

CURRENT AFFAIRS

WEEKLY



MAINS ARTICLE

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- ▣ MINIATURE PAINTING

GS-II

- ▣ FALL OF SYRIA
- ▣ INDIA-RUSSIA TIES 'HIGHER THAN HIGHEST MOUNTAIN'
- ▣ NEPAL-CHINA BRI AGREEMENT
- ▣ JUDICIAL ETHICS
- ▣ 'GROSS MISUSE' OF DOMESTIC VIOLENCE LAWS
- ▣ IMPLEMENTATION OF NEW CRIMINAL LAWS
- ▣ HOW THE SUPREME COURT HEARS CASES
- ▣ FREEDOM OF ASSOCIATION AT WORK
- ▣ ONE NATION, ONE SUBSCRIPTION (ONOS) INITIATIVE
- ▣ UGC'S DRAFT REGULATIONS FOR HEIS
- ▣ BHARATIYA VAYUYAN VIDHEYAK 2024

GS-III

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- ▣ SOIL HEALTH CRISIS
- ▣ WORLD SOLAR REPORT 2024
- ▣ CLIMATE FOOTPRINT OF SPACE EXPLORATION

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- ▣ Declining Low-Altitude Cloud Cover

(Geochelone elegans)

- ▣ Rise in tiger deaths in 2023: Environment Ministry

POLITY & GOVERNANCE

- ▣ Removal of Rajya Sabha Chairman
- ▣ Adjournment Motion
- ▣ India Skills Report 2025
- ▣ Ayush Visa Scheme for Foreigners Seeking Treatment in India

- ▣ UNEP's "Champion of the Earth" Lifetime Achievement Award

- ▣ PM 2.5 Pollution
- ▣ Agroforestry's Impact on Endemic Frogs

SCIENCE & TECHNOLOGY

- ▣ Proba-3 Mission
- ▣ Marburg Virus Disease (Bleeding Eye Virus)

ECONOMY

- ▣ Mule Bank Accounts

- ▣ Hemophilia A
- ▣ INS Tushil

ENVIRONMENT

- ▣ Indian Star Tortoise

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DISCLAIMER

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION -A

MAINS ISSUES

MINIATURE PAINTING

Context

Miniature painting, a traditional art form in India, is experiencing a contemporary revival. The book **"Alchemy: Contemporary Indian Painting and Miniature Traditions"** by art historian **Geeti Sen** highlights how modern artists have reinterpreted this ancient style to address current issues. The book focuses on five key artists—**Abanindranath Tagore, Manjit Bawa, Nilima Sheikh, R Vijay, and Waswo X Waswo**—who have infused miniature painting with modern themes such as **nationalism, identity, violence, and feminism**. These artists are challenging traditional boundaries, making the genre relevant for today's social and political context.




Important Examples in the Book

- **Abanindranath Tagore** revived traditional miniatures with **nationalist themes**.
 - ▶ **Example:** *Abhisarika* (1912), a simplified, emotional portrayal of a heroine.
- **Manjit Bawa** simplified Hindu deities.
 - ▶ **Example:** *Durga on a Panther*, reimagining the goddess in a minimalist form.
- **Nilima Sheikh** used miniatures to explore **displacement and violence**.
 - ▶ **Example:** *Champa Series*, depicting the tragic story of a Kashmiri woman murdered for dowry.
- **R Vijay & Waswo X Waswo** collaborated to explore **power dynamics** between Western and Indian cultures.
 - ▶ **Example:** Miniatures depicting the tension between a photographer and an Indian subject.

Evolution of Miniature Painting in India

- **Miniature painting** originated in India during the **Mughal era** (16th-17th century), and it continued to develop in different regional schools across India such as **Rajput, Pahari, Deccan, and Mewar** styles.
- These artworks were traditionally small in scale (hence "miniature") and were often used to illustrate religious texts, royal court life, and historical events.
- Over the years, miniature painting evolved with the rise of the **Bengal Renaissance** in the 19th century, when artists began to blend indigenous techniques with influences from European art. **Abanindranath Tagore**, a key figure of this period, played a crucial role in reviving the miniature style and using it to convey nationalist ideals and "Indianness" through art.
- In the 20th century, the form began to be used more by modern artists, as it was adapted to explore more personal, everyday themes rather than just religious or mythological subjects. Contemporary artists have incorporated modern themes such as **displacement, identity, violence, and feminism**, making it relevant to today's world.

Famous miniature Paintings in India:

School of Painting	Description
<p style="text-align: center;">Rajput School</p> 	<ul style="list-style-type: none"> ◦ Geographical Origin: Rajasthan and the surrounding regions. ◦ Features: Rich, bold colors, intricate detailing, and a focus on themes like love, nature, and religion. ◦ Different sub-schools include Mewar, Marwar, Bundi-Kota, and Kishangarh.
<p style="text-align: center;">Mughal School</p> 	<ul style="list-style-type: none"> ◦ Geographical Origin: Flourished during the Mughal Empire, primarily in North India. ◦ Features: Blend of Persian and Indian styles, realistic portrayal of subjects, fine detailing, and use of gold and vibrant colors. Known for historical and courtly themes.
<p style="text-align: center;">Deccan School</p> 	<ul style="list-style-type: none"> ◦ Geographical Origin: Deccan plateau, including Golconda, Bijapur, and Ahmadnagar. ◦ Features: Fusion of indigenous styles with Persian influences, vibrant colors, and intricate patterns. Often depicted royal portraits, battle scenes, and hunting scenes.
<p style="text-align: center;">Bengal School</p> 	<ul style="list-style-type: none"> ◦ Emerged in the late 19th century as a response to Western academic art. Emphasizes simplicity, use of wash technique, and incorporation of Indian themes. Nandalal Bose and Abanindranath Tagore were key figures.

Malwa School



- **Geographical Origin:** Flourished in the Malwa region.
- **Features:** Known for its distinctive use of bright colors, especially green, and depiction of rural life, festivals, and courtly scenes.

FALL OF SYRIA

Context

Rebel fighters (Syrian opposition forces) have captured the **Syrian capital of Damascus**, effectively toppling the Assad regime that has been in power in the country since 1971. Assad was forced to flee the country as Islamist rebels led by Hayat Tahrir al-Sham (HTS). Assad had been in power since 2000.

Fall of Assad

- The exit of Syrian President Bashar al-Assad has been met with joy in the streets of Damascus.
- Assad, ruling the country since 2000, having inherited the legacy from his father **Hafez al-Assad** since 1971.
- The regime was marked by repression, censorship and human rights violations.
- **Background on Bashar al-Assad:**
 - **Assad's rise to power:** Initially, Assad was seen as a reluctant leader but eventually gained popularity, with **68% of Arabs voting for him in 2009**.
 - **Economic issues:** Though Assad initiated some economic reforms, they mainly benefited the elite and worsened inequalities. The **lower classes** suffered, and there was growing discontent over economic issues and a lack of democratic reforms.
 - **Arab Spring:** The wave of protests in 2011, inspired by the Arab Spring, reached Syria. Assad responded with violent crackdowns, leading to a full-blown civil war. This escalated into a conflict with international dimensions, where the **US** supported the rebels, while **Russia, Iran, and Hezbollah** supported Assad. The regime was also accused of using **chemical weapons** against its people and rebels.
- **Impact:** The fall of Bashar al-Assad came as a major blow to the influence of Russia and Iran in the heart of the region, key allies who propped up the President during critical periods in the conflict.

Who are the rebels in Syria?

The rebels in Syria have been a diverse and shifting group of factions fighting against the regime of President Bashar al-Assad since 2011. These groups have had different goals, ideologies, and supporters, but they were united by their opposition to Assad's rule. Here's a breakdown of the key developments and players:

- **Hayat Tahrir al-Sham (HTS):** HTS began as Jabhat al-Nusra in 2011, an affiliate of al-Qaeda. It was formed with the involvement of Abu Bakr al-Baghdadi, the leader of ISIS.
- **Free Syrian Army (FSA):** The FSA was formed in 2011 by defectors from the Syrian army. It was the main opposition group early in the conflict, aiming to overthrow Assad and establish a democratic government. Over time, the FSA lost prominence as more radical and Islamist groups emerged, but remnants of the FSA are still active in areas like the southern regions of Syria. They have been mostly inactive in recent years, but they have revived in the wake of Assad's weakening.
- **Kurdish Forces:** The Syrian Democratic Forces (SDF), largely led by the YPG (People's Defense Units), are Kurdish-led forces in the northeast of Syria. The Kurds took advantage of the weakening of Assad's forces and established control over major cities, including Deir ez-Zor. They have been key in the fight against ISIS and are supported by the United States, but they are also at odds with Turkey, which views Kurdish groups as terrorists.
- **Islamic State (ISIS):** ISIS, also known as the Islamic State, was once a powerful group in Syria, taking over large parts of the country and declaring a caliphate in 2014. It was a splinter of al-Qaeda and opposed all other factions, including the Assad regime.

What Is at Stake After Assad's Fall?

- **Impact on Iran:** Syria has been an important ally for Iran, serving as a strategic route for arms and support to Hezbollah in Lebanon. Losing Syria would be a significant blow to Iran's regional influence.

- ▶ Iran's position in the region, particularly its **Axis of Resistance (which includes Syria, Hezbollah, and other groups)**, is now in jeopardy, complicating its strategic interests in Lebanon and Israel.
- Lebanon: The fall of Syria could disrupt Hezbollah's supply routes, which pass through Syria from Iran. This would affect Hezbollah's logistics and its ability to operate in Lebanon, especially in the context of its war with Israel.
- **Turkey's Position:** Turkey has supported rebel groups in Syria while also trying to maintain influence over Kurdish separatists along the border. The fall of Assad could reshape Turkey's policies, particularly in its quest to control northern Syrian areas and counter Kurdish militancy.
- **Israel's Concerns:** Although Assad's regime had not directly threatened Israel, it allowed Iran to use Syrian territory to supply weapons to Hezbollah. The rebellion's success, however, brings a new problem: HTS, the leading rebel group, has an Islamist agenda and is hostile to Israel.
 - ▶ Israel has resumed airstrikes in Syria, targeting strategic military sites, which could further destabilize the region.
- **Power Vacuum in Syria:** With Assad gone, the power vacuum in Syria is creating uncertainties. The regional balance of power is shifting, with countries like Turkey, Iran, and Israel vying for influence in a post-Assad Syria.
- **Defence Deals and S-400:** One of the key points discussed was the **S-400 Triumph surface-to-air missile system**. India had previously signed a deal with Russia for the purchase of these advanced missile systems.
- **Upcoming Russian Visit:** President Putin is expected to visit India next year for the annual summit talks with Prime Minister Modi. This visit will further solidify the defence and strategic relations between the two nations.

India-Russia Relations (brief background)

- **Diplomatic Relations:** India and Russia (then the Soviet Union) established diplomatic relations in April 1947, shortly before India's independence.
- **Cold War Era:** The Soviet Union became a crucial ally for India during the Cold War, particularly during conflicts like the 1971 war with Pakistan. The Indo-Soviet Treaty of Friendship and Cooperation was signed in the same year.
- **Supportive Role:** The USSR mediated during the 1965 India-Pakistan war and consistently used its veto in the UN Security Council to support India on issues like Kashmir.
- **Post-Cold War Relations:** After the Cold War, the relationship continued with annual summits and strategic partnership agreements established in 2000 and upgraded in 2010.
- India and Russia have also been holding so-called 2+2 meetings – joint meetings with foreign and defence ministers – since 2021.

INDIA-RUSSIA TIES 'HIGHER THAN HIGHEST MOUNTAIN'

Context

Defence Minister Rajnath Singh visited Moscow for a three-day trip. His main meeting was with Russian President Vladimir Putin. Singh's visit came five months after Prime Minister Narendra Modi's visit to Russia, where both countries agreed to further strengthen their defence ties.

Meeting Highlights:

- **Friendship and Cooperation:** During his meeting with President Putin, Rajnath Singh emphasized the deep and enduring relationship between India and Russia. He described the partnership as **"higher than the highest mountain and deeper than the deepest ocean."**
 - ▶ India has always stood by Russia and will continue to do so in the future. This remark reflects the strong, long-standing ties between the two countries, particularly in defence and military cooperation.
- **India-Russia Military Cooperation:** Rajnath Singh co-chaired the **21st session of the India-Russia Inter-Governmental Commission on Military and Military Cooperation**. The session focused on the ongoing and future collaboration between the two nations in defence matters.
 - ▶ Both sides agreed that their partnership holds significant potential and that their combined efforts will lead to positive outcomes in the future.
- **Russia remains a key strategic partner for India for both practical and ideological reasons.**
- **Economic Cooperation:** India benefits significantly from access to discounted **Russian crude oil**, which has increased from less than 2 per cent of India's total imports before the Russian invasion of Ukraine to over 40 per cent in June 2024.
 - ▶ Indian companies have also benefitted from exporting refined Russian oil products, some of which have found their way onto Western markets.
 - ▶ India and Russia aim to increase bilateral trade from \$68 billion to \$100 billion by the end of this decade.
 - ▶ Connectivity initiatives include the **Chennai-Vladivostok maritime corridor** and the **International North-South Transport Corridor**.
- **Military Cooperation:** Russia accounts for over 50% of India's military hardware. Key acquisitions include the S400 missile system and joint projects like the **BrahMos missile**.
 - ▶ **Managed Decline:** While Russia remains a key partner, India's dependence on Russian arms has decreased from 76% in 2009-2013 to 36% in 2019-2023, driven by a push for diversification and domestic production.

- **Nuclear Collaboration:** India and Russia have historical ties in nuclear cooperation, including an agreement to build six nuclear power plants in Tamil Nadu.
- **Pragmatic Approach:** India maintains a neutral stance on the Ukraine conflict, abstaining from UN votes condemning Russia, while also expressing concern over the war's humanitarian impacts.

- ▶ For its **East-West rail link**, which will connect multiple districts of Nepal, Nepal is seeking funds from **multilateral institutions** and **public-private partnerships (PPP)**.

NEPAL-CHINA BRI AGREEMENT

Context

Nepal's Prime Minister KP Sharma Oli recently visited China, marking a significant development for Nepal's infrastructure and its relations with both China and India. The visit led to agreements that will affect **regional connectivity** and **Nepal's participation in China's Belt and Road Initiative (BRI)**. This has direct implications for **India** due to the geographical and strategic positioning of Nepal.

