Balancing Act: Growth vs. Quality:

- **Meeting Demand:** To address the immediate demand, the government has finally enforced the "approved list" policy from April 1, 2019.
- **Long-Term Sustainability:** The true success lies in achieving India's 2030 goals while ensuring affordability of solar power for the public. This necessitates:
  - **Stringent Quality Checks:** Domestic manufacturers must adhere to rigorous quality standards to ensure product reliability and long-term efficiency.
  - **Focus on Cost-Effectiveness:** However, quality should not come at the expense of exorbitant costs. Domestic manufacturers need to optimize production processes to offer competitive prices without compromising quality.
- **Global Recognition:** The Indian solar industry aspires to become a prominent exporter of high-quality solar panels. Achieving this goal requires a clear focus on both quality and cost control.

#### Conclusion:

India's solar industry is on the cusp of a significant expansion. However, navigating this growth path requires a delicate balance between promoting domestic manufacturing, ensuring product quality, and maintaining affordability for consumers. By prioritizing quality checks, optimizing production processes, and fostering a competitive domestic market, India can achieve its renewable energy goals while establishing itself as a global leader in the solar power sector.

#### 4.18 India Tightens Tax Treaty with Mauritius to Address Loopholes

India and Mauritius signed a protocol in March 2024 to amend their existing Double Taxation Avoidance Agreement (DTAA). The text of the amended treaty will be made public in July 2024, raising concerns among Foreign Portfolio Investors (FPIs).

##### Tax Treaties and Investment:

- Tax treaties are crucial for international investment by defining how income earned in one country by a resident of another country is taxed.
- Historically, developing countries sometimes offered more favourable tax rates in treaties to attract investment.

##### Treaty Shopping and Base Erosion:

- Some companies (often from a third country) exploit these treaties by routing investments through low-tax jurisdictions ("treaty shopping") to reduce their overall tax burden.
- The Base Erosion and Profit Shifting (BEPS) project by the OECD aims to prevent this practice and ensure fair taxation.

##### The Multilateral Instrument (MLI) and Anti-Abuse Rules:

- The MLI is a tool developed by the OECD to allow countries to quickly update existing tax treaties with provisions like:
  - **Minimum Standard:** Including a clause to prevent treaty abuse.
  - **Preamble Amendment:** Specifying that treaties should not be used for tax evasion or to benefit residents of non-treaty countries.
  - **Anti-Abuse Rules:** Empowering tax authorities to deny treaty benefits in specific situations.
    - A key anti-abuse rule is the Principal Purpose Test (PPT), which allows authorities to assess the main reason behind a transaction and deny treaty benefits if tax avoidance is a primary motive.

### India-Mauritius Treaty Amendment:

India, a signatory to the MLI, recently amended its tax treaty with Mauritius. With Mauritius India has a long-standing Double Taxation Avoidance Agreement (DTAA). This amendment aims to address concerns about treaty shopping, specifically regarding investment flows from Mauritius.

- **Treaty Shopping Concerns:** India, a signatory to the Multilateral Convention to Implement Tax Treaty Measures (MLI), has amended its tax treaty with Mauritius to address concerns about "treaty shopping."
  - **What is Treaty Shopping?** Treaty shopping is a strategy where companies or individuals route investments through a third country with a favorable tax treaty to benefit from lower tax rates.
- **Addressing Investment Flows:** Specifically, India aims to address the issue of investment flows from Mauritius. Previously, companies could potentially channel investments through Mauritius to take advantage of lower withholding tax rates in India.
- **Principal Purpose Test (PPT):** A key amendment is the introduction of the Principal Purpose Test (PPT). This provision empowers Indian tax authorities to:
  - **Deny Treaty Benefits:** Deny treaty benefits, such as lower withholding tax rates on interest, royalties, and dividends, if they believe that obtaining those benefits was the primary purpose of a transaction or business arrangement.
  - **Go Beyond Residency Certificate:** The PPT allows Indian authorities to look beyond a company's tax residency certificate in Mauritius when determining eligibility for treaty benefits. This enables a more thorough assessment of the transaction's true purpose.
- **Focus on Tax Avoidance:** The amended preamble emphasizes eliminating double taxation without enabling non-taxation or reduced taxation through evasion or avoidance, including "treaty shopping arrangements."
- **Global Alignment:** These amendments align with international efforts to combat Base Erosion and Profit Shifting (BEPS) practices.

### Potential Impacts of India's Amended Tax Treaty with Mauritius

The potential implications of India's recent amendments to its tax treaty with Mauritius, focusing on foreign direct investment (FDI) and tax considerations.

- **Shifting FDI Composition:** The introduction of the Principal Purpose Test (PPT) is expected to alter the composition of foreign direct investment (FDI) entering India. Similar changes were observed after the 2017 amendment that taxed capital gains at the source.
- **Loss of Grandfathering Benefits:** The previous 2016 amendment exempted investments made before March 2017 from capital gains tax. The current amendment's silence on grandfathering raises concerns that such benefits might not be extended to pre-amendment investments under the PPT.
- **Impact on Existing Investments:** The impact on investments made before the amendment remains unclear. Similar to the "grandfathering clause" in the 2017 amendment, there might be an exemption for pre-existing investments. However, the lack of clarity in the current amendment raises concerns.
- **PPT vs. GAAR:** India already has a general anti-avoidance rule (GAAR) to address tax loopholes. However, concerns exist about how aggressively the PPT will be implemented compared to GAAR.
- **Retrospective Application:** The amended treaty's applicability to existing investments is ambiguous. The text suggests the PPT could apply to all transactions after the treaty's ratification, potentially impacting past investments as well.
- **Potential Impact on FPIs**
  - **Increased Scrutiny for Foreign Portfolio Investors (FPIs):** FPIs fear greater scrutiny under the PPT regarding capital gains tax levies and exemptions. This could lead to increased compliance costs and complexities for foreign investors.
  - **Reduced Investment Flow:** Uncertainty regarding past investments may deter future FPI inflows from Mauritius, currently India's fourth-largest source of such investments.
  - **Increased Litigation:** Disputes over treaty benefit eligibility under the PPT could lead to a rise in tax litigation.

### Government Clarification

- **Income Tax Department's Statement:** The department clarified that concerns are premature as the treaty awaits ratification. They will address any queries when the protocol comes into effect.

### Global Tax Reforms and Minimum Tax:

- International tax law is evolving with reforms to existing treaties and growing support for a global minimum corporate tax rate.
- A proposed Subject to Tax Rule (SITR) within the minimum tax framework would further limit the use of treaties for tax minimization.



### Conclusion:

The India-Mauritius treaty amendment reflects a global shift towards preventing tax avoidance through treaties. This change ensures that investment decisions are driven by economic considerations rather than solely tax benefits.

## 4.19 The Reserve Bank of India: A Historical Overview (1935-2024)

### Establishment and Early Years (1935):

- The Reserve Bank of India (RBI) was established on April 1, 1935.
- Its core functions include maintaining monetary stability, managing currency circulation, targeting inflation, regulating the banking system, and setting interest rates.
- The initial legislation for the RBI's creation was enacted in March 1934.
- Sir Osborne Arkell Smith, an Australian, became the first Governor, followed by Sir C. D. Deshmukh, the first Indian Governor.
- Following India's partition in 1947, the RBI ceased to be the legal currency authority for Pakistan.

### Challenges and Assertiveness (1935-Present):

- The RBI's relationship with the government has not always been smooth, with the bank demonstrating a willingness to defend its autonomy when government interference threatened.

### Leadership and Internal Disagreements (1982-1985):

- In 1982, Manmohan Singh, then Planning Commission Member Secretary, became RBI Governor succeeding I. G. Patel.
- During his tenure (until 1985), Singh laid the groundwork for strengthening monetary policy and promoting banking reforms.
- Singh's autobiography ("Strictly Personal") acknowledges significant disagreements with then-Finance Minister Pranab Mukherjee.
  - Singh opposed granting a license to the Bank of Credit and Commerce International (BCCI), a foreign bank, to operate in India. Despite government pressure, Singh's resistance led to a Cabinet proposal to remove the RBI's authority for licensing foreign banks. He eventually withdrew his resignation and remained Governor.
  - Singh and Mukherjee reportedly clashed over the hostile takeover attempt of Escorts and DCM by UK-based industrialist Swraj Paul.
- Mukherjee, in his book ("The Turbulent Years"), clarifies that Singh's move from RBI to the Planning Commission in 1985 was a decision made by then-Prime Minister Rajiv Gandhi.

### Economic Crisis and Reforms (1991):

- A sharp rise in oil prices in 1990 triggered a severe economic crisis.
- The balance of payments became unsustainable, leading to foreign exchange reserve depletion and capital flight, putting India at risk of default.
- The RBI took decisive actions:
  - Transferred over 46 tonnes of gold reserves to the Bank of England to secure foreign exchange for immediate liquidity needs.
  - Devalued the rupee twice (by 18% in total) within three days.
  - Introduced full convertibility of the rupee on trade accounts, enhancing trade flexibility.
  - Initiated banking reforms, including deregulation of interest rate setting by lenders.
  - Issued new private bank licenses between 1991 and 1995.

### Governor D. Subbarao (2008-2013) and the 2008 Financial Crisis:

- D. Subbarao served as RBI Governor from 2008 to 2013, a period that included the global financial crisis of 2008-2009.
- India successfully navigated this crisis due to a combination of factors, including:
  - **Pre-crisis Policies:** Governor Y. V. Reddy's (Subbarao's predecessor) policies aimed at curbing excessive capital inflows, particularly into real estate, and restricting rapid expansion of foreign banks. These proved to be timely measures.
  - **Effective Crisis Management:** During the crisis itself, the RBI's management under Subbarao was considered excellent, with appropriate and measured responses.
  - **Accommodative Monetary Policy:** To promote economic recovery post-crisis, Subbarao implemented a liberal and accommodative monetary policy.

### Governor Raghuram Rajan (2013-2016) and Policy Reforms:

- Raghuram Rajan served as RBI Governor from 2013 to 2016. His tenure focused on several key policy initiatives:
  - **Internationalization of the Rupee:** Rajan announced plans to make the rupee a more globally traded currency.
  - **Inflation Targeting:** He introduced inflation bonds linked to the consumer price index to manage inflation.
  - **Boosting Exports and Inflows:** Measures were taken to stimulate exports and increase foreign currency inflows.
  - **Monetary Policy Review:** A review of the monetary policy process was initiated.

- **Liberalized Branch Licensing:** Banks were granted greater freedom to open new branches without explicit RBI approval.

#### Governor Urjit Patel (2016-2018), Demonetization, and the MPC:

- Urjit Patel assumed the governorship in 2016. His tenure coincided with significant events:
  - **Demonetization:** In November 2016, the government's sudden demonetization of Rs 500 and Rs 1000 notes created a severe liquidity crisis in India. Patel's handling of the situation, including managing the slow pace of remonetization, impacted the bank's credibility.
  - **Monetary Policy Committee (MPC):** The MPC, responsible for setting interest rates, was established during Patel's early tenure. He chaired the first MPC meeting in October 2016.
  - **Asset Quality Review:** Patel continued the asset quality review process initiated by his predecessor, Rajan, despite resistance from corporate sectors facing scrutiny for bad loans.

#### Governor Shaktikanta Das (2018-Present) and the COVID-19 Pandemic:

- Shaktikanta Das became Governor in 2018. His tenure has been marked by:
  - **Monetary Policy During COVID-19:** The COVID-19 pandemic led to a sharp decline in economic activity. Das and his team adopted an accommodative monetary policy, lowering the repo rate (the main policy rate) to a historic low of 4% to stimulate growth. However, this policy also contributed to a rise in inflation, forcing the RBI to raise rates subsequently.
  - **Boosting Digital Payments:** The pandemic accelerated the RBI's efforts to promote digital payments. The launch of the Unified Payments Interface (UPI) revolutionized payment methods within the Indian banking system.

#### Conclusion:

This overview highlights the challenges and policy decisions undertaken by RBI Governors from 2008 to 2024. Their actions reflect the bank's continuous efforts to maintain economic stability and adapt to evolving circumstances.

#### 4.20 Tamil Nadu's Model of Decentralized Industrialization: A Case Study

This passage discusses Tamil Nadu's success in achieving industrialization and diversification beyond agriculture. It attributes this success to two key factors:

1. **Cluster-based industrialization:** Instead of relying on a few large corporations, Tamil Nadu's industrial development is characterized by numerous smaller clusters spread across the state. These clusters are groups of geographically concentrated firms specializing in a particular industry.
2. **Entrepreneurship from below:** Industrialization in Tamil Nadu has been driven not just by established business families, but also by a new generation of entrepreneurs from diverse communities and backgrounds.

#### Key Points:

- **Economic Complexity:** Tamil Nadu boasts a more diversified economy compared to other Indian states. This is reflected in a lower dependence on agriculture and a higher share of industries, services, and construction in its GDP and workforce.
- **Focus on Manufacturing:** While Gujarat has a larger factory sector, Tamil Nadu's industrial base is broader, encompassing a wider range of industries beyond just large-scale manufacturing.
- **Livestock Strength:** Livestock plays a significant role in Tamil Nadu's agricultural sector, contributing the highest share of agricultural GVA (Gross Value Added) among all Indian states. This is evident in the presence of leading companies like Hatsun (dairy) and Suguna Foods (broiler).
- **Prominence of Medium-Sized Businesses:** Unlike some other states dominated by large conglomerates, Tamil Nadu's industrial landscape is populated by numerous medium-sized businesses with turnovers ranging from Rs 100 crore to Rs 5,000 crore.
- **Cluster Ecosystem:** The state has fostered the development of numerous industrial clusters, each specializing in a specific industry. Some well-known examples include:
  - Tirupur (cotton knitwear)
  - Coimbatore (spinning mills and engineering goods)
  - Sivakasi (safety matches, firecrackers, printing)
  - Salem, Erode, Karur, Somanur (powerlooms and home textiles)
  - Vaniyambadi, Ambur, Ranipet (leather)
- **Benefits of Clusters:** These clusters are often located in small urban or peri-urban centers, offering several advantages:
  - **Employment Generation:** They provide job opportunities for people from surrounding villages, potentially reducing migration to larger cities.
  - **Diversification:** Clusters create alternative economic avenues beyond agriculture, lessening dependence on farming.
- **Shifting Entrepreneurial Landscape:** Traditionally, industrialists in Tamil Nadu belonged to communities like Nattukottai Chettians and Brahmins. However, the recent wave of decentralized industrialization is driven by a new generation of entrepreneurs:
  - **Community Focus:** Entrepreneurs from communities like Gounders (Salem, Namakkal, Karur, Dindigul), Kammavar Naidus (Coimbatore), and Nadars (Sivakasi) have played a prominent role.

- **Diverse Representation:** Importantly, entrepreneurs from Christian, Muslim, and other communities are also contributing to industrial growth across various sectors.
- **Social Progress and Industrialization:** The high levels of investment in public health and education likely contribute to Tamil Nadu's success. A well-educated and healthy population provides a strong foundation for industrial development.

In conclusion, Tamil Nadu's model of decentralized industrialization, characterized by geographically dispersed clusters and a diverse pool of entrepreneurs, has been instrumental in achieving industrial growth and economic diversification beyond agriculture. This model offers valuable insights for other regions seeking to promote sustainable and inclusive industrial development.

## Unleash Your Potential in History: Master UPSC & MPSC

### Conquer History! Master the Optional Subject for UPSC & MPSC Rajyaseva (New Pattern - 2025)

History Optional holding you back? Don't let a lack of background or writing skills limit your UPSC & MPSC Rajyaseva dreams!

Are you:

- Considering History as an Optional but lack a formal background?
- Struggling to connect historical dots and meet UPSC & MPSC Rajyaseva demands?
- Facing challenges with historiography and its application?

No problem, we'll take care of it!

**Our Comprehensive History Optional Subject Course empowers you to:**

- **Build a solid foundation** in Indian & World History, even if you're starting fresh.
- **Master the art of historical analysis** with a methodical historiographical approach.
- **Craft impactful answers** that showcase your analytical skills and in-depth knowledge.
- **Gain the confidence** to excel with daily answer writing practice and personalized feedback.

**What sets us apart?**

- **Targeted Approach:** Address specific challenges faced by UPSC & MPSC Rajyaseva aspirants.
- **Structured Learning Journey:** Class Dictation, Daily Answer Writing Practice, PYQ Discussions & One-on-One Interaction.
- **Innovative Learning Environment:** Conceptual Classes, Analytical Approach & Coverage of New Concepts & Theories.
- **Comprehensive Study Material:** Supplementary & Basic Subject Materials.

**Don't let your lack of background hold you back!**

**Enroll Today and Unlock Your UPSC & MPSC Rajyaseva Success Story!**

**Limited seats available! Call us now or visit our website for more information.**

**[Kaivalya-Civil Services Mentors Hub (9511900488)]**

## 5 Science and Technology

### 5.1 India's E-Vehicle Policy 2024

#### Introduction:

The Union Government has approved a scheme to promote India as a manufacturing destination so that e-vehicles (EVs) with the latest technology can be manufactured in the country. The policy is designed to attract investments in the e-vehicle space by reputed global EV manufacturers.

**Government's Objectives:** The Ministry of Commerce outlines the key goals for the new policy:

- Attract investments from leading global EV manufacturers.
- Offer Indian consumers access to the latest EV technology.
- Promote local EV manufacturing in the long run, aligning with the "Make in India" initiative.
- Encourage healthy competition within the Indian EV market.

#### Key Features of the E-Vehicle Policy 2024:

- **Minimum Investment:** Companies must invest at least Rs 4150 crore (approx. USD 500 million). There's no upper limit on investment.
- **Manufacturing Timeline:** Companies have 3 years to set up manufacturing facilities in India and start commercial EV production. They must achieve 50% domestic value addition (DVA) within 5 years.
- **Domestic Value Addition (DVA):** Localization requirements are set at 25% DVA by year 3 and 50% by year 5.
- **Reduced Customs Duty:** A lower customs duty of 15% (applicable to CKD units) applies to imported EVs with a minimum CIF value of USD 35,000. This benefit lasts 5 years, subject to setting up manufacturing in India within 3 years.
- **Duty Relief Limit:** The total duty reduction for imported EVs is capped at the lower of the company's investment or Rs 6484 crore (equivalent to the PLI scheme incentive).
- **Import Quota:** A maximum of 40,000 EVs can be imported at a rate of no more than 8,000 per year, applicable only for investments of USD 800 million or more. Unused annual import quotas can be carried forward.
- **Bank Guarantee:** Companies must provide a bank guarantee equivalent to the forgone customs duty to ensure fulfillment of investment and DVA targets.
- **Guarantee Enforcement:** The bank guarantee will be invoked if companies fail to meet the minimum investment or DVA criteria.

#### Significance of E-Vehicle Policy 2024:

- **Consumer Access to Advanced Technology:** Consumers will have access to the latest electric vehicle technologies.
- **Make in India Boost:** The policy encourages domestic manufacturing of EVs, aligning with the "Make in India" initiative.
- **Stronger EV Ecosystem:** Increased competition among EV players will strengthen the overall electric vehicle ecosystem in India.
- **Production Growth and Cost Reduction:** This policy aims to achieve higher production volumes, leading to economies of scale and ultimately lower production costs for EVs.
- **Reduced Oil Imports and Trade Deficit:** Increased EV adoption will decrease India's reliance on imported crude oil, positively impacting the trade deficit.
- **Improved Air Quality:** Widespread EV use will lead to reduced air pollution, particularly in urban areas.
- **Health and Environmental Benefits:** Cleaner air will have a positive impact on public health and the environment.

#### Challenges to E-Vehicle Policy 2024:

- **Domestic Player Concerns:** Existing manufacturers like Tata Motors fear the lower duties could harm the industry and discourage investment.
- **Niche Market Benefit:** Experts suggest reduced duties may primarily benefit high-end EV manufacturers, as current Indian dominance lies in the budget segment (below ₹29 lakh).
- **Increased Competition and Collaboration:** This policy is expected to attract global EV players and joint ventures, potentially expanding sales and manufacturing in India.
- **Local Context Matters:** Experts emphasize that global players need to consider Indian specifics like environment, road infrastructure, and typical usage patterns.
- **Focus on Two- and Three-Wheelers:** Significant EV adoption is currently seen in two-wheeler and three-wheeler segments, with lower passenger vehicle adoption (2.2%).
- **Challenges for Passenger Vehicles:** Limited charging infrastructure, range anxiety, and a lack of affordable options due to low localization are seen as major hurdles.
- **Infrastructure Needs:** CII estimates India needs at least 13 lakh charging stations by 2030 to support wider EV adoption.

#### Building a Robust EV Ecosystem:

- **Reliability and Durability Focus:** Experts highlight the need for an EV ecosystem that prioritizes reliable, durable components with readily available service support.



- **Learning from Past Experiences:** Reliance solely on foreign capital is discouraged, citing the example of Maruti Suzuki's dependence on imported components after increased Suzuki control. Domestic manufacturing capabilities are crucial.
- **Balancing Competition with Sustainability:** The focus should not solely be on creating competitive products but also on sustainability, reflecting a 21st-century approach.
- **Domestic Demand-Driven Design:** Product development, system design, and business strategies should be driven by domestic market demands, naturally leading to export opportunities.
- **Targeted PLI Schemes:** PLI schemes should prioritize product and system designs tailored for the Indian market.

The successful adoption of EVs in India requires addressing multiple challenges. Global players need to adapt to local conditions, while the government must prioritize building robust infrastructure, ensuring affordability, and fostering a domestic demand-driven ecosystem. A long-term vision focused on sustainability and catering to the specific needs of the Indian market is crucial for achieving ambitious EV adoption goals.

## 5.2 Patents Rules, 2024

The Department for Promotion of Industry and Internal Trade (DPIIT) notified the Indian Patent (Amendment) Rules, 2024 on March 15, 2024. This is a significant step towards achieving India's vision of Vikasit Bharat (developed India) through scientific and technological advancements.

### India's Patent Landscape and Balancing Acts:

- India's patent landscape is primarily governed by **the Patents Act, of 1970**.
- **Pre-2005:** Indian law protected only the process of making drugs, not the drugs themselves. This facilitated generic drug production.
- **TRIPS Agreement (1995):** This international agreement mandated product patents for pharmaceuticals, requiring India to adapt its laws.
- **2005 Amendments:** Indian law was amended to comply with TRIPS. However, concerns emerged regarding patents for "me-too" drugs – minor modifications of existing drugs with no substantial therapeutic value.

