

FINDER

FORTUNE IAS NEWS DAILY EXPLAINER



Click here
for daily
MCQs

THE HINDU

Taxing 'frivolous' industries will not fund India's science

Prelims: General Studies Paper 1

Current events of national and international importance

Mains: General Studies 3

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

Why in Focus?

- The **article argues that India's science funding problem cannot be solved simply by taxing profitable sectors** like the IPL, cinema or tourism.
- The **focus should be on improving how research money** is used and encouraging private investment.

Key Highlights

- **Taxing one industry to fund another is a zero-sum approach;** sports, cinema and other industries also create jobs and economic activity.

Zero-sum approach: A situation where one party's gain is considered equal to another party's loss, assuming total resources are fixed.

- **India's science funding is often wasted because of rigid rules** on how research money can be spent.
- **Scientists may have to buy what government rules allow**, rather than what their laboratories actually need.

- **Complex procurement procedures can delay experiments** and research projects.
- High Goods and Services Tax (GST) and **import duties on scientific equipment increase research costs.**

Implications

- **Rigid funding rules** lead to wastage of research funds.
- **Slow procurement can delay scientific research** and innovation.
- Difficult recruitment rules may contribute to **scientific talent leaving India.**
- **Strict Corporate Social Responsibility (CSR) and Foreign Contribution (Regulation) Act (FCRA)** rules can discourage private and foreign research funding.
- **Import restrictions can limit access** to high-quality scientific equipment.

Way Forward

- **Give research institutions greater freedom to use funds** according to their needs.
- **Simplify procurement and recruitment rules** for scientists.
- **Reduce GST and import duties** on scientific equipment.
- **Make CSR and FCRA rules easier** to encourage private and foreign research funding.
- **Promote industry-academia partnerships** and private investment in science.



Mains Question

"India's science sector needs not only more funding but also better financial and institutional systems. Discuss the major challenges facing scientific research in India and suggest reforms." (250 Words)

Match AI models to workloads, not leaderboards

Prelims: General Paper 1

Current events of national and international importance.

Mains: General studies 3

Science and Technology- developments and their applications and effects in everyday life.

Why in Focus?

- The AI (Artificial Intelligence) industry is moving beyond the race for the **best-performing model**. The focus is now on choosing the **right model and deployment method** based on cost, security, data protection and business needs.

Key Highlights

- Open-weight models** allow companies to download and run AI models on their **own computer systems or servers** instead of sending all data to an external AI company, while **closed models** cannot be downloaded and are usually accessed through the **AI company's online service**.
- Open-weight models** give companies **more control over their data**. They can also modify or fine-tune the model according to their specific needs.
- However, running an AI model independently is costly. Companies need **powerful GPUs (Graphics Processing Unit), technical experts, cybersecurity systems and regular maintenance**.
- Managed AI platforms** provide a middle option. They run open-weight models for companies, so companies get the benefits of open models without having to build and maintain their own AI infrastructure.
- Sarvam Inference** is an example in India.

It provides AI models through **India-based infrastructure**, helping companies keep their data within India.

- Therefore, there is **no single best AI model or deployment method**. Companies should choose the approach according to the type of work, data sensitivity, cost and security requirements.

Implications

- High cost** because running AI models requires expensive computing infrastructure and skilled professionals.
- Security responsibility** increases when companies operate AI models themselves because they must protect the system and data.
- Vendor dependence** can continue even with managed platforms because companies may become dependent on the platform provider.
- Data privacy concerns** are important when AI systems handle personal, financial, government or business-sensitive information.
- SMEs (Small and Medium-sized Enterprises) may be left behind** because smaller companies may not have enough money, infrastructure or technical expertise to operate advanced AI systems.
- Lack of standards** can make it difficult to shift from one AI model or platform to another.

Way Forward

- Choose AI according to the task** rather than simply choosing the highest-ranked model.
- Use **self-hosted AI** for highly sensitive work such as cybersecurity investigations and confidential Intellectual Property (IP).
- Use **managed open-weight platforms** for organisations that need better data control but cannot afford their own AI infrastructure.
- Strengthen **AI governance, data protection and cybersecurity rules** to ensure responsible use of AI.
- Promote **Indian AI infrastructure, open standards and skill development** to reduce dependence on foreign technology and make AI accessible to smaller companies.