Key Developments from Nepal-China Agreements:

- **The Belt and Road Initiative (BRI)** is a mega connectivity project that connects China with Southeast Asia, Central Asia, Russia and Europe. Currently, **139 countries are involved in the BRI**, accounting for **40% of global GDP**.
- During the visit, Nepal **agreed to strengthen its participation in China's BRI**, a global infrastructure project. This was formalized in a **Joint Statement** between Nepal and China, where both countries agreed to enhance **development cooperation** and pursue a **Trans-Himalayan Connectivity Network**. This means Nepal will develop **rail links** and other infrastructure with China.
 - ▶ The **Jilong-Kathmandu railway** project, which would connect **Nepal to China via Tibet**, is one of the major initiatives under this cooperation. A feasibility study for this project is underway.
- **Rail Connectivity:** Nepal already has several **rail links with India** (like **Raxaul-Birgunj** and **Jayanagar-Bijalpura**), and it plans to expand its network. Nepal is working to connect **Kathmandu** (its capital) with **India** and **China** through railways.
 - ▶ **Southern Link:** India and Nepal are working on a **140 km rail link from Birgunj to Kathmandu** (Birgunj is already connected to India). The survey for this project is complete, but financing and construction remain issues.
 - ▶ **Northern Link:** Nepal is also working to connect **Kathmandu to Gyirong** (in China) via **Shigatse and Lhasa**. This rail link will connect Nepal to the larger Chinese rail network.
- **Financing and Partnerships:** Nepal is exploring various financing options for these **cost-intensive rail projects**. The **BRI framework** will likely help fund the **Kathmandu-Gyirong** railway link, while **India** may be involved in the **Birgunj-Kathmandu** link through its **line of credit**.

Shift in Nepal's Diplomatic Calculus

- Nepal's decision to formally align itself with China and the **BRI signals a significant pivot in its foreign policy**.
- Historically, Nepal has maintained close ties with India, a neighbor with which it shares a long, porous border.
- For years, India was Nepal's primary foreign partner, with Nepalese leaders often making New Delhi their first foreign visit upon assuming office.
- But Prime Minister Oli's decision to visit Beijing first highlights a shift in Nepal's diplomatic calculus.
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Impact on India:

- **India's Role in Nepal's Rail Network:** India is already **ahead of China** in providing **rail connectivity** to Nepal. India has completed surveys for important rail links like **Birgunj-Kathmandu**, while China is still developing its northern connection.
 - ▶ India is also supporting rail projects in the region through its **Look East Policy**, aimed at improving ties with neighboring countries like Nepal. India is involved in **Bangladesh, Bhutan, India, Nepal (BBIN)** cooperation and regional frameworks like **BIMSTEC**.
- **Strategic Implications:** Nepal's growing ties with China, particularly through the BRI, have implications for **India's security and regional influence**. However, **India's rail links with Nepal** ensure that Nepal remains connected to India's broader rail network. This is crucial for both trade and geopolitical balance.
 - ▶ India is keen on completing the **Birgunj-Kathmandu** rail link as soon as possible, which will provide **Nepal with easier access to the Indian market** and ensure smoother trade between the two countries.
- **Challenges:** The rail projects are expensive, and financing remains a challenge for both India and Nepal. The **Birgunj-Kathmandu** link, costing around **\$4 billion**, will require significant funding, which may involve **both Indian credit and international loans**.
 - ▶ There are also challenges related to the **difficult terrain** of Nepal, especially in the **hilly regions**, which make construction more expensive and time-consuming.

JUDICIAL ETHICS

Context

Justice Shekhar Kumar Yadav of the Allahabad High Court made controversial remarks during a Vishwa Hindu Parishad event, drawing public backlash and calls for disciplinary action, including impeachment. The Supreme Court has taken notice, and the matter is under investigation.

Judicial Ethics and Conduct:

The **code of judicial conduct** that governs judges emphasizes impartiality and the importance of maintaining public confidence in the judiciary. Some key principles from the **Restatement of Values of Judicial Life (1997)** and the **Bangalore Principles of Judicial Conduct (2002)** are:

- **Impartiality:** Judges must always act in a way that reaffirms public trust in the fairness and neutrality of the judiciary.
- **Public Perception:** Judges should avoid any actions or statements that could damage their credibility, both inside and outside the court.
- **Diversity and Equality:** Judges must treat all individuals equally, aware of the diversity in society, and avoid comments that could be seen as discriminatory.

Justice Yadav's comments, which seemed to favor one community over others, could be seen as a violation of these principles, especially since judges are expected to maintain the dignity and impartiality of their office.

Impeachment Process:

The **Indian Constitution** allows for the impeachment of judges of the Supreme Court and High Courts on grounds of "proved misbehaviour or incapacity." The process is complex:

- A motion for removal can be introduced in Parliament and must be supported by:
 - A **special majority** of the **total membership** of the House.
 - At least **two-thirds** of the members present and voting.
- Alternatively, the **Supreme Court** has an **in-house procedure** for dealing with allegations against judges. The process works as follows:
 - Complaints can be filed against a High Court judge with the **President, Chief Justice of India (CJI)**, or the **Chief Justice of the concerned High Court**.
 - The complaint is reviewed, and if serious, the CJI may appoint a fact-finding committee.
 - If the committee finds enough evidence, the judge may be asked to retire voluntarily.
 - If the judge refuses, the matter can be referred to the **President** for impeachment.

This process provides a way to investigate judicial misconduct while maintaining the dignity of the judiciary.

'GROSS MISUSE' OF DOMESTIC VIOLENCE LAWS

Context

The case of Bengaluru Techie who died by suicide citing alleged harassment by his estranged wife has opened up a debate on misuse of anti-dowry law. The Supreme Court expressed concern over the rampant misuse of **Section 498A of the Indian Penal Code (IPC)**, which penalises cruelty by husbands and their relatives against married women.

Purpose of Laws

- India has made significant progress in protecting women's rights through various laws. These laws aim to promote gender equality, and ensure social, political, and economic justice for women.
- However, some women misuse these laws for personal gains, leading to serious concerns about the misuse of the legal system.
- This misuse is referred to as the "weaponization of laws."
- **Laws Misused:** Several laws meant to protect women have been misused:
 - **Dowry Laws (Section 498-A of IPC):** These laws aim to stop dowry-related harassment but have been misused for extortion and false accusations against husbands and their families.
 - **Domestic Violence Act:** Although meant to protect women from domestic abuse, it has been used to harass innocent family members, including elderly relatives, during family disputes.
 - **Sexual Harassment at Workplace (POSH) Act:** Some women have falsely accused colleagues or superiors to settle personal scores.
 - **Rape Laws:** There are cases where women have falsely accused men of rape to gain personal benefits or seek revenge.
 - **Child Custody Laws:** Some women misuse these laws in divorce cases to gain sole custody of children, even when it's not in the child's best interest.

NCRB Data on False Cases

According to the National Crime Records Bureau (NCRB), a significant number of cases are found to be false:

- In 2022, out of 650,033 cases investigated, 36,715 (5.65%) were found to be false.
- The false cases were particularly high in certain categories:
 - **Rape:** 9.69% of rape cases were false.
 - **Attempt to Commit Rape:** 15.23% were false.
 - **Assault on Women with Intent to Outrage Modesty:** 5.93% were false.

Factors Behind Misuse

Several factors contribute to the misuse of laws:

- **Lack of Legal Consequences:** There's often no severe punishment for those who file false cases, making it easy for them to misuse the system.

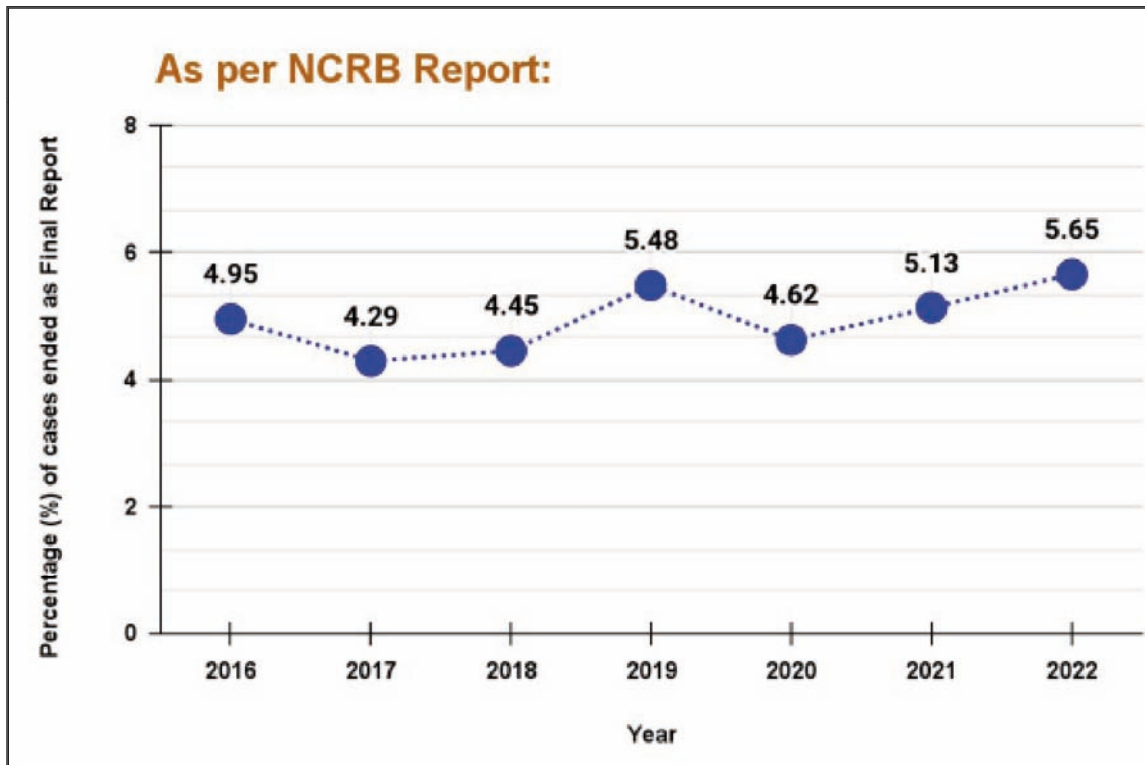


Figure No. 01

- **Societal Pressure:** There’s societal pressure on authorities to favor women in such cases, leading to bias against the accused.
- **Economic Motives:** In some cases, women misuse laws for financial gains, such as seeking alimony or property.
- **Emotional Turmoil:** Disputes, particularly in family matters, can drive people to misuse legal provisions out of anger or revenge.
- **Difficulty for Accused to Prove Innocence:** The person accused in a false case often struggles to prove their innocence due to the burden of proof being on them, causing them to suffer financially, emotionally, and mentally.

Impact on Men

The psychological toll on men falsely accused of crimes is immense. It can ruin their reputation, harm their mental health, and even lead to acts of revenge. The social stigma that comes with being falsely accused can last for a long time, affecting not just the individual but also their family and future generations.

Key ethical aspects related to the misuse of laws:

- **Moral Responsibility of Individuals:** The act of filing false cases or misusing the legal system is not only legally wrong but also ethically irresponsible. Ethics emphasizes personal responsibility and honesty. Misuse of laws to harass innocent people violates **moral principles of fairness and justice**.
- **Trust in Legal Systems:** For a society to function ethically, the rule of law must be upheld with integrity. The misuse of laws erodes public trust in the legal system, causing

- **Ethical Dilemmas of False Allegations:** When false accusations are made, they lead to ethical dilemmas for all involved—**judges, police, and society at large**. Legal professionals are ethically bound to ensure justice is done, but false claims complicate their ability to do so. This puts them in situations where they must balance empathy for the victim with a duty to protect the accused.
- **Prevention of Abuse of Power:** Misuse of laws is also an abuse of power. Ethical governance requires checks and balances to prevent individuals from using their power within the legal system for personal or malicious purposes.
- **Equity vs. Equality:** While laws protecting women’s rights are essential for gender equality, misuse of these laws presents a conflict between equity and equality. Ethical principles highlight the need to balance the protection of vulnerable groups with fairness to all individuals, regardless of gender. Misuse of laws for personal gain undermines the very principles of gender equality that such laws are meant to protect.
- **Empathy and Compassion:** Ethics also stresses the importance of empathy and compassion in handling sensitive issues like domestic violence or sexual harassment. While the law is meant to protect, it should also be used in a manner that fosters genuine concern and empathy for those who truly need help, rather than being manipulated for personal motives.

Crimes Identified Under the Indian Penal Code (IPC)

Obscenity

- Sections 292, 293 & 294, Indian Penal Code, 1860
- Section 67 of the Information Technology Act
- Indecent representation of women (prohibition) Act, 1987.

Dowry Death

- Sections 304-B, Indian Penal Code, 1860
- Section 2, Dowry Prohibition Act, 1961
- Section 174, Code of Criminal Procedure, 1973
- Section 113-A, Evidence act, 1872.

Acid Attack

- Section 326-A and 326-B, Indian Penal Code, 1860 (amendment 2013)
- Section 357-B and 357-C, Code of Criminal Procedure, 1973.

Outraging the modesty of a women

- Sections 354, 354A, 354B, 354C, 354D, Indian Penal Code, 1860.
- Section 509 Indian Penal Code, 1860.

Rape and Sexual Assault

- Section 375, 376, 376-A-D Indian Penal Code, 1860.

Cruelty

- Section 498 - A Indian Penal Code, 1860.
- Domestic Violence.
- Protection of women from Domestic Violence Act, 2005
- Sections 12-29, Protection of women from Domestic Violence Act, 2005

- ▶ Bharatiya Sakshya Adhiniyam (replaces the Indian Evidence Act of 1872)
- ▶ Bharatiya Nagarik Suraksha Sanhita (replaces the Code of Criminal Procedure of 1898)
- These new laws require upgrading infrastructure and forensic capabilities. States have five years to fully implement them.
- The new law seeks to replace the colonial-era sedition law which was mainly used against Indian political leaders seeking independence from British rule.
- Also, the state-of-the-art technologies have been incorporated in these laws.
- The objective of these laws is not to punish anyone but give justice and in this process punishment will be given where it is required to create a sense of prevention of crime.

Need for Reforms in India's Criminal Justice System

The need for reforms in India's criminal justice system arises due to several deep-rooted issues that hinder the delivery of justice:

- **Colonial Legacy:** The current legal system is based on colonial-era laws inherited from British rule. These laws were designed to control and dominate the population rather than serve the interests of justice. Their relevance and effectiveness in today's democratic India are questionable.
- **Ineffective Justice System:** The system often fails to protect the innocent or punish the guilty. Instead of delivering justice efficiently, the system frequently leads to harassment, especially for ordinary citizens, due to its outdated procedures and lack of timely action.
- **Backlog of Cases:** India faces a massive backlog of approximately **35 million pending cases** in its courts, particularly at the local and district levels. This delay in the legal process denies justice to many individuals, particularly those waiting for long periods for their cases to be heard.
- **High Number of Undertrials:** India has one of the highest proportions of **undertrial prisoners** in the world. Over **two-thirds** of India's prison population consists of individuals who are awaiting trial, further exacerbating the issue of overcrowded prisons and delayed justice.
- **Police Challenges:** The police are an essential part of the criminal justice system, but they face significant challenges such as corruption, heavy workloads, and lack of accountability. These issues make it difficult for the police to carry out their duties fairly and efficiently, often delaying justice and compromising public trust.

IMPLEMENTATION OF NEW CRIMINAL LAWS

Context

Chandigarh has become the first city in India to fully implement three new criminal laws introduced five months ago. These laws aim to modernize and strengthen the criminal justice system by integrating key pillars such as the police, forensics, and judiciary.

