

ENVIRONMENT

❖ **Why India's lithium discovery is fraught with social and environmental risks**

➤ **CONTEXT:** News of the discovery of “5.9 million tonnes inferred resources of lithium” in the Salal-Haimana area of Reasi district, Jammu & Kashmir, by the Geological Survey of India has been received as a game-changer in India's impending transition to a green economy. The term ‘inferred’ refers to the ‘preliminary exploration stage’, the second of a four-step process, according to the Mines and Minerals (Development and Exploration) Act 1957.

➤ **Why is this significant?**

- Lithium-ion batteries are used in wind turbines, solar panels, and electric vehicles, all of which are crucial in a green economy.
- A World Bank study suggests that the demand for critical metals such as lithium (Li) and cobalt is expected to rise by nearly 500% by 2050. While “the global electric vehicle market is projected to reach \$823.75 billion by 2030, registering a Compounded Annual Growth Rate (CAGR) of 18.2% from 2021 to 2030,” India's market is projected to register a CAGR of 23.76% by 2028. India is seeking to secure its critical mineral supplies and build self-sufficiency in this sector.
- As India currently imports all of its Li from Australia and Argentina and 70% of its Li-ion cell requirement from China and Hong Kong, the lithium reserves in J&K could boost the domestic battery-manufacturing industry. If the perceived size of the mineral reserves in J&K is borne out by further exploration, India could jump ahead of China vis-à-vis its Li stockpile.
- The J&K reserves will also help advance the Indian government's ambitious plan of “30% EV penetration in private cars, 70% for commercial vehicles, and 80% for two and three-wheelers by 2030 for the automobile industry.” They will strengthen India's National Mission on Transformative Mobility and Battery Storage as well.

➤ **What are the geostrategic concerns?**

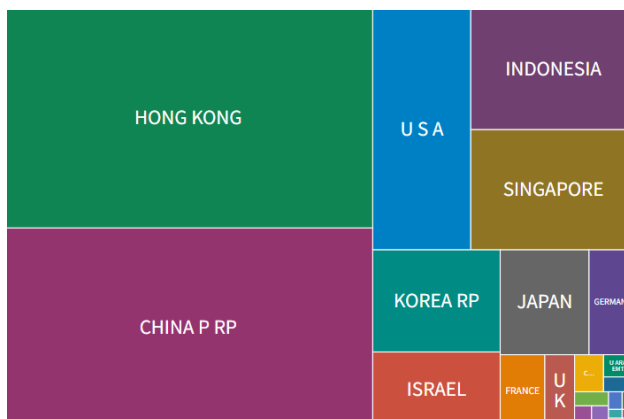
- Critical mineral dependencies constitute a major geostrategic concern in the transition to net-zero carbon energy systems. In the present scenario, as countries seek to avoid dependencies and vulnerabilities related to critical minerals, the latter are likely to be at least as important as oil and gas in the near future. A high level of dependence on China for Li and other crucial metals and their derivatives are also perceived to be sources of energy security risks.
- China currently controls 77% of the global lithium-ion battery manufacturing capacity and is home to six of the world's 10 manufacturing companies. As a result, the E.U., the U.S., Canada, India, and other major economies have been trying to leverage alternative supplies that can challenge China's geopolitical dominance in this area.
 - ✓ For example, responding to perceived national security concerns, the Canadian government has asked Chinese companies to divest from Canadian lithium-mining companies.
- The growing geopolitical rivalry with China makes India's security considerations more immediate as well, especially also in light of the longstanding, and recently escalating, territorial and border disputes. To reduce dependence on China, the Indian government and industry are pushing for a ‘Rare Earths Mission’ to exploit the country's critical mineral reserves, which account for 6% of the world's rare-earths’ reserves prior to the discovery of Li in J&K.
- The new discovery has more geostrategic implications considering the geopolitical sensitivity of its wider location. Although Reasi is in the relatively more stable Jammu region, the Union territory of J&K (previously a state) has been the site of historical cross-border tensions between India and Pakistan, domestic insurgency, and terrorism. If the local populace isn't meaningfully engaged in the impending Li extraction project, the resulting tension could introduce new frontiers of socio-environmental conflict.