### Safeguarding Public Health:

- **Section 92A of the Indian Patents Act of 1970** allows for compulsory licenses for the export of patented pharmaceutical products in certain situations. Compulsory licensing allows the government to authorize generic production of patented drugs under specific circumstances (e.g., non-working of the patent, high prices).
- **Section 3(d) (2005):** To prevent frivolous patenting, India introduced Section 3(d).
  - This section restricts patents for new forms of known drugs unless they demonstrably offer a significant therapeutic advantage.
- **Pre-Grant Opposition (PGO):** This process allows challenging patent applications for medicines before they are granted.
  - Data shows that PGO has been effective in preventing patents for low-value medications.

### Features of the Revamped Patent Rules:

- **Certificate of Inventorship:** A new feature acknowledging the inventor's contribution to the patented invention.
- **Streamlined Grace Period:** Simplified process for claiming grace period benefits (extending the novelty grace period) through a new Form 31.
- **Faster Foreign Application Details:** Reduced time limit from six months to three months to submit details of corresponding foreign applications after the first examination report.
- **Reduced Examination Request Timeline:** Faster examination by lowering the request deadline from 48 months to 31 months from the application priority date or filing date (whichever is earlier).
- **Simplified Time Extension:** Easier extension of deadlines for filing any patent-related action/proceeding. Extensions can now be requested multiple times, up to six months each.
- **Discounted Renewal Fees:** Reduced renewal fee by 10% for online payments covering at least four years in advance.
- **Less Frequent Working Statements:** Filing statements on patent utilization (Form 27) reduced from annually to once every three financial years. Delays of up to three months can also be condoned upon request.
- **Improved Pre-Grant Opposition Process:** Streamlined procedures for filing and handling pre-grant oppositions (challenges before patent grant). This includes establishing fees and disposal methods to deter frivolous oppositions while encouraging genuine ones.

### Praises for Patent Amendment Rules (2024):

- **Streamline Patent Processes:** The amendments simplify procedures for obtaining and managing patents.
- **Strengthen Patent Protection:** The rules enhance safeguards for inventors and their creations.
- **Boosted Innovation & Economy:** Amendments are expected to create a more inventor-friendly environment and accelerate economic growth.
- **Faster Examination & Simpler Procedures:** Reduced timelines and streamlined processes aim to boost innovation and IP protection.
- **Recognition for Inventors:** New "Certificate of Inventorship" acknowledges inventors' contributions.
- **Reduced Burden:** Less frequent filing of working statements eases the workload.
- **Improved Opposition Procedures:** Amendments to pre-grant and post-grant opposition procedures are viewed positively.

- **Flexibility for Applicants:** Extension of deadlines offers relief.

#### Criticisms of the Patents (Amendment) Rules, 2024:

- **Weak Enforcement:** Critics cite the U.S. Trade Representative's report highlighting India's strict patent laws coupled with poor enforcement, discouraging patent filings .
- **Potential for Lower Quality Examinations:** The reduced timeframe for filing a Request for Examination (RFE) from 48 months to 31 months raises concerns about a potential decline in examination quality.
- **Burden on Smaller Applicants:** Increased costs for extending deadlines might discourage small and medium enterprises and individual inventors from pursuing patents.
- **Lack of Thoroughness:** Critics argue the simplified Form 3 submission after receiving the First Examination Report (FER) could lead to less thorough patent examinations.
- **Reduced Transparency:** The amendment lowering the frequency of filing working patent statements from annually to once every three years is seen as a potential decrease in transparency and accountability.
- **Scrutiny Concerns:** The new pre-grant opposition process is criticized for potentially compromising the quality of patent examination.

#### Addressing Patent Amendment Criticisms (2024):

- **Bolster Enforcement:** Strengthen mechanisms to counter weak enforcement.
- **Review RFE Timeline:** Balance speed with thorough examination.
- **Tiered Extension Fees:** Address cost burden on smaller applicants.
- **Checks for Form 3:** Ensure thoroughness despite simplification.
- **Maintain Statement Frequency:** Encourage regular filing for transparency.
- **Refine Scrutiny Process:** Improve pre-grant opposition procedures.

These criticisms point to complex issues in patent governance, balancing innovation incentives with patent quality, and protecting inventors' rights. While the amendments aim to address challenges, careful consideration and public debate are needed regarding their implementation and impact.

#### India's Intellectual Property Performance in 2023-24:

Terminologies	Meaning	Performance
<b>Patents</b>	Exclusive rights granted for novel, useful, and non-obvious inventions; incentivize innovation through temporary monopolies.	<ul style="list-style-type: none"> <li>• <b>Surge in Applications:</b> A record 90,300 patent applications were filed in 2023 (one application every 6 minutes on average).</li> <li>• <b>Increased Granting:</b> Over 1 lakh patents were granted in the last year (March 15, 2023 - March 14, 2024), translating to 250 patents granted per working day.</li> </ul>
<b>Geographical Indications (GIs)</b>	Signs identifying products with a specific geographic origin and linked quality/reputation (e.g., Darjeeling tea)	<ul style="list-style-type: none"> <li>• <b>Significant Growth:</b> GI registrations saw a remarkable threefold increase compared to the previous year.</li> <li>• <b>Current Status:</b> As of today, there are 573 registered GIs in India.</li> <li>• <b>Upcoming Registrations:</b> 98 new GIs were registered in 2023-24, with an additional 62 expected by March 31, 2024.</li> <li>• <b>Authorized Users:</b> There are 11,621 registered authorized users, with an additional 2,575 expected by March 31, 2024.</li> </ul>
<b>Copyright</b>	Automatic legal protection for creators of literary and artistic works (books, music, art, films, software, etc.) lasting the author's life + 70 years	<ul style="list-style-type: none"> <li>• <b>Record Registrations:</b> Copyright registrations hit an all-time high of 36,378 in 2023-24, highlighting the potential of the creative sector.</li> <li>• <b>Planned Initiatives:</b> Measures are planned to raise awareness about copyright's importance in the creative industry.</li> </ul>
<b>Designs</b>	Protection for a product's unique visual features and ornamentation (protected by design patents)	<ul style="list-style-type: none"> <li>• <b>Highest Registrations:</b> The year 2023-24 saw the highest number of design registrations ever (27,819), alongside the disposal of 30,450 applications.</li> <li>• <b>Toycathon Success:</b> Over 1.25 lakh students participated in the Toycathon initiative, resulting in the registration of 115 novel designs by J&amp;K school students.</li> </ul>

<b>Trade Marks</b>	Distinguishable signs (words, phrases, symbols, designs, or combinations) identifying the source of products or services	<ul style="list-style-type: none"> <li>• <b>Faster Processing:</b> The Trade Marks Registry aims to issue examination reports within 30 days of receiving a trademark application, ensuring swift trademark protection.</li> </ul>
<b>IP Awareness</b>	Understanding and valuing IPR through education and fostering respect for IP; essential for a strong IP ecosystem	<ul style="list-style-type: none"> <li>• <b>Extensive Training:</b> The National Intellectual Property Awareness Mission (NIPAM) has trained 24 lakh youths (students and teachers) over the past two years, covering more than 7,000 institutions.</li> </ul>

### 5.3 India's Liberalized FDI Policy in the Space Sector

#### Background:

- The Indian government recently announced a new Foreign Direct Investment (FDI) policy in February 2024 for the space sector. This policy coincides with India's growing ambitions as a spacefaring nation.
- Previously, FDI in the space sector was heavily regulated. The new policy aims to streamline the process and attract greater foreign investment.

#### Indian Space Policy 2023:

The Indian Space Policy 2023 (ISP 2023) was established as a comprehensive and adaptable framework designed to unlock India's full potential in the space sector. It prioritizes increased private participation to achieve the following key objectives:

- **Augmenting Space Capabilities:** ISP 2023 aims to strengthen India's overall space exploration and technological prowess.
- **Fostering a Thriving Space Economy:** The policy seeks to cultivate a robust and commercially successful space industry in India.
- **Leveraging Space for Technological Advancement:** It emphasizes utilizing space exploration as a catalyst for technological innovation across various allied sectors.
- **Strengthening International Relations:** The policy encourages forging international partnerships and collaborations in the space domain.
- **Building a Collaborative Ecosystem:** ISP 2023 prioritizes establishing a supportive and effective ecosystem for the implementation of space applications amongst all stakeholders.

#### Rationale for the New Policy:

To align with the vision of ISP 2023, the Union Cabinet has introduced a more liberalized FDI policy for the space sector. This policy relaxes FDI limitations for various sub-sectors and activities within the space industry.

- **Prior Restrictions:** Previously, foreign investment in establishing and operating satellites required government approval.
- **Stakeholder Engagement:** The Department of Space (DoS) consulted extensively with stakeholders, including government agencies like IN-SPACe, ISRO, and NSIL, along with private industry representatives. These consultations recognized the expertise of Non-Governmental Entities (NGEs) in satellite and launch vehicle technologies.
- **Benefits of Increased Investment:** With increased investment, NGE's can achieve advanced product development, expand global operations, and claim a larger stake in the international space economy.
- **Expanding Space Program:** India's space program is no longer limited to communication and weather satellites. Missions like Chandrayaan and the upcoming human spaceflight program demonstrate its growing capabilities.
- **Role of Private Sector:** Private companies like Skyroot Aerospace are making significant contributions to the space industry. The new policy encourages further private participation.
- **Global Collaboration:** The space sector is capital and technology-intensive. The new policy recognizes the importance of collaboration with foreign entities.
- **Growing Space Economy:** India aims to increase its share of the global space economy from 2-3% to over 10% by 2030. This requires significant investment, estimated at \$22 billion in the next decade

#### Provisions of the Revised Foreign Direct Investment (FDI) policy 2023:

- **Liberalized Entry Routes:** The proposed reforms aim to liberalize FDI regulations in the space sector by simplifying entry routes and providing clear guidelines for foreign investment in:
  - Satellites (manufacturing and operation)
  - Launch vehicles and associated systems/subsystems
  - Creation of spaceports for launching and receiving spacecraft
  - Manufacturing of space-related components and systems
- **Simplified Investment Categories:** The policy categorizes various space activities with specific FDI limits:
  - **Up to 74% under Automatic Route:** This includes satellite manufacturing and operation, satellite data products, and ground and user segments. Investments exceeding 74% require government approval.
  - **Up to 49% under Automatic Route:** This applies to launch vehicles and associated systems/subsystems, along with the creation of spaceports. Investments exceeding 49% require government approval.

- **Up to 100% under Automatic Route:** This covers the manufacturing of components and systems/subsystems for satellites, ground segments, and user segments.

### Expected Outcomes:

Increased private sector participation is anticipated to generate significant benefits, including:

- **100% FDI Allowance:** The policy now permits full foreign investment (up to 100%) in the space sector.
- **Employment Generation:** The policy is expected to create new job opportunities within the space sector.
- **Technological Advancement:** It will facilitate the adoption and integration of modern technologies within the Indian space industry.
- **Self-Reliance:** The policy aims to make the Indian space sector more self-sufficient and independent.
- **Global Integration:** Increased private participation is expected to propel Indian companies into global space industry value chains.
- **Domestic Manufacturing:** The policy is expected to encourage companies to establish manufacturing facilities in India, thereby supporting the government's "Make in India" and "Atmanirbhar Bharat" (Self-Reliant India) initiatives.
- **Increased Investment:** Easier FDI inflows will provide much-needed capital for the Indian space sector.
- **Development of Space Infrastructure:** The policy allows private participation in building spaceports, promoting infrastructure growth.

### Balancing Act Between Regulation and Market Freedom:

- While the new policy promotes market freedom, regulatory oversight remains crucial.
- Space technology plays a vital role in national security, welfare programs related to agriculture and climate change, and requires responsible governance.

### Conclusion:

The new FDI policy marks a significant shift in India's space sector. By fostering collaboration and investment, it aims to propel India towards becoming a major player in the global space economy. However, it is crucial to maintain a balance between market freedom and necessary regulations to ensure responsible and secure space exploration.

## 5.4 ISRO's PSLV-C58/XPoSat Mission: A Milestone in Space Debris Mitigation

### Introduction:

The Indian Space Research Organisation (ISRO) successfully conducted the PSLV-C58/XPoSat mission, achieving a significant milestone in minimizing orbital debris.

### Mission Overview:

- The PSLV-C58 mission launched from Satish Dhawan Space Centre in Sriharikota on January 1, 2024.
- Its primary objective was to deploy the XPoSat satellite into its designated orbit at 650 kilometers.
- Following deployment, a critical step was taken to address the spent fourth stage of the Polar Satellite Launch Vehicle (PSLV).

### ISRO's Innovative Approach:

- ISRO's PSLV-C58/XPoSat mission successfully minimized orbital debris by transforming the mission's final stage, the PSLV Orbital Experimental Module-3 (POEM-3).

### The PSLV Orbital Experimental Module (POEM-3):

- Developed by the Vikram Sarabhai Space Centre (VSSC), POEM-3 repurposes the spent fourth stage of a PSLV rocket as a low-cost space platform.
- First used in the PSLV-C53 mission (June 2022), POEM allows for in-orbit scientific experimentation through various payloads it carries.
- POEM-3 features:
  - Solar panels mounted on the rocket's fourth-stage fuel tank for power generation.
  - Lithium-ion battery for energy storage.
  - Navigation, Guidance, and Control (NGC) system for orbital stability:
    - Sun sensors for orientation.
    - Magnetometer for magnetic field detection.
    - Gyroscopes for angular rate measurement.
    - Communication with ISRO's NavIC satellite constellation for navigation.
  - Telecommand system for communication with ground stations.

### Mission Profile and Debris Mitigation Strategy:

- Launched in January 2024, the PSLV-C58 mission successfully deployed the XPoSat satellite.
- Following deployment, the fourth stage (POEM-3) was maneuvered from a 650 km orbit to a lower 350 km orbit.
  - Lower orbits experience more atmospheric drag, naturally causing re-entry over time.



- To further minimize debris risk, ISRO "passivated" POEM-3 by expelling residual fuel, preventing a potential explosion and fragmentation.

#### POEM-3's Achievements and Re-entry:

- POEM-3 carried nine payloads for scientific experiments conducted over 400 Earth orbits.
- All payload objectives were completed by January 27, 2024.
- Over two months, ISRO tracked POEM-3 using a network of ground stations and radars.
- On March 21, 2024, POEM-3 successfully re-entered Earth's atmosphere, disintegrating and leaving minimal to no debris.

#### Significance of the PSLV-C58/XPoSat Mission:

- This mission demonstrates ISRO's commitment to responsible space exploration practices.
- The POEM-3 approach minimizes orbital debris generation, contributing to a cleaner and more sustainable space environment.
- This achievement sets a precedent for other space agencies to adopt similar debris mitigation strategies.

### 5.5 Eliminating Orbital Debris

Space debris, consisting of defunct satellites, rocket stages, and fragments, poses a significant threat to operational space assets. Collisions with debris can damage or destroy satellites, creating a cascading effect as new debris is generated from the collision. The rising number of satellite launches has led to a critical situation with space debris accumulating in Low Earth Orbit (LEO).

**Importance of LEO (100 km - 2,000 km above Earth):** This zone is crucial for numerous applications:

- Intelligence gathering through data relay satellites
- Secure communication via encrypted communication satellites
- Global navigation using navigation satellites

#### Growing Threat of Space Debris in Low Earth Orbit (LEO):

- **Launch Statistics:** As per ISRO's 2022 Space Situational Assessment Report, a significant number of objects (2,533) were launched in 2022 alone (across 179 launches).
- **Debris in Geosynchronous Orbit (GEO):** While less voluminous, debris also exists in GEO, located 36,000 km above Earth.
- **Current Situation:** There are approximately 7,000 operational satellites sharing Earth's orbit with millions of pieces of debris.
- **Tracking and Monitoring:** The US Space Command actively tracks and catalogs space debris exceeding 10 cm in LEO and 0.3-1 meters in GEO.

#### A Growing Threat of Space Debris:

- **Threat Posed by Debris:** These objects travel at high speeds (up to 27,000 km/hr), endangering operational space assets due to their quantity and momentum.
- **Real-World Impact:** A recent incident on March 8, 2024, highlighted the dangers of space debris. A discarded battery pallet from the International Space Station collided with a house in Florida.
- **Future Concerns:** The increasing launch of communication satellite constellations and potential anti-satellite tests raise the risk of on-orbit breakups and collisions, further intensifying the debris problem.
- **ISRO Estimates:** By 2030, the number of space objects larger than 10 cm in LEO is estimated to reach 60,000, including both debris and functional equipment.
- **Cascading Effect:** A critical concern is the potential for excessive debris accumulation to render orbital zones unusable. This could trigger a domino effect of collisions, creating even more debris in a self-perpetuating cycle.

#### International Cooperation Needed to Address Space Debris:

- **Current Status:** There is a lack of specific international space laws to directly tackle the issue of LEO debris.
- **Existing Guidelines:** Most spacefaring nations follow the 2002 Space Debris Mitigation Guidelines set forth by the Inter-Agency Space Debris Coordination Committee (IADC) and endorsed by the UN in 2007.
- **Inadequacy of Current Measures:** The growing threat of space debris demands a more robust international regulatory framework and stricter debris mitigation measures beyond the existing guidelines.

#### Conclusion:

Space debris poses a significant threat to the sustainability of space activities. Collaborative efforts by spacefaring nations are crucial to establish stricter regulations, implement effective debris mitigation strategies, and ensure a safe and sustainable space environment for the future.

### 5.6 Gopi Thotakura: A Pioneering Space Tourist and the Evolving Landscape of Space Tourism

Gopi Thotakura, an Indian entrepreneur and pilot, is poised to become the first person of Indian origin to travel to space as a tourist. He will be among the six crew members on the NS-25 mission of Blue Origin, a spaceflight company founded by Jeff Bezos. The mission launch date remains undisclosed.

#### The Rise of Space Tourism:

- Space tourism, a form of space travel for leisure or business purposes, has witnessed a significant surge in popularity in recent years.
- The global space tourism market was valued at an estimated \$848.28 million in 2023 and is projected to reach a staggering \$27,861.99 million by 2032.

### Exploring Space Tourism:

Space tourism encompasses two primary categories: suborbital and orbital flights.

- **Suborbital spaceflights:** These flights carry passengers to just beyond the Karman Line, situated roughly 100 kilometers above Earth's surface, marking the boundary between our atmosphere and outer space. Passengers have the opportunity to experience a few minutes in space before returning to Earth. Blue Origin's NS-25 mission, in which Thotakura will participate, falls under this category.
- **Orbital spaceflights:** These missions propel passengers significantly farther than the Karman Line, typically allowing them to spend several days to over a week at an altitude of up to 400 kilometers. In 2021, SpaceX's Falcon 9 mission successfully transported four individuals to an altitude of 160 kilometers for a three-day Earth orbit.

### Challenges Hinder Space Tourism's Growth Trajectory:

Despite its burgeoning popularity, space tourism faces several challenges that may impede its further growth:

- **Steep Costs:** Space travel remains exorbitantly priced, often exceeding a million dollars per person. This hefty price tag stems from the immense expenses of spacecraft development and the significant fuel requirements for spaceflight.
- **Environmental Impact:** Concerns loom regarding the potential environmental damage caused by space tourism. Rocket launches release gaseous and solid chemical byproducts directly into the upper atmosphere. A 2022 study in Earth's Future found that these emissions, especially soot particles, have a disproportionately large warming effect compared to other sources.
- **Safety Concerns:** Safety is paramount in space tourism. With 19 fatalities out of 676 space travelers historically (as per a November 2023 Astronomy Magazine report), spaceflight carries an inherent risk, with a roughly 3% fatality rate for astronauts.

### Conclusion:

Gopi Thotakura's upcoming spaceflight represents a significant milestone for Indian space tourism. However, the space tourism industry grapples with challenges related to affordability, environmental impact, and safety. Addressing these concerns will be crucial for ensuring the sustainable growth and long-term viability of space tourism as a mainstream leisure activity.

## 5.7 NexCAR19: A Groundbreaking CAR-T Cell Therapy for Cancer Treatment in India

The President of India, Smt Droupadi Murmu launched India's first home-grown CAR-T cell therapy gene therapy for cancer at IIT Bombay today on April 4, 2024. This treatment, named "NexCAR19 therapy," offers new hope for patients worldwide. It was developed by IIT Bombay, Tata Memorial Centre and ImmunoACT.

Chimeric Antigen Receptor (CAR) T cell therapy is a novel and promising approach to cancer treatment. It involves genetically modifying a patient's T cells to target and destroy malignant tumour cells. NexCAR19 is a CAR-T cell therapy developed in India.

### CAR-T Cell Therapy A Powerful Tool Against Cancer:

- **T cells:** Crucial components of the immune system, T cells are white blood cells responsible for identifying and eliminating pathogens.
- **CAR modification:** CAR-T cell therapy modifies T cells by introducing a chimeric antigen receptor (CAR).
- **CAR structure and function:** The CAR is a synthetic protein designed to recognize specific antigens (markers) present on the surface of cancer cells. It comprises two key domains:
  - **Extracellular domain:** This domain binds to the targeted cancer cell antigen with high affinity. It is typically engineered using fragments of laboratory-generated antibodies.
  - **Intracellular domain:** Upon binding to the antigen, this domain triggers a potent immune response within the T cell, leading to the destruction of the cancer cell.

### The Science Behind NexCAR19 For Engineering T Cells to Fight Cancer:

- **T Cell Extraction:** NexCAR19 begins with extracting T cells, immune system defenders, from the patient's blood using a process called leukapheresis.
- **CAR Gene Integration:** In a lab, these T cells are genetically modified. A vector, typically a lentivirus, delivers a synthetic gene encoding a Chimeric Antigen Receptor (CAR) into the T cells.
- **CAR Structure and Function:**
  - **Antigen Recognition:** The CAR's external part is engineered with antibody fragments designed to bind to a specific antigen on cancer cells. NexCAR19 targets CD19, a protein on leukemia and lymphoma cells.
  - **Signal Transduction:** The CAR's internal segment triggers T cell activation upon successful binding to the target antigen, enabling it to destroy the cancer cell.
- **T Cell Expansion and Re-infusion:** The modified T cells are multiplied extensively in a lab to create a powerful force against cancer. These amplified CAR-T cells are then reintroduced into the patient's bloodstream through intravenous infusion.