About New Criminal Laws:

- The three laws introduced are:
 - ▶ Bharatiya Nyaya Sanhita (replaces the Indian Penal Code of 1860)

Positive Aspects and Concerns

Positive Aspects:	Concerns:
<ul style="list-style-type: none"> Modernization: The new laws aim to modernize the criminal justice system by addressing contemporary challenges such as terrorism, organized crime, and the need for timely trials. Victim Protection: The BNS prioritizes the protection of victims, especially women, and introduces measures to prevent crimes like mob lynching and deceitful sexual intercourse. Faster Justice: With provisions like Zero FIRs and timely trials, the law seeks to speed up the judicial process and provide quicker relief to victims. 	<ul style="list-style-type: none"> Extended Police Custody: The increase in police custody duration from 15 days to 90 days could potentially lead to abuses of power and unlawful detentions. Trials in Absentia: While trials in absentia can be useful for fugitives, it could also compromise the rights of the accused if not implemented with caution. Pressure on Infrastructure: Implementing these laws requires substantial upgrades in police infrastructure, forensics, and judicial capacity, which may strain the existing resources.

HOW THE SUPREME COURT HEARS CASES

Context

The **Supreme Court of India** faces an overwhelming number of cases each year, with thousands already pending. To manage this large caseload, the Court prioritizes cases through a **systematic approach** that balances urgent matters with those requiring detailed hearings.

How the Court decides which cases to prioritize?

- Over the last month, the Supreme Court has been focusing on **Special Leave Petitions (SLPs)**. These are cases where the Court has already issued notices to the involved parties but has not yet admitted the case for hearing. These petitions primarily consist of appeals from High Court decisions, and the Court first decides whether to grant permission (leave) to appeal.
 - SLP Admission:** If granted, the case moves forward to be fully heard. If denied, the case is dismissed, which helps in reducing the backlog.
 - Short Hearings:** The Court deals with these cases quickly, often in hearings that last just a few minutes, allowing for a swift decision on whether to admit or reject them.

- To expedite this process, Chief Justice Sanjiv Khanna has scheduled **three days a week** (Tuesdays, Wednesdays, and Thursdays) for handling these SLPs, limiting the **number of cases requiring detailed hearings** to the remaining days (Mondays and Fridays).

Efforts to Address Backlog

Currently, over **82,000 cases** are pending before the Supreme Court. To manage this large volume, CJI Khanna has focused on:

- Expediting SLPs:** By prioritizing petitions that are at the admission stage, the Court quickly resolves whether they should be admitted or dismissed, cutting down on the backlog.
- Limiting Regular Hearings:** Detailed hearings, which involve full arguments from both parties, are now scheduled mainly on Mondays and Fridays, allowing the Court to focus on faster disposals during the rest of the week.

Case Flow and the Administrative Process

The **Supreme Court Registry** plays a key role in managing how cases are processed. Here's a look at the general journey of a case:

- Filing and Verification:** Cases are filed through an advocate, and the supporting documents are checked for completeness. Once verified, the case is assigned a **diary number** and registered.
- Listing for Hearing:** After registration, cases are scheduled for hearing. **Mondays and Fridays** are designated as **Miscellaneous Days**, where fresh cases are considered. These cases are either admitted or dismissed after a brief hearing.
- After Notice Matters:** Once a case is admitted, it enters the **"after notice miscellaneous"** phase, where the Court decides whether to move forward with the full hearing or dismiss it.

Constitution Bench Hearings

- Some complex cases, particularly those requiring interpretation of the Constitution, are heard by a **Constitution Bench**.
- These cases are also prioritized, especially as they can have significant implications for the country's legal framework.
- These hearings are often scheduled on **Wednesdays and Thursdays** when no regular matters are heard.

Surge in Pending Cases in Indian Courts

- The number of pending cases in India's judicial system has been increasing sharply, with the most significant rise seen in **subordinate courts**. The **Supreme Court** and **High Courts** are also facing growing backlogs, though the extent of the issue is most pronounced at the lower court levels.

Key Statistics:

- ▶ **Supreme Court:** Pending cases surged by **35%** from **59,859 in 2019** to **80,765 by the end of 2023**, an increase of over **20,900 cases**.
- ▶ **High Courts:** Pending cases increased by **33%**, from **468,000 in 2019** to **620,000 in 2023**, marking a rise of **150,000 cases**.
- ▶ **Subordinate Courts:** The backlog is the highest here, with over **40 million cases pending by the end of 2023**, up from **32 million** in 2019, a rise of **38%**. **Uttar Pradesh** leads with over **11 million pending cases** in its subordinate courts.

Factors Contributing to the Rise in Pending Cases:

- **Infrastructure and Staffing Issues:** The **physical infrastructure** of courts and the **availability of support staff** are crucial for processing cases efficiently. Insufficient resources, especially in lower courts, contribute significantly to delays.
- **Complexity of Cases:** The **complex nature** of many cases, particularly in areas like criminal law, family law, and commercial disputes, leads to longer processing times. Cases that require detailed examination of evidence and expert testimony can take years to resolve.
- **Nature of Evidence:** In many cases, the **nature and volume of evidence**—such as forensic reports, witness testimonies, or complex documentation—can delay proceedings, especially if the evidence is contested or requires lengthy analysis.
- **Lack of Coordination Among Agencies:** Delays are often due to poor **coordination between various stakeholders** in the criminal justice system, such as the **police, prosecution, forensic labs, and witnesses**. These agencies need to work together seamlessly, but frequent gaps in cooperation often slow down case resolution.
- **Frequent Adjournments:** Another key factor is the **frequent adjournments** requested by litigants, lawyers, or even the court itself. These adjournments can push back hearings, sometimes delaying cases by months or even years.
- **Lack of Timelines for Case Disposal:** The absence of clear **timeframes for the disposal of various types of cases** further contributes to delays. Without defined limits, cases can drag on for extended periods, especially if there are no consequences for exceeding the set time.
- **Inadequate Monitoring and Oversight:** **Monitoring systems** for tracking the progress of cases are often weak or poorly implemented. This lack of oversight leads to delays, as cases can languish without proper follow-up.

Impact of Backlog:

- **Delayed Justice:** The growing backlog means that **justice is delayed**, which harms citizens who are waiting for resolution. Particularly in cases involving **human rights, criminal offenses, or family disputes**, delays can cause

significant harm to individuals and communities.

- **Pressure on Judges:** The backlog increases the pressure on judges and court staff, leading to fatigue and further inefficiencies. It also results in a high caseload per judge, making it difficult to ensure detailed, quality decisions.

FREEDOM OF ASSOCIATION AT WORK

Context

The **International Labour Organisation (ILO)** released its **Social Dialogue Report**. The report emphasizes the importance of governments maintaining **basic rights at work**, particularly **freedom of association** (the right to join unions) and the **right to collective bargaining** (negotiating work conditions collectively with employers).

Key Findings and Recommendations:

- **Decline in Labor Rights (2015-2022):** The report found that between 2015 and 2022, there was a **7% decline** in countries' compliance with the **freedom of association** and **right to collective bargaining**.
 - ▶ This decline was attributed to **increased violations** of the rights of workers, employers, and their representative organizations.
- **Focus on Peak-Level Social Dialogue (PLSD):** The report stressed the importance of **Peak-Level Social Dialogue (PLSD)**, a process that brings together governments, employers, and workers to discuss labor and social policies.
 - ▶ PLSD includes **bipartite** dialogue (between employers and workers) and **tripartite** dialogue (including the government).
 - ▶ The ILO encouraged countries to improve their **social dialogue institutions (NSDIs)**, providing them with better resources and technical support to ensure **effective participation**.
- **Recommendations for National Social Dialogue Institutions (NSDIs):** NSDIs should work to **include underrepresented groups** and conduct regular evaluations to see how effective they are in **socio-economic decision-making**.
- **Role of Social Dialogue in Economic Development:** Social dialogue was highlighted as a way for countries to balance **economic development** with **social progress**.
 - ▶ The ILO believes that social dialogue can help ensure fair transitions during **low-carbon** and **digital transformations** of the economy, which are being driven by technological changes, climate change, and demographic shifts.

Role of Trade unions in emerging sectors:

- Compared to conventional industries such as **manufacturing, public utilities, and conventional financial sectors** such as **traditional banking and insurance**, forming unions in modern and emerging

sectors is much more difficult.

- Long ago, Freeman and Medoff examined the effect of trade unionism on the exit behaviour of workers in the context of the 'exit-voice-loyalty' model of Albert Hirschman.
- It is believed that IT employees do not need trade unions as they have competitive compensation pay packages, supposedly good conditions of work and a mechanism to address grievances. And so, they stay on and are loyal to the company and the industry.
- If these conditions are violated, they switch to other organisations as they have the required skill sets (exit); hence, labour turnover in this sector has been rather high.
- They do not collectively bargain or strike or resort to legal action as middle-class employees who go to court would be stigmatised (voice). And many survive by simply keeping quiet (loyalty).

What is the Framework Regarding Labours in India?

- **Constitutional Framework:** Under the Constitution of India, Labour as a subject is in the **Concurrent List** and, therefore, both the Central and the State governments are competent to enact legislations subject to certain matters being reserved for the Centre.
- **Judicial Interpretation:** In the case of **Randhir Singh vs Union of India**, the Supreme Court stated that "Even though the principle of 'Equal pay for Equal work' is not defined in the Constitution of India, it is a goal which is to be achieved through Article 14,16 and 39 (c) of the Constitution of India.
 - ▶ **Article 14:** It provides for equality before the law or equal protection of the laws within the territory of India.
 - ▶ **Article 16:** It talks about the right of equal opportunity in the matters of public employment.
 - ▶ **Article 39(c):** It specifies that the economic system should not result in the concentration of wealth and means of production to the detriment of the entire society.
- **Legislative Framework:** There have been several legislative and administrative initiatives taken by the government to improve working conditions and simplify labour laws. Most recent is the consolidated sets of 4 labour codes which are yet to be implemented.
- **Labour Codes:**
 - ▶ Code of Wages, 2019
 - ▶ Industrial Relations Code, 2020
 - ▶ Social Security Code, 2020
 - ▶ Occupational Safety, Health and Working Conditions Code, 2020



FACT BOX

Freedom of Association

- Freedom of association is the enabling right that underpins all other progress towards better terms and conditions.
- The right of peaceful assembly includes the **right to hold meetings, sit-ins, strikes, rallies, events or protests, both offline and online.**
- The right to freedom of association involves the right of individuals to interact and organize among themselves to collectively express, promote, pursue and defend common interests.
- This includes the **right to form trade unions.**
- The right to freedom of peaceful assembly and association, along with the right to form and join trade unions, are established in the **Universal Declaration of Human Rights (Article 20)**, and further enshrined as **International Labour Organisation (ILO) core conventions.**

Case Study - Rajasthan:

- The report included a case study from **Rajasthan** in India, which introduced the **Platform Based Gig Workers (Registration and Welfare) Bill.**
- This bill established the **Rajasthan Platform-Based Gig Workers Welfare Board** to look after the welfare of gig workers (such as drivers and delivery personnel).
- The welfare board consists of 12 members: 6 from the government and 6 representing gig workers, aggregators, and civil society.

ONE NATION, ONE SUBSCRIPTION (ONOS) INITIATIVE

Context

The Indian government launched the '**One Nation, One Subscription**' (ONOS) initiative to improve access to research journals for public education and research institutes. This plan aims to address the high costs of subscribing to scientific journals, which many public institutions struggle to afford.

Purpose of ONOS:

- **Scientific journals** are used to publish research findings. These journals usually charge fees for access. **Subscription-based journals** charge readers to access published papers, while **open-access journals (OA)** allow free access but often charge researchers to publish.
- Before ONOS, India had around **10 consortia** that helped public institutes subscribe to journals at a collective cost.

- ONOS will replace these consortia with a single platform to provide **more than 13,000 journals** from **30 international publishers**, like Springer-Nature, Wiley, and Taylor & Francis, to all government-funded educational and research institutes in the country.

Criticism of ONOS:

When ONOS was first announced, it faced several criticisms:

- **Lack of clarity:** The government did not specify which journals would be included, how the **Rs 6,000 crore budget** would be used, or how ONOS would support **open-access publishing**.
- **Domestic vs foreign journals:** Experts questioned if the funds allocated for foreign journals could have been better used to support **Indian publishing**.
- **Open access concerns:** It was unclear whether ONOS would support **Article Processing Charges (APCs)** for publishing in open-access journals.

Clarifications

- **Access to journals:** Students and staff at all public institutions can now access papers from participating journals for free.
 - ▶ The initiative will include journals from major publishers, and **negotiations** are underway to add more journals to ONOS.
 - ▶ Institutes will not have to pay any additional fees to access these journals.
- **Phased Implementation:**
 - ▶ **Phase I:** Merge existing consortia to facilitate access to journals in all public institutes.
 - ▶ **Phase II:** Expand the plan to include **private institutions**.
 - ▶ **Phase III:** Provide **universal access** to all citizens through public libraries.
- **Open Access (OA):**
 - ▶ **Pilot for OA:** Rs 150 crore annually will be allocated to support **APCs** for publishing in open-access journals. The government has also negotiated **discounted APCs** for Indian researchers.
 - ▶ Currently, about **60-70% of the journals** included in ONOS are **subscription-based**.
 - ▶ Officials acknowledged that **open-access models** are evolving and ONOS will adapt to support them as the system matures.
- **Support for Domestic Publishers:** The government acknowledged the need to support **Indian publishers**. While India has five digital repositories for researchers to upload papers for free access, they are not being used widely enough.
 - ▶ A new **research evaluation framework** will be developed to focus more on the **merit** of researchers' work rather than just the **prestige** of the journals they publish in.

- **Global Context:** The officials clarified that ONOS is not meant to promote one publishing model over another but is a **practical solution** tailored to India's needs. The aim is to bridge the gap until a more sustainable **open-access model** is globally achieved.

UGC'S DRAFT REGULATIONS FOR HEIS

Context

The **University Grants Commission (UGC)** has released a draft of new regulations aimed at reshaping the framework for higher education in India. These regulations, titled *UGC (Minimum Standards for the Grant of Undergraduate Degree and Postgraduate Degree) Regulations, 2024*, will replace the older 2003 regulations and their amendments in 2008 and 2014. These proposed guidelines focus on making higher education more **flexible, inclusive, and multidisciplinary** to better prepare students for a rapidly changing world.

Key Features of the New UGC Draft Regulations:

- **Biannual Admissions:** Higher education institutions (HEIs) will now admit students twice a year — in **July/August** and **January/February**. Intake capacity will depend on the facilities available at the institution.
- **Multidisciplinary and Flexible Learning:** The regulations promote a shift towards **multidisciplinary education** where students can take courses across different fields of study, removing strict disciplinary boundaries. Institutions must include **vocational education, training, and internships** as part of both **undergraduate and postgraduate programs**.
- **Multiple Entry and Exit Points:** Students can now **pause** their studies and return later without losing credit. This feature supports **lifelong learning**.
 - ▶ If students leave their course early, they can still receive qualifications based on the number of credits earned (e.g., a certificate or diploma).
 - ▶ New pathways like the **Accelerated Degree Program (ADP)** allow students to complete their degree faster by earning more credits in a shorter time, while the **Extended Degree Program (EDP)** allows a longer duration with no credit limit.
- **Credits and Skill Courses:** For **undergraduate degrees**, students must earn at least **50% of their credits** in their chosen major, with the rest coming from skill-based or multidisciplinary courses.
 - ▶ **Skill-based assessments** are now part of the curriculum, where students complete **40 credits** for a **certificate**, **80 credits** for a **diploma**, and **120 credits** for a **degree**.
- **Flexible Attendance Policies:** HEIs will have the flexibility to set **attendance requirements**, considering various learning modes (e.g., **online** and **blended learning**). This allows greater flexibility for students, particularly those with different learning needs.

