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For UPSC CSE mains examination

UPSC

सत्यमेव जयते

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Features :

Arranged as per syllabus Topics
Most complete coverage of major
News Papers editorials

Index

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GS Paper 2

Subject: Indian Polity

Topic: Statutory, regulatory and various quasi-judicial bodies

SCs verdict on the Adani-Hindenburg case-The Adan episode gave investors lessons on risk

News: The article discusses the Indian Supreme Court's (SCs) decision not to order a new investigation into Adani Group, despite allegations of stock manipulation and other violations.

Background:

The Adani-Hindenburg case began when Hindenburg Research accused Adani Group of financial irregularities, causing a sharp decline in Adani's stock and investor losses. As calls for investigation rose, the case reached the Supreme Court, seeking a probe into alleged market manipulation.
The Supreme Court formed an expert committee to assess the regulatory setup. SEBI, meanwhile, conducted its investigations, submitting detailed reports. After reviewing SEBI's comprehensive investigation and the expert committee's findings, the Supreme Court concluded this verdict.

What was the SCs verdict on the Adani-Hindenburg case?

1. **Rejection of Additional Probe:** The court dismissed demands for a new investigation by a Special Investigation Team or the Central Bureau of Investigation, relying on the ongoing SEBI probe.
2. **Confidence in SEBI:** It found no reason to doubt SEBI's ongoing investigation and directed it to conclude the remaining parts within three months.
3. **Regulatory Amendments:** The court did not find grounds to order SEBI to revoke changes to the Foreign Portfolio Investors and Listing Obligations and Disclosure Requirement Regulations.

For more information read here.

What are the implications of the SCs verdict on the Adani-Hindenburg case?

1. **Market Confidence Boost:** The SC's decision resulted in a positive market response, with Adani's market value soaring to ₹15 trillion, indicating restored investor confidence.
2. **Ongoing Sebi Investigation:** The verdict reinforces Sebi's role in the ongoing probe, highlighting the importance of regulatory bodies in maintaining market integrity.
3. **Need for Transparency:** The case underscores the need for more transparent and robust oversight in the capital markets, as suggested by the concerns over offshore entities and shareholding rules.

Way forward:

To ensure market integrity, there's a need to **enhance transparency and plug regulatory gaps**, especially regarding offshore entities and shareholding rules.
Strengthening oversight mechanisms is crucial to prevent potential manipulation and maintain investor trust, as highlighted by the recent fluctuations in Adani Group's market value.

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Subject: Governance

Topic: The role of NGOs, SHGs, various groups and associations, donors, charities, institutional and other stakeholders

Civil society under siege in India

News: The article discusses the recent attacks on civil society in India. It also highlights the instruments being used to attack civil society.

What is civil society?

Civil society refers to a wide variety of communities and groups such as non-governmental organizations (NGOs), labor unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, and foundations that function outside of government to provide support and advocacy for certain people or issues in society.

A free civic space regulated under constitutionally guaranteed principles is the **essence of democracy**. India is lucky to have a **diverse and vibrant civil society**.

However, according to the author, the anti-communal and progressive civic space is under attack by the state.

What is the status of attacks on civil society?

According to the author, civil societies in India are under varied degree of attacks:

1. **Highly attacked organisations:** These include organisations that actively fight against communalism. This has led to them running out of funds and their leaders sent to prison or being charged.
This includes organisations such as Citizens for Justice and Peace (CJP), Amnesty India, Oxfam, Centre for Equity Studies and Lawyers Collective.
2. **Moderately attacked institutions:** This has led to some organisations almost closing their operations. They have been attacked, for example, for having connections with Adivasi rights movements impacting mining interests.
They include the Centre for Policy Research (CPR) and anti-communal NGOs such as ANHAD.
3. **Low-level attacks:** These include Institutions that are generally not active in the anti-communal area but pursuing significant human rights causes.
For instance, organisations such as Navsarjan, which is a leader in Dalit rights, and Save The Children's work on child rights.

What are the instruments being used to attack civil society?

1. **Legal Charges:** They have been attacked with charges that may lead to penal consequences such as imprisonment on **charges of money laundering.** This is done through:
a. Prevention of Money Laundering Act, 2002: The 2019 amendments enabled the Department of Revenue to work with a broader definition of proceeds of crime. This has resulted in attacks on NGOs by the **Enforcement Directorate (ED)**.
b. Foreign Contribution (Regulation) Act, 2010: The FCRA was made stringent in 2010 and in 2020. This has been used to take away the right of NGOs to access foreign funds from **18,000 organisations** between 2015 and 2022.
Under the FCRA, the **Central Bureau of Investigation (CBI)** too is empowered to investigate NGOs and their

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personnel with lethal impact.

2. **Restrictions on Domestic funding:** The 2020 amendments to the Income-Tax Act provisions on tax exemptions for NGOs and donors have now made renewals of 12A and 80G certificates mandatory every 5 years.

Also, donor data (including their **PAN card numbers**) must be made available to the Ministry of Finance. This can enable the state to intimidate these domestic donors.

3. **Income-Tax Surveys:** It is a way of collecting data that can be used to file more cases either by the CBI or the Tax Department.

Because of the use of these instruments, the last ray of hope for India's democracy, its civic space, is under serious threat.

Topic: Government policies and interventions for development in various sectors

On Truck Drivers' Protests – Striking fear

News: The article discusses the reasons behind the recent truck drivers' protests and the issues raised by them.

Background:

Recently, truck drivers worried about the implications of **Section 106 of Bharatiya Nyaya Sanhita (BNS)** abstained from work. This has led the government to promise to implement the provision after consultations with the All India Motor Transport Congress.

What are the provisions in the BNS that are being protested by truck drivers?

Section 106 in the BNS will replace Section 304A of IPC. It will treat hit-and-run accident cases as an aggravated form of the offence of causing death by rashness or negligence.

First, Section 106 of the BNS prescribes a prison term of up to **5 years**, besides a fine, for causing death due to rash or negligent acts. The existing section provides for a **2-year** jail term.

Second, road accidents in which, if the person involved in rash and negligent driving "escapes without reporting it to a police officer or a Magistrate soon after the incident", the imprisonment may extend to **10 years** and a fine.

In other words, the jail term for accidents have been raised from the present 2 to 5 years in all cases, and to 10, in the case of failure to report them to the authorities.

What are the issues being raised with the provisions?

1. **Additional criminal liability:** Punishments have been made more stringent.

2. **Fear of Lynching:** Drivers usually run away from an accident scene out of a fear of lynching. It is a belief that such drivers can move away from the scene of crime and then report to the police. However, fleeing the scene would constitute a hit-and-run case, thus falling under 'causing death by rashness or negligence'.

3. **Lack of Focus on Wider Issues:** Given that many accidents are caused due to **poor road conditions**, questions have been raised on the **lack of a comprehensive accident prevention policy package** covering imprisonment, compensation and safety. Merely raising prison terms may not solve the prevailing issues.

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Subject: Social Justice

Topic: Mechanisms, laws, institutions and bodies constituted for the protection and betterment of vulnerable sections

Child Marriages in India- Rise in child marriages in West Bengal

News: The article discusses the persistent issue of child marriage in India, focusing on its prevalence in West Bengal despite various policies and schemes.

What is the current state of child marriage in India?

Lancet Report:
Child marriage in India is decreasing but still prevalent, particularly in Bihar (16.7%), West Bengal (15.2%), Uttar Pradesh (12.5%), and Maharashtra (8.2%).
West Bengal saw an alarming increase of over 500,000 child marriages, a 32.3% rise in headcount.

NFHS-5 Report:
Consistent High Rates: West Bengal's child marriage rate remains high at 41.6% for women aged 20-24.
District Variance: Murshidabad, an economically challenged district, shows a rise in child marriage rates from 53.5% to 55.4%.

Countries with the highest number of child marriages*

India	15,509,000
Bangladesh	4,451,000
Nigeria	3,538,000
Brazil	3,034,000
Ethiopia	2,104,000
Pakistan	1,909,000
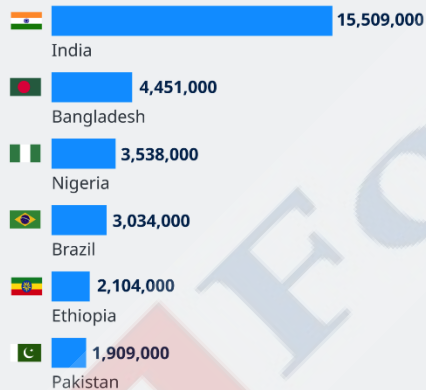
Source: Population data from United Nations | *Women who were first married or in a union before they were 18-years-old

Figure 1.Source: UNICEF

What are the reasons for child marriage in India?

1.   **Poverty and Social Norms:** Child marriage is often driven by poverty and entrenched social norms in regions like West Bengal.
2.   **Migration and Security Concerns:** Families often marry off daughters before migrating for work, fearing for their daughters' safety at home alone, as noted in West Bengal.
3.   **Policy Implementation Gaps:** Despite high rates of child marriage in West Bengal, only 105 cases were registered under the Prohibition of Child Marriage Act in 2021, indicating a significant gap in law enforcement and policy implementation.

What are the impacts of child marriage on health?