- **Pre-conditioning Chemotherapy:** Patients often receive chemotherapy before CAR-T therapy to weaken the immune system and improve CAR-T cell effectiveness.
- **Key Distinction: Humanized CAR Design:** NexCAR19 differs from its US counterparts in the CAR's antibody fragments. Traditional CAR-T therapies use mouse-derived fragments, while NexCAR19 employs "humanized" CARs with both human and mouse proteins. This innovative design is believed to reduce potential toxicity in patients receiving NexCAR19 therapy.

#### Advantages of NexCAR19:

- **Affordability:** NexCAR19 is priced significantly lower than other CAR-T cell therapies, making it more accessible to patients, especially in low- and middle-income countries.
- **Efficacy:** Studies show a promising response rate of approximately 70% with some patients achieving complete remission. This is particularly significant for patients with advanced cancers unresponsive to conventional treatments.
- **Safety:** Early data suggests lower drug-related toxicities, including reduced neurotoxicity and Cytokine Release Syndrome (CRS), compared to other CAR-T therapies. This is important due to the potential for severe side effects associated with CAR-T therapies.
- **Accessibility:** Domestic production of NexCAR19 increases accessibility for Indian patients and potentially expands access in other regions.
- **Innovation:** NexCAR19 marks a significant milestone for India's foray into advanced cell and gene therapy, showcasing a successful academia-industry collaboration.
- **A Shining Example:** This development is a success story for both the "Make in India" initiative and "Atmanirbhar Bharat" (Self-Reliant India) program, showcasing domestic research and development capabilities.

#### Challenges To CAR-T Therapy in India:

- **Effectiveness:** Offers hope for previously untreatable cancers, but individual results may vary. Long-term effects and definitive cure claims require further study.
- **Side Effects:**
  - **Cytokine Release Syndrome (CRS):** Most common side effect, caused by an overactive immune system.
  - **Neurotoxicity:** Potential risk, though not observed in early NexCAR19 trials. "Humanized" antibodies may contribute to this.
  - **Infections & Low Blood Cell Counts:** Anticipated potential side effects.
- **Monitoring:** Ongoing vigilance is crucial due to the possibility of unforeseen complications as use expands.
- **Accessibility:** Unequal healthcare distribution limits access for patients in remote locations. Treatment facilities are concentrated in urban areas.
- **Managing Side Effects:** A primary concern for doctors, especially for patients needing intensive care or with weakened immune systems.
- **Cost:** NexCAR19 remains expensive (₹40-45 lakh) despite affordability being a focus. It is one of the costliest cancer treatments available.

#### Hope for Cost Reduction:

- ImmunoACT is committed to improving access. Increased purchasing power and production scale-up are expected to decrease costs.
- Potentially reduced hospitalization due to lower toxicity may offer additional cost savings to patients.

NexCAR19 represents a significant breakthrough in cancer treatment for India. This novel CAR-T cell therapy holds the potential to offer a powerful and potentially more affordable treatment option for patients battling leukaemia and lymphoma. The collaborative spirit and dedication of the research team have paved the way for a brighter future in cancer care for India and the developing world.

### 5.8 Nuclear Energy: A Potential Solution to Climate Change, Despite Low Adoption Rates

In recent years, nuclear energy has gained attention as a potential solution to global climate change issues. An international summit in Brussels on March 21, 2023, marked a significant event for nuclear energy advocacy.

- The IAEA now participates in conferences, promoting nuclear energy's potential.
- At COP28 (2023), 22 countries, including some without nuclear power generation, committed to tripling global nuclear capacity by 2050.
- COP28 formally recognized nuclear energy as a viable low-emission technology for rapid decarbonization, a first for these conferences.

#### Nuclear Power and Greenhouse Gas Emissions

- **Low Emissions During Operation:** Nuclear power plants generate minimal greenhouse gas emissions while producing electricity.
- **Life Cycle Emissions:** Even when considering the entire nuclear energy life cycle (uranium mining, enrichment, waste disposal), emissions remain relatively low – around 5-6 grams of CO<sub>2</sub> equivalent per kilowatt-hour (according to the IAEA).

- **Comparison with Other Sources:** This is significantly lower than coal-fired power plants, and comparable to solar and wind generation (although some studies suggest higher lifecycle emissions for nuclear).
- **Reliable Base-Load Power:** Unlike weather-dependent renewable sources, nuclear power provides consistent electricity generation, making it a reliable source of base-load power.
- **Importance in Net-Zero Strategies:** The Intergovernmental Panel on Climate Change (IPCC) recognizes nuclear energy as a crucial element in achieving net-zero emissions by 2050.
- **Emissions Reduction Impact:** Nuclear power plants are currently estimated to prevent over one billion tonnes of CO<sub>2</sub> equivalent emissions annually. This avoidance is estimated to total 70 billion tonnes over the past five decades.

#### Challenges of Nuclear Power Adoption:

- **Limited Global Use:** Despite its advantages, only 31 countries generate electricity through nuclear power, with few actively expanding their nuclear programs.
- **Declining Operational Reactors:** The number of functioning nuclear reactors has dropped from 437 in 2003 to 411 currently (in 2024), with an average age surpassing 31 years. This suggests minimal construction of new reactors.
- **Stagnant Growth:** Total installed nuclear capacity has only seen a marginal increase, rising from 360 GW in 2003 to 371 GW in 2023.
- **Dwindling Market Share:** Nuclear power's contribution to global electricity generation has fallen below 10% and continues to decline over the past three decades.
- **Economic Challenges:** High upfront costs, extended development cycles, and strict regulations make nuclear power less economically competitive compared to rapidly developing solar and wind energy technologies.

#### India's Nuclear Energy Expansion Plans: Balancing Growth with Current Status

- **Commitment to Nuclear Power:** India recognizes nuclear energy's role in achieving its decarbonization goals and is pursuing rapid expansion.
- **Planned Capacity Increase:** Ten new reactors are currently under construction, aiming to triple current capacity to 22.48 GW by 2031-32.
- **Limited Current Share:** Despite the expansion plans, nuclear energy's contribution to India's electricity generation mix remains low at around 3.1%. Even after expansion, it's only projected to reach 5%.
- **International Participation:** India did not participate in the COP28 tripling declaration for nuclear power, but it did attend the Brussels summit on the topic.
- **Focus on Clean Energy Security:** India emphasizes nuclear energy's role in ensuring long-term energy security due to its clean and sustainable nature.

#### Anil Kakodkar on India's Nuclear Energy Strategy:

- **Slow Nuclear Expansion:** Former DAE chief Anil Kakodkar criticizes the pace of India's nuclear power expansion, believing it is insufficient.
- **Renewables Limitations:** Kakodkar argues that renewable energy sources alone cannot satisfy India's growing demand for clean energy.
- **Need for Significant Nuclear Expansion:** He emphasizes the necessity for a substantial increase in India's nuclear power capacity.

#### Conclusion:

Nuclear energy offers a compelling solution for climate change by reducing greenhouse gas emissions and providing consistent base-load power. However, its low adoption rate due to economic and regulatory hurdles presents a challenge. As the urgency of climate action intensifies, a reevaluation of nuclear energy's role alongside advancements in addressing its limitations is crucial.

### 5.9 Dark Energy Spectroscopic Instrument (DESI)

**DESI (Dark Energy Spectroscopic Instrument):** This instrument aims to quantify the influence of dark energy on the universe's expansion. It achieves this by capturing optical spectra from tens of millions of galaxies and quasars, constructing a vast 3D map encompassing the nearby universe, stretching back 11 billion light years.

**Location and Funding:** The DESI Survey utilizes the Mayall 4-meter telescope at Kitt Peak National Observatory (USA). The project is funded by the Department of Energy Office of Science to perform a Stage IV dark energy measurement. This measurement relies on spectroscopic techniques such as baryon acoustic oscillations.

**Record-Breaking Map:** DESI has successfully generated the largest 3D map of the universe ever created. This map has refined our understanding of the universe's expansion history to a remarkable 1% precision, providing the clearest picture yet of how the universe has evolved over the past 11 billion years.

#### The Universe's Fundamental Components:

The universe consists of three primary components: normal matter, dark matter, and dark energy, each shaping its structure, behavior, and fate. However, significant aspects of these components remain mysterious, driving ongoing cosmological research.



- **Normal Matter (5%):** The only directly observable component, normal matter forms all visible celestial objects (stars, planets) and comprises atoms (protons, neutrons, electrons). Despite its prevalence, it accounts for a mere 1-10% of the universe's mass-energy.
- **Dark Matter (27%):** A hypothesized, non-luminous form of matter, dark matter is undetectable by light or electromagnetic interactions. Its presence is inferred solely through its gravitational influence, which cannot be explained by normal matter and general relativity alone. This unseen matter is believed to act as the "invisible glue" within galaxies, holding stars, dust, and gas together, and constitutes roughly 27% of the universe's mass-energy.
- **Dark Energy (68%):** An enigmatic form of energy exerting influence on the largest cosmological scales, dark energy's primary effect is accelerating the universe's expansion. Unlike gravity, which attracts, dark energy exhibits a repulsive force and is believed to be relatively uniform throughout space and time. Comprising a staggering 68.3-70% of the universe's mass-energy, dark energy remains largely unexplained, with theories like the cosmological constant and scalar fields attempting to elucidate its nature.

In conclusion, the universe is a complex tapestry woven from these three fundamental components. While normal matter forms our familiar world, dark matter and dark energy pose significant mysteries, prompting ongoing scientific efforts to unravel their secrets and understand their profound impact on the universe's evolution and ultimate fate.

## Foundation Course - General Studies (UPSC & MPSC Rajyaseva - New Pattern 2025)

**Course Motto:** "Building a Strong Foundation for Your Civil Services Dream"

**Course Objective:**

This comprehensive foundation course is designed to equip you with the **solid conceptual understanding** and **analytical skills** needed to excel in both the Preliminary and Mains examinations of UPSC and MPSC Rajyaseva (New Pattern 2025).

**Course Highlights:**

- **Focus on Fundamentals:** We emphasize building a strong foundation in core subjects through in-depth coverage of relevant NCERTs and Maharashtra State Board Books.
- **Answer Writing Program:** Sharpen your answer writing skills with a dedicated program that provides guidance, feedback, and practice opportunities.
- **Personalized Mentorship:** Get personalized support and guidance from experienced mentors to help you navigate your preparation journey effectively.
- **Live Interactive Classes:** Students will have access to live classes conducted on an online platform, allowing for real-time interaction with experienced faculty.

**Enroll today and unlock your full potential!**

**[Kaivalya-Civil Services Mentors Hub (9511900488)]**

## 6 Geography, Environment, Biodiversity and Disaster Management

**6.1 Green Credit Programme in India**

The Green Credit Programme (GCP) is a new initiative launched by the Indian Ministry of Environment. It aims to incentivize stakeholders like individuals, communities, private companies, and industries to undertake voluntary environmental conservation efforts. The programme was officially unveiled in October 2023 and is aligned with the government's "Mission Life" principles promoting sustainability.

<b>Covered Activities</b>	The program encompasses eight key environmental activities: <ul style="list-style-type: none"> <li>• <b>Tree Plantation:</b> Encourages planting trees to increase green cover and combat deforestation.</li> <li>• <b>Water Management:</b> Promotes implementing strategies for efficient water resource management and conservation.</li> <li>• <b>Sustainable Agriculture:</b> Incentivizes eco-friendly and sustainable agricultural practices.</li> <li>• <b>Waste Management:</b> Supports the implementation of effective waste management systems to reduce environmental pollution.</li> <li>• <b>Air Pollution Reduction:</b> Encourages initiatives aimed at decreasing air pollution and improving air quality.</li> <li>• <b>Mangrove Conservation and Restoration:</b> Supports the protection and restoration of mangrove ecosystems for maintaining ecological balance.</li> </ul>
<b>Governance Structure</b>	<ul style="list-style-type: none"> <li>• An inter-ministerial Steering Committee provides overarching guidance for the program.</li> <li>• The Indian Council of Forestry Research and Education (ICFRE) functions as the GCP Administrator, overseeing implementation, management, monitoring, and operation.</li> </ul>
<b>Participation and Contribution</b>	<ul style="list-style-type: none"> <li>• Individuals and organizations can financially contribute to restoring designated degraded forests through the GCP.</li> </ul>
<b>ICFRE's Role</b>	<ul style="list-style-type: none"> <li>• Applications for participation are submitted to the Indian Council of Forestry Research and Education (ICFRE). (independent body under the Environment Ministry)</li> <li>• ICFRE oversees financial contributions directed towards forest restoration projects.</li> <li>• State forest departments execute the restoration projects funded through ICFRE.</li> </ul>
<b>Verification and Green Credit Awarding</b>	<ul style="list-style-type: none"> <li>• After forest restoration efforts, a two-year monitoring period follows.</li> <li>• ICFRE assesses the survival and growth of planted trees.</li> <li>• Each successfully established tree earns one "green credit" upon successful evaluation.</li> </ul>
<b>Utilizing Green Credits</b>	<b>Green credits can be used in two ways:</b> <ul style="list-style-type: none"> <li>• <b>Compliance:</b> Organizations legally required to offset forest land conversion can use green credits to fulfill their afforestation obligations.</li> <li>• <b>ESG Reporting &amp; CSR:</b> Green credits can demonstrate commitment to environmental sustainability by contributing to ESG reporting or fulfilling CSR obligations.</li> </ul>
<b>Earning and Calculating Green Credits</b>	<ul style="list-style-type: none"> <li>• Participants register environmental activities on a dedicated government website.</li> <li>• Registered activities undergo verification by a designated agency.</li> <li>• Green Credit certificates are awarded based on the verification report.</li> </ul>
<b>Green Credit Calculation:</b>	<b>The number of green credits awarded considers various factors:</b> <ul style="list-style-type: none"> <li>• Resource requirements of the activity</li> <li>• Scale and scope of the activity</li> <li>• Size of the impacted area</li> <li>• Other relevant factors for achieving desired environmental outcomes</li> </ul>
<b>Green Credit Registry and Trading Platform</b>	<ul style="list-style-type: none"> <li>• A Green Credit Registry tracks and manages all earned green credits.</li> <li>• A Green Credit trading platform will be created for domestic market trading.</li> <li>• This allows organizations with surplus green credits to sell them to those needing them for compliance or enhancing their ESG/CSR profile.</li> </ul>

**Potential Benefits:**

- **Wider Participation:** Incentivizes individuals and organizations beyond traditional government enforcement to engage in environmental restoration.
- **Forest Focus:** Targets degraded forest restoration, potentially improving forest health and biodiversity.
- **Strengthens Existing Laws:** Aligns with existing environmental legislation like the Environment Protection Act (1986) and National Environment Policy (2006), for a unified approach to environmental protection.

- **Broader Carbon Market:** Complements carbon trading by including various sustainable practices beyond just CO2 reduction.
- **Fulfills Climate Goals:** Contributes to India's commitments made at the COP26 climate conference.
- **Supports Global Restoration:** Aligns with UN's Decade on Ecosystem Restoration(2021-2030) for large-scale restoration efforts.
- **Inclusive Approach:** Prioritizes stakeholder involvement and utilizes traditional knowledge for culturally sensitive restoration.

#### Implementation Challenges:

- **Monoculture Risks:** Planting large numbers of the same tree species (monoculture) can be detrimental to biodiversity. Careful planning is needed to promote diverse ecosystems.
- **Tree Species Selection:** Planting unsuitable tree species for Green Credits could disrupt existing ecosystems and promote invasive species.
- **Weakening Forest Protection:** Green Credit program for forest restoration worries critics. Companies might use credits to bypass actual planting, weakening environmental protections.
- **Ground-Level Execution:** The success of GCP hinges on proper implementation by local authorities who understand the specific ecological challenges of their regions.
- **Measurement and Verification:** Quantifying the environmental benefits of actions like tree planting for credit allocation poses a significant challenge.
- **Market Functionality:** The concept of "fungibility" (treating different types of green credits as equivalent) raises concerns. Balancing water conservation credits with biodiversity credits requires careful design.
- **Compliance Concerns:** The program's interaction with existing environmental laws like the Forest Conservation Act needs clarification to avoid potential exploitation or loopholes.
- **Commodification of Conservation:** Critics argue that the GCP treats environmental conservation as a tradable commodity, potentially undermining its intrinsic value.

#### Way Forward:

- **Social Science Integration:** Recognizing the limitations of perfect scientific measurement, GCP should incorporate social science expertise to ensure community involvement and acceptance of the program's methods.
- **Market Design:** Creating a robust market for green credits requires a sufficient number of buyers and sellers with clear demand and supply dynamics.
- **Balancing Growth and Sustainability:** The program should be designed to ensure that environmental protection remains a priority and doesn't solely serve as a tool to ease industrial expansion.

The Green Credit Programme presents a promising approach to incentivize environmental restoration in India. However, addressing the implementation challenges and ensuring alignment with existing environmental regulations are crucial for its success in promoting sustainable forest management.

#### LiFE Mission:

Mission LiFE stands for "LiFEStyle For Environment." The Indian Prime Minister launched the LiFE Initiative at the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow in November 2021. The initiative's mission is to create a network of "Pro-Planet People" (P3) who will promote and adopt environmentally friendly lifestyles. It also aims to raise awareness about the importance of sustainable practices, moderation, and conservation.

## 6.2 The Challenge of Phasing Out Coal Power and Meeting Climate Change Goals

### Introduction

The continued reliance on coal-fired power plants poses a significant threat to achieving the Paris Agreement's target of limiting global warming to 1.5 degrees Celsius. This report analyzes the current state of coal power capacity globally, highlighting the challenges in transitioning towards cleaner energy sources.

### Coal Power and Greenhouse Gas Emissions

The International Energy Agency (IEA) emphasizes that coal power plants are the single largest source of global greenhouse gas emissions, accounting for approximately one-fifth of the total. Reducing dependence on coal is a critical aspect of mitigating climate change.

### Challenges of Transition:

- **China and India's Expansion:** A significant hurdle is the ongoing construction of coal plants in China and India, the world's top coal consumers. The Global Energy Monitor report reveals a worrying rise in operational plants, particularly in China, exceeding its own pledges to limit fossil fuels.
- **Slow Decommissioning:** Another challenge is the sluggish pace of retiring existing plants. While the US decommissioned 9.7 GW of coal capacity in 2023, it falls short of prior years and is inadequate for climate targets.

- **Meeting Paris Agreement Goals:** The current pace is insufficient. Achieving the ambitious target of phasing out coal capacity by 2040, as outlined in the Paris Agreement, necessitates annually retiring an average of 126 GW globally over the next 17 years. In 2023, only a fraction (around 1/6th) of this target was met.
- **Developing Economies' Dilemma:** Developing countries face a complex situation. While clean energy is crucial for sustainability, they also need reliable and affordable electricity to fuel growth. Some, like India, are expanding renewables, but the pace often lags behind rising demand.
- **Social and Economic Considerations:** The coal industry is a significant employer in many countries. A rapid transition can have negative social and economic consequences. Careful planning and implementation strategies are needed to mitigate job losses and ensure a just transition for coal workers.

#### Potential Solutions:

- **Carbon Capture and Storage (CCS):** The IEA suggests equipping coal plants with CCS technology to capture and store emissions. However, this technology remains expensive, and its long-term viability requires further research and development.
- **Development Finance Institutions' Role:** Greater involvement of national and international development finance institutions is needed to support developing countries in transitioning away from coal. These institutions can play a crucial role in financing clean energy projects and mitigating the social and environmental impacts of coal dependence.
- **Strengthening International Cooperation:** The current processes under the United Nations Framework Convention on Climate Change (UNFCCC) are inadequate in mobilizing development finance institutions for climate action. Stronger international cooperation and a more robust framework for collaboration between developed and developing countries are essential.

#### Conclusion:

Coal use is a significant barrier to achieving global climate goals. Addressing this challenge requires a multifaceted approach, including accelerating coal plant decommissioning, increasing investment in renewables, and developing cost-effective carbon capture technologies. Additionally, international cooperation and financial support for developing countries are essential for a just and sustainable transition away from coal-based power generation. The urgency of climate action necessitates immediate and concerted efforts from all stakeholders to achieve the objectives outlined in the Paris Agreement.

### 6.3 Challenges and Opportunities in Large-Scale Renewable Energy Deployment in India

India's ambitious target of achieving Net Zero GHG emissions by 2070 relies heavily on a large-scale shift towards renewable energy sources. However, the potential impacts of this transition on development and sustainability at local and national levels remain unclear.

#### India's Green Push:

- India's green energy push aims to reduce emissions intensity by 45% from 2005 levels by 2030 and transition to 50% electric power from non-fossil-based sources by 2030. The country also aims to install 500 gigawatts (GW) of renewable energy capacity by 2030, including 37.49 GW of solar parks, and 30 GW of offshore wind energy.
- India is heavily invested in large-scale solar parks as a key strategy to reduce greenhouse gas emissions (mitigation). Currently, over 214 square kilometres of land are dedicated to these projects.

#### India's Renewable Energy Advantage:

Large-scale renewable energy deployment offers India a strategic edge, addressing development, sustainability, and climate change simultaneously:

- **Jobs & Energy Security:** Creates jobs in manufacturing, installation, and maintenance, while reducing reliance on imported fossil fuels.
- **Rural Electrification & Public Health:** Mini-grids bring clean electricity to remote areas, and reduced air/water pollution from coal improves public health.
- **Reduced Carbon Footprint & Sustainability:** Renewable sources like solar and wind generate clean electricity, lowering emissions and promoting a sustainable future.
- **Climate Resilience:** By cutting emissions, renewables help India adapt to the challenges of climate change like floods and droughts.
- **Cost-Competitive & Innovative:** Renewable energy technologies are becoming increasingly cost-effective compared to coal, while fostering innovation in this growing sector.

#### Local Impacts:

##### Case studies reveal contrasting experiences near solar parks:

- **In Bhadla (Rajasthan),** pastoralists lost grazing grounds and access to "Orans," culturally significant common lands. This sparked protests demanding land rights recognition under the Forest Rights Act.
- **Pavagada (Karnataka) offered** some farmers a steady income by leasing unproductive land for solar projects. However, concerns remain regarding water usage for panel cleaning and potential economic disparity among landholders.

