

RBI's FREE-AI Committee Report



For Prelims: Reserve Bank of India , Artificial Intelligence , Digital public infrastructure , MuleHunter AI

For Mains: Role of Artificial Intelligence in India's financial sector, Balancing innovation and consumer protection in digital finance

Source: TH

Why in News?

The **Reserve Bank of India (RBI)** has released the **Framework for Responsible and Ethical Enablement of Artificial Intelligence (FREE-AI) Committee Report** . It calls for **7 guiding sutras** to promote responsible AI use in the financial sector while balancing innovation and risk mitigation.

What are the RBI's 7 Sutras for AI adoption Under FREE-AI?

- **Trust is the Foundation:** Trust is non-negotiable and should remain uncompromised. Build **Artificial Intelligence (AI)** systems that are reliable, transparent, and inspire public confidence.
- **People First:** AI should support human decision-making but defer to human judgment and citizen interest, prioritising welfare, dignity, and inclusion.
- **Innovation over Restraint** : Encourage responsible innovation while avoiding unnecessary restrictions.
- **Fairness and Equity** : AI outcomes should be fair and non-discriminatory.
- **Accountability** : Accountability rests with the entities deploying AI and clearly define responsibilities for AI decisions and their impacts.
- **Understandable by Design** : Make AI systems and their decisions interpretable for users and regulators.
- **Safety, Resilience, and Sustainability** : Develop AI that is secure, adaptable, and sustainable in the long term.

7 Sutras

A set of foundational tenets that will serve as the guiding principles for the development, deployment, and governance of AI in the financial sector.

TRUST IS THE FOUNDATION
Trust is non-negotiable and should remain uncompromised



PEOPLE FIRST
AI should augment human decision-making but defer to human judgment and citizen interest

INNOVATION OVER RESTRAINT
Foster responsible innovation with purpose



FAIRNESS AND EQUITY
AI outcomes should be fair and non-discriminatory

ACCOUNTABILITY
Accountability rests with the entities deploying AI



UNDERSTANDABLE BY DESIGN
Ensure explainability for trust

SAFETY, RESILIENCE, AND SUSTAINABILITY
AI systems should be secure, resilient and energy efficient



What Can be the Significance of AI in Finance?

- **Revenue Growth** : AI is projected to drive significant revenue growth, with investments in financial services expected to reach **Rs 8 lakh crore by 2027**.
- **Efficiency and Personalization** : AI can streamline **repetitive and time-consuming tasks** , enabling financial institutions to process large volumes of **data more quickly** and accurately, such as in **loan application processing** .
- **Financial Inclusion** : AI **uses alternative data** (like utility bills, GST filings) to assess **creditworthiness**, enabling loans to “ **thin-file or new borrowers**” excluded from traditional systems.
- **Innovation in Digital Infrastructure** : AI enhances **India's digital public infrastructure** (e.g., **Aadhaar** , **Unified Payments Interface**) to provide personalized, adaptive financial services.
- **Better Risk Management** : AI helps in fraud detection, early risk warnings, and improved decision-making, optimizing risk management processes.
 - J.P. Morgan's AI payment validation cut fraud, lowering account rejection rates by 15–20%.
- **Synergies with Emerging Tech** : AI's integration with quantum computing and privacy technologies promises enhanced performance and security in finance.

What are the Challenges of AI in Finance?

- **Model Bias and Risk** : AI models can inherit biases from training data, leading to unfair decisions. The **"black box"** nature makes them hard to audit.
- **Third-Party Risks** : Heavy reliance on a few vendors or cloud providers can cause service disruptions, software issues, and cyber vulnerabilities.
- **Regulatory and Liability Concerns** : The lack of transparency in AI models complicates **liability allocation in case of errors or biased outcomes**.
- **Cybersecurity Threats** : While AI can improve security, it also opens new attack routes like data poisoning, adversarial inputs, and deepfakes.
- **Ethical and Consumer Protection Issues** : Algorithmic bias, privacy violations, and lack of transparency can **undermine consumer trust and exclude vulnerable groups**.
- **Risk of Non-Adoption**: Not using AI can hurt competitiveness, reduce efficiency, slow financial inclusion, and leave systems exposed to AI-powered threats.