A. Health Risks:
a) Child marriage is linked to **higher infant mortality rates**, as evidenced by the death of 10 infants in a day at Murshidabad Medical College.
b) The same incident noted **infants born with extremely low birth weight**, a common issue stemming from child marriage.
c) **Young mothers face increased risks during pregnancy and childbirth**, affecting both their health and the health of their infants.
 d) The consistent high rates of child marriage, such as 41.6% in West Bengal, indicate a **widespread health burden affecting generations.**
B. Education Disruption: Early marriage often ends a girl's education prematurely, limiting her future opportunities and economic independence.

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What initiatives have been taken to overcome the issues of child marriage in India?

1. **Kanyashree Prakalpa:** West Bengal launched this **cash transfer scheme** to **incentivize education for girls and discourage child marriage**, reaching 81 lakh girls.
2. **Rupashree Prakalpa:** A **cash incentive scheme** for the marriage of girls, **aiming to delay the age of marriage.**
3. **Legal Age Amendment:** Introduction of the Prohibition of Child Marriage (Amendment) Bill, 2021, to raise the legal marriage age for women to 21.
4. **District Action Plans:** In 2022, West Bengal called for **district-specific plans to tackle child marriage**, indicating a move towards localized solutions.

For information on **Steps taken to check Child Marriage,** read here.

Way forward:

To address child marriage effectively, a comprehensive approach is needed, involving social campaigns, community involvement, and stricter law enforcement. Enhanced political will and public awareness are crucial to enforce existing laws and policies like Kanyashree Prakalpa and to create lasting change at the grassroots level.

Topic: Issues relating to Education

On Higher Education

News: The article discusses the status of graduate unemployment in India. It also highlights the structural problems with the Higher Education sector.

What is the status of graduate unemployment in India?

1. **Unemployment Rate:** In 2012, the unemployment rate among graduates was 20%; it has now increased to 34% in 2021. Among postgraduates, it used to be 18% in 2012; it has now doubled to nearly 37%.
2. **Employability:** Some reports state that fewer than half of India's graduates were employable in 2021.
3. **Status of Women:** India's female labour force participation is among the lowest in the world.

What are the problems with the education system leading to unemployment?

The problem with the education system is structural. It includes:

1. **Deteriorating Quality of Higher Education:** The rise in the number of private colleges, industrial training institutes (ITIs) and polytechnic colleges has led to a **lowering of quality**. The governments and the University Grants Commission did not have the capacity to regulate these colleges.
2. **Lack of Access to Higher Education:** A vast majority of the country's youth don't get higher education. Higher education enrolment rates are still about 27% (18-23 year olds).
3. **Impact of Online Learning:** There were learning deficiencies, which affected students' abilities to acquire knowledge and become employable.
Apart from the above, other issues leading to unemployment includes:
4. **Lack of Job Creation in the Economy:** Unemployment is also because the economy is not creating enough jobs.
5. **Sector-wise Issues in the Economy:** Agriculture has not become high tech, so graduates are not likely to

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join it. Jobs, such as delivery boys, are not preferred jobs for educated people. In the services sector, the jobs being created require high knowledge.

What are the structural problems with the Higher Education sector?

Higher education institutions create new knowledge, and it leads to the development of new technologies. This leads to the possibilities of new businesses, innovation, entrepreneurship, and start-ups. However, it is constrained by the following issues:

1. **Low R&D Expenditure:** India's R&D expenditure is only 0.7% of GDP. In Korea, it is 4%.
2. **Lack of Participation of the Private Sector in R&D:** Globally, the private corporate sector accounts for about 70% of total R&D expenditure. In India, the public sector accounts for some 70% of total R&D expenditure.
3. **Lack of Research Funding to Universities:** A very small proportion of public funding goes towards **research within universities** in India, unlike other countries.
Most of it goes towards the Council of Scientific and Industrial Research, Indian Council of Medical Research, etc. This is problematic because these institutions don't translate their research into usable products/processes.
4. **Foreign Ownership of Research:** Indian researchers are absorbed in MNCs. There are 800 MNCs which have their global research hubs in India. The value of that research goes abroad.
5. **Equity Issues:** There is a larger issue of social equity. Scheduled Castes, Scheduled Tribes, Muslims are underrepresented in higher education.
6. **Issues with the National Education Policy (NEP):** It has not led to substantive change in the education system.
For instance, there is an emphasis on autonomy of higher education, however imposing the Central University Entrance Test on colleges was against that ideal, leading to confusion.

What should be done?

1. **Converting Research into Products:** Creating institutions that convert patents or research scientific research papers into products and processes.
2. **Increasing Funding:** Universities must be funded more, and private industry will have to play a role in this.
3. **Vocational Training:** Divert students at the end of Class 10 and Class 12 away from higher education towards ITIs and vocational training can increase employability.

The need to examine the examination system

News: The article discusses the issues with examination system in India. It also highlights the steps that should be taken in this regard.

What is the status of higher education examination systems in India?

India has more than **1,100 universities** and **50,000 affiliated colleges** including 700 autonomous colleges. This includes a total enrolment of **40.15 million students**.
There are also **60 school boards** for secondary and higher secondary levels of school education, certifying more than **15 million students every year**.
These reflect the diversity of higher education examination systems in India.

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What are the issues with examination system in India?

1. **Focus on Memory and Rote Learning:** An examination should test memory, application and critical thinking. However, there are complaints that the examination boards test only memory. Hence, students are only taught to memorize answers and score marks.

2. **Narrow Objectives:** Scoring marks and achieving a very high pass percentage have become the key objectives.

3. **Quality Issues:** There are question papers that have flaws such as language errors, errors in conceptualization, irrelevant questions and questions that do not test higher order learning.

4. **Poor Mode of Assessment:** The employability of a graduate depends on higher order learning; however, the examination boards do not assess students on those skills.

5. **Creation of a Coaching Market:** Since employers have their own rigorous assessment of a candidate's academic achievements and suitability, it has created a coaching market for competitive examinations and skilling.

6. **Advisories Not Followed:** There are elaborate advisories on curriculum design, pedagogy, and examination systems from all the regulatory boards. In the absence of regular and effective oversight, these advisories are hardly followed by educational institutions.

7. **Lack of Standardizations:** The presence of the provision of autonomy of colleges gives the regulatory bodies no oversight authority over the autonomous colleges and their examinations.

8. **Issues with Secrecy:** Secrecy without proper checks and balances and audits leads to negative outcomes. There is secrecy involved in the whole examination process, from question paper setting to evaluation of answer scripts and mark sheet preparation. They are prone to malpractice.

What steps should be taken in this regard?

1. **Proper Assessment:** A good assessment system should be created.

2. **Involvement of Professional Bodies:** A greater involvement of professional bodies in curriculum design and teaching should help.

3. **Maintaining Transparency:** The credibility of assessment and standard of education can be ensured only through transparency in teaching and assessment. Transparency in accessing the evaluation process by students and grievance redressal measures should be in place.

4. **Specifying Learning Outcomes:** Minimum standards of learning outcomes should be specified.

5. **Participatory Approach:** Currently, the entire assessment process is in the teacher's hands. Real time oversight with participative process of students' assessment of teachers should make it better. This would lead to a system of checks and balances.

6. **Use of Technology:** The use of technology in assessment can enhance credibility. The setting of question papers and evaluation can be standardised.

7. **External Audits of Assessment Systems:** An external audit of assessment systems in universities and school boards is essential. Grading examination boards in terms of transparency, reliability and consistency should be a part of audit reports.

These steps will help university degrees and school board certificates to properly reflect the learning achievements of students.

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Topic: Issues relating to Health

On Antimicrobial Resistance (AMR) - Drug war

News: The article discusses the causes for the rise in Antimicrobial Resistance (AMR).

A detailed article on **Antimicrobial Resistance (AMR)** can be read here.

Background:
According to a study by the Health Ministry:
1. Over 70% of the patients in tertiary-care hospitals were prescribed antibiotics. Of this, over **50%** of antibiotics prescribed have the **potential to cause AMR**.
2. **55%** of the patients were prescribed antibiotics as **prophylaxis**, or as a preventive.

What according to the author is causing a rise in AMR?

According to the author, due to a rise in the prophylactic use of antibiotics (a prophylactic is a medication, or a treatment used to **prevent a disease from occurring**), antimicrobial resistance (AMR) is becoming deadlier.

What is AMR?

AMR occurs when pathogens evolve, fortifying themselves against drugs, and stop responding to antimicrobial drugs. This crisis is increasing due to unsound medical, and animal husbandry practices. According to **WHO**, bacterial AMR was directly responsible for **1.27 million global deaths in 2019** and **contributed to 4.95 million deaths**.

What are the implications of rising AMR?

According to the WHO, it invalidates the multiple gains that modern medicine has achieved over years in the following manner:

1. It makes infections harder to treat.
2. It also makes performing other medical procedures and treatments such as surgery, caesarean sections and cancer chemotherapy much riskier.

What steps should be taken?

1. **Rational prescription of antibiotics**.
2. **Curbs on the use of drugs to promote growth in animals and plants**.
3. **Antibiotic research and development:** urgent measures are required to develop new drug candidates.
4. **Equitable access** to these new drugs.
5. **Role of doctors and the government:** Their role in regulating use of drugs is crucial.
6. **Role of Patients:** They are impatient with the medical process, expecting immediate relief to ailments. This leads to unhealthy antibiotic usage.