- **Assessment Methods:** The new assessment system will emphasize **continuous evaluation** through **tests, seminars, class performance,** and **fieldwork**, rather than focusing solely on end-of-course exams.
- **New Certification Pathways:** Students can now exit their programs at different stages and still earn qualifications:
 - **40 credits + a 4-credit skill course = Undergraduate Certificate.**
 - **80 credits + a 4-credit skill course = Undergraduate Diploma.**
 - **120 credits = Undergraduate Degree.**
- **Flexible Admission Criteria:** Students can now apply for any undergraduate program regardless of their school stream, as long as they qualify through an entrance exam.
 - Postgraduate programs will require a **3-year undergraduate degree (120 credits)** or a **4-year degree with Honours (160 credits).**

Potential Benefits and Concerns:

Benefits	Concerns
<ul style="list-style-type: none"> ◦ The guidelines aim to make higher education more inclusive by allowing diverse student backgrounds and multiple entry/exit points. ◦ The emphasis on multidisciplinary learning and vocational training is expected to make students more adaptable to job market demands. 	<ul style="list-style-type: none"> ◦ Some experts worry about the lack of adequate funding and infrastructure to support these reforms, particularly in central universities. ◦ The shift to online and blended learning might result in lack of academic support, which could dilute the quality of education. ◦ The introduction of four-year degree programs without sufficient planning could create confusion regarding the value of degrees in the job market.

BHARATIYA VAYUYAN VIDHEYAK 2024

Context

The **Bharatiya Vayuyan Vidheyak (2024)**, or the **Indian Aviation Bill**, has been passed in the Indian Parliament. It aims to **replace the Aircraft Act of 1934** and update India's aviation laws to align with **international standards** and improve the sector's efficiency. The bill, passed by **both Houses of Parliament**, seeks to address key issues in India's aviation sector, including **safety, consumer protection,** and **ease of doing business.**

Key Provisions and Objectives of the Bill:

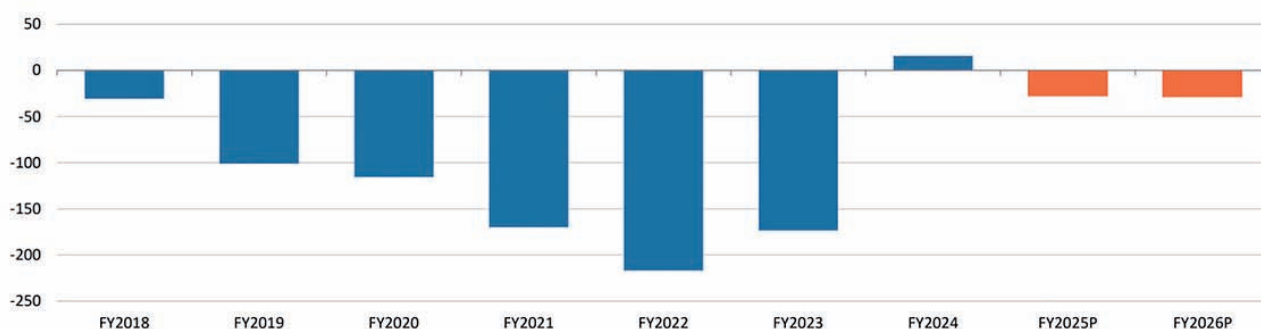
- **Enhancing Safety and Regulatory Oversight:** The bill aims to **improve safety standards** in the aviation sector, ensuring better **regulatory oversight** and **consumer protection** in line with global practices.
 - It focuses on setting up stronger governance structures for civil aviation authorities to boost accountability and transparency.
- **Self-Reliance in Aircraft Manufacturing:** The bill encourages **self-reliance in aircraft manufacturing** and **maintenance** within India, which could help the country become more competitive in the global aviation market.
- **Regulation of Aviation Components:** The bill allows the **central government** to regulate various aspects of civil aviation, including the **issuance of licenses** for aircraft-related operations (e.g., **Radio Telephone Operator Certificate**).
 - It also empowers the government to establish rules for **civil aviation security** and adherence to **international aviation conventions.**
- **Removal of Redundancies:** The bill seeks to **remove ambiguities and redundancies** in the existing Aircraft Act of 1934, making the system more streamlined and easier to implement.
 - It also includes provisions for penalties, fines, or imprisonment for violations, making enforcement more robust.
- **Emergency Powers:** The government is empowered to take **emergency actions** related to public safety and tranquillity in the aviation sector.
 - This includes the ability to provide **compensation** for losses or damages in aviation-related incidents, along with mechanisms for **appeals** against certain decisions (e.g., **compensation, licensing, penalties**).
- **Repeal of the Aircraft Act, 1934:** The bill **repeals the Aircraft Act of 1934** and updates the legal framework to better cater to current challenges and future growth in the aviation sector.

Issues Addressed in Parliament:

- **Airfare Concerns:** During the debate, **MPs raised concerns about rising airfares.** In response, the **Civil Aviation Minister** clarified that airfares in India are **deregulated** (since 1994) and determined by airlines. However, the **government monitors** fares and mandates that airlines inform the Ministry before setting prices for specific routes.
 - He also emphasized that the **UDAN Scheme** (Ude Desh ka Aam Naagrik) is helping to **increase accessibility** by improving air travel options for more people.
- **Title Change of the Bill:** There was a debate over the bill's title being changed from English to **Hindi.** The minister explained that the change was made to **highlight India's heritage and culture**, and assured that there was no violation of the **Constitution** regarding language use in lawmaking.

INDUSTRY NET LOSS AT Rs. 20-30 BILLION IN FY2025 AND FY2026

Exhibit: Net loss for the Indian aviation industry (Rs. billion)



Source: Company data, ICRA Research

Note: Aggregate of Air Asia (India) Limited, Air India Limited, Interglobal Aviation Limited, SpiceJet Limited, Tata SIA Airlines Limited

ThePrint

Figure No. 02



FACT BOX

India's Aviation Sector

- Even though domestic air passenger traffic is forecast to grow 7-10 percent in the current year to reach 164-170 million, the Indian airline industry as a whole is expected to post losses of Rs 2,000-3,000 crore this financial year and the next, after having briefly reverted to profitability in FY24, according to ratings agency ICRA.
- The industry reported a net profit of Rs 10 billion (Rs 1,000 crore) in FY24, supported by a sharp decline in aviation turbine fuel (ATF) prices while maintaining higher yields, the same was not estimated to sustain.

(See Figure No. 02 on top)

JAPAN'S LNG SITUATION

Context

Japan is facing a crucial decision regarding its **long-term liquefied natural gas (LNG)** contracts with Russia's **Sakhalin-2 project**, which will start expiring between 2026 and 2033. This project, managed by **Gazprom**, is important because it provides **9% of Japan's LNG supply** (about 6 million metric tons per year). However, Japan is now reconsidering its reliance on Russian LNG due to **geopolitical issues** and its **shift towards cleaner energy sources**.

Key Points of the Situation:

- Japan's LNG Dependency on Russia:** Japan depends on Russia for 9% of its LNG, sourced primarily from **Sakhalin-2**, located near Japan. The project has strong connections with **Japanese companies like Mitsui and Mitsubishi**, who own a 22.5% stake.

- ▶ **Sakhalin-2 has a major advantage:** it's geographically close to Japan, allowing for faster delivery of LNG compared to suppliers from places like **Australia, Canada, and the U.S.**, which are farther away.
- **Geopolitical and Energy Policy Shifts:** **Russia's invasion of Ukraine** has made Russian energy less popular in the global market, especially among Western countries. Japan is under pressure from its allies to reduce its dependence on Russian energy, even though **Sakhalin-2** is exempt from U.S. sanctions.
 - ▶ Japan is also focusing on **reducing its reliance on gas**. It aims for **gas to make up only 20% of its power generation by 2030**, down from 33% in 2023. At the same time, **renewable energy** is set to increase from **26% to 38%** by 2030. This shift makes Japan's demand for LNG less urgent.
 - **Impacts of Rising Geopolitical Tensions:** **Japanese buyers** are concerned about continuing with long-term contracts from Sakhalin-2 due to the potential **geopolitical risks** of buying energy from Russia. Many Japanese companies have already started securing **LNG from other countries** like the **U.S., Australia, Malaysia, and Oman** to reduce reliance on Russian supplies.
 - ▶ **Alaska, Canada, and the U.S.** are looking to fill the gap left by Russian LNG. Alaska's LNG project is particularly appealing, as its distance from Japan is similar to Sakhalin-2's, but without the geopolitical risks.
 - **Sakhalin-2's Future and Potential Shortages:** **Sakhalin-2's gas field, Lunskoye**, is nearing depletion. This means that **Gazprom** might not be able to maintain stable gas production from the field much beyond 2033.
 - ▶ Russia has been trying to develop another gas field, **Yuzhno-Kirinshoe**, but U.S. sanctions have delayed its development.
 - ▶ This uncertainty about future production means some Japanese companies may not want to renew contracts with Sakhalin-2, though others may have to because **supply from nearby sources** like Sakhalin-2 is crucial for energy security.

Challenges for Japan's LNG Buyers:

- Japan's **LNG buyers**, such as **JERA** and **Tokyo Gas**, are unsure whether to renew contracts. They are weighing the benefits of Sakhalin-2's proximity to Japan against the political risks associated with Russian gas.
- These buyers are also aware that Japan can import LNG from **other countries** in the future, though at potentially higher prices. A move away from Russian LNG may lead to increased **energy costs** for Japanese consumers.

Japan's LNG Trading Flexibility:

- Japan has become increasingly active in **LNG trading**. This gives it the ability to source LNG from different countries, including the U.S., Canada, and Australia, without compromising its energy security.
- However, utilities still prefer the **cheapest source of gas**, and Russia's Sakhalin-2 has traditionally been a reliable and cost-effective supplier.



FACT BOX

Liquefied natural gas (LNG)

- Liquefied natural gas (LNG) is **natural gas** that has been cooled to a liquid state, at about -260° Fahrenheit, for shipping and storage.
- The volume of natural gas in its liquid state is about 600 times smaller than its volume in its gaseous state.
- This **liquefaction process** (developed in the 19th century), makes it possible to transport natural gas to places natural gas pipelines do not reach and to use natural gas as a transportation fuel.

SOIL HEALTH CRISIS

Context

India is facing a **severe soil health crisis**, with nearly **90% of its topsoil** suffering from deficiencies in essential nutrients like **nitrogen**, **phosphorus**, and **potassium**. This has significant implications for agricultural sustainability, food security, and climate resilience. The recent **Global Soils Conference** highlighted this issue and called for strategies to restore soil health. One promising solution discussed is **nutrient circularity**, which involves recycling urban organic waste to replenish soil nutrients in rural areas. However, existing waste management practices, particularly **waste-to-energy (WtE)** plants, have faced multiple challenges, failing to adequately address the waste crisis and contributing to environmental harm.

Key Points

- With its extraordinary capacity to form, store, transform, and recycle nutrients, soil produces 95 per cent of the world's food. However, 33 per cent of global soils are already degraded, and this trend is accelerating.

- ▶ **90% of India's topsoil** is deficient in **nitrogen** and **phosphorus**.
- ▶ **50% lacks potassium**, critical for agricultural productivity.
- ▶ Soil erosion, degradation, and low nutrient content threaten long-term agricultural sustainability.
- **Nutrient Circularity:** This approach **reduces reliance on chemical fertilizers**, enhances soil fertility, and improves **cost-efficiency** in agriculture (lowering production costs by 15-20%).
- **Scaling Up Nutrient Circularity:** To address India's waste and soil crises, **scaling up nutrient circularity** is key.
 - ▶ A **two-pronged approach** is needed:
 - ◆ **Top-down policy support** to incentivize composting and improve quality.
 - ◆ **Bottom-up demand** from farmers and the public for better compost.
 - ▶ A more sustainable approach could gradually phase out chemical fertilizers, restoring soil health in both rural and urban areas.
- **Challenges with Current Waste-to-Energy (WtE) Models:** **Incineration-based WtE plants** dominate, but they come with high **costs**, significant **environmental impacts**, and **high failure rates**.
 - ◆ In **Delhi**, **7,250 tonnes** of the **11,328 tonnes of waste** generated daily is incinerated.
 - ◆ These plants emit **more greenhouse gases** and **air pollutants** than other power sources, harming public health and the environment.
 - ▶ **Biomethanation plants** face challenges like **poor waste segregation** and **methane leakages**.
 - ▶ Despite these efforts, **WtE plants** contribute only **0.1%** of renewable energy generation in India, far behind other renewable sources like **solar** and **wind**.

Government's Failed Policy on Nutrient Circularity:

- ▶ In **2016**, India introduced a subsidy of **₹1,500 per tonne** for compost sold under the **City Compost Policy** to promote nutrient circularity. However, the policy **failed** due to lack of:
 - ◆ **Quality control** (no standards, testing, or certification mechanisms).
 - ◆ **Public demand** for compost.
- ▶ The policy was **withdrawn in 2021**, and all financial support shifted to **bio-methanation**.

The Potential of Composting:

- ▶ **Composting** is a more **cost-effective** alternative to biomethanation.
- ▶ It can be implemented at various scales, even in small towns.

- ▶ Several cities like **Chikkaballapur** (Karnataka) and **Alappuzha** (Kerala) have successfully implemented composting models that transfer urban waste compost to rural farmers, promoting nutrient circularity.

Factors killing soil & solution

- **Farming practices** such as tilling break up the soil and destroy its natural structure, killing many of the vital bacteria.
- **Agricultural chemicals** can alter the physiological, metabolic and biochemical behaviour of microbiota in the soil. This can disrupt the relationships between plants and microbes, decreasing nutrient bioavailability.
- **Pressures of population growth**, food insecurity and agricultural intensification are leading to widespread soil degradation. This degradation can take many forms- **degradation, erosion, acidification, salinization**
- **Others:** Burning of crop residues, land misuse and soil mismanagement and climate change
- **Solution:** Replenishment, adopting organic practice (inter-cropping, mixed cropping, practicing crop rotation, Agroforestry, Permaculture, adopting biofertilizers.



FACT BOX

Soil

- Soil is a **mixture of small rock particles/debris and organic materials/ humus** which develop on the earth surface and support growth of plants.
- A soil profile is a **vertical cross-section of the soil**, made of layers running parallel to the surface. These layers are known as soil horizons.
- The layers of soil can easily be identified by the soil colour and size of soil particles. The different layers of soil are:
 - ▶ Topsoil
 - ▶ Subsoil
 - ▶ Parent rock
- It could take up to 1,000 years to produce 2 to 3 centimetres of top or surface soil, which has a depth of 6 cm.