Mains Question

“The future of Artificial Intelligence lies not only in developing powerful models but also in choosing the right way to deploy them.” Discuss the opportunities and challenges of open-weight and managed AI systems for India. (15 marks, 250 words)

Why Adivasis are resisting the Ken-Betwa river-linking project

Prelims : General Studies Paper I

Indian Polity and Governance-Constitution, Political System, Panchayati Raj, Public Policy, Rights Issues, etc.

Mains: General Studies 2

Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.

Why in Focus?

- The **Ken-Betwa river-linking project** in **Bundelkhand** has raised concerns over the displacement of local communities and the loss of **forests, farmland and livelihoods**.

Key Highlights

- The **Ken-Betwa project** aims to transfer water from the **Ken River to the Betwa River** through a **231-km canal** for irrigation and drinking water in water-stressed Bundelkhand.
- The project was approved by the **Union Cabinet in 2021** and covers parts of **Madhya Pradesh and Uttar Pradesh**.
- The **Daudhan Dam** across the **Ken River**, the main part of the **Ken-Betwa River Linking Project**, will **submerge 10 villages** once completed.
- The project falls within the **Panna Tiger Reserve**, requiring the displacement of people from **12 villages to offset forest loss**.
- Around **22 villages** across **Panna and Chhatarpur districts** are expected to be affected by the project.
- Affected communities, including **Adivasis**, depend heavily on forests, farmland and rivers for their **livelihoods, culture and social life**.

- The affected villagers have raised concerns over **compensation, rehabilitation, loss of land and forests, and displacement of entire communities**.
- Eligible affected villagers aged **18 years or above in February 2024** are entitled to **₹12.5 lakh compensation and ₹5 lakh per acre of acquired land**.
- The **Chita Aandolan**, or symbolic pyre protest, has been led by **Adivasi women** against displacement and inadequate rehabilitation.
- A **2017 Forest Advisory Committee** record estimated that around **23 lakh trees** would be felled for the project, though some experts consider this an underestimate.
- The affected communities have demanded **land-for-land rehabilitation, village-level resettlement and greater participation in decisions concerning their displacement**.

Implications

- The project could cause significant **social and economic disruption** for forest-dependent and Adivasi communities.
- Loss of **forests and forest produce** could weaken the traditional livelihoods of displaced communities.
- Displacement may lead to the loss of **cultural identity, community networks and ancestral connections to land**.
- Large-scale tree felling could have **ecological consequences** for the Panna landscape and surrounding ecosystems.
- Inadequate rehabilitation could increase **social conflict and prolonged protests** among affected communities.
- The project highlights the challenge of balancing **water security and development needs with environmental protection and community rights**.

Way Forward

- Ensure **fair and timely compensation** and transparent assessment of affected land, houses and livelihoods.
- Follow a **community-oriented rehabilitation policy** that considers land, forests, livelihoods and social networks.



- Ensure **meaningful consultation and dialogue** with affected communities before and during displacement.
- Conduct transparent assessments of the project's **ecological and social impacts**, including forest loss.
- Protect the **livelihoods and cultural rights of Adivasi and forest-dependent communities** during resettlement.
- Strengthen **participatory decision-making and grievance-redress mechanisms** for affected communities.

Mains Question

“Large infrastructure projects can promote regional development but may also create significant social and environmental costs.” Discuss with reference to the Ken-Betwa River Linking Project. (150 Words)

The road to E20 is not without bumps

Prelims: General Paper 1

Current events of national and international importance.

Mains: General studies 2

Government policies and interventions for development in various sectors and issues arising out of their design and implementation

Why in Focus?

- India has moved towards **E20 petrol**, which contains up to **20% ethanol**, to reduce crude oil imports and pollution. However, concerns have emerged about **mileage, older vehicles, fuel quality and consumer choice**.

Key Highlights

- **E20 petrol** means petrol blended with **20% ethanol**. From **April 1, 2026**, petrol across India is required to contain up to 20% ethanol and have a minimum **Research Octane Number (RON) of 95**.
- **Newer vehicles** made under **BS-VI Phase 2 Real Driving Emissions (RDE) norms** are designed to handle higher ethanol blends better.