India's Policy Developments on AI in Finance

- The RBI has introduced **MuleHunter AI** , developed by **RBI Innovation Hub** to help banks quickly detect mule accounts and curb digital frauds.
 - **RBI's digital lending rules** require auditable AI credit assessments with **human oversight** and robust grievance redressal for AI-driven decisions.
- **Securities and Exchange Board of India (SEBI) consultation paper** in 2025 provides guidelines for responsible AI use in Indian securities markets.
- **IndiaAI Mission** aims to foster AI innovation, enhance research, and improve access to computer infrastructure.

What are the RBI's Recommendations for AI in Finance?

- **Innovation Enablement**: Establish **high-quality financial sector data infrastructure** as part of digital public infrastructure, integrated with AI Kosh.
 - Create an AI Innovation Sandbox like **GenAI Digital Sandbox** , a secure test environment for financial institutions to trial AI models using anonymised data, with tools to detect **bias or errors and ensure compliance** with AML, KYC, and consumer protection norms.
- **Consumer Protection & Security**: Organizations should conduct proportionate AI red teaming through periodic and trigger-based tests and implement incident reporting frameworks with good-faith disclosure to manage AI risks effectively.
- **Capacity Building within REs**: Develop structured training programs for AI governance and risk mitigation at all levels within institutions.
 - Establish frameworks for exchanging AI use cases and best practices across the financial sector.
- **AI Incident Reporting**: Create an AI incident reporting framework for timely detection and disclosure of AI-related issues.

Conclusion

The FREE-AI framework outlines how AI can be responsibly and ethically adopted in India's financial sector, offering a roadmap for regulators, financial institutions, and technology providers to harness AI's potential effectively.

Drishti Mains Question:

Discuss the significance of the Reserve Bank of India's "Seven Sutras" in balancing innovation with ethical safeguards in the adoption of Artificial Intelligence in the financial sector.

[Watch Video on YouTube: [▶ https://www.youtube.com/embed/vzJTDs7niu4](https://www.youtube.com/embed/vzJTDs7niu4)]

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. With the present state of development, Artificial Intelligence can effectively do which of the following? (2020)

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below:

- (a) 1, 2, 3 and 5 only
- (b) 1, 3 and 4 only
- (c) 2, 4 and 5 only
- (d) 1, 2, 3, 4 and 5

Ans: (b)

Mains:

Q. Introduce the concept of Artificial Intelligence (AI). How does AI help clinical diagnosis? Do you perceive any threat to privacy of the individual in the use of AI in healthcare? (2023)

Semiconductor Industry in India



For Prelims: India Semiconductor Mission , Development of Semiconductors and Display Manufacturing Ecosystems in India , Semiconductor Fab.

For Mains : India's Semiconductor Industry, India Semiconductor Mission (ISM), Importance of Semiconductor Fabrication, Challenges and Way Forward

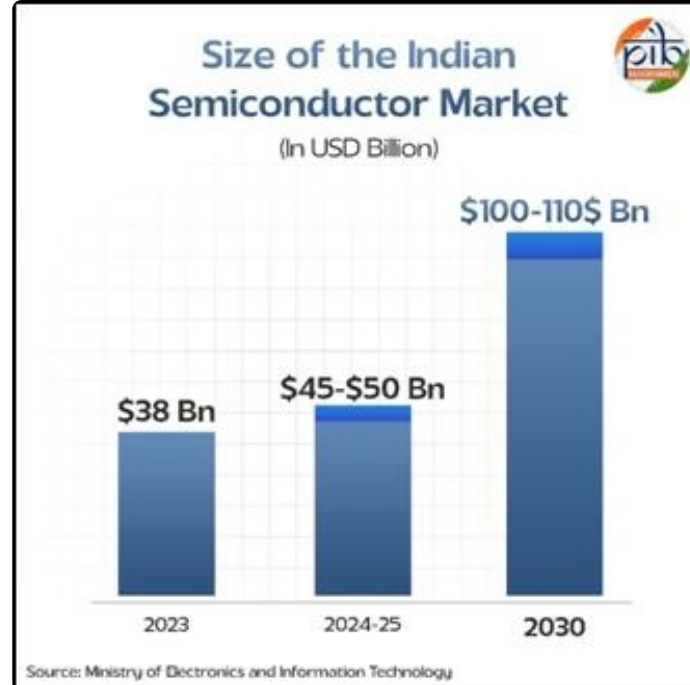
Source: PIB

Why in News?

The **Union Cabinet** approved 4 new semiconductor projects in **Odisha, Punjab, and Andhra Pradesh** under the **India Semiconductor Mission (ISM)** , bringing the total to **10 projects** across **6 states** .