Nutrient circularity

- Nutrient circularity refers to collecting, processing, and returning nutrients from urban organic waste to agricultural soil.
- It is seen as a multi-solving strategy, addressing both soil degradation and waste management.
- Nutrient circularity isn't new—traditional practices in Indian households and rural areas have long involved recycling organic waste to enhance soil fertility.

Government Interventions

- Pradhan Mantri Fasal Bima Yojana (PMFBY)
- Soil Health Card Scheme
- Soil Health Management Scheme
- Pradhan Mantri Krishi Sinchayee Yojna (PKSY)
- Per Drop More Crop
- India is signatory to achieving **Land Degradation Neutrality** by 2030.
- **International Initiatives**
 - ▶ Global Soil Partnership
 - ▶ World Soil Day (5 December)
 - ▶ Global Soil Information System (GloSIS)
 - ▶ Global Soil Laboratory Network (GLOSOLAN)

WORLD SOLAR REPORT 2024

Context

The recently released **World Solar Report 2024** by the **International Solar Alliance (ISA)**, provides a comprehensive overview of the global solar energy sector's rapid growth and emerging trends.

Key Highlights and Developments in Solar Energy

◦ Growth in Global Solar Capacity:

- ▶ From **1.22 GW** in **2000**, the world's total solar capacity has surged to **1,419 GW** by **2023**.
- ▶ This represents a **Compound Annual Growth Rate (CAGR) of around 36%**.
- ▶ Solar energy now accounts for about **75% of all renewable energy capacity additions** worldwide.
- **Emerging Solar Technologies:** The solar industry is seeing innovations that are improving efficiency, sustainability, and functionality:
 - ▶ **Quantum Dot Solar Cells:** These have reached an impressive **efficiency of 18.1%**, which could significantly improve solar energy capture.
 - ▶ **Self-Healing Solar Panels:** Researchers are developing solar panels that can **repair themselves**, reducing the need for maintenance and extending the lifespan of solar installations.
 - ▶ **Solar-Powered Phyto-Mining:** This technique uses solar energy to extract **valuable metals** from soil using plants. It provides a sustainable alternative to traditional mining.
 - ▶ **Solar Paver Blocks & BIPV: Building-Integrated Photovoltaics (BIPV)**, like **transparent solar panels** and **solar paver blocks**, integrate solar energy generation into infrastructure while allowing light transmission and visibility.

- ▶ **Recycling and Circular Economy:** The sector is also focusing on **recycling solar panels** and implementing **circular economy practices** to reduce reliance on scarce materials like **lithium** and **rare earth elements**.

▣ **Impact of Reducing Costs:**

- ▶ The **costs of solar photovoltaic (PV) technology** have been declining steadily. In 2024, **utility-scale solar PV** projects had an average auction price of just **\$40/MWh** globally.
- ▶ **India** achieved the lowest auction price for solar PV capacity at **\$34/MWh**.
- ▶ Solar energy investments are expected to **surpass \$500 billion** by 2024, which is more than the combined investments in all other power generation technologies.

Global Solar Market

- **China** is the global leader in solar PV, contributing **43%** of the total global solar capacity, equivalent to **609 GW**.
- The **U.S.** follows with **10%** (137.73 GW), and **Japan, Germany, and India** each have a share of **5-6%**.
- Emerging markets like **Brazil, Australia, Italy, and Spain** each contribute around **2%**.
- In **2023, China** also maintained its dominance in **solar component manufacturing**, producing **97%** of solar wafers, **89%** of solar cells, and **83%** of module installations.
- **Solar Energy's Impact on Other Industries:** The solar PV sector saw a significant rise in employment, with **7.1 million jobs** in 2023, up from **4.9 million** in 2022, highlighting the sector's role in economic development and job creation.
- **Agricultural Transformation:**
 - ▶ **Solar-powered irrigation systems** are transforming agriculture, with the global market for solar pumps growing at a **CAGR of 5.8%** from 2021 to 2027.
 - ▶ **Agrioltaics**, where solar panels are installed on farmland, not only generate electricity but also provide **shade** for livestock, improving **animal welfare** and **energy efficiency**.
- **Pay-as-you-go Models:** These models are becoming increasingly popular, enabling users to pay for solar systems in **small, regular instalments**, making solar energy more accessible, especially in rural areas.

CLIMATE FOOTPRINT OF SPACE EXPLORATION

Context

As the world increasingly depends on space technologies for vital functions like **climate monitoring**, concerns about the **environmental impact of space activities** are growing. The rapid rise in the number of satellites and space missions is leading to two main issues:

- **Pollution from rocket emissions**
- **Orbital debris**

Environmental Impact of Space Activities

Space activities, particularly rocket launches, have environmental consequences:

- **Rocket emissions:** Every rocket launch releases gases like **carbon dioxide (CO2)**, **black carbon**, and **water vapour** into the atmosphere. Black carbon is particularly harmful as it absorbs sunlight and contributes more to global warming than CO2.
- **Ozone depletion:** Some rocket propellants, especially **chlorine-based chemicals**, damage the ozone layer, which protects Earth from harmful ultraviolet radiation. This leads to increased UV exposure and disruptions in atmospheric circulation, affecting global climate.
- **Satellite production:** Building satellites is an energy-intensive process that involves extracting and processing metals, which contributes to carbon emissions. Satellites also use propulsion systems that emit additional pollutants.
- **Space mining:** While not yet active, extracting resources from asteroids could further increase industrial activities both in space and on Earth, adding to environmental concerns.

Risks of Orbital Debris (Space Junk)

Orbital debris refers to defunct satellites, rocket stages, and broken-up pieces of satellites floating in **Low Earth Orbit (LEO)**.

- As of **September 2024**, there are about **19,590 satellites** in orbit, with **13,230 still in space**. Around **10,200 of these are functional**.
- Space debris poses risks to both active satellites and space missions. Even small pieces of debris, traveling at speeds up to **29 km/s**, can damage satellites, disrupting services like communication, navigation, and climate monitoring.
- The increasing amount of debris makes it harder to avoid collisions, adding costs to space missions due to the need for protective measures like **shielding satellites** and performing **costly manoeuvres**.

Barriers to Space Sustainability

Currently, there are no clear international regulations on space emissions or debris, which complicates efforts to ensure sustainability:

- **Lack of regulation:** Space activities are not covered by agreements like the **Paris Agreement**, which addresses climate change. Without clear regulations, emissions from rockets and satellites could worsen global warming.
- **Crowded orbits:** The growing number of satellites and debris in LEO increases the risk of collisions, which raises the costs of future missions and makes space less accessible.
- **Need for international cooperation:** Bodies like the **Committee on the Peaceful Use of Outer Space (COPUOS)** can help create global standards, but current efforts lack enforceability.

Solutions for Sustainable Space Exploration

Achieving sustainability in space requires technological advancements and regulatory changes:

- **Reusable rockets:** Companies like **SpaceX** and **Blue Origin** have developed rockets that can be reused, reducing manufacturing waste and mission costs. However, these rockets are heavier and consume more fuel, which complicates scaling the technology.
- **Clean fuels:** Using **liquid hydrogen** or **biofuels** could reduce harmful emissions. However, hydrogen is currently produced using non-renewable energy, which limits its environmental benefits. **Cryogenic fuels** offer more power but are expensive and complex to use.
- **Biodegradable satellites:** Designing satellites with materials that can disintegrate when they re-enter Earth's atmosphere could help reduce space debris. However, these materials are not yet durable enough for space conditions.
- **Autonomous debris removal:** Technologies like **robotic arms** and **laser systems** could help remove space junk,

but they are expensive and need clearer legal frameworks before they can be used effectively.

- **Space traffic management:** A global system to track satellites and debris could help avoid collisions and optimize the use of orbits. However, data-sharing challenges, particularly due to security and commercial concerns, hinder progress.

What Needs to Be Done?

- **Regulations and international agreements:** Governments must create binding agreements to set limits on emissions, manage debris, and improve data-sharing. This can be done through **COPUOS** and other international bodies.
- **Funding for green technologies:** Governments and private companies should invest in **clean technologies**, **debris removal systems**, and **biodegradable satellites** to reduce space's environmental footprint.
- **Incentives for sustainable practices:** Financial rewards, subsidies, or penalties could encourage companies to adopt more sustainable practices.

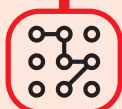


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SECTION - B

QUICK BYTES

DECLINING LOW-ALTITUDE
CLOUD COVER

CONTEXT

In 2023, global mean temperatures reached nearly **1.5°C** above pre-industrial levels, with new research identifying **declining low-altitude cloud cover** as a significant contributor to the warming. A study published in *Science* suggests that **0.2°C** of this rise could be attributed to this decline, particularly in regions such as the **northern mid-latitude** and **tropical oceans**, including the **Atlantic**.

The Role of Low-Altitude Clouds in
Cooling

- Low-altitude clouds play a crucial role in cooling the planet by reflecting sunlight back into space. However, in 2023, the global cover of these clouds fell by **1.5%**, continuing a **decade-long decline** of **1.27%**.
- This reduction has led to a measurable drop in **planetary albedo**, the amount of solar radiation that gets reflected away from Earth after interacting with the atmosphere and surface.
- The decline in albedo results in more solar radiation being absorbed by the Earth's surface, contributing to rising temperatures.
- **Contribution of Other Factors**
 - ▶ While **El Niño** and **anthropogenic greenhouse gases** are primary drivers of the **2023 temperature surge**, the study also identified additional factors, such as **increased solar activity**, **volcanic water vapor**, and **fewer aerosol particles** in the atmosphere. However, the researchers noted that even accounting for these variables, **0.2°C of warming** remains unexplained.



FACT BOX

Cloud Types and Classifications

- Clouds are classified based on their altitude and their visual characteristics.
- The system of cloud classification was first introduced by Lamarck in 1802, and Howard's system in 1803 became the foundation for the modern classification scheme.
- **Clouds are categorized into three main altitude classes:**
 - ▶ Low-level clouds
 - ▶ Mid-level clouds
 - ▶ High-level clouds
- Each class is further divided into types based on characteristics such as shape and precipitation potential.
- The primary cloud types are **Cirrus**, **Stratus**, **Cumulus**, and **Nimbus**, each of which may have various subtypes.

Low-Level Clouds (Base: Below 6,500 ft)

- **Cumulus Clouds (1,000 to 5,000 ft):** These clouds form due to air rising from surface heating and may occasionally produce light showers. They are typically puffy and well-defined.
- **Stratus Clouds (Surface to 2,000 ft (up to 4,000 ft in some cases)):** These thick clouds can bring substantial precipitation, especially in coastal or hilly regions. They often obscure the sun but are still visible through thin patches.

- **Stratocumulus Clouds (1,000 to 4,000 ft):** These clouds can bring light precipitation, such as drizzle, especially in coastal or hilly areas. They may obscure the sun and are composed entirely of liquid drops.
- **Cumulonimbus Clouds (2,000 to 5,000 ft (may vary)):** These towering clouds result from deep convection, producing thunderstorms, hail, heavy showers, and squally winds. Their tops may extend to the tropopause, forming an anvil shape at their peak.

Mid-Level Clouds (Base: 6,500 to 20,000 ft)

- **Altostratus Clouds (10,000 to 20,000 ft):** Thicker altostratus clouds often produce light, continuous precipitation and obscure the sun. Thinner versions may allow the sun or moon to shine through with a glassy appearance.
- **Alto cumulus Clouds (6,500 to 20,000 ft):** These clouds appear as broken patches in the sky and may produce light precipitation. They are sometimes thick enough to obscure the sun.
- **Nimbostratus Clouds (Surface to 10,000 ft):** These clouds produce continuous, moderate to heavy precipitation and always obscure the sun or moon.

High-Level Clouds (Base: Above 20,000 ft)

- **Cirrus Clouds (20,000 to 40,000 ft):** Composed entirely of ice particles, cirrus clouds do not produce

precipitation but may create visual effects such as halos. They often signal the approach of weather fronts.

- **Cirrostratus Clouds (20,000 to 40,000 ft):** These thin, high-level clouds are known for creating halos around the sun or moon. They typically precede weather fronts and can thicken into lower clouds.
- **Cirrocumulus Clouds (20,000 to 40,000 ft):** These clouds are broken and usually do not produce precipitation. They allow the sun or moon to be visible and are often scattered across the sky.

Other Cloud Types

- **Orographic Clouds:** These clouds form as air is forced upward by elevated terrain. The cloud base varies but is often similar to low-level clouds. They may not produce significant precipitation, though larger systems can bring drizzle.
- **Noctilucent Clouds (Altitude: ~280,000 ft (mesosphere)):** The highest clouds, composed of water ice, are visible only after sunset when illuminated by light from below the horizon.
- **Polar Stratospheric Clouds:** Altitude is similar to cirrus clouds in polar-regions. They are composed of ice particles, and are found in the stratosphere at high latitudes, particularly during the winter months.

(See Figure No. 01 on bottom)

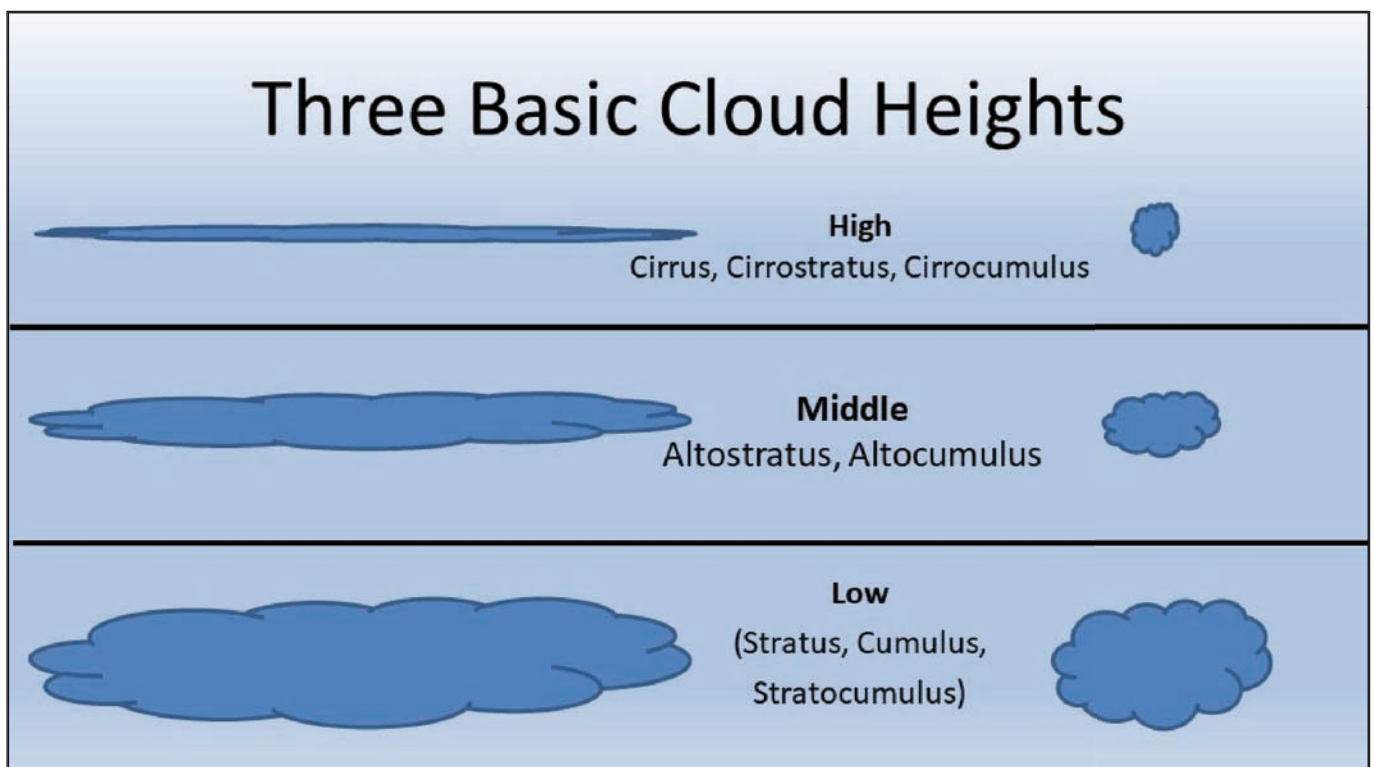


Figure No. 01

REMOVAL OF RAJYA SABHA CHAIRMAN

CONTEXT

The opposition parties, led by Congress, moved a **no-confidence motion** against Vice-President Jagdeep Dhankhar, who is also the **Chairman of Rajya Sabha**, under Article 67(B) of the Constitution. This is the first time such a motion has been filed in Indian Parliament. The opposition claims that Dhankhar has shown **bias** in favor of the ruling party and has **ignored their concerns** during Rajya Sabha proceedings.