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On Lead Poisoning - 'Lead exposure caused millions to lose health'

News: The article discusses the impact of toxic chemicals, particularly Lead, on children.

Why are children particularly vulnerable to such chemicals?

Children are much more sensitive to hazardous exposures than adults. This is because:

1. **They are growing and developing:** These development processes are very complex and operate in a strict time sequence. A toxic chemical like lead can disrupt those delicate processes.
2. **Exposure of mother also supplements:** Any chemical that gets into the body of an expectant mother also enters her baby and damages its tissues.

What is the impact of toxic chemical exposure on children?

A range of diseases may result due to toxic chemical exposure. These include:
a. If the child's brain is impacted, there could be a **loss of IQ** and an increased risk of **autism**.
b. If a lung is damaged, there is a greater risk of **asthma.**
c. If a chemical disrupts the hormones or endocrine glands, it may lead to **birth defects of reproductive organs**.
d. Low exposure may also lead to **shortening of attention spans** and **disruptions in behavior** of children.

What are the sources of lead that have impacted people's health?

In the 20th century, it began to be put into **consumer products from paint to toys.** This has now been abandoned.
In the mid-20th century, lead started being **added to petrol** in large quantities as a chemical called **tetraethyl lead**, intended to help automobile engines work better. This has now been phased out.
Other sources include **batteries and battery recycling plants.**
Note: Lead is a chemical element (atomic number 82). It is a heavy metal. It has been recognized as a toxic chemical.

What are other common toxic chemicals?

1. **Pesticides** such as **Organophosphates** cause brain damage in children exposed in the womb.
2. **Weed-killers or herbicides** such as **Glyphosate** is known to cause cancer.
3. **Asbestos** is also very toxic. It is used in building materials, roofing tiles, concrete asbestos pipes, etc. It is cheap, durable and resists heat and fire — but it's also a powerful cause of cancer of the lungs, throat and ovaries.

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Subject: International Relations

Topic: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests

Reigniting the flame of India-South Korea defence cooperation

News: The article discusses the India-South Korea defence relations marked by recent Indian Army Chief's visit to South Korea in November 2023, which aims to strengthen military ties and address mutual challenges in defence cooperation.

About India-South Korea relations:

India and South Korea recently celebrated the 50th anniversary of their diplomatic relations.
In 2020, the two nations endorsed a Roadmap for Defence Industries Cooperation.
The Korea Plus initiative is designed to boost Korean investments in India.

For more information on **India-South Korea relations**, read here.

What are the challenges in India-South Korea defense relations?

1. **Reassessment of India's Role:** The Korean side has till now resisted the change in view towards India. It still looks at India as an old Cold War ally of Soviet Bloc, which hinders the deeper strategic ties.
2. **Overemphasis on Acquisition and Sales:** India has been focused on acquiring weapons and technology from South Korea, whereas Korea has been looking for aprofit-driven sale to India.Both the aims are short sighted and driven by powerful arms lobbies, and not aimed at broad strategic considerations.

What are the opportunities in India-South Korea defense relations?

1. **Geopolitical Dynamics:** The evolving coalition of North Korea, China, and Russia introduces new challenge. It demands a deeper understanding of each country's strategic needs and alignments.
2. **Technology Collaboration:** During the Indian Army Chief's visit to Korea, there was a focus on joint development of advanced defense systems, particularly in future conflict areas like space and cybersecurity. This underscored the technological capabilities of both nations.
3. **Maritime Security:** There's potential for collaboration in maritime security, including joint patrolling and information sharing, given both countries' significant maritime interests.
4. **Counter Terrorism:** India and South Korea share concerns about terrorism, indicating room for collaborative strategies and coordinated efforts to bolster defense and security.
5. **United Nations Peacekeeping:** Both countries have experience in UN peacekeeping, suggesting they can share insights and resources to enhance global stability, a point underscored in recent diplomatic exchanges.
6. **Joint Military Exercises:** The visit of the Chief of Army Staff of India was seen as a catalyst for extending military cooperation, indicating opportunities for enhanced joint exercises and interoperability.

Way forward:

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Adopting a strategic approach that includes shared visions, technological partnerships, and adapting to changing global dynamics is crucial for a robust India-South Korea defense relationship.

No, the US-led Global Order is not collapsing

News: The article discusses the challenges to US-led global order due to global conflicts, the rise of China, and internal US divisions. It explores Eastern perspectives, India's strategic positioning, historical resilience of the West, and the complex global power dynamics.

What is the US-led global order?

The US-led global order is a system where the United States, due to its economic and military might, takes a leading role in shaping international policies, norms, and institutions. It emphasizes democracy, free markets, and security alliances, influencing global governance, trade, and diplomacy. This order has guided international relations and conflict management since the end of World War II.

What are the arguments favoring the decline of the US-led global order?

1. **Military Stalemates and Conflicts:** The ongoing military stalemate in Ukraine and escalating conflicts in the Middle East highlight the challenges to US-led Western military and diplomatic influence.
2. **Rising Eastern Powers:** Chinese assertiveness in Asia, along with increasing confidence among Eastern political elites, points to a shift in global power dynamics, signaling a perceived end to centuries of Western dominance.
3. **Internal Political Turmoil:** The United States is experiencing intense political polarization, and there are signs of potential further instability. This undermines the West's global standing.
4. **Economic Indicators:** The continuous decline in the share of G7's GDP in the global economy, particularly Europe's diminishing economic weight, suggests a relative economic decline of the West compared to emerging powers.

For information on **G7** read here.

What are the arguments against the decline of the US-led global order?

1. **Historical Resilience:** Despite numerous crises, the West has continuously adapted and overcome challenges, from the defeat of totalitarian regimes to the survival and adaptation of its capitalist and democratic institutions.
2. **Dominant Position:** The U.S. still holds nearly 24% of global GDP, leading in technological innovation and production of new scientific knowledge, indicating a sustained economic and cultural influence. Western societies continue to attract millions worldwide, evidenced by immigration trends and the global influence of Western academia, arts, and culture.
3. **Desire for Westernization:** Even within rival powers like Russia and China, there are significant political forces advocating for integration and accommodation with the Western-led order, suggesting its enduring appeal.
4. **Current Confrontation with China:** Despite assumptions that China would dominate, its economic slowdown and demographic decline suggest it won't overtake the U.S. economy soon, maintaining Western economic leadership.
5. **Challenges within Non-Western Institutions:** The deepening contradictions between members of non-Western institutions like the BRICS and SCO, particularly between India and China, undermine their

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effectiveness as alternatives to the Western order. This discord highlights the lack of a unified front that could challenge the West's dominance.

For information on **BRICS** read here.

For information on **SCO** read here.

What is India's stance?

1. **Balanced Approach:** While acknowledging the shifting dynamics due to Eastern assertiveness, India does not wish for a decline of the West, especially as it does not desire China to replace the US as the dominant power in Asia.
2. **Economic and Political Engagement:** Two decades of engagement with the West have provided India with confidence and negotiating skills, leading to a strategic partnership despite occasional disagreements.

Topic: India and its neighborhood-relations

On India-Maldives Hydrography Pact - An 'India out' plan that could impact the Maldives

News: The article discusses the recent developments in India-Maldives ties, especially in the context of Maldives' decision regarding joint hydrographic surveys.
A detailed article on **India-Maldives relations** can be read here.

The recent decision by the Maldives to revoke an agreement with India for joint hydrographic surveys in Maldivian waters has raised concerns. The pact was signed during India Prime Minister's 2019 visit to the islands and was seen as a symbol of India-Maldives defence ties.
What are the recent developments in India-Maldives ties?
Since the election of Mohamed Muizzu as Maldivian President, there has been an attempt by Maldives to distance itself from India. This is suggested by steps such as:
1. Earlier, Maldives formally asked India to **withdraw Indian military presence** from its shores.
2. Maldives also **skipped the latest meeting of the Colombo Security Conclave**. This signaled its reservations about defence engagement with India.
3. It is **expanding its relations with China**. For instance, getting Indian hydrographic ships out of Maldivian waters can aid China's marine surveys of the surrounding seas.
What is the importance of the hydrography pact?
Hydrographic data collected from the seas can be used for both civilian and military purposes.
1. **Non-Military Objectives:** This includes ensuring navigational safety, marine scientific research, and environmental monitoring.
2. **Military Objectives:** This includes surveillance of a nation's vital coastal installations and war-fighting assets.
What are China's interests in this hydrography pact?
1. **Part of China's Maritime Strategy:** For China, marine surveys and reconnaissance are critical enablers of its maritime strategy in the far seas. To achieve this, it has a large oceanographic research programme, in which **oceanographic research vessels** (and intelligence-surveillance-reconnaissance ships) are regularly deployed in the Indian Ocean.

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For instance, China approached **Sri Lanka and the Maldives** many times last year to allow the docking of these research ships.

2. **Applications in Anti-Submarine Warfare:** China's ocean surveys play an important part in enhancing China's antisubmarine warfare capabilities. The mapping of the ocean's temperature profile and the study of phenomena such as currents and eddies can **improve sonar performance** and **detection of enemy submarines**.

3. **Cut Down Indian Presence:** Indian Navy's operations in the waters of Indian Ocean island states could interfere with China's own marine survey efforts.

What are Maldives' concerns with India's hydrographic activity?