What are the Key Trends and Opportunities Shaping the Growth of India's Semiconductor Market?

- **Market Size:** India's semiconductor consumption market, valued at **USD 52 billion** in 2024-25, is expected to reach **USD 103.4 billion by 2030** with **Compounded Annual Growth Rate (CAGR)** of **13%**.
 - **Mobile handsets, IT, and industrial applications** account for **approx 70% of revenue** , while **automotive and industrial electronics** offer significant scope.
 - Taiwan, South Korea, Japan, China, and the US dominate the semiconductor industry.
 - India's imports of **Integrated circuits (ICs)** , memory chips, and amplifiers surged by 2,000%, 4,500%, and 4,800% from FY16-24, with China supplying nearly **one-third of these imports**.



• Key Opportunities for India:

- **Large Market Potential:** India has emerged as the **world's second-largest market** for 5G smartphones, trailing only behind China, holding a **13% share** , behind China's **32%** .
- **Surging Domestic Demand:** Growing consumption of **mobile devices, computers, and digital technologies** , coupled with the **5G rollout** and **AI adoption** , is driving **strong demand for advanced semiconductors**.
- **Global Partnerships & Support:** Collaborations with **global semiconductor leaders** and countries like **US and Japan** facilitate **technology transfer** and enhance India's capabilities.
- **Semicon India Programme** and expansion of **manufacturing and digitalisation** strengthen India's semiconductor ecosystem.



- **Cheaper Electronics:** Phones, TVs, Laptops made in India.
- **Manufacturing in India** leading to **Stronger Economy** (less import, more Exports).
- **More Jobs and new Opportunities.**



- **Opens the door** to strengthen **global electronics value chains**.
- **National Security:** Chips are used in **Defence, Space and Communication**.
- **Innovation Hub:** Indian Startups and students can now design **world-class technology at home**.

What is the India Semiconductor Mission (ISM)?

- **About: ISM**, approved in **2021**, aims to boost India's **global electronics value chain presence** and establish it as a **global manufacturing hub**.
 - It **operates** under the **Ministry of Electronics and Information Technology (MeitY)**.
- **Objective** : To **support chip design startups**, promoting **indigenous IP and technology transfer**, fostering **research, innovation, and industry-academia collaboration**.
 - It aims to reduce **import dependence** to strengthen India's **global semiconductor presence**.
- **Mission Focus:**
 - Set up **chip manufacturing fabs**
 - Create **packaging and testing units (ATMP/OSAT)**
 - Support **chip design startups**
 - Train **engineers and technical talent**
 - Attract **global semiconductor investments**
- **Key Schemes under ISM:**
 - **Semiconductor Fabs Scheme:** Providing up to **50% fiscal support** for wafer fabrication(fabs) units.
 - **Display Fabs Scheme:** Up to **50% financial assistance** for AMOLED/LCD display fabs to promote domestic innovation.
 - **Compound Semiconductors & ATMP/OSAT Scheme:** Up to **50% support** for compound semiconductors, MEMS/sensors, silicon photonics, and downstream packaging/testing facilities.
 - **Design Linked Incentive (DLI) Scheme:** Promotes **semiconductor design startups** and **Micro Small Medium Enterprises (MSMEs)** by financial support up to **Rs 15 crore per company** across product development stages.

Initiatives to Promote India's Semiconductor Industry in India

- **Production Linked Incentive (PLI) scheme:** **PLI** for **large-scale electronics manufacturing and IT hardware** to boost domestic production and exports.
- **Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS):** Strengthened component and semiconductor manufacturing ecosystem.
- **Electronics Manufacturing Clusters (EMC & EMC 2.0):** Developed infrastructure and ecosystem for electronics manufacturing.
- **Public Procurement (Preference to Make in India) Order, 2017:** Prioritizes **domestically manufactured products** in government procurement.
- **Tax Reforms:** Rationalization of tariffs, exemption of **basic customs duty on capital goods**, and other incentives.
- **FDI Policy:** Allows **100% FDI** in electronics manufacturing, subject to applicable laws/regulations.

What are the Key Challenges to India's

Semiconductor Industry?