- Many **older vehicles** were designed for **E5 or E10 petrol**. Higher ethanol content may affect their fuel pumps, rubber seals, hoses and other fuel-system components.
- Ethanol contains less energy than petrol. Therefore, vehicles that are not properly designed for E20 may experience **lower fuel efficiency or mileage**.
- Ethanol also **absorbs water from the atmosphere**. Excess water in fuel can cause **phase separation**, corrosion and problems in the engine and fuel system.
- **Fuel quality at petrol pumps** is another concern. Water or chemical contaminants entering storage tanks or the supply chain can damage fuel injectors and other engine components.
- The debate shows the need to balance **energy security and environmental goals** with **consumer protection and the needs of India's large legacy vehicle fleet**.

Implications

- A large number of **older vehicles** were designed for lower ethanol blends and may face higher maintenance and component wear.
- **Lower fuel efficiency** can increase the amount of petrol required to cover the same distance, affecting consumers.
- **Water and chemical contamination** in ethanol-blended fuel can cause corrosion and damage to fuel-system components.
- Removing lower-ethanol or unblended petrol can reduce **consumer choice**, particularly for owners of older vehicles.
- Differences between **laboratory findings and real-world experiences** show the need for more independent and long-term research.
- The transition may increase costs for **vehicle owners, fuel dealers and automobile manufacturers** due to retrofitting and infrastructure upgrades.

Way Forward

- Provide **clear labelling of ethanol content** at every petrol pump so consumers know which fuel they are purchasing.
- Consider **dual fuel dispensing**, allowing lower-



ethanol or unblended petrol for older vehicles during the transition period.

- Conduct **independent, long-term studies** on the performance of older vehicles under different Indian climatic conditions.
- Introduce affordable and certified **retrofit kits**, such as ethanol-resistant fuel lines and seals, especially for older two-wheelers.
- Strengthen **fuel-quality testing and monitoring** at refineries, transport facilities and petrol pumps to prevent water and chemical contamination.

Mains Question

“India’s E20 transition can strengthen energy security and reduce environmental impacts, but its success depends on protecting consumers and managing the challenges faced by legacy vehicles.” Discuss. (15 marks, 250 words)

KEYWORDS

Ek Ped Maa Ke Naam (A Tree in the Name of Mother)

- Ek Ped Maa Ke Naam campaign was **launched by Prime Minister Narendra Modi on 5 June 2024, World Environment Day**.
- The **campaign encourages people to plant a tree in the name of their mother, linking environmental protection with respect for motherhood**.
- The Ministry of Environment, Forest and Climate Change (MoEFCC) **achieved the target of planting 80 crore seedlings by 25 September 2024, five days ahead of the deadline**.
- The ‘**Ek Ped Maa Ke Naam**’ app enables users to dedicate trees to their mothers, upload photographs, tag locations and monitor tree growth.

Comptroller and Auditor General (CAG)

- The Comptroller and Auditor General (CAG) of India is a **constitutional authority established under Article 148 of the Constitution**.
- The CAG is **appointed by the President of India by warrant under his hand and seal**.
- The CAG **holds office for six years or until attaining 65 years of age, whichever is earlier**.

- The **CAG audits the accounts of the Union and State governments and examines whether public money has been used in accordance with the law**.
- The **CAG’s reports on the Union and State accounts are submitted to the President or Governor**, respectively, who lays them before the concerned legislature.

Saptadhara

- **Saptadhara**, meaning “**seven streams**”, is a development framework outlined by **Prime Minister Narendra Modi** for the next **5-7 years**.
- The seven streams are **manufacturing, farming and food processing, technology and innovation, infrastructure, defence, green and blue economy, and soft power**.
- **Manufacturing** focuses on improving **cost, quality, and scale** to strengthen India’s manufacturing capacity.
- **Farming and food processing** focus on expanding **global market access** and establishing Indian **spices and millets** as **global brands**.
- **Technology and innovation** will focus on areas such as **space, quantum technology, robotics, and 6G**.



- **Infrastructure** will include **high-speed rail, highways, inland waterways, and port-led development.**
- **Defence** will emphasise **self-reliance, including drones, hypersonic technology, and cybersecurity.**
- The **green and blue economy** includes **green manufacturing, fisheries, and coastal tourism.**
- **Soft power** forms the seventh stream, focusing on strengthening India's influence through its **culture, values, and global engagement.**