Maldives has apprehensions about India's hydrographic activity being a form of **intelligence collection**. These concerns arise because the **United Nations Convention on the Law of the Sea (UNCLOS)** does not explicitly authorise a coastal state to regulate hydrographic surveys or military surveys **conducted beyond its territorial sea**.

What should be the way forward for Maldives?

The Indian Navy has an exemplary track record of hydrographic surveys in their neighbourhood. For instance, it has rendered hydrographic assistance to Mauritius since the 1990s, charting the vast Mauritian EEZs and helping build capacity.

Considering all this, according to the author, Maldives must recognise that it is not India but China that seeks to weaponize ocean surveys. A partnership with India is the best option for Maldives to enhance maritime awareness and security.

Topic: Important International institutions, agencies and fora- their structure, mandate

On the Global Nuclear Order

News: The article discusses the global nuclear order (GNO) - its formation, elements, successes and failures. It also highlights the emerging challenges to GNO.

What is the global nuclear order (GNO)?

The GNO was created during the Cold War. Following the Cuban Missile Crisis, both US and USSR understood two things:

First, they needed bilateral mechanisms to prevent tensions from escalating to the nuclear level.

Second, the spread of nuclear weapons should be curbed.

This is how the GNO came into being. According to the author, it is presently under strain.

Note- Cuban Missile Crisis 1962: Confrontation between US and USSR, when American deployments of nuclear missiles in Italy and Turkey were matched by Soviet deployments of nuclear missiles in Cuba. Both countries came very close to launching a nuclear war.

What are the elements of GNO?

1. **Hotline/Communication Link:** It was established in 1963 to enable the leaders of the two countries to communicate directly. It was later upgraded into nuclear risk reduction centers.

2. **Arms Control Agreements:** It was followed by arms control negotiations. This led to the formation of the **Nuclear Non-Proliferation Treaty (NPT)** in 1968.

3. **Controls on Transfer of Nuclear Technology:** The third element was formed in 1975 following **India's underground peaceful nuclear explosion (PNE) in 1974**.

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7 countries (USA, USSR, UK, Canada, France, Japan, and West Germany) concluded that export controls were urgently needed to ensure that nuclear technology, transferred for peaceful purposes, not be used for PNEs. This became the **Nuclear Suppliers Group**.

What have been the positive outcomes of the GNO?

The GNO has performed well on the following fronts:

1. **Taboo against nuclear weapons usage:** Humanity has survived 75 years without going to nuclear war.

2. **Success of Non-proliferation:** Only 4 countries have since gone nuclear (India, Israel, North Korea, and Pakistan). Belarus, Ukraine, and Kazakhstan that hosted Soviet nuclear weapons were denuclearised.

3. **Crisis Management:** Emergency communication links provided crisis management stability.

4. **Nuclear Deterrence:** There was a shared notion of 'strategic stability' guaranteed by the enormous nuclear arsenals with the US and USSR. This ensured deterrence.

Where has the GNO failed to achieve its objectives?

Nuclear Arsenals Kept Growing: Due to the US-USSR nuclear race, their arsenals grew from 28,000 bombs in 1962 to over 65,000 bombs in the early 1980s.

How is the changing geopolitical scenario negatively impacting GNO?

1) **China's Assertiveness:** China has steadily built up its naval and missile capabilities.

There are also concerns about USA's deterrence guarantees, especially in East Asia - Japan, South Korea, and Taiwan. It is possible that the USA may support independent nuclear deterrent capabilities to handle the rivalry with China.

2) **Withdrawal From Nuclear Treaties:** In 2002, the U.S. withdrew from the Anti-Ballistic Missile (ABM) Treaty and in 2019, from the **Intermediate-Range Nuclear Forces (INF)** Treaty. The **New START treaty** will lapse in 2026. Last year, Russia de-ratified the **Comprehensive Nuclear-Test-Ban Treaty (CTBT)**, raising concerns about the resumption of nuclear testing.

3) **Active Proliferation:** There were no reactions by the USA when Israel and Pakistan went nuclear. More recently, the nuclear submarine AUKUS deal with Australia, a non-nuclear weapon state, is raising concerns.

4) **Shift in Japan's Stance:** There has been a recent shift in Japan's anti-nuclear sentiment, visible in its decision to increase defence spending.

GS Paper 3

Subject: Indian Economy

Topic: Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment

Understanding GST revenue performance

News: The article discusses the GST revenue performance, while suggesting reforms in the current GST regime to boost collections.

The Goods and Services Tax (GST) has been a major policy success of recent years. According to the author, it has stimulated the growth of a truly national market, replacing multiple distorting taxes with a single system. A detailed article on **GST** can be read here.

What are the recent GST collection figures?

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The **GST collection figure** reported for 2022-23 is Rs. 18.1 trillion, equivalent to **6.6% of GDP**.
With **refunds** of Rs.1.8 trillion, the **net GST revenues** (both Centre and state, including the cess) amounted to Rs.16.1 trillion, or **5.9% of GDP**.
This gap (between collections and revenue) has hovered around 0.6-0.7% of GDP.

FIGURE1. **GST: GROSS COLLECTIONS VERSUS NET REVENUES (% OF GDP)**
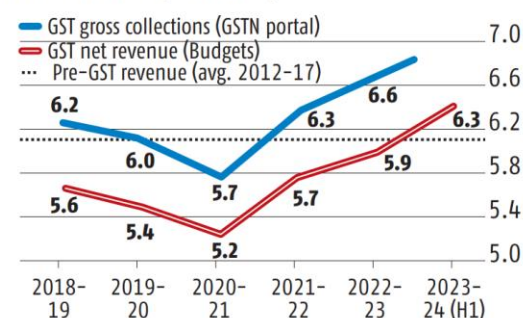
Note: The comparison of net revenues under the GST and those under the pre-GST regime should not be affected by refunds because both sets of numbers are from government budgets.

What are the refunds granted on GST?
Since in the case of GST, taxes are paid on actual revenues, in most cases there is no need for refunds. However, there is one major exception.
In GST, **exports are zero-rated**, which means that exporters don't pay taxes on their output but are entitled to refunds on the taxes they paid on their inputs. This constitutes the major chunk of refunds under the GST.
Note: Zero-rated items are different from exempt items. Exempt items are not taxed but are also not entitled to input tax credits.
According to the author, data suggests that the gap between collections and revenues reflects **refunds paid to exporters** to reimburse them for the **Integrated GST (IGST)** they paid. The author makes further inference that since exports often rely heavily on imported parts, a large share of refunds is to compensate exporters for the IGST paid on their **imported inputs**.

What does this imply?
The large amount of refunds has important implications for ascertaining the performance of GST.
As seen in the infographic, the **GST collection** data implies that the GST regime immediately overtook the pre-GST average , then dipped during the pandemic period, and once again surpassed the pre-GST regime in 2021-22.
However, as per **GST revenue** figures (GST collection minus the refunds), GST revenue overtook the pre-GST regime only in the current fiscal year.

Why did GST revenues decline?
This is due to two reasons:
1. **Faster Export Refunds:** Export refunds have become much smoother, quicker, and fuller with the GST than they were under the previous regime.
2. **Rate Cuts:** There were rate-cuts in the years leading up to the pandemic. This led to reduction of the weighted average collection rate from 14.4% in 2017 to 11.6% in 2019.

What needs to be done to further boost GST collections?
The real need is to address the remaining major design flaws. This includes:
1. **Reversing Rate-Cuts:** The rate cuts of 2018-2019 need to be reversed, even if not fully, as part of a rationalisation of the overall rate structure.
2. **Simplification of the Rate Structure:** The current complexity, especially for the cesses, is bringing down revenue collections and is complicating enforcement.
For instance, moving to a **three-rate structure** (as per the **Revenue Neutral Rate (RNR) Committee in 2015**) with a standard rate of 18%, a lower rate of say 10%, and a demerit rate of 40%.
3. **Incorporating GST Compensation Cess into the rate structure:** This would simplify the system and eliminate the exclusion of revenues from the divisible pool of taxes.

On the Necessity of Economic Growth in Poor States

News: The article discusses the **status of economic growth in the poorest states of India.** It also highlights the areas these states can economically benefit in, and suggests steps for the same.

According to the author, India becoming a developed country by 2047 depends not only on its most advanced cities, but also on the contribution of its poorest states like Uttar Pradesh, Bihar and West Bengal.

These together constitute **a third of India's population (460 million)**.

What is the economic status of these states?

1. **Low Average Income:** Bihar's average income is less than a third (32%) of the country's average income. UP's average income is under half (49%).

2. **Historically Low Growth:** In the preceding decade from 2012 to 2022 and before, the growth rates of UP and Bihar were below the national average. West Bengal grew only at 3.9% over the decade from FY12-22.

In contrast, other poorer states like Madhya Pradesh, Odisha, and Assam have grown faster than the national average from 2012-2022.

3. **Recent Rise in Economic Growth:** These states have however experienced GDP growth much higher than the national average in FY23 (10.7% for Bihar, 8.4% for UP and 8.6% for West Bengal).

What are some of the areas these states can benefit economically from?

1. **Agricultural Sector:** As Punjab and Haryana eventually shift away from cereals to higher-value crops, UP and Bihar could benefit from a second Green Revolution.

2. **Tourism:** Increased investment in tourism - highlighting the rich historical heritage of the Gangetic Plain - can be a huge employment generator.