- **Infrastructure & Innovation Challenges:** Semiconductor fabrication involves **500-1,500 complex steps in cleanrooms** , requiring advanced **infrastructure, technology, and skilled talent** .
 - High costs of **fab setup, R&D, and equipment** , coupled with India's **weak semiconductor research and dependence on imported components and IP** , limit innovation and technological self-reliance.
- **Skilled Workforce Gap:** India currently employs about 220,000 semiconductor professionals, but the **industry faces a projected shortfall of 250,000 to 350,000** skilled workers by 2027 across the semiconductor value chain
- **Technology & Global Competition:** **Taiwan and South Korea dominate** global semiconductor production (80% of chip foundries), while **ASML (Netherlands) controls EUV lithography**, and **Nvidia and ARM** lead chip design, limiting India's access to advanced technologies.
- **Environmental & Regulatory Challenges:** Semiconductor manufacturing uses **hazardous chemicals, toxic metals, and high energy** , creating environmental risks and added compliance costs.
 - **Complex regulations, IP issues, export controls, and policy uncertainty** increase operational challenges for manufacturers.

What Steps Should India Take to Strengthen Its Semiconductor Industry?

- **Skill Development:** Establish **specialized training programs** in **chip design, fabrication, and testing** to build a skilled workforce.
- **Boost R&D & Indigenous IP:** Increase investment in **research and development** , support **indigenous product design** , and develop **intellectual property** , enabling **startups and smaller companies** to compete globally.
- **Incentives & Policy Support:** Strengthen government initiatives like **India Semiconductor Mission (ISM)** and state-level policies (e.g., **UP Semiconductor Policy 2024**) to **attract investments** and promote semiconductor manufacturing.
- **Chip Diplomacy & Niche Focus:** Promote **international collaboration** ("chip diplomacy") and focus on **niche technologies** like **MEMS and sensors** to position India in specialized segments of the global market.
- **Private Sector Participation & Strategic Opportunities:** Encourage **private investment** and collaborations, such as **Tata-PSMC fab in Gujarat** .
 - Leverage **geopolitical shifts** (US-China tensions) to **expand India's semiconductor footprint**.

Conclusion

India's **semiconductor sector** is growing rapidly, driven by **ISM, PLI, and SEMICON India** , rising **domestic demand** , and **global partnerships** . Strengthening **infrastructure, technology, and skills** will be key to making India a **global hub for semiconductor manufacturing and design** .

SEMICONDUCTORS

Semiconductors are materials having conductivity between conductors and insulators

EXAMPLES

- **Pure Elements:** Silicon and Germanium
- **Compounds:** Gallium Arsenide and Cadmium selenide

SIGNIFICANCE

- Essential to almost all sectors of the economy – **aerospace, automobiles, communications, clean energy, information technology** and **medical devices** etc.

SEMICONDUCTORS AND INDIA

- **India Imports from:** China, Taiwan, USA and Japan
- **Indian Semiconductor Market:** Expected to reach **USD 55 bn** by **2026**

SCHEMES

- ↳ **Production-Linked Incentive (PLI) scheme**
- ↳ **Design Linked Incentive (DLI) Scheme**
- ↳ Scheme for Promotion of Manufacturing of Electronic Components and Semi-conductors (SPECs)

OBJECTIVES

- ↳ Encourage semiconductor and display manufacturing in the country.
- ↳ Nurture >20 domestic companies in semiconductor design
Achieve a turnover of > Rs.1500 crore in next 5 years
- ↳ Manufacture electronics components and semiconductors

INDIA'S SEMICONDUCTOR MISSION (ISM)

VISION

- Build a **vibrant semiconductor** and **display design** and **innovation ecosystem**

LAUNCHED

- 2021

NODAL MINISTRY

- Ministry of Electronics and Information Technology (MeitY)

TOTAL FINANCIAL OUTLAY

- Rs 76,000 crore

COMPONENTS

- Scheme for setting up of Semiconductor Fabs
- Scheme for setting up of Display Fabs
- Scheme for setting up of Compound Semiconductors/Silicon Photonics/Sensors (including MEMS) Fabs/ Discrete Semiconductors Fab and Semiconductor ATMP/OSAT
- DLI Scheme



Drishti IAS

Drishti Mains Question:

Examine the growth potential of India's semiconductor sector and suggest measures to overcome key challenges for self-reliance.