What is the Process for Removing the Rajya Sabha Chairman?

- The process for the **removal of the Chairman of the Rajya Sabha** is governed by **Article 67** of the Indian Constitution, as well as the rules of procedure of the Rajya Sabha.
- The Chairman is the Vice President of India, who holds office for a **term of five years** from the date of assuming office, unless he **resigns** or is **removed**.
- Process of Removal of the Chairman of Rajya Sabha:
 - ▶ **Initiating the Resolution:** A resolution for the removal of the Chairman can be moved by a member of Rajya Sabha. This must be moved by a majority of the members of Rajya Sabha.
 - ◆ The resolution must be passed by a majority of all members of Rajya Sabha (i.e., more than half of the total members of the House, not just those present and voting).
 - ▶ **Notice for the Resolution:** A 14-day notice must be given before the resolution for removal is moved in the House. This is similar to the process for the removal of the Vice-President (who is also the Chairman of Rajya Sabha). The member wishing to move the resolution must notify the House of their intention at least 14 days in advance.
 - ▶ **Debate and Discussion:** After the notice period of 14 days, the Rajya Sabha will discuss the resolution. The discussion will allow members to express their views on the removal of the Chairman.
 - ▶ **Resolution Passage:** The resolution must be passed by a majority of the members of the Rajya Sabha (more than half of the total members, not just those present).
 - ▶ **Approval from Lok Sabha:** After passing the resolution in Rajya Sabha, it must also be approved by the Lok Sabha. Lok Sabha must also pass the same resolution by a simple majority. This means that the Lok Sabha must agree with the Rajya Sabha's decision.
 - ▶ **Final Action:** If both Rajya Sabha and Lok Sabha pass the resolution for the removal of the **Chairman**, the Chairman is removed from office.

Key Points:

- ▶ The **Chairman cannot preside over his own removal proceedings**. In case a resolution for his removal is being discussed, he will **vacate the Chair**, and the **Deputy Chairman** will take over the proceedings.
- ▶ A **majority of members** of Rajya Sabha must agree to the resolution for the Chairman's removal.
- ▶ The Chairman's **removal** requires the **approval of both Houses of Parliament** (Rajya Sabha and Lok Sabha).



FACT BOX

About Rajya Sabha (the Upper House of Parliament)

- The Rajya Sabha is modelled after the **House of Lords** in the United Kingdom.
- Rajya Sabha is a **permanent body** and is **not subject to dissolution**. However, one-third of the members retire every second year and are replaced by newly elected members.
- Each member is elected for a term of six years.
- The Vice President of India is the ex-officio Chairman of the Rajya Sabha, which is the final stop before a bill is sent for presidential assent.

Chairman of the Rajya Sabha

- The Chairman of the Rajya Sabha, who is also the **Vice-President of India**, plays a crucial role in the functioning of the House. As the **Presiding Officer**, the Chairman is responsible for maintaining order, decorum, and ensuring that the proceedings of the Rajya Sabha follow the Constitution, rules, and practices.
- Key Roles and Responsibilities:
 - ▶ **Presiding Officer:** The Chairman oversees Rajya Sabha meetings, ensuring the orderly conduct of discussions and debates.
 - ▶ **Guardian of the House:** The Chairman upholds the prestige and dignity of the House. He is also the principal spokesperson for the Rajya Sabha, representing its collective voice to the outside world.
 - ▶ **Impartiality:** The Chairman's decisions are binding, and he is expected to act impartially. His rulings are not open to criticism and cannot be questioned.
 - ▶ **Presides Over Key Sessions:** The Chairman presides during critical times, such as **Question Hour**, debates on important bills, and constitutional amendments. He ensures that members' rights to ask questions and receive answers are protected.
 - ▶ **Casting Vote:** The Chairman has a **casting vote** in case of a tie during voting, except when the motion concerns his own removal. In such cases, he does not preside and cannot vote.

▫ Powers:

- ▶ **Adjournment and Suspension:** The Chairman has the authority to **adjourn the House** or suspend its sitting if there is no quorum or in case of grave disorder.
- ▶ **Disqualification of Members:** The Chairman determines whether a Rajya Sabha member is disqualified under the **Tenth Schedule** (anti-defection law).
- ▶ **Rulings and Precedents:** The Chairman's rulings are considered precedents and cannot be challenged. He is the final authority on the interpretation of rules and procedures in the House.
- ▶ **Committee Oversight:** The Chairman oversees the functioning of parliamentary committees, appoints their chairs, and ensures the effective conduct of their work. He is also the head of key committees like the **Business Advisory Committee** and **Rules Committee**.
- ▶ **Maintenance of Order:** The Chairman is responsible for maintaining order during debates. He can intervene in cases of **irrelevance** or **defamatory remarks** and can expunge inappropriate language from the records.

▫ Administrative Functions:

- ▶ **Rajya Sabha Secretariat:** The Chairman controls the Rajya Sabha Secretariat and ensures the proper functioning of the House.
- ▶ **Warrants and Communications:** He issues warrants to execute the orders of the House and communicates with external authorities, including messages from the President or foreign countries.
- ▶ **Role in Bill Passage:** The Chairman authenticates and corrects any errors in Bills passed by Rajya Sabha before they are presented to the President for assent.
- ▶ **Absence of the Chairman:** In the absence of the Chairman, the **Deputy Chairman** presides over the sessions. The Chairman may also delegate duties to **Vice-Chairmen** when needed.
- ▶ **Special Functions:** The Chairman makes obituary references and special references on significant national or international occasions. He represents Rajya Sabha at formal events and welcomes foreign dignitaries or delegates.

ADJOURNMENT MOTION

CONTEXT

Both Lok Sabha and Rajya Sabha were adjourned for the day amid massive uproar from Opposition and the ruling BJP over George Soros' Congress link and the Adani issue.

Adjournment Motion

- An **Adjournment Motion** is a parliamentary procedure used to **suspend the work** of a sitting for a specific period of time, which can be for hours, days, or even weeks. However, the suspension is for a sitting, not for the entire session of the House. The **presiding officer** (e.g., the **Speaker** in the **Lok Sabha**) has the authority to adjourn the House.
- Adjournment Motion vs. Adjournment Sine Die
 - ▶ **Adjournment:** This refers to the suspension of the sitting for a **specified period**. The House is expected to reassemble after the designated time.
 - ▶ **Adjournment Sine Die:** This refers to the **indefinite suspension** of the sitting, meaning there is **no specified time** for reassembly. The presiding officer holds the power to adjourn sine die.

Sessions of the Indian Parliament

- **Part-V (Articles 79–122) of the Constitution** outlines the **organization, composition, duration, officers, procedures, privileges, and powers** of Parliament.
- A **session** of Parliament is the period during which the House meets continuously to conduct its business. There are **three main sessions** each year:
 - ▶ **The Budget Session:** February to May
 - ▶ **The Monsoon Session:** July to September
 - ▶ **The Winter Session:** November to December
- A sitting of Parliament can be terminated through:
 - ▶ **Adjournment**
 - ▶ **Adjournment Sine Die**
 - ▶ **Prorogation**
 - ▶ **Dissolution**
 - ▶ **Recess:** This is the period between the **prorogation** of a House and its reassembly in the next session.

Other Parliamentary Procedures

- **Calling Attention:** A procedure where a Member of Parliament calls the attention of a Minister to an urgent public issue, and the Minister gives a brief statement, after which Members may seek clarifications.
- **Crossing the Floor:** This occurs when a Member passes between the person addressing the House and the Chair, which is considered a **breach of Parliamentary etiquette**.
- **Motion of Thanks:** A formal motion expressing gratitude to the **President** for their address delivered under **Article 87(1)** of the Constitution when both Houses of Parliament are assembled together.
- **Point of Order:** A point related to the **interpretation** or **enforcement of the Rules of Procedure** or Constitutional articles regulating parliamentary business. It is raised to seek the Chair's decision.

- **Un-starred Question:** A question that does not require an **oral answer** in the House. The answer is provided in writing, and it is considered as **laid on the Table** of the House.

INDIA SKILLS REPORT 2025

CONTEXT

The **India Skills Report 2025**, prepared by the **Confederation of Indian Industries (CII)** in collaboration with **Wheebox** and the **All India Council for Technical Education (AICTE)**, reveals important trends about the employability of Indian graduates and the country's role in the global workforce.

Key-takeaways from the Report

- **Employability of Indian Graduates:** 55% of Indian graduates are expected to be globally employable by 2025, an increase from 51.2% in 2024. This shows a positive trend in the country's ability to prepare graduates for international job markets.
 - ▶ The employability rate of Indian graduates has increased by 7% this year, reaching 54.81% in 2025, compared to 51.25% in 2024. This is attributed to government initiatives, such as Skill India Mission and NEP 2020, and institutional efforts to align education with industry needs.
- **Most Employable Graduates:**
 - ▶ Management graduates have the highest employability at 78%.
 - ▶ Engineering graduates follow with 71.5% employability.
 - ▶ MCA (Master of Computer Applications) graduates have 71% employability.
 - ▶ Science graduates have 58% employability.
- **Regional Trends in Employability:** Kerala has an employability rate of 71%, ranking 5th among all Indian states. The states ahead of Kerala are **Maharashtra, Delhi, Karnataka, and Andhra Pradesh**. **Maharashtra, Karnataka, and Delhi** are emerging as major hubs for skilled talent. **Pune, Bengaluru, and Mumbai** are leading cities that provide a large pool of employable workers.
- **Gender Disparity:** The employability rate for men is expected to rise to 53.5% in 2025, up from 51.8% in 2024. However, women's employability is projected to decline from 50.9% in 2024 to 47.5% in 2025, highlighting a gender gap that needs attention.
- **Internship Interest:** 93% of students surveyed expressed interest in internships, indicating a strong desire for practical work experience alongside academic learning.
- **Hiring Intent for 2025:** The report also indicates a 9.8% hiring intent for FY 2026 across industries. Global capability centres, heavy engineering, and banking sectors have the highest hiring intent, with 12% in these sectors.

- **India's Global Talent Mobility:** India is emerging as a key player in global talent mobility, with a focus on quality skill training to improve the employability of graduates. The skilled Indian workforce is contributing to sectors like technology, healthcare, renewable energy, and AI, driving global innovation and economic growth.
- **Strategic Vision for 2030:** The report outlines strategies to strengthen India's talent pool, such as:
 - ▶ Expanding vocational training in high-demand fields like AI, cybersecurity, and green energy.
 - ▶ Promoting cross-border collaborations to address skill shortages in countries with aging populations.
 - ▶ Integrating technology (AI, automation) in education and skill assessments.
 - ▶ Fostering diversity and inclusion, with an emphasis on improving female participation in the workforce.



FACT BOX

Government Initiatives for Skill Development

- **Skill India Mission (SIM):** Under the mission the Ministry of Skill Development and Entrepreneurship (MSDE) delivers skill, re-skill and up-skill training through an extensive network of skill development centres/colleges/institutes etc. under various schemes, viz.
 - ▶ **Pradhan Mantri Kaushal Vikas Yojana (PMKVY):** PMKVY Scheme is for imparting skill development training through Short-Term Training (STT) and Up-skilling and Re-skilling through Recognition of Prior Learning (RPL) to youth across the country including rural areas.
 - ▶ **Jan Shikshan Sansthan (JSS) Scheme:** The main target of the JSS is to impart vocational skills to the non-literates, neo-literates and the persons having rudimentary level of education and school dropouts upto 12th standard in the age group of 15-45 years, with due age relaxation in case of "Divyangjan" and other deserving cases. Priority is given to Women, SC, ST, OBC and Minorities in the rural areas and urban low-income areas.
 - ▶ **National Apprenticeship Promotion Scheme (NAPS):** This Scheme is for promoting apprenticeship training and increasing the engagement of apprentices by providing financial support to industrial establishments undertaking apprenticeship programme under the Apprentices Act, 1961. Training consists of Basic Training and On-the-Job Training / Practical Training at workplace in the industry. A total of 42453 establishments engaged the apprentices across the country.

- ▶ **Craftsmen Training Scheme (CTS):** This scheme provides long-term training through Industrial Training Institutes (ITIs) across the country. The ITIs offer a range of vocational/skill training courses covering a large number of economic sectors with an objective to provide skilled workforce to the industry as well as self-employment of youth.
- Apart from MSDE, more than 20 Central Ministries are implementing **Skilling/ Upskilling training programmes** through various schemes, such as
 - ▶ **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)**
 - ▶ **Rural Self Employment Training Institutes (RSETI)** under **Ministry of Rural Development**
 - ◆ **Deen Dayal Antyodaya Yojana – National Urban Livelihood Mission (NULM)** under **Ministry of Housing and Urban Affairs etc.**
- **Other missions:**
 - ▶ TEJAS Skilling Project
 - ▶ SANKALP Scheme

AYUSH VISA SCHEME FOR FOREIGNERS SEEKING TREATMENT IN INDIA

CONTEXT

As of December 4, 2023, a total of 123 regular Ayush visas, 221 e-Ayush visas, and 17 e-Ayush attendant visas have been issued.