➤ **Where does India get its lithium from?**

- In 2021-22, India's lithium imports were \$22.15 million. Hong Kong, China and the US were the top three sources.

➤ **What are the environmental effects of Li mining?**

- The applications of Li in renewable energy infrastructure often obscures its significant environmental consequences, which vary according to the source. Extracting Li from hard rock mines, similar to what has already been proposed in J&K, entails open-pit-mining followed by roasting the ore using fossil fuels. Industry estimates suggest that this process consumes 170 cubic metres of water and releases 15 tonnes of CO2 for every tonne of Li extracted.



- Open-pit-mining, refining, and waste disposal from these processes substantially degrades the environment, including depletes and contaminates waterways and groundwater, diminishes biodiversity, and releases considerable air pollution. This said, the geological context of mining in J&K differs from Australia, which has the largest Li stock in hard rock mines, in one major way.
- In Australia, Li-bearing pegmatite deposits are found in the ancient geological regions of Pilbara and Yilgarn cratons, whose continental rocks have been stable for over a billion years. The Himalaya on the other hand is the youngest mountain range in the world and is much more unstable (as evidenced by the ongoing tragedy in Joshimath). Incidents of land sinking have also been reported from a village in Doda district in Chenab valley, which extends to some parts of Reasi.
- In the densely populated context of India, the socio-environmental effects of mining are likely to be far worse than they have been in Australia and likely comparable to lithium extraction in South America.
- **What can we learn from South America?**
- As India embarks on this new journey, it could learn from the experiences of South American countries, especially the 'lithium triangle' of Bolivia, Chile, and Argentina, which contain roughly half the world's known Li. In Bolivia and Chile, Li extraction has been either in the hands of the state or requires mining companies to enter into a contract with state-owned companies.
- In April 2022, Mexican lawmakers introduced reforms to create a state-owned entity to extract, process and sell Li and outlaw all direct private investment and production in the Li sector. Even so, Li mining has had adverse socio-environmental consequences in the region, testing its laws meant to protect Indigenous peoples.
- In 2019, Chile's environmental regulators approved a \$25-million compliance plan for Li miner SQM, charged with overdrawing Li-rich brine from the Salar de Atacama salt flat. However, the company failed to satisfy authorities, who reversed their decision in 2020. In September 2021, the Atacama Indigenous Council appealed to regulators citing "constant danger" and called for the "temporary suspension" of SQM's environmental approvals.
- In August 2022, Chilean regulators approved an updated compliance plan worth \$52 million, in which SQM proposed to work with both the regulator and local communities to address environmental infractions.
- Indigenous resistance and increased awareness of the environmental impact of Li-mining has prompted global carmakers, including Mercedes-Benz and Volkswagen, to look for Li mined with the lowest socio-ecological impact. Other corporations are making similar amends. Battery Mineral Resources Corp. recently signed an agreement with the Comunidad Agricola Potrerillos Alto and the Comunidad Agricola Punitaqui. Another mining giant, Monumental Minerals, signed an agreement with the Ayquina-Turi Indigenous Community in Chile for 40 exploration concessions totaling 8,500 hectares at the Salar de Turi Li project.
- While such comparisons must account for inter-regional differences, these developments point to the importance of a strong regulatory apparatus that can address both the environmental and the social consequences of Li mining.
- **What safeguards does India's mining sector have?**
- State government officials in J&K have said plans for Li exploration will involve local communities, who will also be prioritised for jobs in exploration and mine development. Yet employment in mining may not fully offset the consequences on local agriculture, animal husbandry, and tourism.
- In recognition of the local effects of mining, in 2015, Lok Sabha amended the Mines and Minerals (Development and Regulation) Act 1957 to establish the 'District Mineral Foundation' (DMF). The DMF is a non-profit statutory 'trust' for every Indian district affected by mining-related operations that should "work for the interest and benefit of persons, and areas affected by mining-related operations". In practice, the DMFs have become sites of centralised bureaucratic control, without meaningful public participation or accountability.
 - ✓ For example, a CAG audit in May 2022 noted that the district collectors of Bokaro, Dhanbad, and Ranchi incurred an expense of ₹1568.04 crore from DMF funds, without identifying the areas affected by mining or a list of affected people. Ironically, the auditors were denied access to documents related to the functioning of the State-Level Monitoring Committee.
- The general failure of DMFs adds to concerns expressed by environmentalists and concerned citizens about the recent history of weakening of the environmental impact assessment framework.
- The geostrategic importance of Li exploration and extraction makes it even more important that the exploration and extraction of resources should be done in the public interest, and must preempt any serious environmental and social problems. Equally importantly, the most effective use of Li reserves should be for the most important parts of the renewable-energy transition, which would also aid the goals of addressing energy poverty and sustainable development.
- To these ends, reducing luxury consumption and promoting public transport should also be an important part of the agenda of a just transition.