[Watch Video on YouTube: [▶ https://www.youtube.com/embed/TjKilCykfbE](https://www.youtube.com/embed/TjKilCykfbE)]

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims:

Q. Which one of the following laser types is used in a laser printer? (2008)

- (a) Dye laser
- (b) Gas laser
- (c) Semiconductor laser
- (d) Excimer laser

Ans: (c)

Q. With reference to solar power production in India, consider the following statements: (2018)

1. India is the third largest in the world in the manufacture of silicon wafers used in photovoltaic units.
2. The solar power tariffs are determined by the Solar Energy Corporation of India.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: (d)

Mains

Q. Why is nanotechnology one of the key technologies of the 21st century? Describe the salient features of Indian Government's Mission on Nanoscience and Technology and the scope of its application in the development process of the country. (2016)

Cess and its Role in Union Finance



Source: TH

Why in News?

The **Comptroller and Auditor General (CAG)** has flagged a Rs 3.69 lakh crore shortfall in transferring **cess** collections to their intended funds, bringing into **focus the purpose and proper utilisation of such levies**.

What is the Purpose of Levying a Cess?

- **About:** A cess, recognized under **Article 270** is an **additional tax levied by the Government of India** for a **specific purpose** . It is levied on top of existing taxes or duties listed in the **Union List** .
- **Purpose:** Cess is distinct from regular taxes as it is **earmarked for a designated purpose** . The purpose of a cess must be clearly stated in the law imposing it and should be for a Union purpose, outside List II (State List) of the **Seventh Schedule**.
 - Cesses are **named after their purpose** (like **Education Cess** or **Swachh Bharat Cess**) and must be used only for that purpose, **without being diverted for general government expenditure**.
- **Role in Union Finance:** Proceeds from a cess, along with surcharges levied by the Union, are credited to the **Consolidated Fund of India** and are excluded from the divisible pool of taxes, remaining under the Union's control.

Surcharge

- **About: Article 271 of the Indian Constitution** empowers Parliament to impose a surcharge on certain taxes and duties for Union purposes.
 - This surcharge is in addition to the existing taxes and duties, often referred to as a **“tax on tax.”**
- **Applicability:** Applied to individuals, companies, and other taxpayers in certain income brackets. Usually applicable when income exceeds Rs 50 lakh in a financial year.
 - The rate varies based on income level and type of income.
- **Purpose and Nature:** It is progressive in nature (higher earners contribute more), it promotes social equity and addresses income disparity
 - **Increases total tax liability** for high-income taxpayers.
- **Cess vs. Surcharge:** Both Cess and surcharge are credited to **Consolidated Fund of India (CFI)** and are not shared with the states but differ in usage.
 - Surcharge is spent like other taxes, while cess must be allocated separately and used only for its specific purpose.

The **13th and 14th Finance Commissions** upheld the exclusion of surcharge from the divisible tax pool, but recommended reducing the Centre's dependence on surcharge revenues.

How do Tax and Cess Differ in Purpose and Usage?

Aspect	Tax	Cess
Definition	Government levy on income, property, etc.	Additional levy on an existing tax or duty for a specific purpose
Revenue Use	Goes to Consolidated Fund, used generally	Credited to Consolidated Fund but used only for designated purpose
State Sharing	Shared with states	Generally, not shared with states
Examples	Income Tax, GST, Corporate Tax	Swachh Bharat Cess, Education Cess, Krishi Kalyan Cess

[Watch Video on YouTube: [▶ https://www.youtube.com/embed/SFid3UeDRoI](https://www.youtube.com/embed/SFid3UeDRoI)]

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. The sales tax you pay while purchasing a toothpaste is a (2014)

- A. tax imposed by the Central Government
- B. tax imposed by the Central Government but collected by the State Government
- C. tax imposed by the State Government but collected by the Central Government
- D. tax imposed and collected by the State Government

Ans: (D)

Wildfires



Source: TOI

Why in News?

Wildfires in **Albania, Greece, Italy, Portugal, Spain, and Turkey** have resulted in fatalities and

forced thousands to evacuate the affected regions.



What are the Key Facts Regarding Wildfires?