About Ayush Visas

- The Indian government has introduced a **new visa category** specifically for foreigners visiting India for treatment under the **Ayush system of medicine** (which includes **Ayurveda, Yoga, Unani, Siddha, and Homeopathy**).
- This visa initiative was launched in 2023, to promote **medical tourism** in India, particularly for those seeking treatment or wellness services in these traditional systems of medicine.

Types of Ayush Visas:

- ▶ **Ayush Visa:** For foreigners coming to India to receive treatment or wellness services through the Ayush systems at accredited hospitals or wellness centers.
- ▶ **Ayush Attendant Visa:** For attendants accompanying a foreigner receiving Ayush treatment.
- ▶ **e-Ayush Visa:** An electronic visa for those visiting India for Ayush treatment.
- ▶ **e-Ayush Attendant Visa:** An electronic visa for attendants accompanying those receiving Ayush treatment.

- **Medical Value Travel (MVT):** The government has launched the **Advantage Healthcare India portal (www.healinindia.gov.in)**, a **one-stop platform** designed to help international patients find information and access medical and wellness services in India.
- **Objective:** The aim of this initiative is to attract foreign patients seeking treatment under the Ayush systems, by providing a streamlined process for obtaining visas and facilitating their medical travel to India.
 - ▶ The government also intends to raise awareness among stakeholders, including Ayush healthcare providers, to support and promote the Medical Value Travel (MVT) initiative.

PM POSHAN SCHEME

CONTEXT

The Indian government has announced it will bear an additional cost of Rs 425.62 crore in FY 2024-25 due to **inflation in food material costs** under the **PM POSHAN Scheme**, which provides hot cooked meals to school children.

About PM POSHAN Scheme

- **Pradhan Mantri Poshan Shakti Nirman (PM POSHAN)** earlier known as the **National Programme of Mid-Day Meal in Schools** is one of the foremost rights based **Centrally Sponsored Schemes** under the **National Food Security Act, 2013 (NFSA)**.
- The Scheme aims at providing nutritional support and enhancing school participation of students.
- This scheme serves hot meals to 11.70 crore students in 10.24 lakh government and government-aided schools. The students are from **Balvatika (pre-primary) to class VIII**.
- Under the PM POSHAN Scheme, 'Material Cost' is provided for procurement of following ingredients required for cooking the meals:

Ingredients	Per student per meal quantity	
	Bal Vatika & Primary	Upper Primary
Pulses	20 gm	30 gm
Vegetables	50 gm	75 gm
Oil	5 gm	7.5 gm
Spices & Condiments	As per need	As per need
Fuel	As per need	As per need

- The **Labour Bureau, Ministry of Labour** provides data on inflation for these items under the **PM POSHAN basket on the basis of Consumer Price Index – Rural Labourers (CPI-RL)** in consonance with CPI index for PM POSHAN and accordingly CPI index for PM POSHAN basket has been worked out.

- The CPI-RL is constructed by **Labour Bureau, Chandigarh** on the basis of collecting continuous monthly prices from the sample of 600 villages spread over 20 States of the country.

MULE BANK ACCOUNTS

CONTEXT

The Reserve Bank of India (RBI) has developed an AI-powered model called **MuleHunter.AI** to combat the rising problem of **mule bank accounts** used for financial fraud. This initiative is part of RBI's broader efforts to reduce digital fraud and enhance security in the banking sector.

What is a Mule Bank Account?

- A **mule bank account** refers to a bank account that is used by criminals for illegal activities, including **money laundering**.
- Criminals typically take over these accounts, which are often owned by **victims**—individuals who may be from **lower-income groups** or lack technical literacy.
- These individuals, known as **money mules**, unknowingly become part of illegal schemes when their accounts are used to launder stolen or illicit funds.
- Unfortunately, when fraud is detected, the money mules are often the ones investigated, while the actual criminals remain hidden.
- The Scale of the Problem in India: Mule bank accounts are a significant issue in India, particularly in the context of online financial fraud.
 - ▶ In the past few years, the government has taken action by freezing a large number of these accounts. **4.5 lakh mule accounts** were frozen by the Indian government, with notable numbers detected in major public sector banks.
 - ▶ The involvement of such a large number of accounts demonstrates how prevalent the use of mule accounts is in financial crimes.

RBI's Initiative (MuleHunter.AI):

- To address this issue, the **Reserve Bank Innovation Hub (RBIH)** has developed **MuleHunter.AI**, a model that leverages **artificial intelligence (AI)** to detect mule bank accounts more efficiently.
- This AI-powered system aims to help banks identify suspicious accounts used for fraud, making the process quicker and more effective.
- A **pilot test** conducted with two large public sector banks showed positive results.
- The RBI has encouraged other banks to collaborate with RBIH to further enhance the MuleHunter.AI model.
- **Government and RBI Efforts to Tackle Mule Accounts:** The **Indian government** has taken several steps to address the problem of mule accounts. In December 2023, the **Department of Financial Services (DFS)** held a meeting with officials from the RBI, **Indian Cybercrime**

Coordination Centre (I4C), and various banks to discuss strategies for combating digital financial fraud. Banks were urged to:

- ▶ Adopt **AI and machine learning** solutions for **real-time detection** of mule accounts.
- ▶ Train staff on fraud prevention and detection.
- ▶ Collaborate with other banks to share information and best practices.

INDIAN STAR TORTOISE (GEOCHELONE ELEGANS)

CONTEXT

The increasing demand for Indian star tortoise (*Geochelone elegans*) as pets has led to their involvement in one of the **largest global wildlife trafficking networks**, making them a target for illegal trade.

About Indian Star Tortoise (*Geochelone elegans*)

- The Indian star tortoise (*Geochelone elegans*) is a remarkable species known for its **striking obsidian shell and vibrant Sun-yellow star patterns**.
- While these tortoises are **hardy herbivores** and have become popular **exotic pets**, their trade and ownership are illegal in India due to their vulnerability in the wild.
- They are endemic to the subcontinent, found in **northwest India, south India, and Sri Lanka**.
- **Legal Protection and Smuggling:** The Indian star tortoise is **protected** under the **Wildlife Protection Act of 1972** and is listed in **Appendix I of CITES**, which provides the highest level of protection.

RISE IN TIGER DEATHS IN 2023: ENVIRONMENT MINISTRY

CONTEXT:

India's tiger fatalities surged by **50% in 2023**, according to the Ministry of Environment, Forest and Climate Change (MoEFCC). The data was shared in Parliament, highlighting the concerning rise in tiger deaths. These fatalities have raised alarms among wildlife conservationists, who are now emphasizing the need for stronger measures to protect tigers.

Key Points:

- **Rising Tiger Deaths:**
 - ▶ **182 tigers** died in **2023**, compared to **121 in 2022**, marking a **50% increase**.
 - ▶ Over **75% of these deaths** occurred in **five states: Maharashtra, Madhya Pradesh, Uttarakhand, Tamil Nadu, and Kerala**.

- ◆ **Maharashtra** had the highest fatalities with **46 deaths**, followed by **Madhya Pradesh** with **43 deaths**.
- ◆ **Uttarakhand** had 21 deaths, and **Tamil Nadu** and **Kerala** also saw significant increases.

Government Efforts and Funding:

- ▶ **Government funding** for anti-poaching and tiger conservation efforts saw significant increases, especially in Maharashtra and Madhya Pradesh:
 - ◆ Maharashtra’s funding rose by **9%** to **₹4,303 lakh**.
 - ◆ Madhya Pradesh saw a dramatic rise of **223%**, with funds growing from **₹809 lakh to ₹2,614 lakh**.
- ▶ These funds are allocated to efforts such as **anti-poaching, habitat management, eco-development, and village relocation**.
- **Significant Increase in Deaths in Specific States:**
 - ▶ **Tamil Nadu** and **Uttarakhand** saw tiger fatalities increase by **400%** and **250%**, respectively, which far surpassed the national average of **50%**.
 - ▶ **Kerala** and **Uttar Pradesh** both reported a **100% rise** in fatalities.
 - ▶ **Assam** and **Maharashtra** reported increases of **67%** and **64%**, respectively.
- **Confirmed Causes of Death:**
 - ▶ The **exact cause** of death was confirmed for only **14%** of the total cases.
 - ▶ **Poaching** was identified as the leading cause of death, responsible for **12 fatalities**.
 - ▶ **Unnatural causes** (e.g., accidents, injuries) caused **9 deaths**, and **seizures** contributed to **4 fatalities**.
 - ▶ Experts noted that most carcasses are discovered in advanced stages of decay, making it difficult to determine the precise cause of death.
- **Challenges in Tracking Tiger Deaths:** The actual number of fatalities could be **higher** since tiger carcasses are often found in **advanced decay**, complicating cause determination.
 - ▶ **Poaching** remains a critical concern, as poachers often **remove body parts** of tigers for illegal trade, making it difficult for authorities to track the full extent of tiger deaths due to poaching.
- **Tiger Population in India:** Despite the rise in deaths, India’s tiger population has grown by **10% annually** between 2006 and 2022, with the most recent tiger census in **2022** estimating the population at **3,682**.
 - ▶ However, experts caution that poaching remains a serious threat and could rapidly diminish tiger numbers if not carefully managed.

- **Conservation status:** Endangered
- **Range:** Its range stretches from the Russian Far East through parts of North Korea, China, India, and Southeast Asia to the Indonesian island of Sumatra.
- The largest tiger population is in Madhya Pradesh, followed by Karnataka & Uttarakhand and Maharashtra
- The tiger abundance within the Tiger Reserve is highest in **Corbett**, followed by **Bandipur, Nagarhole, Bandhavgarh, Dudhwa, Mudumalai, Kanha, Kaziranga, Sundarbans, Tadoba, Sathyamangalam, and Pench-MP**.
- The **Siberian, or Amur, tiger (*P. tigris altaica*)** is the largest, measuring up to 4 meters (13 feet) in total length and weighing up to 300 kg (660 pounds). The **Indian, or Bengal, tiger (*P. tigris tigris*)** is the most numerous and accounts for about half of the total tiger population.

Government Initiatives:

- **Project Tiger:** Project Tiger is a tiger conservation programme launched in April 1973 by the Government of India during Prime Minister Indira Gandhi’s tenure. The project aims at ensuring a viable population of Bengal tigers in their natural habitats, protecting them from extinction, and preserving areas of biological importance as a natural heritage forever representing as close as possible the diversity of ecosystems across the distribution of tigers in the country.
 - ▶ It is a Centrally Sponsored Scheme of the Ministry of Environment, Forest and climate change.
 - ▶ The project is administered by the National Tiger Conservation Authority (NTCA).
- **National Tiger Conservation Authority (NTCA):** NTCA was established in December 2005 following a recommendation of the Tiger Task Force. Tiger reserves in India are administered by field directors as mandated by NTCA.
- **International Big Cat Alliance conference (IBCA):** Tiger, lion, leopard, snow leopard, puma, jaguar, and cheetah are the seven main big cats that IBCA will aim to protect and conserve. 97 “range” countries, which house these large cats’ native habitat, as well as other interested countries, international organisations, etc., are able to join the alliance.

UNEP’S “CHAMPION OF THE EARTH” LIFETIME ACHIEVEMENT AWARD

CONTEXT

Madhav Gadgil, a prominent Indian ecologist, has been awarded the prestigious “**Champion of the Earth**” award for 2024 by the **United Nations Environment Programme (UNEP)**. This award is considered the **highest environmental honor** given by the UN and is presented annually to individuals or organizations that have made significant contributions to environmental protection.



FACT BOX

About the Species

- **Tiger (*Panthera tigris*)** is the largest member of the cat family (Felidae).

Key Highlights:

- **Award Category:** Gadgil was recognized in the “lifetime achievement” category for his decades-long work in environmental conservation, especially in India.
- **Gadgil's Contribution:**
 - ▶ Gadgil has worked for over 60 years, focusing on **research, community engagement, and policymaking** related to environmental protection.
 - ▶ He is best known for his work in the **Western Ghats**, a **biodiversity hotspot** in India.
 - ▶ His research and advocacy helped bring attention to the fragile ecosystems in this region, which are under threat from industrialization and climate change.
- **Gadgil's Approach:**
 - ▶ Throughout his career, Gadgil has been a “people's scientist”. He has always emphasized the importance of **community-driven conservation**, which involves local people in the protection of their ecosystems.
 - ▶ His work has also influenced **policy decisions** at both the state and national levels.
- **Other 2024 Awardees:** Alongside Gadgil, five other individuals and organizations were also honored in different categories:
 - ▶ **Sonia Guajajara** (Brazil) – **Policy Leadership** category for her work with indigenous people.
 - ▶ **Amy Bowers Cordalis** (USA) – **Inspiration and Action** category for indigenous rights advocacy.
 - ▶ **Gabriel Paun** (Romania) – **Inspiration and Action** category for environmental defense.
 - ▶ **Lu Qi** (China) – **Science and Innovation** category for environmental science contributions.
 - ▶ **Sekem** (Egypt) – **Entrepreneurial Vision** category for sustainable agriculture.

The Western Ghats Report (Gadgil Report):

- In **2011**, Gadgil chaired the **Western Ghats Ecology Expert Panel**, which recommended that **75% of the Western Ghats** (an area of **129,037 sq km**) be declared an **ecologically sensitive area** to protect its unique biodiversity.
- The recommendations of this report faced resistance from several state governments, and in 2014, a **second panel**, led by **K. Kasturirangan**, reduced the protected area to **50%**. Despite these changes, the government has not fully implemented the recommendations, and the issue is still ongoing.
- These recommendations have become even more critical in light of increasing **landslides and environmental damage** in the Western Ghats, such as the deadly **Wayanad landslides** in Kerala (2024), which may have been linked to environmental degradation.

PM 2.5 POLLUTION

CONTEXT

A recent study published in The Lancet Planetary Health journal has shown a **strong connection between long-term exposure to PM2.5 pollution and deaths in India**. The study found that about 1.5 million deaths occurred every year from 2009 to 2019 due to this pollution.

About PM 2.5

- PM2.5 refers to fine particles smaller than 2.5 microns that can easily enter the lungs and bloodstream, causing serious health issues like respiratory and heart problems.
- They're a mix of various chemicals and can be partly liquid, unlike solid dust particles. When these particles are mainly liquid, they're called aerosols.
 - ▶ **Natural kinds of aerosols** include **dust, sea salt and volcanic ash**
 - ▶ **Man-made sources** include **factory and auto emissions, coal combustion and biomass** burning for clearing land or farming.
- PM 2.5 particles are especially harmful as they can bypass our body's defenses like nose hairs and mucus. They can penetrate deep into our lungs, reach the alveoli, and even enter the bloodstream, posing serious health risks.
- **WHO's safety limit:** The WHO recommends an annual average of 5 micrograms of PM2.5 per cubic meter of air.

