

## ● POLITY

## ● ECONOMICS

## ● TECHNOLOGY

## ● ECOLOGY

## ECONOMICS AND DEVELOPMENT

## PENDING GST APPEALS SURGED IN Q1

**CONTEXT:** The number of pending appeals from taxpayers over central GST levies has risen sharply to more than 14,000 by the end of the first quarter of 2023-24, 20 % higher than such pending cases as on March 31 this year.

The GST Council at its meeting on July 11 cleared for setting up of GST Appellate Tribunals across the country. The Government aim to operationalise the first set of tribunals between November 2023 and January 2024. The plan is to establish the State benches in a phased manner based on the request of States.

Tax experts suggested this rise may be linked to the two-month GST compliance drive undertaken by the Central Board of Indirect Taxes and Customs since May, and taxpayers opting to wait for the tribunals to kick off rather than approach the High Courts.

The intensive drive over GST audits and investigations and ruling of the High Courts in several cases to file the appeals before the tribunal can be filed within three months of formation of the tribunal are cited as rise in the number of appeals.

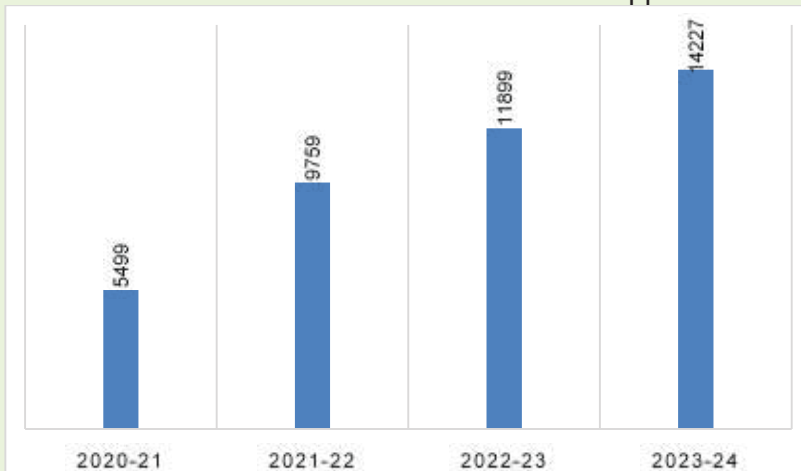


FIGURE: Column chart representation of pending appeals over central GST levies

## INTERNAL SECURITY

## EXERCISE MALABAR

**CONTEXT:** The 31st edition of the Malabar multilateral exercise comprising India, Australia, Japan and the U.S. will be held off Sydney from August 11 to 21.

Australia hosts the war games for the first time this year. The exercise with a harbour and sea phase will take place in the East Australian exercise area, a large designated area spread over a couple of hundred miles off Sydney. Exercise Malabar will be followed by AUSINDEX, the India-Australia bilateral naval exercise.

## ECOLOGY AND ENVIRONMENT

## CHEETAH

**CONTEXT:** Supreme Court addresses concern over deaths of translocated cheetahs in Kuno National Park, seeks government action.

**BACKGROUND:** Supreme Court questions reasons for cheetah deaths in Kuno National Park. Centre attributes deaths to seasonal change, court disposes conservationists' application, acknowledges government's efforts, defers to experts, and cites low survival rates for introduced cheetahs.

Cheetah translocation to Kuno National Park faced deaths of 40% of the introduced population. Surviving cheetahs are being cared for, with plans for continued annual introductions from Africa. The Supreme Court emphasizes cheetah welfare over prestige, encouraging environment adaptation if needed.

## INTERNAL SECURITY

## FOCUS ON BUILDING INFRASTRUCTURE AT LAC: JAISHANKAR

**CONTEXT:** S. Jaishankar, External Affairs Minister presented the government's recent initiatives in infrastructure-building along the Indian border.

The Minister noted Chinese infrastructure development witnessing massive strides during the 2000s on its side of the Line of Actual Control (LAC). The Foreign Minister slammed the thesis of undeveloped border along the LAC to serve the interest of India.

The Trilateral Highway, four-lane road link that was envisioned to deepen ties between India and the Southeast Asian region is facing hurdles with breakdown in the security structure in Myanmar, where the military junta took charge in February 1, 2021. The road corridor between Mizoram and the port of Sittwe in Rakhine province is also facing hurdles with the deterioration of the situation in Myanmar. Several armed resistance groups have declared war against the military junta of Nay Pyi Taw especially in the Chin and Sagaing regions of Myanmar creating hurdles in the path of Indian infrastructure projects.