- **About:** **Wildfire** is an **uncontrolled fire** in **forests** , **grasslands** , **brushlands** , or **tundra** , spread by **wind** and **terrain** , and sustained by **fuel** , **oxygen** , and **heat**.
- **Classification:**
 - **Surface Fire:** Burns along the ground, consuming **dry leaves, twigs, and grasses** on the forest floor.
 - **Underground/Zombie Fire:** Low-intensity fires burning **organic matter beneath the surface** , spreading slowly and often undetected, sometimes persisting for **months** .
 - **Canopy/Crown Fire:** Spreads through the **upper tree canopy** , often intense and hard to control.
 - **Controlled Deliberate Fire: Planned burns** by forest agencies to reduce fuel loads and support **ecosystem health** .
- **Causes:**
 - **Geography:** **Mediterranean climate regions** are **highly susceptible to wildfires** , particularly during the **hot, dry summer months** , due to the combination of **high temperatures** , **low humidity** , and **dry winds** (E.g., **Sirocco** - hot wind that blows from the **Sahara Desert to southern Europe** and increases wildfire risk).
 - **Climate Change** : **Dry spells** , erratic **monsoons** , unseasonal **heat waves** , and **El Niño** events dry vegetation and increase **flammability** .
 - **Human-Induced Factors** : **Slash-and-burn** , **agricultural expansion** , **infrastructure projects** , **tourism** , and **waste mismanagement** trigger accidental and deliberate fires.
 - **Weak Fire Management & Technology** : **Inadequate surveillance** , **outdated response systems** , **lack of AI-based prediction** , and poor **weather-based forecasting** delay control efforts.
 - **Biodiversity Loss & Flammable Vegetation** : **Dry deciduous forests** , **pine needles** , **bamboo groves** , and **monoculture plantations** act as natural fuel, reducing **native biodiversity** .
 - **Deforestation & Habitat Fragmentation** : **Infrastructure** , **mining** , **unregulated grazing** , and **weak policy enforcement** degrade forests, intensify **human-wildlife conflict** , and harm ecosystems.
- **Impacts:**
 - **Air Pollution & Climate Change** : Wildfires release **CO₂** , **PM2.5** , **Methane** and other **toxic gases**

, worsening **air quality** and contributing to **global warming** .

- **Biodiversity & Habitat Loss** : **Forest destruction** kills **wildlife** , threatens **endangered species** , and disrupts **ecosystems** .
 - A study estimates that in **2020** , **wildfires in Brazil** claimed the lives of nearly **17 million animals** , including **reptiles, birds, and primates** , while causing **severe biodiversity loss** .
- **Human Health Risk** : **Smoke inhalation** leads to **respiratory problems** , **eye irritation** , **heat-related injuries** , and **mental stress** in affected populations.
- **Economic Damage** : **Property destruction** , **firefighting costs** , and **agricultural losses** strain **economies** .
- **Soil & Water Degradation** : **Erosion** and **ash runoff** pollute **water sources** , harming **aquatic life** and **drinking water** .
- **Wildfires in India:**
 - According to the **India State of Forest. Report (ISFR) 2021** , more than **36%** of the country's forest cover was estimated to be **prone to frequent forest fires** . **2.81%** of the country's forest cover was **extremely prone to fires** , whereas **7.85%** of forest cover is found to be **very highly fire prone** .
 - Forest fire incidents have surged in mountain regions: **Himachal Pradesh** by **1,339%** , **Jammu & Kashmir** by **2,822%** , and **Uttarakhand** by **293% (ISFR 2023)**.

Common Wildfire Control Material & Method

- **Pink Fire Retardant** is a **chemical mixture** designed to **slow or suppress wildfires** .
- It mainly contains an **ammonium phosphate-based slurry** , with salts like **ammonium polyphosphate** and **toxic metals** such as **chromium** and **cadmium**.
- The **Bambi Bucket** is a special **container hung under a helicopter** , filled by dipping it into a water source like a river or pond, and **emptied over a fire through a bottom valve**.
- It is especially useful for tackling **wildfires in hard-to-reach areas** , and helicopters worldwide often use it to fight forest fires.

What Steps are Needed to Tackle Wildfires?

- **Integrated Fire Management** : Use **prescribed burning** , **fuel load reduction** , **firebreaks** , strict **fire safety regulations** , and **public awareness** to prevent uncontrolled fires.
- **Community & Tribal Participation** : Involve **local communities** , **Van Panchayats** , and **tribal groups** with **training** , **livelihood incentives** , and **traditional conservation** for early detection and response.
- **Advanced Technology & Early Warning** : Apply **AI predictive models** , **satellite monitoring** , **drones** , and **real-time alerts** for rapid containment.
- **Ecosystem Restoration & Resilience** : Support **fire-resistant species** , **green firebreaks** , **climate-resilient forestry** , **wetland restoration** , and **sustainable agroforestry** .
- **Policy Enforcement & Eco-Sensitive Development** : Enforce **no-go zones** for **mining/infrastructure** , use **watershed management** , **sustainable tourism** , and **blockchain** for transparent conservation funding.