3. **River Transportation:** Developing better river transport through the Ganges (like the Rhine or Danube) can connect these places to the world.

4. **Demographic Dividend:** These states will experience a continuous **increase in their share of the working-age population** for another decade (especially UP, Bihar), while richer states-especially in the South-will see that share declining.

What needs to be done?

1. **Focus on education and skilling**.

2. **Infrastructure Development:** Within infrastructure, a focus on expressways is important but rural roads and rural electrification must also be prioritised.

3. **Developing IT-based services sector:** These offer a pathway to higher incomes for these **landlocked states**.

4. **Control over crime**.

5. **Bifurcation of States:** Bifurcating UP and Bihar into several smaller states can ensure better governance.

6. **Changing the perception of these states as business-friendly states**.

What happens in UP, Bihar and West Bengal will determine whether India will become an advanced economy or be stuck in a **middle-income trap.**

Their development is necessary to prevent large regional disparities and the resulting social and political tensions.

On Upskilling Rural Youth

News: The article discusses the issue of the education and skilling of rural youth. It highlights steps to control the migration of rural youth, as well as improving the education available to them.

With almost 50% of India's population set to be living in urban areas by 2047, the focus shifts on developing rural areas. In this context, making the youth in rural India employment-ready is of utmost importance.

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How can migration of rural youth be controlled?

The following steps can be used to control migration of rural youth to urban areas in search of meaningful employment:

1. **Making Agriculture an Aspirational Vocation among rural youth:** The rural economy is experiencing a major occupational shift with more farmers quitting agriculture to join non-farming jobs.

2. **Creating alternative employment opportunities** is also important.

3. **Improving vocational training:** This can imbibe relevant rural skills in youth so that they can secure a living where they currently live.

According to a survey, **2/3rds of youth** had never taken any vocational training.

Also, the current vocational education landscape in rural India (comprising **Industrial Training Institutes (ITIs)**) lack placement opportunities.

4. **Skill Development:** Presently, rural education scarcely focuses on skill development. Skills in fields like agricultural mechanisation, nursing and digital technologies can be imparted.

The **Delhi government's 'Skills On Wheel'** initiative can be emulated in this regard.

How can rural education be improved?

1. **Imparting Technical as well as Life skills:** These are needed to empower youth and hence should be made accessible through formal education.

2. **Incorporating International Best Practices:** Initiatives such as **Mexico's tele-schools** and **Bhutan's well-being-infused curriculum** can be replicated. The tele-schools can provide a higher level of access to education for remote areas.

3. **Role of Civil Society and NGOs:** For instance, organisations such as NIIT Foundation and Pratham Institute are working with children in rural areas to provide upskilling opportunities.

Through these initiatives, employability of rural youth in both traditional and non-traditional trades can be raised, leading to a vibrant economy.

Indian Development Model - India's way forward: Services or manufacturing?

News: The article questions India's economic direction, particularly the wisdom of prioritizing services over manufacturing given its unique developmental path. It highlights the challenges in job creation this approach brings, especially for the educated youth.

What is the Indian development model?

India's service sector is, notably high-tech, is growing very fast compared to manufacturing. This shift differs from traditional models where countries transition from agriculture to manufacturing before services.

This model leverages global service demand, benefiting from outsourcing trends and advances in information technology, making it a part of the global supply chain for services.

What are the issues with the Indian development model?

1. **Unbalanced Growth:** India's manufacturing growth has plateaued at or below 20% of the economy. India's growth relies heavily on the service sector. Without a strong industrial base, growth might **not be sustainable in the long term**.

2. **High Unemployment:** Despite economic growth, India faces a high overall unemployment rate over 8%. Specifically, youth **unemployment for ages 15-24 soars above 40%**, indicating job creation is not keeping pace with labor force growth.

3. **Quality of Employment:** The service sector is creating jobs primarily in low value-added, low-skill areas, not in high-tech services, failing to meet the higher aspirations of a more educated workforce.

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4. **Educational Focus with Skill Mismatch**: While **producing 2.2 million STEM graduates** yearly, the development model faces challenges with the employability and industry relevance of these graduates.
5. **Emphasis on Aggregate GDP**: The development model often focuses on increasing total GDP rather than GDP per capita, overlooking the individual prosperity aspect.

What should be done?

1. **Combine Growth Models:** India should integrate growth in both the service and manufacturing sectors. It needs to extend beyond the PLI schemes, which focus more on production than employment, by incentivizing private industry expansion.
2. **Reform Policies:** Implement land and labor regulatory reforms to attract more investment and incentivize private industry to scale up, creating more jobs.
3. **Address Skill Deficit:** Focus on closing the skill gap by aligning education with industry needs and by raising its investment in higher education. This will ensure the large young population is ready for the jobs being created.

Topic: Effects of liberalization on the economy

Shift in India's Trade Policy - Reverse India's trend of trace barriers going up

News: The article discusses the global decline of free trade, and the challenges India has faced with its Free Trade Agreements (FTAs). India's trade deficits have grown due to these agreements, prompting a reevaluation of its trade strategy and tariff policies.

What Is the Global Trade Scenario?

1. **Protectionism on the Rise:** Western nations are increasing trade barriers, indicating a shift away from free trade.
2. **Ineffective International Bodies:** The World Trade Organization is struggling to enforce global trade rules, diminishing its effectiveness.
3. **Geopolitical Divisions:** The geopolitical split is challenging the past three decades of globalization efforts. The global market is now a mix of bilateral deals instead of a unified system.

Why Is India's Trade Policy Shifting?

1. **Increased Tariffs:** After decreasing import tariffs in the 1990s, India raised them again, signaling a shift in policy towards protectionism.
2. **Trade Deficits Concerns:** The growing merchandise trade deficits with FTA partners like ASEAN (over 300%), South Korea (160%), and Japan (138%) highlight the challenges India faces in boosting exports relative to imports. India left the RCEP in 2019, aiming to reduce trade imbalances and overdependence on Eastern economies, particularly China.
3. **Pursuit of Western and West Asian FTAs:** Post 2019, India shifted focus to forge free trade agreements with Western and West Asian economies, moving away from the RCEP to avoid further trade imbalances and attract global value chains.

For information on **RCEP** read here.

Way forward:

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To improve trade, India should consider reducing tariffs to foster competitiveness and attract global value chains. Reversing the growing trade deficits, as seen with ASEAN (300% increase), South Korea, and Japan, could be achieved by integrating more effectively into global markets and making domestic industries more competitive, thereby enhancing exports and economic health.

For more information On **Shift in Global Trade Policy,** read here.

Topic: Changes in industrial policy and their effects on industrial growth

Reduction of import duties on EVs - Import concessions:

News: The article discusses India's proposal to lower import taxes on electric vehicles (EVs) to help secure a free-trade deal with the UK.

About India's electric vehicles (EV) Market:

India is the **fourth-largest automobile market globally** after China, the US, and Japan, valued at about $250 billion.
It's **anticipated to grow annually by more than 9% from 2022 to 2027.**
In 2023, EV sales in India surged by 45%, indicating growing market potential.
However, fully assembled EVs priced above $40,000 face a 100% import duty, while those under $40,000 face a 70% duty. This is much higher than in countries like the US, France, Saudi Arabia, and China.

What are the implications of the reduction of import duties on EVs?

Positive Implications:

1. **Attract Foreign Investment:** Lower duties may entice companies like Tesla to set up manufacturing units in India.
2. **Competitive Pricing:** Increased competition could lead to better and cheaper EVs, benefiting consumers.
3. **Global Integration:** Lowering tariffs is vital for India's participation in free trade agreements and attracting global players.

Negative Implications:

1. **Local Industry Threat:** Domestic manufacturers fear reduced duties will flood the market with imports, harming local industry and investment.
2. **Sunrise Industry Risk:** Lowering duties might deter investments in the domestic EV sector, considered a nascent yet promising industry.

What are the government initiatives to support the EV market?

1. **Production-Linked Incentive Scheme:** A scheme with an outlay of ₹25,938 crore aimed at boosting local manufacturing in the automotive sector, including EVs.
2. **National Programme on Advanced Chemistry Cell:** With an investment of ₹18,100 crore, it focuses on promoting advanced cell chemistry for batteries.
3. **FAME Scheme:** The Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles scheme (FAME 1,2 and 3) encourages the use of hybrid and electric vehicles through incentives.

For more information on FAME read Article1, Article2.

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Way forward:

Balancing reduced duties and nurturing the local industry is crucial. With the right policies, lowering import duties could lead to a more competitive market, resulting in better and cheaper EVs, benefiting consumers and the industry.

Subject: Agr iculture

Topic: Major crops-cropping patterns in various parts of the country

On Production of Pulses in India – Attaining self-sufficiency

News: The article discusses the benefits of increasing production of pulses in India. It also highlights the constraints in increasing production and the steps that can be taken to tackle the challenges.

India is the largest producer, consumer, and importer of pulses in the world.

What are the benefits of increasing production of pulses in India?

1. **Address food-security concerns**.
2. **Address environmental challenges**.
3. **Reduce Import bill**.
4. **Addressing protein deficiency:** Pulses are a source of dietary fibres and plant-based proteins.
5. **Enhancing soil fertility:** Pulses can fix nitrogen in the soil.
6. **Low Water Requirement:** Suitable for cultivation in rain-deficient or depleting groundwater regions.