The development of border along the India-Nepal border will facilitate "easier movement" and connectivity, creating bigger business opportunities in States such as Uttar Pradesh. The Raxaul-Kathmandu rail link project in the stage of "final location survey" will connect Kathmandu to India by train. The goal of the construction was aimed at facilitating greater people-to-people contact.

The improvements on India's border with Bhutan was aimed at easier land link that would enhance Bhutan's ability to attract more tourists. The planned rail connection is the first rail project of Bhutan and is expected to be completed in the next three years.

## SCIENCE AND TECHNOLOGY

## THE QUEST FOR A ROOM-TEMPERATURE SUPERCONDUCTOR

**GIST:** Superconductivity research is more than a century old, and has developed in tandem with technologies to cool materials to very low temperatures and/or apply very high pressures and techniques to understand whether a material has really become superconducting at the microscopic scale. Both are highly sophisticated enterprises with very small margins of error.

- Last month, researchers in South Korea announced — via two preprint papers uploaded to the arXiv repository — that they had found a material they called LK-99 to be a superconductor at room temperature and ambient pressure.
- Conventional superconductors (i.e., those whose superconducting abilities can be explained by the Bardeen-Cooper-Schrieffer theory) are distinguished by four features, one of which has implications for industrial, research, and diagnostic applications that are impossible to overstate: they can transport an electric current with zero loss.
- Scientists have been looking for a material that can superconduct without having to be cooled to very low temperatures and which does not require the application of extreme pressure. According to the new claim, LK-99 fits the bill. It is copper-substituted lead apatite. While there have been quite a few claims in the last century of scientists having discovered room-temperature superconductors, LK-99 has triggered more excitement, presumably because the group's preprint papers are free to access, include some data pointing in the right direction, and contain instructions to synthesise it and test its properties.
- Finally, despite the lucre of a potentially revolutionary technology, and bearing in mind that the margin of error in superconductivity research is very small, non-experts should wait for independent verification, even if it is slow to come, from a qualified research group before making up their mind about it.
- Finding a room-temperature superconductor remains one of the toughest quests for physicists because it is so easy to make mistakes. This is why the new 'exciting' claim from South Korea will not be accepted until independent verification.

On August 2, Parliament passed the Mines and Minerals (Development and Regulation) Amendment Bill, 2023, in a bid to attract private sector investment in the exploration of critical and deep-seated minerals in the country.

### Essence of the bill

The exploration licence will be issued for 29 minerals specified in the Seventh Schedule. These include gold, silver, copper, cobalt, nickel, lead, potash, and rock phosphate.

These also include six minerals classified as atomic minerals under the Act:

1. Beryl and beryllium
2. Lithium
3. Niobium
4. Titanium
5. Tantalum
6. Zirconium

The Bill declassifies them as atomic minerals. Unlike other minerals, the prospecting and mining of atomic minerals is reserved for government entities under the Act.

- India is 100% import-dependent on countries including China, Russia, Australia, South Africa, and the U.S. for the supply of critical minerals like lithium, cobalt, nickel, niobium, beryllium, and tantalum.
- Deep-seated minerals like gold, silver, copper, zinc, lead, nickel, cobalt, platinum group elements (PGEs) and diamonds, which are difficult and expensive to explore and mine as compared to surficial or bulk minerals, India depends largely on imports.
- According to scientific studies India's unique geological and tectonic setting is conducive to hosting potential mineral resources and that its geological history is similar to the mining-rich regions of Western Australia and Eastern Africa.
- India has explored just 10% of its Obvious Geological Potential (OGP), less than 2% of which is mined and the country spends less than 1% of the global mineral exploration budget.
- India's mining policy had kept greenfield exploration of minerals out of the purview of private-sector explorers for some years which meant they could only get licences to further prospect and mine resources that had been explored by a government entity.
- Exploration requires techniques like aerial surveys, geological mapping, and geochemical analyses and is a highly specialised, time-intensive and monetarily risky operation with less than 1% of explored projects becoming commercially viable mines.
- In Australia and multiple other jurisdictions globally, private mining firms called junior explorers, engage in risk-taking by putting their expertise and limited financials into explorations to find potential mines.
- Once discovered, these private companies can sell these to bigger mining companies who then develop and run these mines. This helps multiply exploration projects and accelerate the pace of exploration owing to private participation.