#### Challenges in a large-scale shift towards renewable energy sources:

- **Land Use:**



- Wind farms require significant land for turbines and transmission lines, potentially impacting agricultural land, wildlife habitats, and scenic landscapes.
- Hydropower dams can displace communities and disrupt natural river flows, affecting ecosystems downstream.
- Geothermal plants may require land for drilling and power plants, potentially impacting sensitive areas.
- **Water Use:**
  - Concentrated Solar Power (CSP) plants use considerable water for cooling and steam generation, which can be a concern in arid regions.
  - While typically lower than fossil fuels, some hydropower projects can have high water consumption for operation.
- **Environmental Impact:**
  - Wind turbines can pose a threat to birds and bats due to collisions, requiring careful siting and mitigation strategies.
  - Hydropower dams can disrupt fish migration patterns and alter water quality.
  - Geothermal plants may have potential for seismic activity or groundwater contamination if not managed properly.
- **Social and Economic Considerations:**
  - Similar to solar, large-scale renewable projects can displace local communities or disrupt traditional land uses.
  - Careful planning and community engagement are crucial for equitable benefits and social acceptance.

### Sustainable Renewable Energy Solutions:

- **Land Sharing:** Combine renewable projects. Sheep can graze under solar panels, and wind farms can share land with sustainable agriculture.
- **Technological Advancements:**
  - **Minimize Land Use:** Use floating solar panels and offshore wind farms.
  - **Grid Integration:** Advance battery storage to integrate renewables and address energy variability.
- **Coexistence with Nature:**
  - **Careful Siting:** Minimize ecological impact through careful planning of renewable projects.
  - **Habitat Restoration:** Offset potential damage with habitat restoration efforts.
- **Economic Benefits:**
  - **Job Creation:** Renewable projects create jobs in manufacturing, installation, and maintenance.
  - **Local Economic Boost:** Community ownership models and revenue sharing can stimulate local economies.
- **Community Ownership:**
  - **Local Solar Parks:** Encourage communities to own and operate solar parks, generating revenue and promoting local businesses and skills.
- **Safeguarding the Environment and Society:**
  - **Stronger ESIA:** Implement robust Environmental and Social Impact Assessments for renewable projects before construction.
  - **Fair Compensation:** Establish clear mechanisms for fair compensation of landowners, especially small and medium-scale ones.
- **Local Participation and Governance:**
  - **Engage Local Governments:** Involve local governments in planning decisions to ensure projects benefit communities and minimize disruption.
  - **Recognize Commons:** Recognize common lands under the Forest Rights Act, granting ownership rights and promoting social justice.
- **Innovation for Sustainability:**
  - **Agrioltaics:** Research and implement agrioltaic systems that combine solar power with agriculture, maximizing land use and promoting biodiversity.

India has a unique chance to create a "second green revolution" in energy. By learning from past experiences, India can design policies that balance environmental protection, reducing climate change, and achieving development goals. This proactive approach will ensure a clean energy future that benefits all.

### 6.4 Rising Temperatures and Heatwaves

2023 marked the second-hottest year on record for India, following only 2016.

The India Meteorological Department (IMD) predicts above-normal temperatures for most of India during April, May, and June.

**EnviStats-IMD analysis reveals a concerning trend** of the average number of annual heatwave days that has steadily increased over the past decades (from 90 in the 1990s to 139 in the 2010s, and a sharp rise to 190 in 2022). The average number of annual heatwave days has nearly quintupled between 2015 (7.4 days) and 2019 (32.2 days).

Specific regions prone to heatwaves include Gujarat, Maharashtra, North Karnataka, Rajasthan, and several eastern states.

#### **Heat Wave Definition:**

A heat wave is a period of abnormally high temperatures.

#### **Heatwave Definitions by the IMD:**

Definition of Heat Waves Based On	Conditions
<b>Geographical Features</b>	<ul style="list-style-type: none"> <li>• <b>Plains:</b> A heatwave is declared when the maximum temperature recorded at a station reaches 40°C (104°F) or higher.</li> <li>• <b>Coastal Regions:</b> For coastal areas, the threshold for a heatwave is 37°C (98.6°F) or higher.</li> <li>• <b>Hilly Regions:</b> In hilly areas, a heatwave is declared when the maximum temperature reaches 30°C (86°F) or higher.</li> </ul>
<b>Deviation From Normal Temperatures</b>	<ul style="list-style-type: none"> <li>• <b>Normal Heatwave:</b> A departure of 4.5°C to 6.4°C (8.1°F to 11.5°F) above the normal maximum temperature.</li> <li>• <b>Severe Heatwave:</b> A departure exceeding 6.4°C (11.5°F) above the normal maximum temperature.</li> </ul>
<b>Absolute Maximum Temperatures</b>	<ul style="list-style-type: none"> <li>• <b>Heatwave:</b> Maximum temperature exceeding 45°C (113°F).</li> <li>• <b>Severe Heatwave:</b> Maximum temperature exceeding 47°C (116.6°F).</li> </ul>

The IMD utilizes the latter two criteria only when:

- At least two stations within a meteorological subdivision record such high temperatures.
- Or, at least one station records a corresponding departure from the normal temperature for at least two consecutive days.

#### Causes of heat waves:

- **Climate Change:** Rising global temperatures, driven by greenhouse gases, are the primary cause of more frequent and intense heat waves. The UN World Meteorological Organisation predicts abnormally high temperatures in 2024.
- **El Niño:** Warmer Pacific Ocean temperatures associated with El Niño contribute to hotter and drier conditions in India, as observed in 2023. La Niña might bring increased rainfall during the monsoon season.
- **Pre-Monsoon Rain Absence:** The lack of pre-monsoon rain in April significantly contributed to the recent temperature rise.
- **High-Pressure Systems:** These systems act like a lid, trapping heat near the ground and preventing cloud formation, leading to temperature rise.
- **Shifted Wind Patterns:** Large-scale weather patterns can bring hot air masses to a region due to persistent changes in wind direction.
- **Ocean Warming:** Oceans absorb a large amount of heat. As they warm, they release this heat back into the atmosphere, further increasing temperatures.
- **Volcanic Eruptions:** The 2022 Hunga Tonga-Hunga Ha'apai eruption might have had a short-term influence, although the long-term impact is still being studied.
- **Urbanization:** Cities tend to be hotter than rural areas due to the urban heat island effect, where buildings and pavement trap heat. India's rapid urbanization could be exacerbating heat waves.
- **Deforestation:** Forests help regulate temperatures. Less tree cover can lead to higher land surface temperatures and contribute to heat waves.
- **Reduced Aerosols:** Pollutants like aerosols can have a temporary cooling effect. A decrease in these aerosols, potentially due to factors like emission controls, might be playing a role.

#### Impacts of Heatwaves:

<b>Health</b>	<ul style="list-style-type: none"> <li>• <b>Human Death:</b> According to the NCRB, 15,020 people died from heat strokes between 2009 and 2022.</li> <li>• <b>Heatstroke &amp; Exhaustion:</b> Life-threatening conditions with rapid heartbeat, dizziness, and dehydration.</li> <li>• <b>Respiratory Issues:</b> Heat traps air pollution, worsening asthma and other breathing problems.</li> <li>• <b>Cardiovascular Risks:</b> Increased risk of heart attacks and strokes, especially for vulnerable populations.</li> <li>• <b>Mental Health Impacts:</b> Stress and anxiety rise during heatwaves, affecting mental well-being.</li> </ul>
<b>Agriculture</b>	<ul style="list-style-type: none"> <li>• <b>Crop Failure:</b> Heat wilts and kills crops, leading to reduced yields or complete failure.</li> <li>• <b>Soil Moisture Loss:</b> Increased evaporation reduces soil moisture, hindering crop growth and potentially causing droughts.</li> <li>• <b>Pest Problems:</b> Heat creates ideal conditions for pests, damaging crops and requiring more pesticides.</li> <li>• <b>Livestock at Risk:</b> Heat stress harms livestock, reducing milk production, fertility, and even causing death.</li> <li>• <b>Water Scarcity Worsens:</b> Heat dries up water sources faster and increases irrigation needs, leading to potential conflicts.</li> </ul>

<b>Energy</b>	<ul style="list-style-type: none"> <li>• <b>Soaring Electricity Demand:</b> Increased air conditioning use strains the grid, risking blackouts or brownouts.</li> <li>• <b>Reduced Power Generation:</b> High temperatures decrease power plant efficiency, potentially reducing electricity supply.</li> <li>• <b>Transmission &amp; Distribution Issues:</b> Heat can damage equipment, leading to power outages and grid instability.</li> <li>• <b>Wildfire Threat:</b> Heat increases wildfire risk, damaging energy infrastructure and causing costly repairs.</li> <li>• <b>Energy Costs Rise:</b> Increased demand and limited supply during heatwaves can lead to higher energy bills.</li> </ul>
<b>Economy</b>	<ul style="list-style-type: none"> <li>• Disrupted daily life and businesses lead to economic losses. In India (2021), heat exposure caused a loss of 167.2 billion potential labour hours, impacting income equivalent to 5.4% of GDP.</li> </ul>
<b>Environment</b>	<ul style="list-style-type: none"> <li>• Multiple interconnected effects occur:                     <ul style="list-style-type: none"> <li>• Increased dust and ozone levels lead to spikes in air pollution.</li> <li>• Accelerated melting of glacier snow in northern regions.</li> </ul> </li> </ul>

#### India's Initiatives to Combat Heatwaves:

- **Heat Action Plans (HAPs):** Prepared by state, district, and city governments, these plans outline strategies to prepare for, respond to, and recover from heatwaves, aiming to reduce their impact.
- **India's Cooling Action Plan:** This plan provides a long-term vision to address cooling needs across various sectors.
- **Model Heat Action Plan:** Released by NDMA, this plan offers hyperlocal warning systems, vulnerability maps for cities, and climate-resilient housing policies.
- **IMD Alert System:** The IMD uses a color-coded system (green, yellow, orange, red) to warn of different heatwave intensities, with red signifying extreme heat and high risk of heat illnesses.

#### Key Measures For Beating the Heat:

- **Heat Action Plans (HAPs):** Prepare for, respond to, and recover from heatwaves with these comprehensive plans.
- **Public Awareness & Early Warnings:** Educate the public, provide cooling shelters, ensure water access, and plant trees to reduce heatwave deaths.
- **Stay Cool Indoors:** Close windows/curtains during the day, open them at night to trap cooler air.
- **Plan Outdoor Activities:** Limit outdoor activity to mornings and evenings, reschedule if possible.
- **Climate Action:** Combat rising temperatures through aggressive climate action.
- **Stop Land Encroachment:** Stricter enforcement is needed to protect land and greenery.
- **Green Cities:** Urban planning should prioritize planting more trees.

#### "Ready-Set-Go" Framework:

The World Meteorological Organization's (WMO) Subseasonal-to-Seasonal Predictions (S2S) project promotes a three-step "ready-set-go" approach for effective early warnings. India, a participant in the S2S project, has made significant investments in improving the accuracy of its early warning systems.

#### The "Ready-Set-Go" Early Warning System

- This three-step system is crucial for preparing the National Disaster Management Authority (NDMA) and local governments to efficiently manage heat waves.
- **Ready Step:**
  - Provides a seasonal outlook based on background conditions and external factors like global warming and El Niño.
  - Enhanced long-lead forecasts enable the NDMA, local agencies, and governments to prepare their disaster response systems.
- **Set Step:**
  - Utilizes subseasonal predictions for extended-range forecasts (weeks 2-4).
  - This step facilitates resource allocation and identification of potential heat wave "hotspots" for personnel and resource deployment.
- **Go Step:**
  - Relies on short-term (days 1-3) and medium-term (days 3-10) forecasts to initiate disaster management actions.
  - This is the execution phase, where activities like rescue efforts, hydration centers, and heat shelters are activated.

The NDMA has effectively integrated these advancements into the "ready-set-go" framework.

India must adapt to the growing threat of heatwaves by implementing and strengthening local Heat Action Plans, collecting accurate and localized data on heat stress, and prioritizing the needs of vulnerable populations.

#### 6.5 Heat Action Plans (HAPs): Strategies for Mitigating Heatwave Risks

India tackles rising heatwaves with Heat Action Plans (HAPs) formulated by various government levels. These state, district, and city plans, developed by 23 states with support from NDMA and IMD, aim to improve preparedness and minimize health risks associated with extreme heat. While a central database is lacking, at least 23 plans exist, with some states like Odisha and Maharashtra extending them to districts.

## Structure and Recommendations of HAPs

HAPs generally follow a standardized structure:

- **Heat Profile:** Summarizes past heatwaves in the region, including historical events, summer temperature trends, and land surface temperatures.
- **Vulnerability Assessment:** Identifies areas highly vulnerable to heatwaves, requiring focused attention and response strategies.
- **Response Plan:** Outlines actions to mitigate and address heatwave impacts before, during, and after the event. It also defines roles and responsibilities for involved government departments.

### Measures Proposed in HAPs:

HAPs typically recommend a combination of short-term and long-term strategies:

- **Short-Term Measures:**
  - **Early Warning Systems:** Utilize weather forecasts and early warning systems to alert the public and relevant authorities about impending heatwaves.
  - **Public Education Campaigns:** Educate the public on the risks associated with heatwaves and self-protective measures.
  - **Heat Shelters and Cooling Centers:** Establish heat shelters and cooling centers to provide temporary refuge during extreme heat.
  - **Drinking Water Access:** Ensure access to clean drinking water to prevent dehydration.
  - **Hospital Preparedness:** Equip hospitals with adequate supplies and trained healthcare professionals to handle a potential surge in heat-related illnesses.
- **Long-Term Measures:**
  - **Urban Planning:** Implement urban planning strategies that promote tree planting to create shade and reduce heat island effects.
  - **Heat-Resistant Building Materials:** Encourage the use of heat-resistant building materials to minimize urban heat island effects.
  - **Cool Roof Technologies:** Promote the use of cool roof technologies to reduce solar heat absorption and lower indoor temperatures.

### Challenges of Heat Action Plans (HAPs) in India:

- **Limited Implementation:** Many HAPs exist, but concerns lie in their execution. Critics say they lack updates, miss vulnerable groups, and struggle with resource limitations.
- **Localized Variations Not Addressed:**
  - **National Thresholds:** One national temperature for heatwaves ignores regional differences.
  - **Urban Heat:** HAPs need to consider how cities experience amplified heat.
  - **Missing Factors:** Focus on daytime dry heat overlooks humidity and warm nights. A heat index incorporating these is needed.

### Strengthening Heat Action Plans (HAPs) in India:

- **Robust Vulnerability Assessments:** Standardize risk assessments to identify heatwave risks, population exposure, and existing vulnerabilities.
- **Hotspot Mapping & Interventions:** Use geospatial data to pinpoint high-risk areas for targeted interventions tailored to local needs. Address informal workers' challenges during heatwaves.
- **Resource Allocation & Collaboration:** Allocate dedicated budgets, explore co-financing with NGOs and unions, and integrate HAPs with broader urban resilience plans.
- **Long-Term Strategies:**
  - **Nature-Based Solutions:** Include plans for integrating green and blue spaces in urban areas to reduce heat stress.
  - **Local Data:** Establish more local weather observatories for improved data collection and preparedness.
  - **Tailored Heatwave Criteria:** Consider humidity and other local conditions when declaring heatwaves.
- **Urgent Action Needed:** Swift action is critical to address the recent heatwave alert. Effective strategies require adjustments in data collection, local planning, and resource allocation.

### Conclusion

Successful Heat Action Plans (HAPs) require collaboration between government agencies, healthcare providers, community organizations, and emergency services. This teamwork ensures a unified and effective response to heatwave threats across India.

## 6.6 Anticyclones

On April 16, 2024, two major cosmopolitan cities, Dubai and Mumbai, located approximately 2,000 kilometres apart on either side of the Arabian Sea, experienced contrasting extreme weather events. While Dubai witnessed torrential downpours and flash floods, Mumbai endured an intense and oppressive heat wave with high humidity.

### Weather Systems and Contributing Factors:



- **Massive Anticyclone:** A large-scale high-pressure system, known as an anticyclone, dominated the region. This system caused:
  - **Heatwave in Mumbai:** Sinking air within the anticyclone compressed and warmed, leading to a prolonged heatwave over Mumbai.
  - **Moisture Accumulation:** The anticyclone also contributed to the buildup of warm and humid air masses over Mumbai due to:
    - **Pre-monsoon Conditions:** The period coincided with the pre-monsoon season, naturally leading to increased moisture levels.
    - **Warm Arabian Sea:** Sinking air further heated the already warm air masses from the Arabian Sea, further increasing humidity.
  - **Disrupted Sea Breezes:** The anticyclone's wind patterns likely hindered the usual nighttime sea breezes, preventing them from cooling Mumbai down.
  - **Blocked Western Disturbance:** The anticyclone's presence potentially blocked a western disturbance, a weather system typically bringing rain to the region.
- **Western Disturbance and Potential Cloud Seeding:**
  - **Interaction with Anticyclone:** Though a western disturbance was present, its interaction with the anticyclone's western edge likely influenced its path.
  - **Cloud Seeding (Uncertain Impact):** Some reports suggest cloud seeding efforts by the UAE might have intensified the rainfall in Dubai. However, the effectiveness of this in comparison to the massive dust presence in the region, which also acts as a natural cloud seeder, remains unclear.
- **Global Climate Trends:**
  - **El Nino-La Nina Transition:** The ongoing shift from El Nino to La Nina could be influencing the upper-level jet stream patterns, potentially impacting regional weather.
  - **Warming Trend:** The record heat of 2023 and 2024, combined with rising temperatures in West Asia and the Arabian Sea, might have created an unusually large zone of intense heat, further exacerbating the situation.
  - **Increased Humidity:** Elevated humidity levels in Mumbai trapped thermal energy, preventing its release and contributing to the discomfort.

#### The Link Between Anticyclones and Heat Intensity:

- **Anticyclones are** high-pressure systems that have clockwise winds and sinking air in their centre.
- **Heat Dome Formation:** As sinking air reaches the ground, it compresses and warms, potentially creating a dome of high-pressure and hot air (heat dome).

While anticyclones are common during the pre-monsoon season, their persistence in 2023 is significant.

- **Jet Stream Interaction:** During this pre-monsoon period, two jet streams interact:
  - **Indian Easterly Jet (IEJ):** A strong easterly wind flow (around 10°N) forms in the upper atmosphere, extending across the Arabian Sea, India, and the Bay of Bengal.
  - **Westerly Jet Stream:** A strong westerly wind flow exists around 30°N.
- **Anticyclone Formation:** The interaction between these jet streams fosters an anticyclonic pattern over India and the Indian Ocean.
- **Jet Stream Winds:** Easterly signifies winds from the east, westerly signifies winds from the west. These are seasonal features.
- **Monsoon's Impact on Jet Streams:** The monsoon season pushes the westerly jet stream northward, allowing the easterly jet to dominate India.
- **Anticyclone Strength and Heat:** A strong pre-monsoon anticyclone brings dry and hot weather to much of India, while a weak one leads to milder conditions.
- **The Role of Anticyclones in Amplifying Heat Waves:**
  - **Heat Waves in Pre-Monsoon Season:** This period is India's summer, and heat waves are common. The goal is to predict and warn people to minimize harm.
  - **Understanding Heat Wave Factors:** Knowing what influences heat wave duration, intensity, and frequency helps identify potential hotspots for forecasts.
- **El Niño, Unexplained Warming, and Anticyclones:**
  - **Unexplained 2023 Heat:** The record-breaking heat of 2023 is not fully understood. Temperatures were much higher than expected from just El Niño and global warming combined.
  - **El Niño's Pre-Monsoon Decline:** However, El Niño's decline during the pre-monsoon season seems to contribute to stronger and more persistent anticyclones, leading to longer and more intense heat waves.

The combination of cool seasonal temperatures and a strong, persistent anticyclone in 2023 is a crucial factor. Understanding this can help the India Meteorological Department incorporate accurate background conditions into their forecasts and develop effective early warning systems.

#### Impacts:

- **Dubai:** The city experienced unprecedented rainfall, exceeding a year and a half's worth of precipitation in a single day. This resulted in widespread flooding, causing significant damage to infrastructure and displacing residents.
- **Mumbai:** The city endured a prolonged and severe heatwave characterized by high temperatures and oppressive humidity. This posed significant health risks, especially for vulnerable populations.

### Communication and Mitigation Strategies:

- **Improved Heatwave Warnings:** Professor Murtugudde emphasizes the need for timely and effective communication regarding heatwave risks. This could involve:
  - Utilizing the heat index instead of the wet bulb temperature to avoid creating undue panic.
  - Issuing early warnings with information on hydration centers, shelters, and public transportation options.
  - Implementing measures to protect vulnerable populations, such as children and the elderly, from extreme heat exposure.

### Conclusion:

The extreme weather events in Dubai and Mumbai on April 16, 2024, highlight the complex interplay of various weather systems and global climate trends. Understanding these factors and implementing effective communication and mitigation strategies are crucial for minimizing the impact of such events in the future.

## 6.7 The Unprecedented Rainfall Event in Dubai

The United Arab Emirates (UAE) experienced a severe thunderstorm and record-breaking rainfall on Monday, April 15th, 2024. This event, classified as "a historic weather event" by the state-run WAM news agency, surpassed all precipitation levels documented since the inception of data collection in 1949 (predating the UAE's official formation in 1971).

### Unusual Downpour in an Arid Region:

- The UAE, located on the Arabian Peninsula, is known for its arid climate with infrequent rainfall primarily occurring during cooler winter months.
- The thunderstorm, unleashed over 142 millimetres (mm) of rain upon Dubai, a desert city typically receiving this amount in an entire year and a half (average annual rainfall - 94.7 mm at Dubai International Airport).