Key findings from the study:

- **Exposure to PM2.5 Pollution:** The entire population of India (around 1.4 billion people) lives in areas where PM2.5 levels are higher than the safe limit set by the World Health Organization (WHO).
 - ▶ Around 82% of India's population (about 1.1 billion people) live in areas where PM2.5 levels exceed India's own air quality standards (40 micrograms per cubic meter annually).
- **Impact on Mortality:** The study found that a 10-micron per cubic meter increase in PM2.5 pollution leads to an 8.6% higher annual mortality rate.
 - ▶ This means the more polluted the air, the higher the number of deaths, especially from diseases caused by air pollution, such as heart disease, stroke, and lung disorders.
- **Data and Methodology:** The study used death data from the Civil Registration System and PM2.5 levels measured through satellite data and over 1,000 ground-based monitoring stations.
 - ▶ The team looked at yearly data from 2009 to 2019 to understand the trends in pollution and death rates.
- **Variation in Pollution Levels:** PM2.5 levels vary widely across the country. The lowest levels were found in Lower Subansiri district, Arunachal Pradesh, with 11.2 microns per cubic meter in 2019.

- ▶ The highest levels were recorded in Ghaziabad, Uttar Pradesh, and Delhi, which had PM2.5 levels of 119 microns per cubic meter in 2016, showing the huge variation in pollution from one region to another.

AGROFORESTRY'S IMPACT ON ENDEMIC FROGS

CONTEXT

A recent study conducted looked into how agroforestry practices (like farming with trees) affect frog species in the northern Western Ghats of Maharashtra.

Key Findings

- **Low Frog Diversity in Modified Habitats:** Frog diversity was lowest in **paddy fields** and **orchards** compared to the natural plateaus, which had higher frog populations. This suggests that **agriculture** and **agroforestry** practices are **harmful to amphibians**, especially **endemic species** (species that are found only in specific regions).
 - **Endemic Frogs at Risk:** Two species of **endemic frogs** were notably less abundant in modified habitats:
 - ▶ **CEPF burrowing frog** (*Minervarya cepfi*)
 - ▶ **Goan fejevarya** (*Minervarya gomantaki*)
 - ▶ These species are particularly vulnerable because the changes in the landscape (like turning plateaus into orchards) reduce their natural habitats.
 - **Generalist Species More Common in Paddy Fields:** On the other hand, frogs like the **Minervarya syhadrensis**, which is common across South Asia, were more frequently found in **paddy fields**. This suggests that some species may be able to tolerate or even thrive in modified habitats, though this doesn't mean they are adapting in the long term. Their spread is more about the **shift in community composition** rather than true adaptation.
 - **Impact of Landscape Transformation:** The study highlights how the **conversion of plateaus** into **agricultural lands** (like mango and cashew orchards) is a major threat to the habitat of these frogs. The natural **rock pools**, which provide protection to frog eggs and tadpoles during the dry spells of the monsoon, are being destroyed. This transformation also affects local water sources, which are crucial for amphibian survival.
- ▶ **Proba-1:** Launched in 2001, focused on demonstrating advanced onboard autonomy.
 - ▶ **Proba-2:** Launched in 2009, focused on solar observation.
 - ▶ **Proba-V:** Launched in 2013, an Earth-observing satellite dedicated to vegetation mapping.
 - Proba-3 is a **joint mission** aimed at exploring the **Sun's corona**, the outermost layer of its atmosphere, which plays a crucial role in understanding solar dynamics and space weather phenomena.
 - The mission aims to study the Sun's corona at an entirely new scale by **creating an artificial eclipse**.
 - **Mission life:** Two years
 - **Launch Vehicle:** The **PSLV-C59 launch vehicle** will carry two ESA satellites, each weighing approximately 550 kg, into a highly elliptical orbit of around 600 x 60,530 km and have an orbital period of 19.7 hours.
 - The Proba-3 mission will be unique as it marks the first time two satellites, that will work together to mimic a **natural solar eclipse**:
 - ▶ Occulter Spacecraft (weighing 200 kg)
 - ▶ Coronagraph Spacecraft (weighing 340 kg)
 - Launched together in a stacked configuration, the two small satellites will demonstrate "precise formation flying. After launch, they will separate and fly in a coordinated manner, creating an **artificial solar eclipse in Earth's orbit**.
 - The artificial eclipse will provide a **100-fold increase in observation time**, enabling scientists to study the corona for longer periods than was previously possible. This mission is expected to generate about 50 eclipses per year, each lasting approximately six hours.
 - **Study of the Sun's Corona:** Studying the corona is crucial because it is the source of space weather—**solar winds, solar storms, and other phenomena** that affect both the **Earth's atmosphere and satellite operations**. Understanding the corona is key to predicting and mitigating space weather events.

Increasing reliability of ISRO's PSLV

- ISRO's PSLV has built a reputation for reliability, with only two failures in 60 launches.
- This track record, coupled with India's active space diplomacy and evolving space policy, makes PSLV a favored choice.
- The **European Space Agency (ESA)** has been increasingly reliant on ISRO for launching missions, such as **Proba-3**, due to the unavailability of its own operational launch vehicle.
- Historically, ESA's Ariane rockets were known for their reliability, and India frequently used Ariane to launch its satellites. However, with **Ariane 5 retired and Ariane 6 still under development**, ESA lacks an active launch vehicle, leading them to seek alternative providers like ISRO.

PROBA-3 MISSION

CONTEXT

The Indian Space Research Organisation (ISRO) successfully launched the **European Space Agency's "groundbreaking" Proba-3 mission** on board its **PSLV-59 rocket**.

What is Proba-3 mission?

- Proba stands for "**Project for On-Board Autonomy**", and it refers to a series of experimental missions initiated by the European Space Agency (ESA).

MARBURG VIRUS DISEASE (BLEEDING EYE VIRUS)

CONTEXT

The Marburg virus disease (MVD) outbreak in Rwanda has seen progress, and the **World Health Organization (WHO)** updated, that the 42-day countdown to declare the outbreak over will begin if there are no new cases.

What is Marburg Virus Disease (MVD)?

- The **Marburg virus** is a deadly virus that causes **Marburg virus disease (MVD)**, also known as the '**bleeding eye virus**' because one of its symptoms is **bleeding from the eyes**.
- The virus can also cause **organ failure** and death.
- The virus is mainly transmitted from **fruit bats**, and human-to-human transmission happens through contact with the bodily fluids of an infected person, such as blood, vomit, or saliva.
- The virus is highly contagious and can spread directly through bodily fluids or indirectly by touching contaminated surfaces.

■ Symptoms of Marburg Virus Disease

- ▶ High fever
- ▶ Fatigue and body aches
- ▶ Watery diarrhea and abdominal cramps (starting around the third day)
- ▶ Non-itchy rashes (usually between the second and seventh day)
- As the disease progresses, bleeding starts, usually from the eyes, but can also occur from the **nose, gums, and vagina**. This bleeding is what gives the virus its common name.
- Other symptoms include confusion and disorientation, which can happen due to the virus affecting the brain. As the disease worsens, it can lead to multi-organ failure, which can be fatal.
- The virus is **highly contagious**.
- **Diagnosis:** The Marburg virus can be diagnosed using two main tests:
 - ▶ **ELISA** (Enzyme-Linked Immunosorbent Assay)
 - ▶ **RT-PCR** (Reverse Transcription Polymerase Chain Reaction)
- **Treatment:** There is **no specific antiviral treatment** for MVD. Instead, **supportive care** is provided to help manage symptoms, which includes rehydration, pain relief, and treatment for shock or other complications.

HEMOPHILIA A

CONTEXT

Scientists in India have successfully used gene therapy to treat severe hemophilia A, a rare genetic disorder that causes spontaneous and potentially life-threatening bleeding due to a missing blood clotting factor.

How Gene Therapy Works?

- Traditionally, **severe hemophilia A** is treated by injecting a **clotting factor** called **Factor VIII** into the body regularly to prevent bleeding.
- However, gene therapy offers a **one-time treatment**. It involves **introducing a new gene** into the patient's body, which then teaches the body to produce enough **Factor VIII on its own**. This reduces the need for frequent injections.
- **Comparison with Global Treatments:** The only gene therapy approved for hemophilia A globally is **Roctavian**, which was approved by the U.S. FDA in 2023.
 - ▶ It has shown to reduce bleeding incidents from 5.4 per year to 2.6 per year over a 3-year follow-up.
 - ▶ However, Roctavian requires the use of **corticosteroids** to suppress the immune system for the therapy to work, and it uses an adenovirus to deliver the therapeutic gene.
- In contrast, the Indian trial used a different method. The gene was delivered using a **lentivirus (a safer option than the adenovirus)**, and the therapy focused on **fusing stem cells** from the patients with the clotting factor gene.
- This approach is considered safer and might even be suitable for children, as it avoids the use of immunosuppressive drugs.

Hemophilia A in India:

- Hemophilia A is a **hereditary bleeding disorder** caused by a lack of **blood clotting Factor VIII**.
- Without enough factor VIII, the blood cannot clot properly to control bleeding.
- During bleeding, a series of reactions take place in the body that helps blood clots form. This process is called the **coagulation cascade**.
- It involves as many as **20 different special proteins** called **coagulation, or clotting, factors**. **Factor VIII (eight) is one such coagulation factor**. Hemophilia A is the result of the body not making enough factor VIII.

Causes:

- **Genetic Inheritance:** Hemophilia A is inherited through an **X-linked recessive trait**. This means the gene responsible for the disorder is located on the X chromosome.
 - ▶ **Males:** Have one X chromosome, so if they inherit the faulty gene, they will develop hemophilia A.
 - ▶ **Females:** Have two X chromosomes, so if one X carries the faulty gene, the other X can compensate. Females are usually carriers and do not show symptoms but can pass the gene to their children.
 - ◆ **Family History:** Having a family member with hemophilia A increases the risk.

- **Symptoms:** Prolonged Bleeding; Joint Bleeding; Bruising and Internal Bleeding; Unexplained Bleeding
- While it is a rare condition, India has **one of the largest patient populations in the world**, with an estimated 40,000 to 100,000 people living with hemophilia. Severe cases involve having less than 1% of the necessary clotting factor.
- These patients manage their condition through **repeated Factor VIII replacements** or other treatments, which can be expensive.
- The cost of treating a hemophiliac in India can reach ₹2.54 crore over 10 years.

INS TUSHIL

CONTEXT

Defence Minister Rajnath Singh commissioned the **INS Tushil** at the Yantar Shipyard in Kaliningrad, Russia. The commissioning is seen as a significant milestone in the longstanding India-Russia defense partnership and highlights India's growing maritime power.

Key Features of INS Tushil:

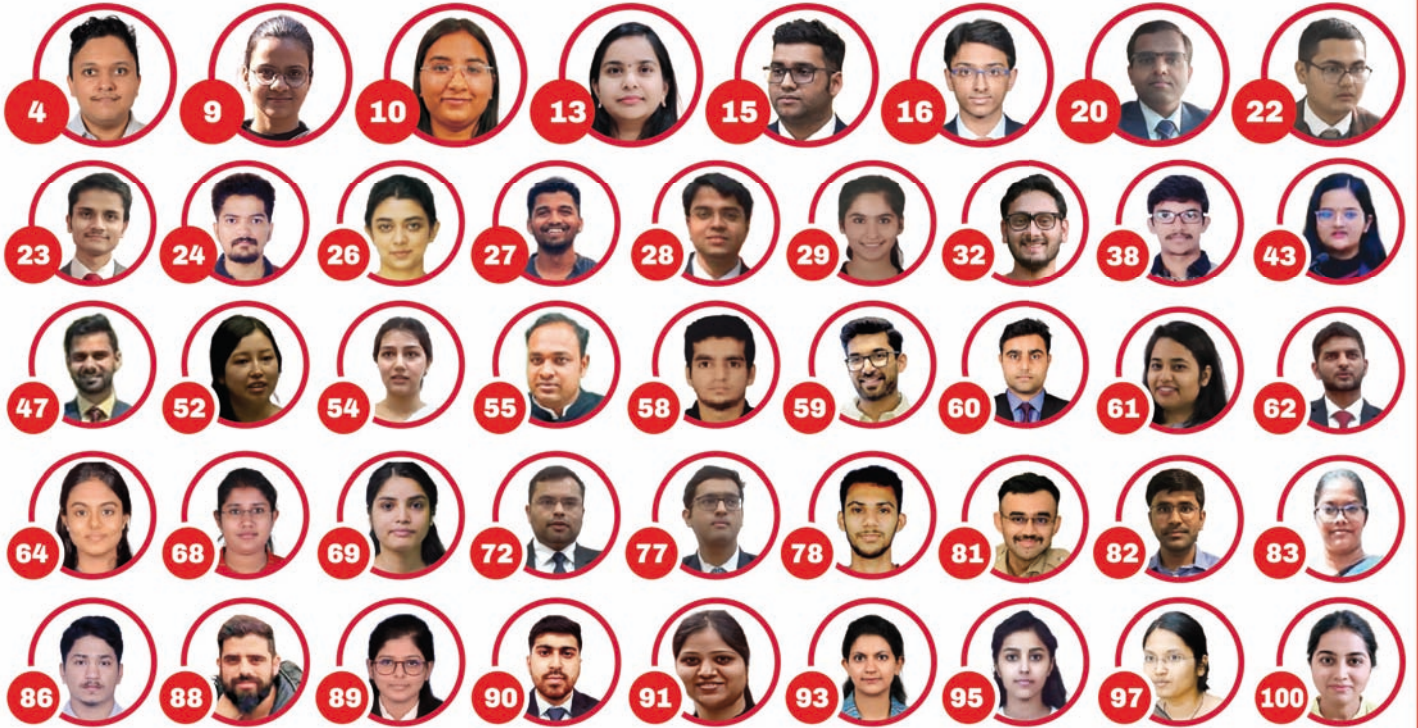
- INS Tushil is a **multi-role stealth guided missile frigate**, part of the **Krivak III class** (Project 1135.6) of ships. It is the **seventh ship** in the series, with six earlier ships (Talwar and Teg classes) delivered between 1999 and 2013.
- **Construction:** The ship was laid down in **July 2013** and launched in **October 2021**. The commissioning followed extensive trials, including weapon system tests, and the ship will be delivered in near combat-ready condition.
- **Engine:** The ship is powered by **engines from Zorya Mashproekt**, a Ukrainian company known for producing marine gas turbines. This company has provided engines for about 30 Indian naval ships.
- **Capabilities of INS Tushil:**
 - **Dimensions:** The frigate is **125 meters long** and weighs **3,900 tons**.
 - **Weapon Systems:**
 - ◆ **Surface-to-Air Missiles:** It carries **24 medium-range** and **eight short-range** surface-to-air missiles.
 - ◆ **Defensive Weapons:** The ship has a **100mm gun, two close-in weapons** for defense against incoming missiles, and **two double torpedo tubes** for anti-submarine warfare. It also has a **rocket launcher** for dealing with submarines.
 - ◆ **BrahMos Missiles:** The ship is equipped with **eight BrahMos** vertically launched **anti-ship cruise missiles**.
 - ◆ **Radar and Electronic Systems:** The ship is equipped with advanced **radars, sonar, navigation aids, electronic warfare suites, and fire control systems**.
 - **Helicopter Capability:** INS Tushil can accommodate **Kamov 28 and Kamov 31 helicopters**, enhancing its anti-submarine and early-warning capabilities.
 - **Speed:** Powered by a modern **gas turbine propulsion system**, it can reach speeds in excess of **30 knots**.





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