Batik

- It was recently highlighted in the news in the context of **Indonesia's rich heritage** and its ongoing use as a **soft-power tool for cultural diplomacy** on the global stage.
- It is a **traditional technique of wax-resist dyeing** applied to whole cloth, where artisans use a **spouted tool or a copper stamp** to apply hot wax over specific areas to prevent them from absorbing colors during the dyeing process.
- While the technique is practiced in several countries, it is most highly developed on the **Indonesian island of Java**, where its intricate patterns hold **deep spiritual significance**, and certain designs were historically reserved exclusively for **royalty.**
- From a historical trade perspective, **ancient maritime routes** facilitated the exchange of these textile arts; India's **Coromandel Coast** also produced heavily traded wax-resist textiles (like **Kalamkari**) that influenced Southeast Asian markets.
- Recognizing its **elaborate technique, rich cultural symbolism, and role in national identity**, UNESCO officially designated **Indonesian Batik as a Masterpiece of the Oral and Intangible Heritage of Humanity** in 2009.

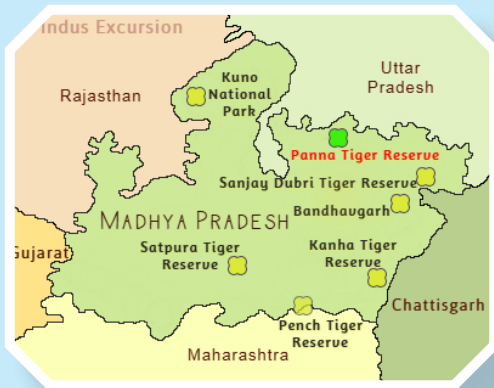
MQ-9B Sea Guardian

- It was recently in the news because India is procuring **31 of these advanced drones from the United States**, out of which **15 are the 'Sea Guardian' variant** dedicated specifically to the Indian Navy.
- Developed by the US-based **General Atomics**, it is a **High Altitude Long-Endurance (HALE) Unmanned Aerial Vehicle (UAV)** capable of flying continuously for **over 40 hours** at altitudes up to **40,000 feet.**
- It is engineered primarily for **wide-area maritime domain awareness** and can perform comprehensive **intelligence, surveillance, reconnaissance (ISR), anti-surface, and anti-submarine warfare missions.**
- The system utilizes **over-the-horizon satellite communications** and can be armed with an advanced payload, including **sonobuoys, advanced radars, and precision-guided munitions like Hellfire missiles.**
- Strategically, it serves as a **massive force multiplier for India in the Indian Ocean Region (IOR)** and can seamlessly integrate with the Navy's existing **P-8I maritime patrol aircraft** to track foreign naval and submarine movements.



Places in News

Panna Tiger Reserve



- **Panna Tiger Reserve** is a **critical tiger habitat** located in the **Vindhya Range** of **Madhya Pradesh**, covering parts of **Panna and Chhatarpur districts**.
- The reserve is characterized by **plateaus, gorges, waterfalls**, and the **Ken River**, as well as rich **archaeological and cultural heritage**.
- **Panna National Park** was established in **1981** and was declared a **Project Tiger Reserve** in **1994**.
- Panna is the **22nd Tiger Reserve in India** and the **5th in Madhya Pradesh**.
- The reserve supports **tigers, leopards, wild dogs, wolves, hyenas, sloth bears, sambar, chital, chinkara, and four-horned antelope**.
- It has rich **bird diversity**, with over **200 species**, including **migratory birds and five vulture species**.
- The dominant vegetation is **dry deciduous forest**, including **dry teak and mixed forests**, as well as **grasslands, riverine forests, open woodlands, and thorny woodlands**.
- Important **flora** includes **teak, Diospyros melanoxylon, Madhuca indica, Buchanania latifolia, Anogeissus latifolia, and Anogeissus pendula**.

Species In News

Tapanuli orangutan (Pongo tapanuliensis)

- It was recently in the news concerning its **critical habitat in the Batang Toru forest of North Sumatra, Indonesia**, highlighting conservation challenges in the region.
- Identified as a distinct species in **2017**, it is the **newest and rarest of the three recognized orangutan species** (alongside the Bornean and Sumatran orangutans).
- It is classified as '**Critically Endangered**' on the IUCN Red List, with an estimated population of **fewer than 800 individuals remaining exclusively in the Batang Toru ecosystem**, making it the **most endangered great ape globally**.
- Physically, it is distinguished from other orangutans by its **frizzier hair, a smaller skull, and a uniquely high-pitched, longer call produced by dominant males**.
- Its survival is severely threatened by **habitat loss and fragmentation** due to human activities, including **agriculture, mining, and proposed hydroelectric power projects** in its restricted ecosystem.