### Causes of Heavy Rainfall in UAE:

- **Passing Storm System:** The primary culprit behind the heavy rain was a low-pressure system moving across the Arabian Peninsula towards the Gulf of Oman.
- **Cloud Seeding (Uncertain Impact):** Some reports suggest cloud seeding, where chemicals are sprayed to stimulate rainfall, may have intensified the downpour. The UAE reportedly conducted cloud-seeding flights before the event.
- **Climate Change (Possible Influence):** Experts theorize climate change might have played a role. Rising temperatures in the UAE (0.4°C increase between 2003-2022) can lead to more evaporation and a warmer atmosphere holding more moisture (7% more per 1°C increase). This can intensify precipitation and flooding.
- **Challenges in Attribution:** Linking a single weather event directly to climate change is complex. Natural climate patterns like El Niño can also significantly influence such occurrences.

### Impact of UAE's Heavy Rainfall:

- **Air Travel Disrupted:** Flights were diverted or delayed, with Dubai International Airport suspending operations for 25 minutes.
- **Flooding in Residential Areas:** Residential areas flooded, causing vehicles to be abandoned on roadways.
- **Major Shopping Malls Inundated:** Popular shopping destinations like Dubai Mall and Mall of the Emirates experienced flooding.
- **Record Rainfall in Al Ain:** The city of Al Ain, 130 km from Dubai, received the heaviest rainfall, recording a record-breaking 254 mm.

### Conclusion

The unprecedented rainfall event in Dubai highlights the vulnerabilities of arid regions to extreme weather occurrences. While the precise cause behind this event is under discussion, rising global temperatures are a growing concern. Further research is necessary to understand the interplay between climate change and such weather extremes.

## 6.8 2024 Year Marked by Climate Extremes and Record-Breaking Temperatures

International monitoring agencies like the European Union's Copernicus Climate Change Service (C3S) confirm that 2024 is on track to become the hottest year on record. These alarming trends are accompanied by a surge in the frequency and intensity of extreme weather events, posing significant threats to vulnerable populations worldwide.

### Recent Case Studies of Climate-Induced Disasters:

The year 2024 has already witnessed the devastating impact of extreme weather phenomena around the world:

- **Central Asian Floods:** April 2024 floods devastated Kazakhstan and Russia near the Urals and Siberia. The Ural River breached dams in Orsk, Russia, flooding parts of Orenburg. Over 109,000 people were evacuated, with the worst hit areas bordering Russia and having rivers flowing from/to it. This echoes a 2009 US report predicting increased flooding in Russia by 2030 due to climate change.
- **Mexico Wildfires:** Over 3,000 hectares of forests burned in wildfires across Mexico.
- **Vietnam Drought:** Heatwaves caused severe drought in Vietnam's Ninh Thuan province, damaging vegetation and livestock.
- **India Heatwave Warning:** India's Meteorological Department predicts above-average heatwave days between April and June 2024, posing health risks for vulnerable populations.

## The Devastating Effects of Heat Caused by Climate Change:

- **Consequences of Climate Change on Health:** Climate change, primarily through global warming, negatively impacts human, animal, and plant health in numerous ways:
  - **Direct Heat Effects:** Heat exposure can directly harm the body, leading to heat stress, heat exhaustion, heatstroke, circulatory failure, and even death.
  - **Extreme Weather Events:** Heatwaves, floods, droughts, and other extreme weather events can cause injuries, deaths, and displacement.
  - **Water Scarcity:** Climate change can lead to water shortages, impacting hygiene, sanitation, and drinking water availability.
  - **Vector-Borne and Water-Borne Infections:** Changes in temperature and precipitation patterns can increase the spread of diseases transmitted by mosquitoes, ticks, and contaminated water.
  - **Non-Communicable Diseases (NCDs):** Heatwaves can worsen existing NCDs like strokes, heart attacks, diabetes, respiratory illnesses, and cancers.
  - **Mental Health Disorders:** Heat stress can exacerbate mental health problems like anxiety and depression.
  - **Food and Nutrition Insecurity:** Reduced crop yields and nutrient deficiencies due to heat stress can lead to malnutrition and hunger.
- **Heatwaves:** Heat exposure can lead to dehydration, hinder the body's ability to cool itself through perspiration, and cause blood vessel dilation and thickening, increasing the risk of blood clots (thrombosis). Air pollution often worsens the effects of extreme heat, further stressing the lungs and blood vessels. **Vulnerability to Heat Stress:**
  - **Children:** Infants and young children are more vulnerable due to their higher body fluid content compared to adults.
  - **Elderly:** The elderly are also highly vulnerable due to weakened physiological responses.
  - **People with Disabilities:** Individuals with disabilities may have difficulty regulating their body temperature or seeking help during a heatwave.
  - **People with Existing Health Conditions:** Those with chronic illnesses like heart disease, diabetes, and respiratory problems are at greater risk of complications from heat stress.
  - **Women:** Women are generally more susceptible to heatstroke than men.
- **Heat and Non-Communicable Diseases (NCDs):** A 2022 study analyzing 266 studies worldwide revealed an 11.7% increase in mortality associated with heat waves. While the severe effects of heat stress are well-recognized, the impact on NCDs often goes undiscussed. Heatwaves can significantly worsen existing NCDs through acute and chronic effects. Notably, NCDs already contribute to a staggering 65% of deaths in India, primarily occurring during productive middle-age years. Climate change-induced heatwaves will exacerbate this problem.
  - **Cardiovascular Diseases:** Heat increases the risk of strokes and heart attacks by triggering blood clot formation in the brain and coronary arteries. Exercising intensely in hot environments is particularly dangerous.
  - **Kidney Damage:** Heat can reduce circulating blood volume, potentially damaging the kidneys.
  - **Congenital Cataracts:** The incidence of congenital cataracts in babies can rise during heatwaves.
  - **Impaired Wound Healing:** Surgical wounds may not heal properly in excessively hot weather.
- **Impact of Wildfires on Health:** Wildfires triggered by excessive heat release particulate matter (PM2.5) and toxic chemicals like ozone, carbon monoxide, polycyclic aromatic compounds, and nitrogen dioxide. These pollutants can cause:
  - **Cardiovascular Diseases:** Increased risk of heart attacks, strokes, heart rhythm abnormalities, pulmonary embolism, and heart failure.
  - **Respiratory Diseases:** Increased risk of respiratory problems like asthma and chronic obstructive pulmonary disease (COPD).
  - **Diabetes and Pre-diabetes:** Wildfire smoke exposure can increase the risk of developing diabetes or worsen existing cases.
  - **Cancers:** Chemicals like benzene and formaldehyde present in wildfire emissions can increase cancer risk.
- **Food Systems Under Threat:** Climate change poses a significant long-term threat to food security and nutrition.
  - **This threat arises from a confluence of factors:**
    - **Heat Stress:** Excessive heat disrupts agricultural processes, reducing crop yields.
    - **Water Stress:** Limited water availability hinders crop growth and irrigation potential.
    - **Increased Carbon Dioxide Levels:** While CO<sub>2</sub> can initially stimulate plant growth, at high levels it can have negative effects on crop quality and nutrient content.
  - **The Long-Term Impact of Climate Change on Food Security and Nutrition**
    - **Vulnerability of Staple Crops:** Countries in South Asia and Sub-Saharan Africa are particularly vulnerable as they cultivate staple crops (like rice and wheat) that are already nearing their maximum heat tolerance. A further temperature increase of just 1 degree Celsius could decrease these crops' yields by 10%.
    - **Nutritional Deficiencies:** Climate change not only affects crop yields but also reduces their nutritional value. Crops grown under stress conditions often have lower levels of essential nutrients like zinc, protein, and iron.
      - A study by the Data Sciences Centre of Columbia University predicts a significant rise in malnutrition in India by 2050 if global warming continues unchecked.
    - **Impact on Protective Foods:** Climate change also threatens the availability of fruits, vegetables, and fish – all crucial dietary components that help prevent chronic diseases like cardiovascular disease and diabetes. Rising ocean temperatures can lead to:

- Flooding of coastal agricultural lands
- Reduced fish populations
- Biodiversity loss further diminishes access to nutritious "wild foods" like berries and nuts.
- **Glacier Melt:** High temperatures accelerate glacier retreat, impacting water resources and contributing to rising sea levels.

### Mitigation and Adaptation Strategies:

While mitigating climate change is essential, we must also prepare for its inevitable consequences. This requires a multi-pronged approach:

- **Heat Action Plans:** Develop localized plans for both urban and rural areas to address the specific challenges of heat waves.
- **Climate-Smart Food and Healthcare Systems:** Build resilient food and healthcare systems that can withstand the effects of climate change.
- **Education and Awareness:** Educate the public and healthcare providers about the health risks associated with climate change, particularly heat stress and malnutrition.
- **Anticipatory Planning:** Healthcare systems need to plan for increased demands during heatwaves and other climate-related events.
- **Urban Planning for Resilience:**
  - **Heat Shelters:** Provide cool spaces for vulnerable populations during heatwaves.
  - **Water Stations:** Ensure easy access to clean water for hydration.
  - **Heat-Reflective Housing Design:** Utilize reflective materials for roofs and walls to reduce heat absorption in buildings.
  - **Green Spaces:** Increase urban green spaces to provide shade and cooling effects.
  - **Well-Ventilated Homes:** Encourage proper ventilation design in buildings.
- **Personal Food Security Measures:**
  - **Dietary Diversity:** Consume a wide variety of fruits, vegetables, and whole grains to ensure a balanced intake of nutrients.
  - **Supporting Sustainable Agriculture:** Choose to purchase food from sustainable and local sources whenever possible.
  - **Reducing Food Waste:** Minimize food waste at home to conserve resources.

By implementing these comprehensive strategies, we can build a more resilient future that safeguards both our health and our food security in the face of climate change.

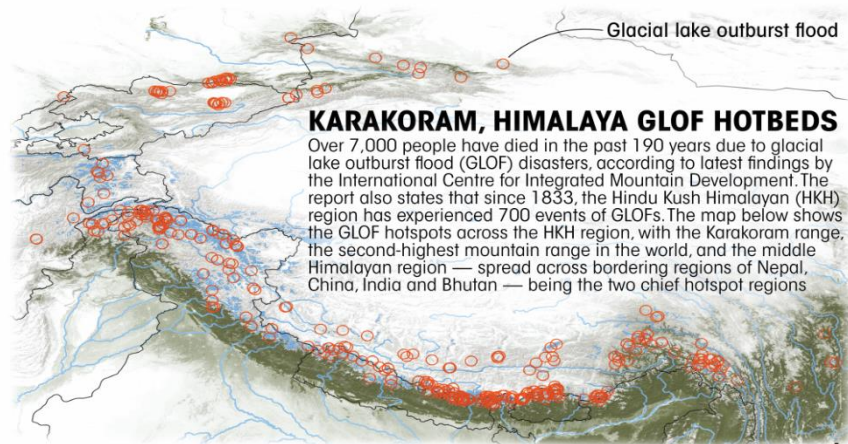
## 6.9 Glacial Lake Outburst Floods (GLOFs): A Growing Threat in the Himalayas

The government of Uttarakhand, India, has established two expert teams to assess the potential danger posed by five glacial lakes within its borders. These lakes are susceptible to Glacial Lake Outburst Floods (GLOFs), a type of catastrophic flooding that has caused devastation in the Himalayan region in recent years, such as the Kedarnath valley disaster in 2013 and parts of Chamoli in 2021. The primary objective of this risk assessment is to minimize the likelihood of a GLOF event and provide ample time for evacuation and disaster relief efforts if a breach occurs.

### GLOF Threat in the Indian Himalayas:

- **Identified Lakes:** India's National Disaster Management Authority has identified 188 potentially dangerous glacial lakes across the Himalayas, with 13 located in Uttarakhand alone.
- **Widespread Impact:** A 2023 study published in the journal Nature titled "Enhanced Glacial Lake Activity Threatens Numerous Communities and Infrastructure in the Third Pole" estimates over 6,353 sq km of land exposed to GLOFs, threatening infrastructure like buildings, hydropower projects, farmland, roads, and bridges within the Himalayas.
- **Vulnerable Populations:** Another 2023 study published in the journal Nature titled "Glacial Lake Outburst Floods Threaten Millions Globally" estimates nearly 3 million people in India and 2 million in Pakistan are at risk due to high population density and vulnerable settlements.





### Formation of Glacial Lakes:

Glacier movement causes erosion, resulting in depressions within the surrounding landscape. Meltwater accumulates in these depressions as glaciers retreat, forming glacial lakes.

### Types of Glacial Lakes (ISRO Classification):

- **Moraine-dammed lakes:** Water gets dammed by moraine debris, consisting of rocks and soil deposited by glaciers during their movement.
- **Ice-dammed lakes:** Water gets dammed by ice masses left behind by retreating glaciers.
- **Erosion-based lakes:** Water gets trapped within depressions created by glacial erosion.
- **Other types:** Lakes formed by mechanisms not categorized above.

### Benefits:

- **Freshwater Reservoirs:** Store water for later use in the region.
- **Hydropower Potential:** Generate electricity through hydropower plants.
- **Tourism Boost:** Attract tourists with their scenic beauty.
- **Climate Change Indicators:** Help track glacier retreat and potential flood risks.

### Risks:

- **GLOFs (Glacial Lake Outburst Floods):** Sudden, devastating floods caused by dam breaches.
- **Sea Level Rise:** Contribute to rising sea levels if all water melts and reaches the ocean.
- **Infrastructure Damage:** GLOFs can destroy roads, bridges, and buildings downstream.
- **Unpredictable Threats:** Expanding lakes can become dangerous and unleash massive floods.

### Understanding GLOFs:

- GLOFs are catastrophic events triggered by the abrupt release of water from glacial lakes. These are large bodies of water found in close proximity to glaciers, either in front of, on top of, or beneath them as they melt.
- As glaciers recede, they leave behind depressions that accumulate meltwater, forming lakes.
- The larger the glacial retreat, the bigger and more hazardous the lake becomes. These lakes are often dammed by unstable materials like ice or loose sediment composed of rocks and debris. A breach in this surrounding barrier can unleash enormous volumes of water cascading down mountainsides, causing devastating floods in downstream areas.

### Causes of GLOF Events:

- **Melting Glaciers:** Rising temperatures melt glaciers, creating more water and enlarging glacial lakes, raising flood risks.
- **Glacial Calving:** Large chunks of ice breaking off from glaciers and falling into the lake can displace significant water volume, potentially triggering dam failure.
- **Dam Instability:** Glacial lakes are dammed by loose debris (moraine) or ice, prone to failure from various triggers. Several factors can weaken the dam surrounding a glacial lake:
  - **Avalanches:** Avalanches of ice or rock can directly hit and damage the dam.
  - **Slope Instability:** The surrounding slopes may become unstable due to factors like melting permafrost, increasing the risk of landslides impacting the dam.
- **Global Warming:** Rising global temperatures, including in the Himalayas, accelerate glacier melt, rapidly increasing the water volume in glacial lakes and putting additional strain on often-fragile dams.
- **Frequent Earthquakes:** Himalayan earthquakes can trigger landslides or weaken dams, leading to sudden GLOFs.
- **Potential Volcanic Threat:** Though uncommon, volcanic activity near glaciers can contribute to rapid melt and GLOF formation.
- **Anthropogenic Activities:** The Himalayan region has witnessed a rise in GLOF events in recent years. This surge is attributed to two primary factors:
  - **Soaring global temperatures:** Rising temperatures accelerate glacial melt, leading to the formation and expansion of glacial lakes.

- **Rapid infrastructure development in vulnerable areas:** Construction activities in these regions can destabilize the precarious dams surrounding glacial lakes, increasing the risk of breaches.

#### Destructive Power of GLOFs:

- **Massive Inundation:** GLOFs release enormous volumes of water, sediment, and debris at high speeds, flooding entire valleys downstream.
- **Infrastructure Destruction:** The destructive power of GLOFs can demolish infrastructure like roads, bridges, and buildings.
- **Loss of Life:** With global warming causing glacial lake expansion, an estimated 15 million people face increasing risk from sudden and deadly GLOF events.
- **Agricultural Devastation:** GLOFs can devastate agricultural land, crops, and livestock, leading to food shortages, income loss for farmers, and long-term impacts on food security.
- **Environmental Damage:** The floods cause widespread ecological destruction, harming plant and animal life in the affected areas.

#### Mitigating Risks Posed by Glacial Lake Outburst Floods (GLOFs):

- **Mitigation Strategies:**
  - **Lake Level Lowering:** A promising strategy involves proactively lowering the water level of dangerous lakes to reduce potential GLOF volume and intensity. A 2023 study modeled a GLOF scenario for Ghepan Gath Lake (Himachal Pradesh, India) and found that lowering the water level by 10-30 meters could significantly decrease the impact on the downstream town of Sissu.
  - **Siphoning Techniques:** Long HDPE pipes can be used to siphon water from the lake in a controlled manner. In 2016, Sikkim authorities successfully used this method to lower the water level of South Lhonak Lake (Sikkim, India).
- **Important Considerations:** While lowering lake levels offers a potential solution, it is crucial to acknowledge that it might not entirely eliminate GLOF risks. A comprehensive approach to GLOF mitigation is necessary. Additional mitigation strategies may include:
  - **Early Warning Systems:** Establishing robust early warning systems to alert downstream communities of impending GLOF events.
  - **Remote Sensing Benefits:** Advanced remote sensing tools can effectively monitor glacial lake growth and understand its dynamics.
  - **Fieldwork Necessity:** Fieldwork remains crucial for critical lake sites. This fieldwork involves setting up early warning systems with instruments like Motion detection cameras, Water level sensors and Discharge meters.
  - **Engineering Solutions:** Constructing dams or bypass channels to regulate water flow and reduce the risk of dam breaches.
  - **Land-Use Planning:** Implementing land-use regulations to restrict development in high-risk GLOF zones.

By employing a combination of these mitigation strategies, communities living downstream of glacial lakes can enhance their preparedness and resilience against the threats posed by GLOFs.

## 6.10 Agroforestry Practices in India

Traditionally, Indian agriculture has incorporated trees, crops, and livestock into a single land-use practice known as agroforestry. This method offers advantages for both farmers' livelihoods and the environment. Following the Green Revolution's emphasis on monoculture farming, agroforestry has seen a resurgence in recent years.

#### Concept of Agroforestry:

Agroforestry is a land use system that integrates trees, crops, and animals in a scientifically sound manner. It combines the production of multiple outputs with the protection of the production base and places emphasis on the use of multiple indigenous trees and shrubs. It's particularly suitable for low-input conditions and fragile environments and involves the interplay of sociocultural values more than in most other land-use systems

#### Common Agroforestry Practices in India:

- **Agrisilviculture:** Grows crops alongside trees for combined production.
- **Agri-horticulture:** Integrates fruit trees with crop production.
- **Agri-silvi-horticulture:** Combines trees, fruit trees, and crops.
- **Agri-silvi-pasture:** Integrates trees, crops, and livestock for grazing.
- **Silvopasture:** Animals raised alongside trees in forests or pastures.
- **Alley Cropping:** Crops grown in between rows of trees or shrubs.
- **Home Gardens:** Small-scale systems with diverse plants near homes.
- **Block Plantations:** Dense tree plantings for timber or commercial use.
- **Energy Plantations:** Fast-growing trees cultivated for biomass energy.
- **Shelterbelts:** Rows of trees protecting crops from wind and erosion.

#### Benefits of Agroforestry in India:

- **Economic Powerhouse:** Provides half of India's fuelwood, timber, plywood, and pulpwood needs, along with fodder and income for rural communities.
- **Carbon Champion:** Increases tree cover outside forests, storing carbon and reducing pressure on natural forests.

- **Reduced Fertilizer Dependence:** Nitrogen-fixing trees lessen fertilizer needs by enriching the soil.
- **Improved Soil Health:** Promotes closed nutrient cycles and enhances soil fertility.
- **Water Guardian:** Controls erosion and improves water retention.
- **Climate Warrior:** Helps India meet climate change mitigation goals.
- **Sustainable Future:** Boosts agricultural productivity, creates jobs, and strengthens rural economies.

#### Success Stories of Agroforestry in India:

- **Cashew Model BCKV:** Promotes successful agroforestry practices with cashew nut trees.
- **J&K Agroforestry:** Highlighted for its success in the Prime Minister's address.
- **Silvipasture System:** The All India Coordinated Research Project (AICRP) on Agroforestry has successfully established a silvipasture system to meet fodder requirements
- **Cauvery Basin (Karnataka):** Farmers improve soil health and water management through agroforestry.

#### Barriers to Wider Agroforestry Adoption in India:

The "Trees Outside of Forests India" (TOFI), a USAID-India collaboration initiative to increase tree cover, highlights the limited adoption of agroforestry, particularly among smallholder farmers. The key challenges identified by TOFI:

- **Water Scarcity:** Limited water resources hinder establishing and maintaining trees, especially for small farmers.
- **Financial Strain:** Water scarcity can force smallholders into debt to secure water for trees, further straining finances.
- **Long-Term Growth:** Trees take years to mature, discouraging farmers focused on short-term income needs.
- **Investment Hurdles:** Smallholders often lack the upfront capital required for agroforestry.
- **Uncertain Markets:** Weak market development for agroforestry products creates challenges for selling produce.
- **Missing Support Systems:** A lack of financial support mechanisms hinders the transition to agroforestry practices.
- **Policy Gaps:** Current government policies often:
  - **Neglect Smallholders:** Programs fail to address the specific needs and limitations of small landowning farmers.
  - **Ignore Regional Differences:** Policies lack regional considerations, imposing a uniform approach across diverse ecosystems.

#### Government Initiatives for Agroforestry in India:

- **GROW Program:** Uses remote sensing to assess land suitability and aims to restore degraded land and create carbon sinks (NITI Aayog).
- **Sub-Mission on Agroforestry (SMAF):** Provides financial aid to farmers for planting trees and developing nurseries (Department of Agriculture & Farmers Welfare).
- **The National Agroforestry Policy (2014)** represents a pioneering effort by the Indian government to promote agroforestry. This policy builds upon significant research investments made over the past 40 years.
- **National Policy Framework:** Various national policies have been implemented to promote agroforestry, including the National Forest Policy 1988, the National Agriculture Policy 2000, the Planning Commission Task Force on Greening India 2001, the National Bamboo Mission 2002, the National Policy on Farmers 2007, and the Green India Mission 2010.
- **Union Budget Priority:** The 2022-23 budget prioritizes promoting agroforestry and private forestry.