What are the govt's initiatives for increasing pulses production?

The government recently stated its objective of **achieving self-sufficiency in pulses by the end of 2027**.
Tur Dal Procurement Portal: Farmers can register and sell their produce to the National Agricultural Cooperative Marketing Federation of India (NAFED) and the National Cooperative Consumers' Federation of India (NCCF).
The government also hopes to launch similar facilities for **urad and masoor dal procurement** in the future.
Hike in MSP: There have been several hikes in the minimum support prices (MSPs) of different varieties of pulses.

What is the current status of pulses imports?

India's imports of pulses have come down from a high of 6.61 million tonnes (mt) in 2016-17 to 2.7 mt in 2021-22, and further to 2.52 mt in 2022-23.
The imports have declined mainly due to a **sharp decline in the import of yellow peas (matar)** and **chickpea (chana)** over the past 10 years, due to **high import duties and procurement**.

What are the constraints with pulses production in India?

1. **Low Yields:** The low yield arises mainly from those being grown in marginal and sub-marginal lands with low input usage.
2. **Storage Issues:** Pulses are difficult to store and their shelf life is shorter than that of wheat and rice.

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What should be done?

1. **Improving productivity of pulses cultivation.**
2. **Increased land under pulses cultivation:** Diversion from paddy must be encouraged in water-deficient states such as Punjab.
3. **Higher MSPs:** It can incentivise farmers to shift to pulses, resulting in higher availability and consumption at reasonably stable prices.

Subject: Science & Technology

Topic: Awareness in the fields of Space

On ISRO's XPoSat Mission - Meet ISRO's new X-ray eye in the sky

News: The article discusses the details of the recently launched XPoSat Mission by ISRO.
Black holes and neutron stars have remained a mystery. However, because of their immensely strong magnetic fields, these celestial bodies emit highly energetic X-ray light, which can be used to study their properties.
For this purpose, on January 1st, 2024, ISRO's PSLV put into orbit the **XPoSat (X-ray Polarimeter Satellite)** - the country's first space observatory to study the polarisation of cosmic X-rays.
This is the world's second space mission to study the polarisation of cosmic X-rays, after **NASA's IXPE**, launched in 2021. XPoSat operates in a frequency band different from NASA's mission.
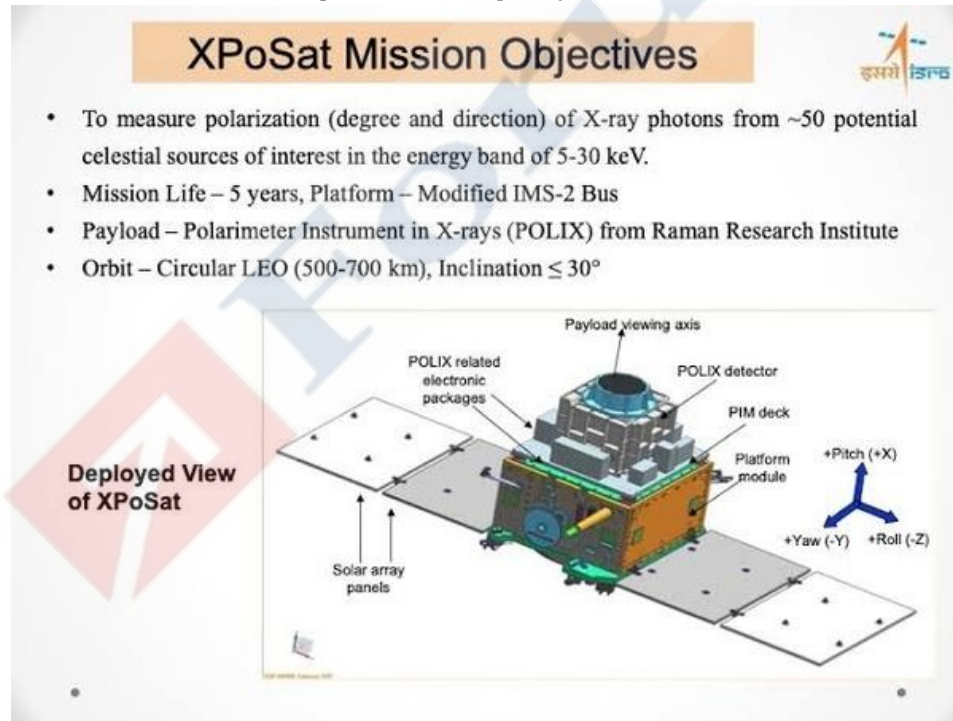
Figure 2. Source: ISRO.

What are X-rays?
X-rays are electromagnetic waves. These are generated by movements of electric charges when the electric and magnetic fields in its vicinity are disturbed.

What are Polarised X-rays?
In electromagnetic waves like X-rays, the electric field oscillates or varies in strength and direction as the wave propagates. The direction and nature of this variation in the electric field depend on the motion of the electric charge responsible for generating the wave.

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For instance, as the X-ray wave travels, if the electric charge responsible for producing the X-ray is in motion (such as an electron accelerating), it affects the way the electric field changes as the wave moves.

Sometimes these variations acquire **directionality (variations in a particular direction)**, which is when these X-rays are described as being "polarised".

Stars mostly emit unpolarised light, however it is different in the case of stars with very large magnetic fields. Electrons in those objects spiral around the magnetic field lines and emit X-rays. The electrons' motion provides the X-rays with some directionality, making them polarised.

Measuring the polarisation of X-rays can enable astronomers to understand the nature of these polarised X-ray emitting-objects, such as **pulsars** or **regions around blackholes**.

Note: Pulsar: A pulsar (or pulsating radio source) is a neutron star that rotates quickly and releases two polarised radio lights. The beams create a unique timing and polarisation signature as they burst across space. Pulsars are among the few celestial objects that emit circular polarised light.

Why is it difficult to study X-rays from space?

1. Their high energy makes them impossible to focus with lenses, like ordinary light.

2. The Earth's atmosphere absorbs most of it.

How will XPoSat Mission study X-rays?

1. The main instrument aboard, the payload called **POLIX (Indian X-ray Polarimeter)**, aims to study a special property of X-rays in space. POLIX is shaped like a cubical cylinder. At its core lies a disc of beryllium. Detectors kept along the walls collect X-rays after their scattering from the metallic disc.

POLIX's beryllium disc will let astronomers probe lower energy X-rays than what the NASA instrument is capable of.

2. The other instrument (**XSPECT**) aboard XPoSat will study timing and spectral properties of X-ray emitting objects in space.

With this venture, ISRO has signaled that it has the expertise and maturity to contribute to all aspects of planetary research.

On ISRO's C58 mission - Sign of the future

News: The article discusses ISRO's C58 Mission.

What are the recent initiatives of ISRO?

ISRO has launched the following scientific missions since its success with Chandrayaan-3:

1. **Aditya L-1** space probe to study the Sun.

2. **X-ray Polarimeter Satellite (XPoSat)** to study polarised X-rays emitted in astrophysical phenomena.

What is the XPoSat Mission?

On January 1, ISRO launched the XPoSat, in a two-part mission, onboard a Polar Satellite Launch Vehicle (PSLV) on its C58 flight.

XPoSat is only the **second space-based experiment** to study **X-ray polarisation**. It does this at higher x-ray energies than the other, NASA's Imaging X-ray Polarimetry Explorer.

Payloads:

1. **POLIX payload:** It will track X-rays in the 8-30 kilo-electron-volt (keV) energy range and observe emissions from around 50 sources in 5 years.

2. **XSPECT payload:** It will study X-rays of energy 0.8-15 keV and changes in continuous X-ray emissions. Together, they will help ISRO study intense X-ray sources such as pulsars and black holes.

What is the second part of the C58 mission?

After launching XPoSat in a 650-km circular orbit around the earth, the fourth stage of the rocket lowered itself into a 350-km-high orbit and unfurled solar panels.

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It thus became a satellite and an orbiting testbed for the **10 payloads** it carried (such as a tantalum-based radiation shield, a nanosatellite, a device to measure ultraviolet radiation, etc.).

The C58 mission embodies the combined dreams of seasoned scientists, enthusiastic science students, and India's private space industry.

On the Aditya-L1 mission and ISRO outreach

News: The article discusses the details of the Aditya-L1 mission and the need for public outreach by ISRO.

On January 6 the Aditya-L1 spacecraft was guided by ISRO into its orbit around the **L1 Lagrange point**, from where it will have a clear view of the sun for its expected lifetime of 5 years.

What is the L1 Lagrange point?

ISRO picked the L1 Lagrange point — **1.5 million km from the earth** (one of five Lagrange points in the earth-sun system).

This is because at a Lagrange Point, the gravitational influences of the two bodies interact such that a smaller body here will not experience a net pull towards either. So, Aditya-L1 can stay at L1 while expending little fuel.

What are the instruments present on Aditya L1?

Aditya-L1 is an observatory-class solar mission that will study the sun with the following instruments:

1. **VELC**, a coronagraph to study the uppermost layer of the sun's atmosphere;
2. **SUIT**, an ultraviolet imaging telescope;
3. **SoLEXS and HEL1OS**, to study solar flares and coronal mass ejections;
4. **ASPEX and PAPA**, to study the solar wind and plasma;
5. **Set of digital magnetometers** to measure properties of the magnetic field around the spacecraft.