### Private players participation

- The Act prohibits pitting, trenching, drilling, and sub-surface

## POLITY AND GOVERNANCE

## INDIA'S MINING POLICY SHIFT

**GIST:** Aims to attract private sector investment in exploring critical and deep-seated minerals. Previously the exploration and mining of these six minerals were classified as atomic minerals, and were restricted to government-owned entities. India's dependency on imports for critical and deep-seated minerals has been a concern, leading to supply chain vulnerabilities and import dependencies from countries like China, Russia, and Australia.

### Background

excavation as part of reconnaissance, which included mapping and surveys. The Bill allows these prohibited activities.

- The Bill also proposes a new type of licence to encourage reconnaissance — level and or prospective stage exploration by the private sector.
- This exploration licence (EL), for a period of five years (extendable by two years), will be granted by the State government by way of competitive bidding.
- It also specifies the maximum area for exploration; activities in up to 1,000 sq km will be allowed under a single exploration licence.

While most auctions are reserved for State governments in the Act, the Bill also reserves the conduct of auctions for composite licence and mining lease for specified critical and strategic minerals for the central government. Industry experts and organisations like CSEP had pointed out certain issues and made recommendations on the proposed amendments.

The primary way of generating revenue for a private company that has an exploration licence would be a share of the premium paid by the miner, which would come only after a successfully discovered mine is auctioned and operationalised. Trends show that such a process could take years to materialise owing to government timelines for clearances or may not happen at all considering depending on the complexity of the deposit and geography.

SCIENCE AND TECHNOLOGY

## ARTIFICIAL INTELLIGENCE STARTUPS

**CONTEXT:** Generative AI startups secure massive funding, raising concerns of a potential bubble due to overvaluation.

**BACKGROUND:** Generative AI startups like Typeface and Mistral AI secure significant funding, raising concerns about a potential bubble. While venture capitalists show interest due to AI advancements, some experts warn of inflated valuations and excessive reliance on generative AI, likening it to past tech trends.

**AI startups and failures:** Failure rates for Gen AI startups are higher due to intense competition and scrutiny. Evaluations involve team quality, network strength, proprietary data, data acquisition ease, model accuracy, use-case necessity, and market potential. Early customer acquisition signals urgency and willingness to adopt solutions.

### AI startups

AI startups leverage artificial intelligence technologies to develop innovative products or solutions. They apply machine learning and data analysis to automate tasks, enhance decision-making, and create new experiences.

- The AI startup landscape is expanding rapidly, with a surge in funding and interest. AI startups covered diverse sectors like healthcare (PathAI), autonomous vehicles (Aurora), and customer service (Zendesk's Answer Bot).
- AI startups have immense growth potential due to increasing adoption of AI across industries. For instance, UiPath, a robotic process automation startup, reached a valuation of

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\$35 billion, showcasing the scalability of AI-driven solutions.

- OpenAI, a pioneer in AI language models, started as a startup and gained prominence for innovations like GPT-3. Its growth highlights how transformative AI technology can lead to significant market influence and reshape industries.
- AI startups drive innovation, reshape business models, and catalyze economic growth. They contribute to job creation and technological advancements, shaping the future across sectors from healthcare diagnostics to financial services.

### AI startups

Enhanced Automation: AI startups can revolutionize industries by automating tasks; example: UiPath streamlines workflows with robotic process automation.	Data Privacy: AI startups must address concerns about data collection and usage to maintain user trust, like Facebook's privacy controversies.
Personalized Experiences: Startups like Netflix employ AI to tailor content recommendations, enhancing user engagement and satisfaction.	Ethical Bias: Biased algorithms, as seen in facial recognition, pose fairness issues that startups like IBM's Fairness 360 aim to rectify.
Healthcare Breakthroughs: Butterfly Network's handheld ultrasound, driven by AI, enables portable and affordable medical imaging solutions.	Regulatory Hurdles: Startups face navigating complex regulations, as illustrated by Uber's battles with cities over its ride-sharing model.
Smart Agriculture: AgShift employs AI to assess food quality, aiding farmers in reducing waste and ensuring safer produce.	Talent Shortage: Securing skilled AI professionals is tough, affecting growth as seen in startups struggling to hire AI experts.
Autonomous Transportation: Waymo, an Alphabet subsidiary, pioneers self-driving technology for safer and efficient transportation systems.	Market Competition: Intense rivalry, like in AI-driven chatbots, demands startups to differentiate and innovate to stand out in crowded markets.



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