#### Overcoming Agroforestry Challenges in India:

- **Species Selection with Jaltol:** Choosing the right trees is key, especially in dry areas. The TOFI-adapted Jaltol tool helps assess water competition between trees and crops, informing species selection.
  - **Example:** Mango trees in Karnataka's central plateau do not compete significantly with kharif crops for water, while coconut trees in Tamil Nadu's uplands require more water year-round.
- **Prioritizing Native Trees:** While fast-growing exotics like casuarina are tempting, they can harm soil health and people. Identifying suitable native species (fast-growing, pest-resistant, locally adapted) is crucial for long-term success. Tools like "Diversity for Restoration" help recommend climate-resilient native options.
- **Reviewing Existing Programs:** Policymakers need to evaluate existing government programs to see if they can be adapted to finance the transition to agroforestry practices.
- **PES (Payment for Ecosystem Services):** This approach encourages farmers to maintain trees that provide valuable services like pollination by offering payments from users like food companies.
- **Ecosystem Credits:** Emerging concepts like ecosystem credits offer further incentives for sustainable land management practices.
- **Bioregional Service Identification:** Before implementing PES, a detailed assessment of the unique ecological services provided by a specific region is crucial. This ensures that PES schemes effectively encourage practices that improve soil health, groundwater, biodiversity, and overall agroecosystem health.

#### Conclusion:

Large-scale agroforestry in India requires including smallholder farmers, who manage most of the land. To empower them, and address ecological and socio-economic challenges. By creating market links, viable models, and targeted incentives, agroforestry can benefit conservationists (ecosystem protection), agro-economists (farm improvement), and policymakers (sustainable livelihoods). A collaborative effort to create an enabling environment is key for widespread adoption by smallholders.



## 6.11 Unclassed Forests and the Forest (Conservation) Act Amendment (FCAA) 2023

The Supreme Court, in an interim order, has directed states and union territories (UTs) to follow the broad definition of "forest" established in the 1996 *TN Godavarman Thirumalpad v. Union of India* judgement. This applies until they complete forest land records mandated under Rule 16 of the 2023 Amendment Rules.

The broad definition of "forest" established in the 1996 *TN Godavarman Thirumalpad v. Union of India* judgement:

- Unclassed forests are a category of forests not officially designated as reserved, protected, or village forests. They can be government-owned, community-owned, or privately held.
- The landmark Supreme Court case of *T.N. Godavarman Thirumalpad* (1996) extended legal protection to these forests, even if not formally classified.

### The Forest (Conservation) Amendment Act, 2023:

This act amends the Forest (Conservation) Act, of 1980, with the following key changes:

- **The Act protects two types of forest land:** Declared Forests (designated under Forest Act, 1927 or similar laws) and Recorded Forests (documented as forest in government records since October 25, 1980). These government records include documents from various departments and recognized bodies.
- **The Forest Conservation Act exempts some land uses:** land legally converted to non-forest use before 1996, small strips bordering roads/railways for village access (0.10 hectares each), trees outside designated forests, strategic and security infrastructure projects (up to 10 hectares), and specific projects in left-wing extremism areas (up to 5 hectares). The Central Government can require planting new trees to compensate for any cutting.
- **Expanded Approval Process:** The Act now allows assigning forest land to any entity (not just private ones) for purposes other than forest conservation (non-forestry purposes). However, the Central Government sets the specific terms and conditions for such assignments.
- **New Definition of "Non-Forest Purpose":** The amendment redefines "non-forest purpose" to exclude activities that directly help manage forests and wildlife. This includes tasks like improving forests, building staff facilities, managing fires, setting up communication systems, constructing infrastructure, and creating government zoos, safaris, and eco-tourism (with proper approval). Additionally, the Central Government can define conditions under which specific surveys won't be considered a non-forest activity.
- **Central Government's Power:** The Central Government can now direct various entities on implementing this Act, including its own departments, State Governments, and recognized organizations. This ensures coordinated enforcement across all levels.

### Significance of The Forest (Conservation) Amendment Act, 2023:

The Act strengthens India's commitment to combating climate change and achieving its environmental goals by:

- **Boosting Carbon Sequestration:** Recognizing forests' role in capturing carbon emissions and achieving net zero by 2070, it emphasizes sustainable forest management practices to maintain healthy carbon stocks.
- **Fulfilling NDC Pledges:** It aligns with India's pledge under the Paris Agreement to create additional carbon sinks through increased forest cover.
- **Expanding Forest Cover:** The Act supports the national goal of increasing India's forest and tree cover to **one-third of its land area**.
- **Protecting Biodiversity and Benefits:** It emphasizes safeguarding biodiversity and enhancing the economic, social, and environmental benefits derived from forests, particularly for communities dependent on them.
- **Holistic Forest Management:** The Act highlights the need for comprehensive provisions encompassing forest conservation, management, restoration, and ecological security, while acknowledging cultural values and economic needs in achieving carbon neutrality.

### Criticisms of The Forest (Conservation) Amendment Act, 2023:

- **Threat to Indigenous Communities:** Critics fear the Act weakens legal protections for a significant portion (potentially 20-25%) of India's forests, jeopardizing the rights of indigenous communities who depend on them.
- **Human-Animal Conflict Omission:** The Act doesn't address the growing issue of human-animal conflict in forest areas.
- **Contradicts Supreme Court Order:** The Act is seen as contradicting a *T.N. Godavarman Thirumalpad* (1996) Supreme Court ruling that extended protection to broader forest areas, even if not officially documented. Critics argue it weakens this precedent.
- **Reduced Forest Protection:** The Act is criticized for potentially minimizing the area of forest land under the Act's protection, making it easier for diversion for non-forest activities.
- **Weakened Legislation:** Concerns exist that the amendments undermine the Act's core purpose of forest conservation.
- **Focus on Plantations Over Forests:** Critics argue the focus on plantations to achieve carbon neutrality ignores the difference between natural forests and plantations, potentially leading to biodiversity loss.
- **Compensatory Afforestation Concerns:** Critics argue the Act could lead to further deforestation by making it easier for developers to meet compensatory afforestation requirements by planting trees in non-forest areas.



The current situation regarding unclassed forests in India is concerning. The lack of comprehensive identification and data, coupled with the potential weakening of legal protection under the FCAA, poses a significant threat to these ecologically valuable lands. Further action is necessary to ensure the proper identification, demarcation, and protection of unclassed forests across the country.

## 6.12 The Necessity and Challenges of a Global Plastic Waste Treaty

### Introduction:

On July 28, 2023, the Earth saw its first Plastic Overshoot Day: The point at which the amount of plastics exceeds the global waste management capacity, according to Swiss-based research consultancy Earth Action (EA). Plastic pollution is a pervasive environmental problem, impacting ecosystems from mountain peaks to ocean floors and even human health.

### The Rise of Plastic and Its Environmental Consequences:

- Plastic production has experienced an exponential increase since the 1950s, reaching over 450 million tonnes in 2019.
- With a slow decomposition rate (20-500 years) and minimal recycling (less than 10%), plastic waste accumulates in the environment, reaching an estimated 6 billion tonnes according to a 2023 Lancet study.
- Annual plastic waste generation is around 400 million tonnes, projected to increase by 62% by 2050.

### The Global Plastic Treaty:

- **International Effort:** Representatives from 175 countries, including India, will gather in Ottawa, Canada, to discuss a landmark agreement to tackle plastic pollution.
- **Legally Binding Measures:** The proposed treaty aims to establish international regulations with legal force to curb plastic pollution worldwide.
- **Addressing a Global Challenge:** These negotiations are a crucial step towards solving the global plastic pollution crisis.
- **Aspiring for Impact:** The treaty, targeted for completion by the end of 2024, seeks to achieve similar significance as the 2015 Paris Agreement on climate change.
- **Building on UN Commitment:** Following a 2022 UN Environment Assembly commitment, member nations are working towards a legally binding treaty by the end of 2024 to address plastic pollution across its entire lifecycle, from production and use to disposal.

### Potential Elements of a Global Plastic Treaty:

Beyond production limits, the proposed treaty could encompass a broader range of measures:

- **Support for Developing Nations:** Wealthier countries may be required to provide assistance to developing nations in achieving plastic reduction goals.
- **Bans on Problematic Plastics:** The treaty could ban specific categories of plastics, plastic products, and harmful chemical additives.
- **Mandatory Recycling Targets:** Legally binding targets could be set for plastic recycling and the use of recycled content in consumer goods.
- **Chemical Testing Regulations:** Mandatory testing of certain chemicals used in plastics might be implemented.
- **Just Transition for Workers:** Provisions to support waste pickers and workers in developing countries could be included to ensure a smooth transition away from jobs reliant on the plastics industry.

**Proponents for Elimination:** A group of 60+ nations (EU, island nations, Japan) advocate for ending plastic pollution by 2040 through:

- Legally binding production and consumption limits for plastic polymers.
- Phasing out problematic single-use plastics.
- Banning specific harmful chemical additives.

### Challenges to the Global Plastic Treaty:

- **Opponents:** Major plastic producers like China, Iran, and Saudi Arabia resist production caps. They successfully blocked proposals for caps and chemical disclosure during prior negotiations.
- **US Position:** While endorsing zero plastic pollution by 2040, the US prioritizes a voluntary national approach (Senator Merkley suggests this is due to US reliance on fossil fuels).
- **Stalemate on Production Caps:** Oil-producing nations like Saudi Arabia, Russia, and Iran oppose production caps and use delaying tactics to stall progress.
- **Consensus vs. Majority Vote:** A key question is whether agreement will require consensus (allowing a single country to veto) or a majority vote.
- **Industry Pushback:** Major oil and gas producers, along with fossil fuel and chemical industry groups, lobby to limit the treaty's scope to waste management and recycling, hindering broader regulation. (lobbyist numbers increased 37% for Ottawa negotiations).
- **Industry Resistance:** Global Partners for Plastics Circularity (plastic producers) oppose production caps, arguing they would raise consumer prices. They favour focusing on post-production management.
- **Business Coalition for a Plastics Treaty:** Over 200 companies (Unilever, PepsiCo, Walmart) support the treaty with production caps alongside:
  - Restrictions/bans on specific plastic types.
  - Policies promoting reuse.

- Design requirements for better recyclability.
- Extended producer responsibility for waste management.
- Improved waste management infrastructure.

#### Advantages of Plastic:

- **Versatility:** A wide range of shapes, forms, and properties makes plastic suitable for countless applications across industries.
- **Affordability:** Low production costs translate to lower consumer prices and more accessible products.
- **Lightweight:** Lowers transportation costs, potentially reducing environmental impact.
- **Durability:** Certain plastics last a long time, reducing replacement needs and potentially lowering long-term costs.
- **Innovation:** Enables creative product design and functionality, potentially reducing material use and environmental impact.
- **Accessibility:** Affordability makes essential products more accessible to a wider range of people.

While plastic offers versatility and affordability, its extensive use has resulted in a pollution crisis.

#### The Detrimental Effects of Plastic Pollution:

- **Environmental Contamination:** Plastic waste leaks into waterways and oceans, breaking down into microplastics and nanoplastics that pollute the environment.
- **Harm to Ecosystems:** These tiny plastic fragments, along with the harmful chemicals they contain, disrupt ecosystems and cause damage to living organisms, including humans.
- **Potential Health Risks:** Exposure to plastics may lead to hormonal disruptions, cancer, diabetes, and reproductive disorders.
- **Climate Change Contributor:** Plastic production and disposal significantly contribute to climate change.
  - **Greenhouse Gas Emissions:** A 2019 OECD report estimates plastic generation releases 1.8 billion tonnes of greenhouse gases (3.4% of global emissions).
  - **Fossil Fuel Reliance:** Plastic production relies heavily on fossil fuels, accounting for roughly 90% of its associated emissions.
- **Growing Threat:** A recent Lawrence Berkeley National Laboratory report predicts a 20% rise in GHG emissions from plastic production by 2050 if current trends continue.

#### India's Initiatives to Tackle Plastic Waste:

- **Ban on Problematic Plastics:** Low-utility, high-littering single-use plastic items are prohibited.
- **Extended Producer Responsibility (EPR):** Manufacturers are held responsible for managing plastic packaging waste after consumer use.
- **Plastic Waste Management Rules (2022):** New regulations to improve plastic waste management.
- **Prakriti Mascot & Green Initiatives:** MoEFCC launched an awareness mascot ("Prakriti") and green programs for effective plastic waste management.
- **National SUP Elimination Dashboard:** MoEFCC tracks progress on single-use plastic elimination and plastic waste management across India.

#### Alternatives to Plastic Use:

- **Reduce:**
  - **Less single-use plastics:** opt for reusable bags, bottles, and containers.
  - **Durable & refillable products:** choose items designed for multiple uses.
  - **Minimize packaging:** encourage plastic-free or minimal packaging.
- **Reuse:**
  - **Repurpose & upcycle:** find new uses for old plastic items.
  - **Refillable systems:** use refillable containers for household products.
  - **Reusable shopping bags:** avoid plastic bags with reusable alternatives.
- **Redesign:**
  - **Biodegradable materials:** explore plant-based polymers or compostable plastics.
  - **Innovative packaging designs:** develop easier-to-recycle or compost packaging.
  - **Design for reusability:** create durable and repairable products.
- **Recycle:**
  - **Improved infrastructure:** invest in better sorting, processing, and recycling facilities.
  - **Consumer education:** raise awareness for proper recycling to reduce contamination.
  - **Recycled content products:** choose products made with recycled plastic.
- **Material Alternatives:**
  - **Natural materials:** use paper, bamboo, or glass instead of plastic.
  - **Metal options:** consider metal water bottles or food containers for reusability.
  - **Bioplastics:** explore bioplastics derived from renewable resources.

**Conclusion:**

The upcoming negotiations in Ottawa highlight the diverse interests at play regarding plastic pollution solutions. Striking a balance between environmental concerns and economic considerations will be crucial in crafting an effective international treaty.

**6.13 Kallakkadal: Coastal Flooding Phenomenon in Kerala**

This passage explains Kallakkadal, a coastal flooding phenomenon affecting Kerala's southwestern coast during the pre-monsoon season. It differentiates Kallakkadal from tsunamis and elaborates on its causes and forecasting mechanisms.

**What is Kallakkadal?**

- Kallakkadal refers to coastal flooding caused by high swell waves during the pre-monsoon (April-May) season.
- The term, derived from Malayalam, literally translates to "ocean that arrives as a thief," signifying its unexpected nature.
- It received formal recognition by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2012.

**Causes of Kallakkadal:**

- **Distant Storms and Swell Waves:** Kallakkadal is triggered by ocean swells generated by distant storms like hurricanes or strong gale winds, not by local winds.
- **Energy Transfer:** These storms transfer significant energy to the water, forming high waves that travel thousands of kilometers before reaching the shore.
- **Low-Pressure Systems:** Recent Kallakkadal events were caused by a low-pressure system originating 10,000 kilometers away in the South Atlantic Ocean, leading to strong winds and subsequent swell waves reaching up to 11 meters in height.

**Challenges of Prediction:**

- **Unforeseen Nature:** Kallakkadal occurs without warning signs like local wind activity, making it difficult for coastal communities to prepare.

**Early Warning Systems:**

- **Swell Surge Forecast System:** Launched by the Indian National Centre for Ocean Information Services (INCOIS) in 2020, this system provides forecasts up to seven days in advance.

**Current Situation and Forecast:**

- The ongoing Kallakkadal event is expected to impact Kerala and the western coast for the next two days before subsiding.
- INCOIS predicts high waves moving towards the Tamil Nadu coast, urging vulnerable areas to take precautionary measures for coastal erosion and fishing vessel safety.

**Differentiating Kallakkadal from Tsunami:**

- Kallakkadal is often confused with tsunamis, but they are distinct phenomena.
- Tsunamis are triggered by underwater disturbances, usually earthquakes, and generate a series of enormous waves with devastating consequences.
- Kallakkadal, on the other hand, involves high waves caused by distant storms and lacks the destructive power of a tsunami.

**Conclusion:**

Kallakkadal poses a significant threat to Kerala's coastal communities. By understanding its causes and utilizing early warning systems, communities can be better prepared to mitigate its impact.

**6.14 Taiwan Earthquake and the Ring of Fire**


The recent earthquake in Taiwan and the geological concept of the Ring of Fire, a zone of frequent seismic activity.

**Taiwan Earthquake -**

- **Significant Seismic Event:** Taiwan experienced its strongest earthquake in 25 years in April 2024, causing casualties and injuries.
- **Magnitude and Location:** The earthquake measured 7.2 according to the Taiwanese agency and 7.4 according to the US Geological Survey (USGS). The epicenter was located 18 kilometers south-southwest of Hualien County in eastern Taiwan.

- **Aftershocks:** Multiple aftershocks occurred, including one measuring 6.5 on the Richter scale.

### Ring of Fire - A Zone of Seismic Activity:

- **Geographic Location:** Taiwan lies on the Ring of Fire, a horseshoe-shaped region bordering the Pacific Ocean.
- **Extent:** Spanning nearly 40,250 kilometers, the Ring of Fire encompasses the meeting points of numerous tectonic plates.
- **Examples of Plates:** These plates include the Eurasian, North American, Philippine, and various smaller plates encircling the Pacific Plate.
- **Global Distribution:** The Ring of Fire includes Pacific coast countries like the US, Indonesia, Mexico, Japan, and Chile.

### Causes of Earthquakes in the Ring of Fire:

- **Tectonic Plate Movement:** Earthquakes occur due to the constant movement of tectonic plates. These plates can slide past, collide with, or subduct (move beneath) each other.
- **Friction and Release:** The rough edges of these plates can get stuck, causing pressure to build. When the pressure becomes too great, the plates overcome the friction and shift abruptly, triggering an earthquake.
- **Taiwan's Tectonic Interaction:** The specific case of Taiwan involves the interaction between the Philippine Sea Plate and the Eurasian Plate.

### Volcanic Activity in the Ring of Fire:

- **Subduction and Magma Formation:** The movement of tectonic plates also contributes to volcanic activity.
- **Subduction Process:** When plates collide and one dives beneath the other (subduction), it melts due to the heat in the mantle, creating magma (molten rock).
- **Magma and Volcanoes:** This buoyant magma rises through the overlying plate and erupts on the surface, forming volcanoes.
- **Global Distribution of Subduction Zones:** Most subduction zones on Earth are located within the Ring of Fire.

#### Taiwan: A Case Study in Earthquake Resilience

The 2024 Hualien earthquake, despite a similar magnitude to the 1999 event, resulted in significantly less damage and casualties in Taiwan. This difference is attributed to crucial advancements in earthquake preparedness since 1999.

#### Key Factors in Taiwan's Resilience:

- **Strict Building Codes:** Following the 1999 earthquake, Taiwan implemented stringent building codes to ensure earthquake resistance.
- **Advanced Monitoring and Early Warning Systems:** Taiwan boasts a sophisticated network for monitoring earthquakes and issuing timely warnings.
- **Public Awareness and Drills:** Extensive public education campaigns and regular drills have fostered public understanding of earthquake safety measures.
- **Building Code Updates and Incentives:** The government continuously updates building codes and offers incentives to residents to upgrade existing structures for earthquake resistance.
- **Scientific Evaluation and Design:** Taiwan utilizes scientific data to assess ground shaking intensity in different locations, enabling the creation of region-specific seismic codes and construction norms.
- **Innovative Technologies:** Seismic dampers and base isolation systems are employed in some structures to enhance earthquake resistance.
  - Taipei 101, a landmark skyscraper, exemplifies the use of a tuned mass damper, a giant pendulum that counteracts building movement during earthquakes.

In conclusion, the recent earthquake in Taiwan highlights the seismic activity associated with the Ring of Fire. Understanding the movement of tectonic plates and the concept of subduction helps explain why this region experiences frequent earthquakes and volcanic eruptions.

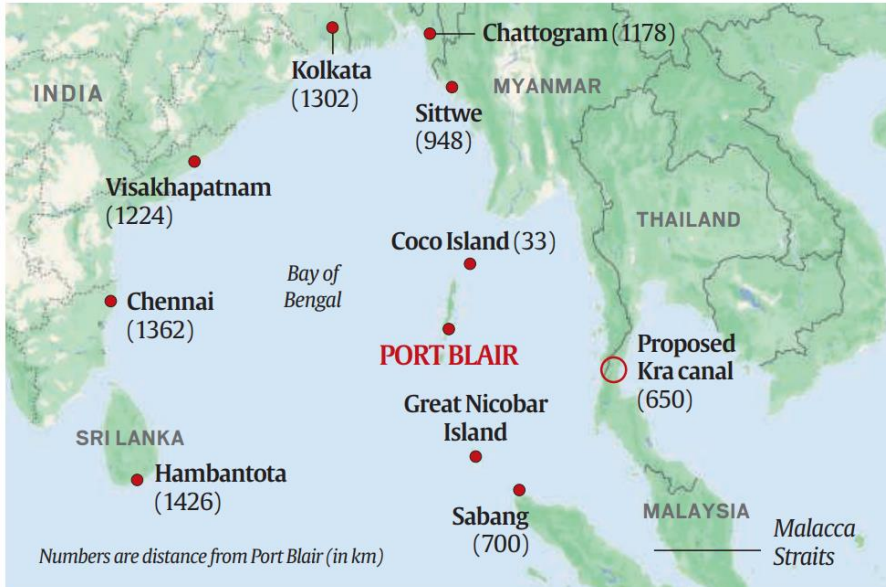


7 Security

7.1 India's Focus on the Andaman and Nicobar Islands

Andaman and Nicobar Islands are situated roughly 700 nautical miles southeast of mainland India, the A&N Islands hold a strategic advantage due to their location in the Indian Ocean. The resurgence of India's maritime strategy is largely driven by China's expanding naval presence in the Indian Ocean. In response to China's growing influence, India has begun to realize the potential of its own island territories.

Vantage location in Bay of Bengal



Historical Significance and Vulnerability:

- **Historical Neglect:**
  - Following the 1857 War of Independence, the British established a penal colony in the Andaman and Nicobar Islands (A&N).
  - After India gained independence, the islands were initially neglected by the Indian government.
- **Strategic Significance:** The A&N's strategic location near the entrance to the Malacca Strait has made them a target throughout history:
  - Briefly occupied by Japan in 1942.
  - Claimed by Indonesia during the 1965 India-Pakistan War.
  - Considered for retention by the British after Indian independence.
- **Indian Military Presence:**
  - Recognizing their importance, the Indian Navy established a naval garrison in the A&N Islands in 1962.
  - This presence was upgraded to Fortress Andaman & Nicobar Command in 1976.
  - In 2001, it became India's first joint/unified operational command, known as the Andaman and Nicobar Command (ANC).
- **ANC's Significance:** The ANC's success exemplifies the effectiveness of inter-service cooperation between the Indian Army, Navy, Air Force, and Coast Guard.