For more on the **Aditya L1 Mission**, read here and here.

What more should be done by ISRO?

Expansion of public outreach efforts: This can be done by hosting open days focused on specific missions and communicating on new results at regular intervals.

India's space mission plan for 2024- Space research: Glory and beyond

News: The article discusses India's advancements in space research, including its solar observatory Aditya-L1 and other missions planned for 2024. It explains the motives behind space exploration, highlighting nationalism, economic growth, technological development, and international prestige as key drivers.

What is India's space mission plan for 2024?

1. **Aditya-L1:** Observing the solar atmosphere and contributing to the understanding of space weather from a unique vantage point at the Sun-Earth Lagrange point 1.
2. **XPoSat:** India's first X-ray Polarimeter Satellite, dedicated to studying cosmic radiation and understanding high-energy processes in stellar and galactic systems.
3. **Gaganyaan-1:** Laying the groundwork for future manned spaceflights.

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4. **Mangalyaan-2:** Orbiting Mars again to continue exploration and research.
5. **NISAR (NASA-Isro Synthetic Aperture Radar):** A collaboration with NASA for Earth observation, highlighting the importance of international partnerships.
6. **Shukrayaan-1:** Exploring Venus to expand knowledge of the solar system.
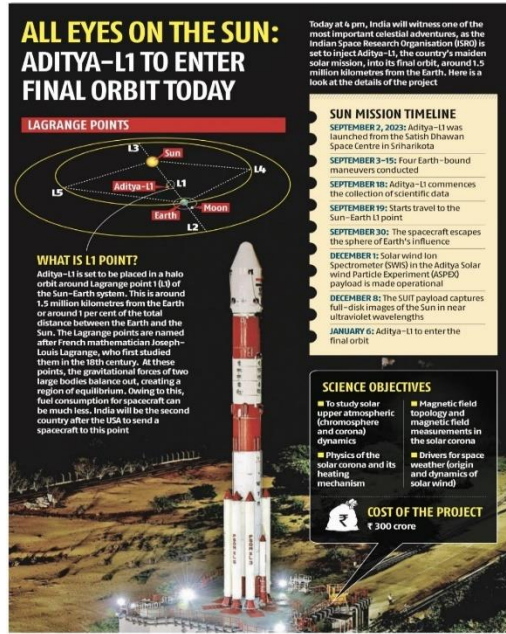
How does space research benefit India?

1. **National Security and Prestige:** Successful missions like Aditya-L1 not only enhance India's global standing and national pride but also position it as a competitor in the global space race, traditionally dominated by powers like the U.S., Russia, and China.
2. **Economic Growth:** The Indian space economy, valued at $8.4 billion, is projected to expand to $44 billion by 2033. This growth is fueled by rising investments and a burgeoning number of space startups.
3. **Technological Advancements:** Missions necessitate technological advancements, specifically in the miniaturization of electronic components essential for spacecraft. These innovations extend to wider industries, significantly impacting the development of semiconductors and integrated circuits.
4. **International Collaboration:** Projects like NISAR with NASA show the growing importance and benefit of international partnerships in space exploration.
5. **Start-up Ecosystem:** A significant increase in space startups from 1 in 2014 to 189 in 2023, receiving investments worth $124.7 million, indicates a booming sector fueled by space research.

Topic: Indigenisation of technology

Self-reliance in India's defense sector -Public versus private challenges

News: The article outlines the Indian Ministry of Defence's approval of over ₹1.42 trillion for purchasing DRDO-developed weapons systems. It discusses the role of private companies in increasing domestic defense production and the efforts to decrease dependency on imports.

What is the meaning of "Acceptance of Necessity" (AON)?

Acceptance of Necessity" (AON) is the initial approval given by the Ministry of Defence for the procurement of defense equipment. It marks the beginning of the detailed procurement process, including requests for information, proposals, evaluations, and final contract awarding. It's essentially a green light from the MoD indicating that the procurement plan is necessary and can proceed through the acquisition procedure.

What does self-reliance in India's defense sector entail?

1. **Emphasis on Domestic Production:** India is focusing more on DRDO-developed systems in its pursuit of self-reliance under the "Aatmanirbhar Bharat" initiative. Industry bodies report that **80-90% of Acceptance of Necessity (AoN) relates to Indian companies.**

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2. **Increased Private Sector Involvement:** Private companies like Bharat Forge and Tata are gaining expertise and influence in defense by fulfilling production orders and partnering with DRDO on projects like the Advanced Towed Artillery Gun System.
3. **Growth in Defense Exports:** The private sector's role in defense exports is expanding, with a **notable increase in export figures to ₹16,000 crore this year**, reflecting a substantial growth trajectory in the sector.
4. **Reduction in Imports:** The initiative aims to decrease dependency on foreign technology, though challenges remain in acquiring advanced capabilities domestically. The Ministry of Defence reported a **reduction in defense imports from 46% to 36.7% since 2018-19.**

What challenges does India's defense sector face?

1. **Lengthy Procurement Process:** The defense acquisition involves multiple stages, often stretching over years, delaying the actual deployment of systems. Apart from this, the private sector's involvement is challenged by bureaucratic delays and hesitance in adapting quickly to defense needs.
2. **Technological Gaps:** Despite increased domestic production, certain advanced technologies still need to be imported due to gaps in local capabilities, as seen with sophisticated platforms like the fifth-generation stealth fighter.

Way forward:

To progress, India should continue enhancing its domestic defense capabilities, notably in technology, where private sector growth and exports are promising, as seen with companies like Bharat Forge. Simultaneously, balancing strategic foreign acquisitions is vital to address immediate needs and technology gaps, ensuring a robust and self-reliant defense sector.

Topic: Developments and their applications and effects in everyday life

Governance of AI technology - How AI is changing what sovereignty means

News: The article highlights the imperative for ethical governance of AI technology, focusing on human rights amidst digital sovereignty, misinformation, and privacy challenges.

What is AI technology?

Artificial Intelligence (AI) is a way of making a computer, a computer-controlled robot, or software perform human-like tasks. The term was coined in 1956 by John McCarthy. It refers to the ability of machines to perform **cognitive tasks** like thinking, perceiving, learning, problem solving and decision making. For more information on **AI technology,** read here.

What opportunities does AI technology provide?

1. **Good Governance:** Initiatives like the UN's ethical AI framework aim for good governance and just development, stressing respect, diversity, and ecological sustainability.
2. **Market Growth:** The free market approach to AI, particularly in the U.S., has significantly fostered industry growth. For instance, the social media industry's global prominence is projected by the Business Research Company to reach $454.37 billion by 2027.

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3. **Human Rights Focus:** The EU's model prioritizes a human rights-based approach, aiming for an equitable and human-centric digital economy. This showcases AI's potential to align with and promote human dignity and rights.
4. **Consumer Benefit:** AI drives advancements in big data analytics and the Internet of Things, providing customized services and products to meet specific consumer needs and preferences.

What challenges are faced in the governance of AI technology?

1. **Digital Sovereignty:** The shift from territorial to digital sovereignty complicates international governance, leading to challenges in managing data and information across borders.
2. **Misinformation and Privacy:** AI's capacity to manipulate information and erode privacy is a significant concern. The spread of disinformation and erosion of decisional privacy are key issues needing stringent governance.
3. **Diverse Regulatory Approaches:** The clash between different regulatory models, like the U.S.'s techno-optimistic model and China's state-driven approach, creates a complex landscape for harmonizing AI governance globally.
4. **Technological Control vs. Human Rights:** Balancing technological advancement with human rights is a persistent challenge. The EU's human rights-based approach highlights the difficulty in ensuring AI supports inclusive and sustainable development without infringing on personal freedoms and dignity.

For information on **Challenges in regulation of AI,** read here.

What initiatives are being taken for the governance of AI technology?

1. **UNICEF-led Initiatives:** Establishing ethical guidelines for AI, focusing on human rights, diversity, and ecological sustainability, aiming for good governance globally.
2. **US free market approach:** Promoting a free digital model, allowing AI industries to grow under market forces, evidenced by significant industry growth.
3. **EU human rights-based approach:** Implementing a strategy that respects human rights as a precondition for inclusive and sustainable development, promoting a human-centric digital economy.
4. **China state-driven regulatory model:** Adopting a regulatory approach that combines political control with technological advancement, influencing developing nations and setting a distinct governance style.

For information on the **Status of regulation of AI in India and across the globe,** read here.

Way forward:

As AI continues to evolve, the challenge is to ensure its alignment with human values and rights. The global community needs to address the use of AI in warfare, misinformation, and surveillance, striving for a future where technology supports rather than undermines human dignity.

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Subject: Environment

Topic: Conservation, environmental pollution and degradation

Conservation efforts at India's Corbett Tiger Reserve - Revival of the tiger

News: The article highlights the successful conservation efforts at India's Corbett Tiger Reserve, notably the increasing tiger population.

About Corbett Tiger Reserve (CTR):

Jim Corbett National Park was **established in 1936 as Hailey National Park**- the **first national park in India.** It was **declared as a Tiger Reserve in 1973**. It is the first to come under the Project Tiger initiative. The CTR is situated in the Shivalik hills of the Himalayas while administratively it spreads over Pauri Garhwal, Nainital and Almora districts of Uttarakhand State in India.
It boasts the **highest density of tigers globally**, with **260 tigers recorded in 2022, up from 231 four years prior.**

What are the reasons for the increase in tiger density in Corbett Tiger Reserve (CTR)?