Drishti Mains Question

Examine the factors contributing to the rising frequency and severity of wildfires, and propose strategies for their effective mitigation.

[Watch Video on YouTube: [▶ https://www.youtube.com/embed/W7-kO9qt88Y](https://www.youtube.com/embed/W7-kO9qt88Y)]

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. Consider the following: (2019)

1. Carbon monoxide
2. Methane
3. Ozone
4. Sulphur dioxide

Which of the above are released into the atmosphere due to the burning of crop/biomass residue?

- (a) 1 and 2 only
- (b) 2, 3 and 4 only
- (c) 1 and 4 only
- (d) 1, 2, 3 and 4

Ans: (d)

Q. In the grasslands, trees do not replace the grasses as a part of an ecological succession because of (2013)

- (a) insects and fungi
- (b) limited sunlight and paucity of nutrients
- (c) water limits and fire
- (d) None of the above

Ans: (c)

Mains

Q. Most of the unusual climatic happenings are explained as an outcome of the El-Nino effect. Do you agree? (2014)

State Health Regulatory Excellence Index



Source: PIB

The Union Health Ministry has launched the **State Health Regulatory Excellence Index (SHRESTH)**.

- SHRESTH, developed by the **Central Drugs Standard Control Organization (CDSCO)**, is a virtual **gap assessment tool for states** to evaluate their current status and progress toward maturity certification, aiming to ensure drug safety, quality, and efficacy across all states and UTs.
- **Key Features of SHRESTH :**
 - **State Classification** : States are categorized as **Manufacturing States** and **Primarily Distribution States/UTs**.
 - **Assessment Criteria** : The SHRESTH Index evaluates states on aspects like human resources, lab testing capacity, licensing activities, surveillance, and responsiveness to public grievances.
 - **Monitoring and Accountability:** States submit monthly data to the CDSCO, which compiles and scores the index, and shares the results with the states and UTs each month.
- **Global Standards** : SHRESTH aims to be in line with the **World Health Organization's (WHO) Global Benchmarking Tool (GBT) Maturity Level 3 (ML3)**, reinforcing India's position as the "Pharmacy of the World."
 - WHO's GBT assesses the **regulatory maturity** (on four levels (ML1-ML4)) of national systems for medicines, vaccines, blood products, and medical devices, ensuring high-quality, consistent regulation worldwide.
 - India has achieved ML3 in 2024, which reflects a stable, well-functioning, and integrated regulatory system.

Read more: [Reforming India's Pharmaceutical Sector](#)

Income Tax Bill, 2025



Source: IE

Both houses of the Parliament passed the **Income Tax Bill, 2025**, which seeks to simplify, rationalise, and shorten the existing **Income Tax 1961 Act** .

- The Bill defines **virtual digital space** as any digital environment including **email, social media, online accounts, cloud servers, websites** , and digital platforms.
 - If retained, **tax authorities could access or bypass passwords to investigate potential tax evasion** or under-reported income, with companies potentially required to assist.
- It replaces the dual concepts of '**assessment year**' and '**previous year**' with a **uniform 'tax year'**, defined as **1 st April 1 to 31 st March**.
- The Bill removes the restriction limiting refunds to on-time filed returns, allowing claims even for **belatedly filed returns**.
- The Bill clarifies there will be no **Tax Collected at Source (TCS)** on **Liberalised Remittance Scheme (LRS)** remittances for education purposes financed by financial institutions.
 - Individuals with no tax liability can seek a **nil Tax Deduction at Source certificate** in advance.
- The applicability of the **Alternate Minimum Tax (AMT)** for **Limited Liability Partnerships (LLPs)** has been aligned with the existing provisions of the IT Act.
 - AMT ensures that individuals benefiting from tax deductions and exemptions pay at least the minimum amount of tax.

Income Tax

- It is a **direct tax** on the income earned by individuals, companies, or other entities during a financial year. For individual taxpayers in India, it is levied according to **progressive tax slabs**.
- These **slabs may vary** under the new tax regime or with applicable rebates and deductions.
- According to the **Central Board of Direct Taxes** , India's gross direct tax collections for 2025-26 stood at Rs 7.99 lakh crore, down 1.9% from Rs 8.14 lakh crore in FY 2024-25.

Read more: [Challenges and Reforms in India's Taxation System](#)