The Need for Urgent Development:

- **Missed Opportunities:** The historical neglect of the Andaman and Nicobar Islands' (A&NI's) strategic potential is a recognized shortcoming. Decades of insufficient infrastructure development are seen as a strategic oversight.
- **Frontline of Defense:** The A&NI are envisioned as India's "first line of defense" against potential maritime threats from the east. This necessitates a robust military presence backed by strong civilian infrastructure.
- **Geopolitical Considerations:** The A&N's proximity to Myanmar, Indonesia, and Thailand demands robust maritime security measures.
- **Security Challenges:** With only 31 out of 836 islands inhabited, concerns exist regarding potential infiltration by hostile forces.
- **The China Factor:**
  - **China's Naval Presence:** China has bolstered its naval presence by deploying regular naval squadrons, establishing military bases, and developing facilities with both military and civilian uses in strategic coastal locations.
  - **China's Island Strategy:** Drawing parallels with the British Raj, China, as an emerging maritime power, understands the strategic importance of islands. Consequently, it has actively engaged with island nations in the Indian Ocean, such as Sri Lanka, Maldives, Seychelles, and Mauritius.
  - **China's View of the Andaman and Nicobar Islands (ANI):** The Chinese strategic community perceives the Andaman and Nicobar Islands (ANI) as a "metal chain" that could potentially limit China's access to the Indian Ocean via the Malacca Strait. This view underscores the strategic importance of these islands in regional geopolitics.

- **Military Presence:** The establishment of the tri-service Andaman and Nicobar Command (ANC) in 2001 is acknowledged as a positive step. However, subsequent efforts to strengthen the islands' military and civilian infrastructure are deemed inadequate.

### The Andaman and Nicobar Islands Is a Strategic Outpost in the Indian Ocean:

- **Economic Potential:** Under the United Nations Convention on the Law of the Sea (UNCLOS), the A&NI provide India with a vast Exclusive Economic Zone (EEZ) and continental shelf, granting access to potential marine resources.
- **Guardians of Shipping Lanes:** Their proximity to critical maritime chokepoints like the Malacca Strait, a vital global shipping lane connecting the Indian and Pacific Oceans, makes them crucial for safeguarding these essential trade routes.
- **Strategic Importance in the Indo-Pacific:** A&N Islands' location grants strategic advantages in the Indo-Pacific. Great Nicobar Island overlooks the Malacca Strait, a vital shipping lane. This positioning allows India to deter threats and project power.
- **Extending Maritime Influence:** The islands' strategic position near the territorial waters of Indonesia, Myanmar, Thailand, and Bangladesh allows India to extend its maritime influence in the region.
- **A Regional Maritime Hub:** The A&N Islands have the potential to become a regional hub for cooperation. Joint exercises with friendly nations in disaster relief, medical aid, anti-piracy, and search and rescue could foster peace and stability. Port Blair's development as a maritime center could solidify this role.

### Ways For Strategic Infrastructure Development:

- **Maritime Domain Awareness:** Strengthen surveillance capabilities with a combination of:
  - **Airfields:** Construct separate airfields with long runways (Boeing 737-sized) for aerial monitoring.
  - **Surface Vessels:** Establish a network of vessels for patrolling territorial waters.
- **Deterrence Capability:** Bolster the Andaman and Nicobar Command (ANC):
  - **Troop Deployment:** Increase troop strength for effective island security.
  - **Strategic Assets:** Equip the ANC with:
    - Permanently stationed surveillance aircraft for continuous monitoring.
    - Fighter jets for rapid response capabilities.
    - Regularly rotated additional military units to maintain a strong presence.
- **Economic Infrastructure:** Focus on strategic southern islands:
  - **Galathea Bay Transshipment Port:** Expedite construction to boost international trade and strengthen India's maritime economy.
  - **Maritime Services:** Develop a robust sector for repair and logistical support for domestic and international shipping.
- **Improved Connectivity:** Facilitate movement of people and goods, promoting tourism:
  - **Road Networks:** Upgrade and expand existing island-wide road infrastructure.
  - **Inter-island Ferries:** Establish a network of high-speed ferries for efficient travel.
  - **Seaplane Terminal:** Construct a seaplane terminal for additional transport options.
- **Self-reliance:** Encourage local industries to meet island needs for food and maintenance services.

### Challenges to Developing Strategic Infrastructure in the Andaman and Nicobar Islands (A&NI):

- **Delayed Recognition of Strategic Importance:** The A&NI's strategic significance wasn't fully recognized by policymakers until recently, hindering earlier infrastructure development.
- **Geographical Obstacles:** The islands' distance from mainland India and their challenging environment create logistical difficulties for infrastructure projects.
- **Environmental Regulations:** Stringent environmental clearances, even for minor projects, can significantly delay development. Additionally, regulations protecting indigenous tribes complicate land acquisition.
- **Inter-agency Coordination:** Developing strategic infrastructure necessitates collaboration between various ministries and agencies, posing a significant coordination challenge.
- **Short-Term Political Focus:** The long-term strategic vision for the A&NI often gets overshadowed by immediate political priorities.

### Strategies for Expedited Development:

- **Material Sourcing and Expertise:** Sourcing suitable construction materials from abroad and leveraging international expertise in creating marine infrastructure.
- **Weather and Seismic Resilience:** Utilizing building components specifically designed to withstand the region's weather conditions and potential earthquakes.
- **Streamlined Clearances:** Minimizing bureaucratic hurdles for obtaining forest and environmental clearances for infrastructure projects. Expediting approvals similar to those granted for defense projects along India's northern borders.
- **Planned Habitation:** Considering the planned habitation of uninhabited islands by offering incentives like free or subsidized land. This could encourage eco-friendly entrepreneurial ventures.
- **International Partnerships:** Exploring collaborations with international partners in the Indo-Pacific region, such as the Quad and the Indo-Pacific Oceans Initiative (IPOI), to leverage resources and expertise for development initiatives in the A&NI.

The geographically strategic Andaman and Nicobar Islands (A&NI) require a renewed emphasis on strategic infrastructure development. The Indo-Pacific's evolving security environment demands overcoming past obstacles to progress. Investing in the A&NI will bolster India's maritime security and regional influence.

## 7.2 The Armed Forces (Special Powers) Act, 1958 (AFSPA):

India's Ministry of Home Affairs recently extended the Armed Forces (Special Powers) Act (AFSPA) for six months in specific areas of Nagaland and Arunachal Pradesh. This act grants special powers to security forces in regions designated as "disturbed" due to unrest or security threats.

### About AFSPA:

The Armed Forces (Special Powers) Act, 1958 (AFSPA) is an act of the Parliament of India that grants special powers to the Indian Armed Forces in what the act terms as "disturbed areas".

### Some key provisions of the AFSPA:

- **Applies to:** Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura.
- **Declaring Disturbed Areas:** A disturbed area is one that is declared by notification under Section 3 of the AFSPA. The Governor (States) or Chief Commissioner (Union Territories) can designate regions as "disturbed" due to unrest.
- **Special Powers for Armed Forces:** In "disturbed areas," commissioned officers and equivalent ranks gain special powers including:
  - Arrest without warrant
  - Use of force (including deadly force)
  - Entering and searching any premises
- **Legal Immunity:** Military personnel face no legal proceedings for actions taken under AFSPA without central government sanction.

### Reasons for Declaring a "Disturbed Area" under AFSPA:

- **Internal Conflicts:** Religious, racial, linguistic, regional, or caste tensions can trigger a disturbed area declaration.
- **National Security Threats:** The Governor or Central Government can declare disturbed areas to combat terrorism or activities threatening India's sovereignty, national symbols, or Constitution.
- **Need for Military Assistance:** Areas requiring armed forces to aid civilian authorities qualify as disturbed.

These reasons are not exhaustive and the decision to declare an area as 'disturbed' is often complex, involving a range of factors related to security and governance.

### Importance of AFSPA:

- **Maintains order in Unrest:** AFSPA helps control areas with active insurgency or terrorism by allowing security forces to take swift action.
- **Protects Security Personnel:** Legal immunity for military actions offers some protection for personnel in high-risk zones.
- **Reduced Extremism:** The Home Ministry reports a 76% decline in extremist incidents from 2014 to 2022 in areas under AFSPA. Security personnel fatalities (-90%) and civilian deaths (-97%) have also fallen significantly.
- **Constitutional Validity Upheld:** The Supreme Court judgement in *Naga People's Movement of Human Rights v. Union of India (1998)* upheld AFSPA's constitutionality.

### Criticism of AFSPA:

- **Supreme Court Acknowledgment:** The 2016 case (*Extra Judicial Execution Victim Families Association vs Union of India*) acknowledged the potential for AFSPA misuse.
- **Justice Jeevan Reddy Committee Report (2004):** This committee recommended reviewing AFSPA and suggested a phased withdrawal in areas witnessing restored normalcy.
- **Human Rights Violations:** Critics argue that AFSPA's broad powers enable human rights abuses like extrajudicial killings, torture, and arbitrary detentions.
- **Eroded Civil Liberties:** Suspension of certain rights and freedoms in disturbed areas raises concerns about civilian rights violations.
- **Lack of Accountability:** Legal immunity for the military weakens accountability for potential misconduct.
- **Indefinite Imposition:** Critics question the indefinite application of AFSPA in some states (e.g., Nagaland).
- **Unclear Definitions:** The act's lack of clarity regarding terms like "disturbed area" creates ambiguity.
- **Central Government Control:** The power to declare disturbed areas rests with the central government or Governor, potentially straining relations with state governments.

### Solutions:

The AFSPA's use is a complex issue with no easy solutions. Here are potential approaches:

- **Jeevan Reddy Committee (2004):** Repeal AFSPA in Northeast, add provisions to UAPA (1967) with clear powers for forces & grievance cells in deployment areas.
- **Second ARC (Public Order):** Repeal AFSPA entirely. (Not implemented)



- **Santosh Hegde Commission:** Review AFSPA every 6 months, amend UAPA for counter-terrorism, and remove military immunity for excessive force.
- **Targeted Application:** AFSPA could be applied more selectively, focusing on specific zones within a disturbed area rather than entire regions.
- **Stricter Oversight Mechanisms:** Establishing independent oversight bodies to investigate alleged human rights violations under AFSPA is crucial.
- **Focus on Dialogue and Development:** Addressing the root causes of conflict through dialogue, development initiatives, and grievance redressal mechanisms can help reduce reliance on AFSPA.

The debate on AFSPA is ongoing, with the Supreme Court and various committees offering recommendations for reform. Balancing security concerns with upholding human rights and promoting development remains a key challenge.

### 7.3 The Maoist Insurgency or Naxal Movement in India

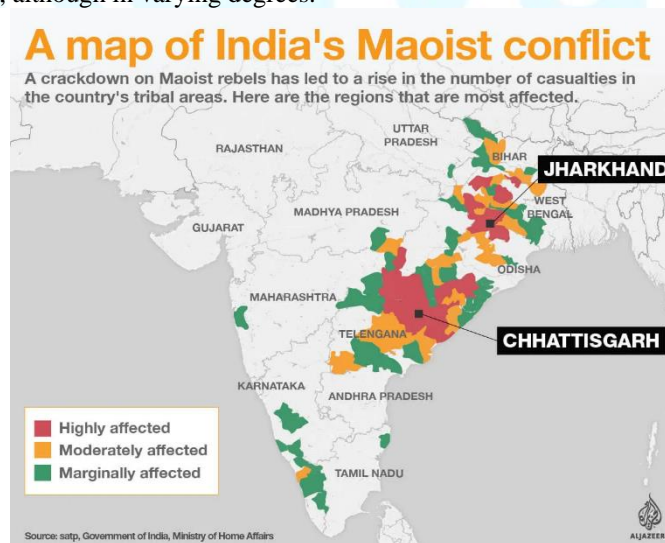
On April 14, 2024, a joint security force operation in Chhattisgarh killed 29 Maoists, including senior commanders. This represents the highest Naxalite casualty in a single operation. The Maoist insurgency has been active for several decades, peaking in the early to mid-2000s. Since 2010, violence and geographical spread of Naxalite influence have significantly declined due to increased security force deployment.

#### Roots of Naxalism in India:

- **Land Struggles:** Naxalism arose as a rebellion against unequal land ownership and slow land reform implementation (Naxalbari Movement).
- **Tribal Discontent:** The movement appeals to marginalized groups like tribals who face displacement due to development projects.
- **Economic Disparity:** Gaps between rich and poor and lack of regional development fuel Naxalite support.
- **Communist Ideology:** The rise of militant communism and Naxalite groups like CPI-ML fueled the movement.
- **Limited Basic Needs:** Lack of access to healthcare, education, and infrastructure in Naxalite strongholds creates a breeding ground for discontent.

#### Which are the States considered to be LWE affected?

**Answer:** The States of Chhattisgarh, Jharkhand, Odisha, West Bengal, Andhra Pradesh, Telangana, Maharashtra, Madhya Pradesh and Kerala are considered LWE affected, although in varying degrees.



#### Decline in Naxalite Activity:

- **Major Blow to Naxalites:** On April 14, 2024, a joint security operation in Chhattisgarh killed 29 Maoists, including senior leaders. This marks the highest single-day Naxalite casualty ever recorded.
- **Consistent decline in LWE violence nationwide since 2010:**
  - 76% decrease in violent incidents in 2022 compared to 2010.
  - 90% reduction in resultant deaths (security forces + civilians) in 2022 compared to 2010.
  - The geographical spread of LWE violence constricted (districts reporting violence reduced from 96 in 2010 to 45 in 2022).
- **Reduced Police Stations Affected by Violence:** The number of police stations reporting Naxalite violence has dropped dramatically, from 465 in 2010 to 171 in 2023.
- **Surrenders:** Over 16,780 Naxalites have surrendered between 2000 and 2024, indicating a trend of individuals leaving the movement.
- **Decreased Violence and Geographic Reach:** Since 2010, Naxalite violence and geographic influence have significantly declined due to increased security force deployment.



### Factors Behind Decline in Naxalite Activity (Since 2010):

- **Security:**
  - More Central Forces deployed to support local police.
  - Improved training and funding for state police.
  - Fortified police stations built in Naxalite areas.
  - Enhanced intelligence sharing between central and state agencies.
- **Development:**
  - Investments in infrastructure (roads, bridges, mobile towers) to improve connectivity.
  - Social welfare programs to address poverty, healthcare, and education.
  - Financial inclusion initiatives to offer alternative income sources.
  - Skill development programs to equip youth with employable skills.
- **Policy and Strategy:**
  - **National Policy (2015):** Comprehensive plan for security, development, and local community rights.
  - **Special Central Assistance (SCA):** Funds for infrastructure and services in LWE-affected states.
  - **Security Related Expenditure (SRE) Scheme:** Reimbursement for security expenses and rehabilitation of surrendered Naxalites.
- **Weakened Naxalite Leadership:**
  - Security operations leading to arrests/deaths of key Naxalite leaders.
  - Possible internal conflicts and ideological disagreements within the movement.
- **Surrenders and Public Disillusionment:**
  - Government programs offering rehabilitation packages for surrendered Naxalites.
  - Potential decrease in public support for Naxalite ideology due to violence and lack of progress.

### Challenges and Flawed Approach:

Despite these successes, the Naxalite movement persists. They retain the capability to launch attacks and disrupt law and order.

- **Inconsistent Government Approach:**
  - Lack of unified national strategy.
  - States have varying levels of aggression.
- **Roots of Naxalism:**
  - **Tribal Displacement:** Development projects that divert forest land displace tribals, making them vulnerable to Naxalite recruitment.
  - **Economic Inequality:** Rising wealth inequality (as highlighted by WIL) fuels resentment and creates potential support for Naxalites.
- **Missing "Whole-of-Government" Approach:** Security alone isn't enough. Development and infrastructure are crucial to prevent Naxalite resurgence.
- **Naxalite Advantages:**
  - **Difficult Terrain:** The hilly landscape provides a natural advantage for Naxalite movement and hideouts.
  - **Exploiting Grievances:** Naxalites exploit existing discontent among some tribal communities to gain limited support.
- **Risks of Overly Militarized Approach:**
  - **War of Attrition:** Focusing solely on military action risks a prolonged and costly war with no clear end.
  - **Tribal Alienation:** Heavy-handed tactics could further alienate tribal populations, potentially creating a breeding ground for future dissent.

### Call for Peace Dialogue:

- **Peace Talks:** Leverage the government's current advantage to initiate peace talks with Naxalite leadership for reconciliation.
  - Presents an opportunity similar to past successful negotiations with Northeast insurgent groups.
  - Not a sign of weakness but a magnanimous gesture.
- **Shifting Focus:** Prioritize healing and mainstreaming tribal communities over military defeat.
- **State Police Leadership:** Anti-Naxal operations should be led by state forces, with central forces providing support (replicating the Punjab model).
- **"Whole-of-Government" Approach:** Integrate security efforts with development and infrastructure initiatives to prevent Naxalite resurgence.
- **Socioeconomic Development:** Expand social welfare programs and improve governance in tribal areas to address root causes of Naxalite support.
- **Dialogue and Negotiations:** Engage with Maoists through ceasefire talks and address legitimate grievances to find a peaceful solution.
- **Democratic Participation:** Encourage Maoists to pursue their goals through democratic channels, strengthening the political process and reducing the allure of violence.

### Conclusion:

While military action has yielded some results, a sustainable solution to the Maoist insurgency requires a multifaceted approach. Addressing the root causes of discontent through development initiatives and fostering a space for peaceful dialogue are critical for lasting peace.

#### 7.4 Basics of Left-Wing Extremism in India:

For decades, Left Wing Extremist (LWE) groups have operated in remote, poorly connected areas of India. In 2004, a significant development occurred: the People's War (PW) and the Maoist Communist Centre of India (MCCI) merged to form the CPI (Maoist).


The CPI (Maoist) is now the leading LWE group, responsible for most violent incidents and killings of civilians and security forces. It's designated a terrorist organization under the Unlawful Activities (Prevention) Act.


The CPI (Maoist) advocates armed insurgency to overthrow the government, a philosophy incompatible with India's Constitution. The government's call to renounce violence and engage in talks has been rejected.

This has led to a cycle of violence, disproportionately impacting the poor and marginalized, especially tribals. Some well-meaning intellectuals are misled by Maoist propaganda, which glamorizes violence and seeks power through military means.

From 2004 to 2023, LWEs killed 8863 people in India. Most victims were tribals, often falsely labeled "police informers" before brutal killings. The very people the CPI (Maoist) claims to represent – tribals and the underprivileged – have suffered most from their so-called "protracted people's war."

#### Ideology and Strategy Of The Maoist Insurgency in India:

 <p><b>What is Maoism?</b></p>	<p>Maoism, developed by Mao Zedong, is a communist ideology advocating violent revolution. It prescribes a multi-pronged approach to seizing state power:</p> <ul style="list-style-type: none"> <li>• <b>Armed Insurgency:</b> The Maoists utilize the Peoples Liberation Army (PLA) to wage guerrilla warfare against the existing government.</li> <li>• <b>Mass Mobilization:</b> Propaganda and manipulation are used to garner public support and weaken the state's legitimacy.</li> <li>• <b>Strategic Alliances:</b> The Maoists forge partnerships with other insurgent groups to broaden their reach and resources.</li> </ul> <p>This combined strategy, known as the "Protracted People's War," prioritizes military action ("military line") to achieve their revolutionary goals.</p>
<p><b>The Central Theme of Violence</b></p>	<ul style="list-style-type: none"> <li>• Maoist ideology prioritizes violence as the primary tool for dismantling existing socio-economic and political structures.</li> <li>• The Peoples Liberation Guerilla Army (PLGA), the CPI (Maoist)'s armed wing, embodies this principle.</li> </ul>
<p><b>Strategy for Establishing Control</b></p>	<ul style="list-style-type: none"> <li>• <b>Phase 1: Disrupting Governance:</b> <ul style="list-style-type: none"> <li>• The PLGA employs guerrilla warfare to create a power vacuum at the grassroots level.</li> <li>• This involves eliminating lower-level government officials, police personnel, political party workers, and local representatives.</li> </ul> </li> <li>• <b>Phase 2: Coercion and Propaganda:</b> <ul style="list-style-type: none"> <li>• With governance structures weakened, the Maoists attempt to coerce the local population into joining their movement.</li> <li>• They exploit existing grievances and amplify perceived shortcomings of the government through propaganda.</li> </ul> </li> <li>• <b>The Impact of Violence on Governance:</b> <ul style="list-style-type: none"> <li>• Violence directed at government representatives creates a self-fulfilling prophecy.</li> <li>• Fear and intimidation dismantle essential delivery systems, further isolating the populace.</li> </ul> </li> </ul>
<p><b>Urban Facade-The Role of Front Organizations</b></p>	<p>While the PLGA operates in rural areas, the CPI (Maoist) establishes Front Organizations in urban and semi-urban centers. These organizations aim to mobilize the masses through seemingly democratic means.</p> <ul style="list-style-type: none"> <li>• To mask their violent nature, the CPI (Maoist) utilizes well-educated intellectuals leading "Front Organizations."</li> <li>• These organizations operate in semi-urban and urban areas, employing seemingly democratic methods for mass mobilization.</li> <li>• <b>Recruitment, Funding, and Support Systems:</b> The Front Organizations perform several crucial functions, including:</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Propaganda:</b> Highlighting issues like tribal displacement, corporate exploitation, and human rights violations (often exaggerating these issues) to gain public sympathy. This propaganda is disseminated through mainstream media as well.</li> <li>• <b>Legal Strategy:</b> Utilizing legal processes to weaken the enforcement regime and support arrested cadres.</li> <li>• <b>Recruitment:</b> Identifying and recruiting individuals to become "professional revolutionaries" for the Maoist cause.</li> <li>• <b>Fundraising:</b> Collecting funds to support the insurgency.</li> <li>• <b>Urban Shelters:</b> Providing safe havens for underground Maoist cadres operating in urban areas.</li> <li>• <b>Legal Aid:</b> Offering legal assistance to arrested Maoist members.</li> <li>• <b>Mass Mobilization:</b> Organizing protests and agitations on issues that resonate with the public to generate support.</li> <li>• <b>Democratic Facade:</b> The activities of the Front Organizations are essentially a short-term ploy to mask the long-term goal of establishing a totalitarian and oppressive Maoist regime.</li> </ul>
<p><b>The "United Front" Strategy</b></p> 	<p>The CPI (Maoist) seeks alliances with other insurgent/terrorist groups in India, many of whom have external support. These alliances are viewed as strategic assets in their fight against the Indian state. The CPI (Maoist) Network:</p> <ul style="list-style-type: none"> <li>• <b>Domestic Alliances:</b> The CPI (Maoist) maintains close ties with Northeast insurgent groups, particularly the RPF/PLA of Manipur, some of which have links to external forces hostile to India. They also express solidarity with Jammu &amp; Kashmir militant groups. These alliances form their "Strategic United Front" against the Indian state.</li> <li>• <b>International Connections:</b> The CPI (Maoist) has connections with foreign Maoist organizations in the Philippines, Turkey, and others. They are also part of the "Coordination Committee of Maoist Parties and Organizations of South Asia (CCOMPOSA)," which includes Nepalese Maoist groups.</li> <li>• <b>The porous Indo-Bangladesh border raises concerns about cross-border movement, potentially involving:</b> <ul style="list-style-type: none"> <li>• <b>Terrorist elements:</b> Past instances suggest the border's use for infiltration.</li> <li>• <b>Human trafficking:</b> This includes suspected terrorists, fake currency dealers, and other criminals.</li> </ul> </li> <li>• Given these factors, potential connections between left-wing extremists and cross-border terror networks cannot be discounted.</li> </ul>
<p><b>The End Goal: A "New Democratic Revolution"</b></p>	<p><b>Key Challenges in Combating Maoist Insurgency:</b></p> <ul style="list-style-type: none"> <li>• <b>Delayed Recognition:</b> Initially, the Maoist insurgency wasn't considered a serious internal security threat. This allowed them time to:</li> <li>• <b>Establish Footholds:</b> The Maoists entrenched themselves in remote tribal areas.</li> <li>• <b>Governance Vacuum:</b> As government presence waned, the Maoists filled the gap, creating a rudimentary parallel administration.</li> <li>• <b>Security and Development Deficit:</b> This lack of government presence created a security and development vacuum, which benefited the Maoists.</li> </ul>