1. **Digital and Intensive Patrolling:** Adopting electronic-eye under project E-eye and increasing foot patrols to curb poaching and monitor wildlife movement.
2. **Habitat Management:** Meticulous management of grasslands and water resources, including the development of palatable grasses and waterholes, supports the prey base necessary for tigers.
3. **Strategic Corridors:** Establishment of wildlife corridors facilitates movement and reduces inbreeding, contributing to healthier tiger populations.
4. **Community Initiatives:** Introduction of the "**Living with Tigers**" initiative and beehive fencing project "**Corbee Honey**" to mitigate human-wildlife conflicts and promote community involvement in conservation.
   Note: The "Living with Tigers" initiative is an **awareness program in villages and schools around reserve,** focusing on cultivating safe practices and behaviors amidst human-wildlife conflict scenarios.
5. **Cultural Importance:** The tiger's role in India's religious and mythological iconography has fueled a nationwide drive to conserve it. It led to increased public and political support for tiger conservation initiatives.

What are the challenges in the management of Corbett Tiger Reserve (CTR)?

1. **Human-Wildlife Conflict-** The increasing number of tigers poses challenges in managing human-tiger conflicts and ensuring sufficient territory for each tiger.
2. The protection work is risky, often facing dangers from wild animals. Adequate field staff and ensuring their safety is a constant challenge.
3. Maintaining diverse ecosystems, including 27 types of grasslands and water sources for a robust prey base.
4. Ensuring animal movement and gene pool exchange through corridors is complicated by **habitat fragmentation** and **increasing infrastructure** like roads.
5. **Balancing tiger conservation with the ecotourism and safety of local communities** requires continuous effort and innovative projects like "Living with Tigers."

What should be done?

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1. Boost field staff numbers and safety measures for effective patrolling and incident management.
2. Continue to develop and maintain wildlife corridors and safe animal crossings to ensure healthy gene flow and reduce territorial disputes among tigers, as well as conflicts between tigers-elephants, and humans tigers.
3. Implement a grassroots strategy involving "willing cooperation" from villagers, as emphasized by Salim Ali.

Climate Change induced Temperature Rise - IMD's 2023 report is a wake-up call

News: The article discusses how 2023 was India's second-warmest year, causing various weather issues and affecting the economy, agriculture, and employment due to climate change.

How did the year 2023 bring a grim retrospect from the India Meteorological Department (IMD)?

1. **Temperature Rise:** 2023 was marked as the second warmest year since 1901, with the average temperature 0.65°C above the long-term mean.
2. **Extreme Rainfall:** December 2023 saw rainfall 60% above normal, making it an exceptionally wet month, except in the north and Northeast regions.
3. **Tropical Storms:** The Indian Ocean experienced six tropical storms, significantly higher than usual, with three escalating to severe cyclonic storms, indicating a rise in extreme weather events.
4. **El Nino Contribution:** The unusual weather patterns and increased global temperatures were partly attributed to El Nino, underscoring the broader impact of climate change.

How is climate change going to impact India?

1. The Reserve Bank of India's 2022-23 Report on Currency and Finance projects a potential 2% loss in GDP and a decline in living standards for half the population by 2050. It particularly emphasizes the loss in productivity in major sectors such as agriculture and construction due to increasing heat stress.
2. The World Bank predicts India will face over 40% of global job losses due to heat-induced productivity decline by 2030.
3. It is bad for poorest populations, as evident by skyrocketing prices of essentials like vegetables (tomatoes, onions, potatoes, chilly, and cumin) due to erratic weather impacting production.

What should be done?

1. Accelerate strategies to reduce carbon intensity in GDP by 2030 due to increasing climate challenges.
2. Allocate sufficient funds for both mitigation and adaptation to climate impacts.
3. Prioritize renewable energy sources over thermal power to meet 2030 targets and reduce coal dependency.

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Subject: Internal Security

Topic: Money Laundering and its prevention

Virtual Digital Assets Regulation in India - Why did FIU IND act against virtual asset providers?

News: The Financial Intelligence Unit India (FIU IND) has issued Show Cause Notices to 9 offshore Virtual Digital Assets Service Providers (VDA-SPs) for not complying with the PMLA regulations. The FIU IND has also requested the Ministry of Electronics and Information Technology to block URLs of these entities.

What are Virtual Digital Assets?

The Financial Action Task Force (FATF) defines a virtual asset as "*A digital representation of value that can be **digitally traded**, **transferred** and **used for payment** or **investment purposes***".

Read More.

How Virtual Digital Assets regulated in India?

1. **PMLA Compliance:** India brought Virtual Digital Assets Service Providers (VDA SPs) under Anti Money Laundering/Counter Financing of Terrorism (AML-CFT) regulations of the Prevention of Money Laundering Act (PMLA) 2002 in March 2023.
   For more information on Counter Financing of Terrorism, read here.
2. **Register with Financial Intelligence Unit India (FIU IND):** VDA SPs must register with FIU IND and comply with reporting and record-keeping obligations. Till now, 31 VDA SPs have registered, but several offshore entities serving Indian users remain unregistered.It highlights the challenge of enforcing compliance in the virtual digital assets space.
3. **Government Enforcement:** India aims to enforce PMLA on both domestic and offshore entities, aligning with global cryptocurrency regulations.

What is the view of the Bureau for International Settlements (BIS) on the regulation of VDA SPs?

1. **Regulatory Options:** The BIS observed three main strategies for regulating crypto: outright ban, containment, and comprehensive regulation.
2. **Challenges of a Ban:** It noted that outright bans may not be effective due to the pseudo-anonymous nature of crypto assets, potentially leading to reduced market oversight.
3. **Containment Strategy:** The containment approach aims to control interactions between crypto markets and the traditional financial system, yet it may not fully address the vulnerabilities of the crypto market or mitigate financial stability risks.
4. **Need for Regulation:** BIS suggests that regulation, although challenging, may be necessary to address the inherent risks in the crypto market and maintain financial stability.

Way forward:

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The way forward includes stricter enforcement of AML laws, ensuring both domestic and offshore VDA SPs comply. It involves balancing regulatory strategies to manage the crypto market's pseudo-anonymous nature and maintain financial stability.

Terminology used:

Financial Intelligence Unit India (FIU-IND)- Established in 2004 to serve as the primary national organization in charge of gathering, analyzing, and disseminating data about improbable financial transactions.

Topic: Various Security forces and agencies and their mandate

Issues with CAPFs-Don't neglect the central armed police forces

News: The article discusses the issues facing India's Central Armed Police Forces (CAPFs) such as leadership selection, training neglect, and over-deployment. It emphasizes the need for better planning and policies to improve their discipline, morale, and combat effectiveness.

About central armed police forces (CAPFs):

The Central Armed Police Forces (CAPFs) in India are seven security forces **under the Ministry of Home Affairs.** They used to be called "Central Para-Military Forces" but changed their name in 2011.
The seven are Assam Rifles, Border Security Force, Central Industrial Security Force, Central Reserve Police Force, Indo Tibetan Border Police, National Security Guard, and Sashastra Seema Bal.
Each has its own cadre of officers but **led by Indian Police Service officers.**
Battalion Strength: Notable numbers include CRPF with 246 battalions, BSF with 193, ITBP with 56, and SSB with 73.

For more information on **CAPFs,** read here.

What are the key issues with CAPFs?

1. **Leadership Adhocism**: Selection processes for leaders are often ad-hoc, leading to unqualified appointments and widespread resentment. For example, officers without CAPF experience have been appointed to lead forces.
2. **Delayed Leadership Appointments:** Key positions like the director general (DG) of BSF remained vacant for five months after the retirement of VK Johri in 2020, indicating a lack of timely decision-making and planning.

What is the impact of these issues?

1. **Decreased Morale:** Leadership issues and adhocism lead to a loss of respect and loyalty among personnel, crucial for effective operations.
2. **Professional Standards Decline:** Constant deployment and training neglect have resulted in falling professional levels, comparable to state battalions from decades ago.
3. **Ineffective Leadership:** Officers unfamiliar with CAPF realities, like senior IB officers appointed as directors general, struggle to command and address force-specific challenges.

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4. **Operational Delays:** Vacancies in leadership, such as the DG of BSF and SSB, leave units directionless, hindering responsiveness and strategic planning.
5. **Overall Security Risk:** These compounded issues threaten the integrity and efficiency of India's internal security apparatus, potentially weakening the country's response to internal and border security threats.

What should be done?

1. **Structured Leadership Criteria:** Implement clear guidelines for leadership roles, requiring field experience in CAPFs or equivalent positions for eligibility.
2. **Timely Appointments:** Plan and execute succession for leadership positions without delays, akin to the imperative continuity seen in military leadership.
3. **Dedicated Training Units:** Ensure each battalion has a company exclusively for training to uphold and improve combat readiness and professional standards.
4. **Commission for CAPF Reform:** Establish a commission dedicated to addressing the myriad problems within CAPFs, offering both short-term fixes and long-term strategies.
5. **Better Career Planning:** Avoid using CAPFs as a dumping ground for officers from other services and ensure that leaders are chosen for their aptitude and experience with CAPF challenges.

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