**Government Initiatives to Counter Left Wing Extremism (LWE):**

<p><b>SAMADHAN</b></p>	<p><b>SAMADHAN, launched in 2017,</b> is a comprehensive government strategy to address Left Wing Extremism (LWE). It encompasses various short- and long-term measures across different levels. The acronym SAMADHAN stands for:</p> <ul style="list-style-type: none"> <li>• <b>Smart Leadership:</b> Effective leadership for security forces and administration.</li> <li>• <b>Aggressive Strategy:</b> Proactive approach by security forces against Maoists.</li> <li>• <b>Motivation and Training:</b> Boosting morale and equipping security forces.</li> <li>• <b>Actionable Intelligence:</b> Utilizing real-time intelligence for operations.</li> <li>• <b>Dashboard-Based KPIs (Key Performance Indicators) and KRAs (Key Result Areas):</b> Use of data-driven strategies to measure the effectiveness of anti-Maoist operations.</li> <li>• <b>Harnessing Technology:</b> Using drones and advanced technology in operations.</li> <li>• <b>Action Plan for Each Theatre:</b> Developing customized plans for each LWE region.</li> <li>• <b>No Access to Financing:</b> Choking off funding sources for Maoist activities..</li> </ul> <p>The SAMADHAN doctrine has been instrumental in the decline of LWE violence and its geographical spread in India.</p>
<p><b>National Policy and Action Plan (2015)</b></p>	<ul style="list-style-type: none"> <li>• A comprehensive strategy addressing LWE through security measures, development programs, and local community rights.</li> </ul>

<b>Security Measures</b>	<ul style="list-style-type: none"> <li>• <b>Security Related Expenditure (SRE):</b> Provides resources for equipping and training security forces.</li> <li>• <b>Special Infrastructure Scheme (SIS):</b> Strengthens local police and intelligence capabilities.</li> <li>• <b>Deployment of Central Armed Police Forces (CAPFs):</b> Central government supplements state forces with CAPFs, training, and equipment.</li> <li>• <b>Fortified Police Stations:</b> Construction of secure police stations in LWE-affected areas.</li> </ul>
<b>Development Initiatives:</b>	<ul style="list-style-type: none"> <li>• <b>Infrastructure Projects:</b> Focus on expanding road networks (13620 km constructed) and improving telecommunication connectivity (13823 towers sanctioned).</li> <li>• <b>Financial Inclusion:</b> Expanding banking services and opening new post offices (4903) to promote financial access.</li> <li>• <b>Skill Development:</b> Establishing ITIs and Skill Development Centres to equip local youth with employable skills (46 ITIs and 49 SDCs functional).</li> <li>• <b>Education:</b> Setting up Eklavya Model Residential Schools (130 functional) to provide quality education in tribal blocks.</li> <li>• <b>"Aspirational Districts":</b> The Ministry of Home Affairs monitors the "Aspirational Districts" program in 35 LWE-affected districts, focusing on rapid development.</li> </ul>
<b>Civic Action Programme (CAP)</b>	<ul style="list-style-type: none"> <li>• Bridges the gap between security forces and local communities. Funds CAPFs for community welfare activities. (Rs. 121.32 crore released since 2017-18)</li> </ul>
<b>Media Plan</b>	<ul style="list-style-type: none"> <li>• Counters Maoist propaganda and promotes positive messages. Organizes events and releases media promoting security forces and democracy. (Rs. 44.61 crore released since 2017-18)</li> </ul>

## 7.5 Atmanirbhar Bharat in Defence: Fostering Self-Reliance and Modernization

India's ongoing transformation in the defence sector is driven by the goals of self-reliance (Atmanirbhar Bharat) and domestic production (Make in India).

### Key Initiatives and Achievements:

- **Policy and Procedural Changes:**
  - **Defence Acquisition Procedure (DAP) 2020:** This policy mandates 50% indigenous content (IC) in procurement contracts, promoting domestic manufacturing.
  - **Buy (Global-Manufacture in India):** This new procurement category encourages foreign Original Equipment Manufacturers (OEMs) to set up manufacturing facilities in India, facilitating technology transfer and spare parts production.
  - **Positive Indigenisation Lists:** The Ministry of Defence (MoD) identifies items to be procured solely from domestic sources, currently including nearly 5,000 items previously imported.
- **Digital Platform for Indigenization:**
  - **Srijan Portal:** Launched in 2020, this online platform lists over 34,000 currently imported items, facilitating identification of potential domestic suppliers and accelerating indigenization efforts.
- **Defence Industrial Corridors:**
  - **Tamil Nadu and Uttar Pradesh Corridors:** These government-established corridors attract investments for defence manufacturing infrastructure, with over Rs 7,000 crore invested already and potential investments exceeding Rs 20,000 crore through MoUs.
  - **First 100% FDI Project:** Swedish arms manufacturer SAAB announced a project to manufacture the Carl Gustav M4 rocket system in India, marking a significant step towards foreign investment and technology transfer.
- **Advancements in Shipbuilding:**
  - **INS Vikrant Aircraft Carrier:** Commissioned in 2022, this domestically built warship showcases India's growing shipbuilding capabilities and has spurred technological advancements across various industries.
  - **Project 17A Frigates:** The Indian Navy's Warship Design Bureau is actively developing and launching advanced frigates, like the INS Vindhyagiri, demonstrating domestic expertise in warship design and construction.
- **Focus on Diverse Defence Equipment:**
  - **Missiles, Artillery, Tanks:** Increased emphasis is placed on developing and producing indigenous missiles, long-range artillery guns, multi-barrel rocket launchers, and tanks.
  - **Advanced Electronics:** Investments are made in developing advanced radars, sensors, and electronic capabilities for a technologically sophisticated military.
- **Strengthening Defence Research and Development (R&D):**
  - **DRDO Review Committee:** A government-appointed committee is reviewing the functioning of the Defence Research and Development Organisation (DRDO) to ensure it aligns with 21st-century defence needs.
  - **Increased R&D Budget:** A significant portion of the defence capital procurement budget is allocated to domestic R&D efforts, aiming to build "fit-to-purpose" defence capabilities.
- **Boosting Domestic Defence Industry:**



- **Increased Domestic Procurement:** The share of the capital acquisition budget allocated to domestic procurement has risen from 40% (Rs 52,000 crore) in 2020-21 to 75% (Rs 99,223 crore) in 2023-24, prioritizing domestic suppliers.
- **Private Sector Participation:** 25% of the domestic capital procurement budget is earmarked for purchases from private sector companies, fostering a more robust domestic defence industry.
- **Increased Defence Production:** The value of India's defence production surpassed Rs 1,00,000 crore for the first time in 2022-23, with a target of Rs 1,35,000 crore in 2023-24 and Rs 1,75,000 crore by 2025. This growth highlights the success of Atmanirbhar Bharat initiatives.
- **Promoting Innovation and Start-ups:**
  - **Innovations for Defence Excellence (iDEX):** Launched in 2018, this initiative encourages participation of industry, including Micro, Small and Medium Enterprises (MSMEs), startups, individual innovators, R&D institutes, and academia in defence innovation.
  - **iDEX Prime Framework:** Established in 2022, this framework provides grants-in-aid of up to Rs 10 crore to startups for developing advanced defence solutions.
  - **Increased R&D Funding:** Funding under the Technology Development Fund (TDF) scheme has been enhanced to support R&D projects.
  - **Dare to Dream Innovation Contest:** The DRDO launched this contest to support startups and promote innovation in the defence sector.
  - **Increased R&D Allocation:** A quarter of the 2023-24 defence R&D budget is allocated for collaboration with academia and private industries.
- **Defence Exports:**
  - **India as an Arms Exporter:** In 2019, India entered the top 25 arms exporters globally for the first time.
  - **Export Target:** The government aims to achieve Rs 35,000 crore in defence exports by 2025.
- **Inclusion of Women in Defence:**
  - **Nari Shakti Initiative:** This government program promotes women's empowerment, including their participation in the armed forces.
  - **Sainik Schools and National Defence Academy:** These institutions are now open to women, expanding recruitment opportunities.
  - **Increased Number of Women Officers:** Recent years have seen a significant rise in the number of women serving in the armed forces.

## 7.6 The Indian Army's Focus on Disruptive Technology Absorption

### The Year of Technology Absorption:

The Indian Army has declared 2024 as the "Year of Technology Absorption." This initiative highlights the military's unwavering commitment to embracing disruptive technologies (DTs) to modernize its capabilities and maintain an edge over potential adversaries in the evolving nature of warfare. This focus aligns with the national "Atmanirbhar Bharat" (Self-Reliant India) mission, promoting indigenous development and absorption of these technologies.

### What is Disruptive Technology Absorption?

Military technology absorption goes beyond mere acquisition. It encompasses a three-step process:

- **Acquisition:** Procuring cutting-edge technologies like artificial intelligence, drones, robotics, and hypersonic weapons.
- **Adaptation:** Modifying these technologies to seamlessly integrate with existing military infrastructure (legacy systems).
- **Integration:** Ensuring the new technologies complement and enhance the capabilities of existing platforms.

### Debunking Misconceptions:

Clarification on some common misconceptions surrounding DT absorption:

- **Replacement vs. Integration:** DTs are not meant to replace existing weapon platforms and tactics entirely. The goal is to find practical applications for these technologies that complement and enhance existing capabilities.
- **Technology Alone Doesn't Win Wars:** While DTs can significantly alter warfare, victory ultimately depends on how effectively military organizations utilize these technologies and adapt their strategies. The "lethality" witnessed in recent wars like Russia-Ukraine and Armenia-Azerbaijan does not necessarily translate to a higher win rate compared to past conflicts.
- **Adaptability is Key:** Technological advancements are just one piece of the puzzle. Effective countermeasures by adversaries can quickly limit the effectiveness of new weapons. Therefore, continuous adaptation of operational and tactical strategies remains crucial.

### Moving Beyond Acquisition:

True technological transformation requires a shift beyond just acquiring DTs. The article emphasizes several key aspects:

- **Planning and Foresight:** Effective absorption starts with acknowledging vulnerabilities, understanding the capabilities and limitations of new technologies, and planning for their optimal utilization.
- **Democratization of Technology:** The benefits of DTs should extend beyond the higher echelons of the military. Empowering units at lower levels to leverage these technologies is essential for a holistic transformation.

- **Holistic Approach:** Technology absorption involves more than just hardware. It necessitates organizational restructuring, human resource development (specialists at all levels), fostering civil-military cooperation, robust data security measures, and adaptable procurement policies.

### Learning from Recent Conflicts:

The article underscores the importance of learning from ongoing and recent wars. Understanding these conflicts' dynamics helps tailor DT absorption strategies to address current and future threats.

### Conclusion:

The Indian Army's focus on DT absorption is a positive step towards modernization. However, sustaining this momentum requires a nuanced understanding of evolving needs and continuous adaptation based on learnings from real-world scenarios. By effectively absorbing and integrating DTs, the Indian Army can maintain its strategic edge and ensure national security in the face of a rapidly changing global landscape.

## 7.7 Understanding Doxxing and Strategies for Victims: Safeguarding Digital Security and Legal Remedies

### Doxxing Defined:

Doxxing is the malicious online publication of someone's private information (address, phone number, medical records) obtained illegally (hacking, social engineering). It poses a severe threat to victims' safety and security.

### Case Study: Impact of Doxxing:

A Mumbai woman highlights the dangers. A man shared a video of her without consent, leading to online harassment and defamation. This case showcases the challenges victims face and the emboldening effect of online anonymity on perpetrators.

### Doxxing's Ramifications:

Doxxing aims to intimidate or harm victims by exposing private information, jeopardizing their:

- **Physical Safety:** Risk of stalking, violence, or other physical harm.
- **Digital Security:** Exposed information can be used for further online harassment, identity theft, or reputational damage.
- **Emotional Well-being:** Victims may experience anxiety, depression, and a sense of vulnerability.

Even seemingly harmless information, when shared maliciously, can have severe consequences for victims, including professional repercussions and social isolation.

### Strategies for Victims:

- **Document Attacks:** Maintain a record of doxxing incidents and harassment for potential legal action.
- **Report to Platforms:** Promptly report doxxing to the relevant social media platform.
- **Enhance Online Security:** Change passwords and enable two-factor authentication to strengthen online accounts.

### Legal Remedies in India:

- **National Cyber Crime Portal:** File complaints through this official government portal.
- **First Information Reports (FIRs):** File an FIR with local law enforcement.
- **Platform Mechanisms:** Utilize reporting tools and policies offered by social media platforms.

### Platform Responses:

- **Content Removal:** Major tech companies like Meta and Google offer processes for victims to request doxxing content removal.
- **Data Privacy Policies:** Stricter data privacy policies are being implemented to prevent unauthorized access to personal information.
- **Community Guideline Updates:** Platforms like Discord are refining guidelines to better differentiate doxxing from harassment and ensure better victim support.

### Psychological and Social Support:

- **Self-Care:** Doxxing victims may experience emotional distress. Prioritize mental well-being and seek support from loved ones.
- **Social Media Use:** Returning to social media cautiously is an option, but ensure removal of doxxed information and maintain heightened security measures.

### Collective Action for a Safer Online Environment:

- **Empowering Vulnerable Groups:** Women, LGBTQIA+ individuals, and other vulnerable groups are disproportionately targeted. Initiatives to raise awareness and empower them to protect themselves online are crucial.
- **Building Resilience:** Societal efforts are needed to foster supportive online communities that discourage doxxing behavior.

Understanding doxxing, legal options, and self-care empowers victims. Collective action is essential to create a safer online environment for all.

## 8.1 Daniel Kahneman's Enduring Influence in Psychology and Beyond

Daniel Kahneman was an Israeli-American author, psychologist, and economist notable for his work on hedonism, the psychology of judgment, and decision-making. He was born on March 5, 1934, and passed away on March 27, 2024. Kahneman is best known for his work in behavioural economics, for which he was awarded the 2002 Nobel Memorial Prize in Economic Sciences, shared with Vernon L. Smith

### Daniel Kahneman's Enduring Contributions to Psychology and Behavioral Science:

#### Prospect Theory and Loss Aversion:

- **Prospect Theory:** This theory revolutionized the understanding of decision-making under uncertainty, particularly regarding gains and losses.
- **Loss Aversion:** A core concept within Prospect Theory is **loss aversion**. This principle states that individuals are more sensitive to potential losses than equivalent gains. For example, people might feel the pain of losing \$100 more acutely than the pleasure of gaining \$100. Loss aversion significantly impacts decision-making behaviour, leading people to be risk-averse when faced with potential losses and risk-seeking when faced with potential gains.

#### Measuring Happiness and Well-Being:

- **Beyond Economic Indicators:** Kahneman recognized the limitations of solely relying on economic indicators like GDP to measure societal well-being. He proposed methods for measuring **subjective well-being**, focusing on individuals' experiences and emotional states.
- **Hedonic Psychology:** His concept of **hedonic psychology** emphasizes the importance of experiences in determining happiness, not just outcomes. This perspective suggests that the process of experiencing something, positive or negative, can contribute more to overall happiness than simply achieving a particular goal.

#### System 1 and System 2 Thinking:

- **Cognitive Processes:** Kahneman's influential distinction between **System 1** and **System 2** thinking provides a valuable framework for understanding human cognition.
  - **System 1:** This fast, automatic, and intuitive thinking system is responsible for quick judgments, heuristics (mental shortcuts), and emotional responses.
  - **System 2:** This slower, deliberative, and effortful thinking system is responsible for logical reasoning, complex calculations, and conscious decision-making.
- **Cultural Universality:** While limitations in the universality of this framework across cultures have been noted, particularly regarding the emphasis on deliberate reasoning in System 2, it remains a valuable tool for understanding how humans think and make decisions.

#### Dissemination of Behavioral Science:

- Kahneman's work, as reflected in his book "Thinking, Fast and Slow," emphasizes the prevalence of cognitive biases and the importance of recognizing them for improved decision-making. His research was recognized with the Nobel Prize in Economics in 2002, a testament to its impact.
- **Unconscious Biases:** Kahneman's research exposes a key flaw: human decisions are often driven by systematic biases, not pure logic. These biases are ingrained in our thinking and operate unconsciously, leading to suboptimal choices.
- **Biases in the Modern World:**
  - **Storytelling's Power:** In an information overload era, compelling narratives trump facts. We readily accept stories that confirm our existing beliefs, creating echo chambers that reinforce biases.
  - **Political Manipulation:** Politicians exploit these biases by crafting narratives that resonate with voters' emotions and prejudices, often exaggerating achievements and distorting reality.
  - **Decision Fatigue:** The constant barrage of choices in modern life leads to decision fatigue. This mental exhaustion hinders sound judgment and makes us vulnerable to heuristics (mental shortcuts) that can lead to poor choices.
- **Learning from Kahneman: Strategies for Better Decisions**
  - **Self-Awareness:** Recognizing our biases is the first step towards mitigating them. By critically examining our thought processes, we can identify potential biases and consciously work to overcome them.
  - **Structured Decision-Making:** Using frameworks and checklists can help us approach decisions systematically, reducing the influence of biases.
  - **Nudges and Simplification:** Kahneman's work informs strategies like nudges and limited choice options. These guide individuals towards better decisions by simplifying complex choices and acknowledging our cognitive limitations.

By understanding and mitigating cognitive biases, organizations and individuals can significantly improve their decision-making processes.

## 8.2 The Right to Disconnect in the Digital Age

The "right to disconnect" concept gaining traction in response to the "always on" work culture of the digital age. A proposed California law highlights this right, aligning with existing employee rights to defined work hours, rest periods, and privacy. "The right to disconnect" is the concept of employees disengaging from work communication outside designated hours.

### Ethical Dimensions:

- **Work-Life Balance:** The "always on" work culture fostered by digital connectivity can significantly disrupt work-life balance. The right to disconnect promotes ethical treatment by ensuring employees have designated time for personal well-being and family life.
- **Employee Well-being:** Constant connectivity leads to stress, burnout, and potential mental health issues. The right to disconnect protects employee well-being by establishing boundaries that prevent work from encroaching on personal time.
- **Respect for Privacy:** Unrestricted access to employees outside work hours can invade their privacy. The right to disconnect respects employee privacy by establishing limitations on work-related communication during personal time.

### Challenges and Concerns:

- **Implementation Difficulties:** A "one-size-fits-all" approach might not be effective due to variations in work types (e.g., doctors vs. firefighters), communication urgency, and the prevalence of remote work arrangements. Ensuring fairness and practical application requires careful consideration of these complexities.
- **Enforcement Mechanisms:** The intangible nature of digital work makes it difficult to enforce clear boundaries between work and personal time. Sole reliance on legal regulations might not be the most practical solution. Designing effective enforcement mechanisms requires innovative and flexible solutions.

### Potential Solutions and Recommendations:

- **Self-Enforcing Contracts:** The passage suggests that large companies can lead by establishing clear protocols and expectations regarding after-hours communication through self-enforcing contracts with employees. This promotes **accountability** and **transparency** between employers and employees.
- **Government Intervention:** While legal enforcement has limitations, governments can play a significant role by establishing frameworks for protecting employee rights and intervening in cases of clear violations. This ensures a balance between employee well-being and organizational needs.
- **Negotiated Agreements:** The French model, emphasizing negotiated agreements between employers and employees, offers a potential approach, fostering **collaboration** and tailoring solutions to specific work environments.
- **Leadership:** Effective leaders recognize the importance of employee well-being and champion initiatives like the right to disconnect, fostering a positive and ethical work culture.

### Conclusion:

Despite implementation challenges, the proposed California law represents a positive step. It reflects the need for legal frameworks that acknowledge the unique challenges of digital work environments.

The right to disconnect is a complex ethical issue with no easy solutions. Striking a balance between protecting employee well-being and ensuring organizational effectiveness requires a multi-pronged approach involving responsible employers, adaptable legal frameworks, and innovative enforcement mechanisms.