PRELIMS

1. I-T Dept 'surveys' BBC

- **CONTEXT: The Income Tax (I-T) Department recently conducted surveys at the premises of the British Broadcasting Corporation (BBC) in Delhi and Mumbai.**

- **Under what law are these “surveys” being carried out?**
 - The surveys at the BBC’s offices are being carried out under various provisions of the I-T Act, 1961, such as Section 133A, which gives the I-T Department the power to carry out “surveys” to collect hidden information. The provision for surveys was incorporated into the Act through an amendment carried out in 1964.
 - Section 133A allows an authorised officer to enter any place of business or profession or charitable activity within their jurisdiction to verify the books of account or other documents, cash, stock, or other valuable article or thing, which may be useful for or relevant to any proceeding under the Act.
 - An I-T authority may, during the survey, make an inventory of any cash, stock, or other valuables; it may record the statements of anyone, or place marks of identification on the books and documents, or take their extracts or copies.
 - The I-T authority may also “impound and retain any books of account or other documents after recording reasons for doing so”.
 - However, to retain such books for more than 15 days (excluding holidays), prior approval of a senior officer, including the Principal Chief Commissioner or Chief Commissioner or Principal Director General or Director General or Principal Commissioner or Commissioner, must be obtained.
 - The provisions for impounding or seizing the goods were introduced only by the Finance Act, 2002.
- **What is an I-T “search”?**
 - A “search” typically refers to what is called a “raid” — although the word ‘raid’ has not been defined anywhere in the Income-Tax Act. However, “search” has been defined under Section 132 of the Act.
 - Under this Section, the I-T Department can carry out a process of inspection by entering and searching any building where it has reasons to believe someone is in possession of undisclosed income or property like money, bullion, gold.
 - An I-T search can even be carried out when “any person to whom a summons or notice has been or might be issued will not, or would not, produce or cause to be produced, any books of account or other documents which will be useful for, or relevant to, any proceeding” under the Act.
 - The Act says that during a search, any authorized officer including the Deputy Director of Inspection, Inspecting Assistant Commissioner, Assistant Director of Inspection, or Income-tax Officer can:
 - ✓ enter and search any building or place where he has reason to suspect that such books of account, other documents, money, bullion, jewelry, or other valuable article or thing are kept;
 - ✓ break open the lock of any door, box, locker, safe, almirah, or other receptacles for exercising the powers conferred by clause (i) where the keys thereof are not available;
 - ✓ seize any such books of account, other documents, money, bullion, jewelry, or other valuable article or thing found as a result of such search;
 - ✓ place marks of identification on any books of account or other documents or make or cause to be made extracts or copies therefrom;
 - ✓ make a note or an inventory of any such money, bullion, jewelry, or other valuable article or thing.
- **What is the difference between a “search” and a “survey” then?**
 - A search is a more serious proceeding than a survey, with larger consequences.
 - Search, as defined under Section 132, can take place anywhere within the jurisdiction of the authorized officer. A survey under Section 133A(1) can only be conducted within the limits of the area assigned to the officer (or at any place occupied by any person in respect of whom he exercises jurisdiction) at which a business or profession, or an activity for a charitable purpose, is carried on.
 - Also, surveys can be carried out only during working hours on business days, whereas a search can happen on any day after sunrise and continue until the procedures are completed.
 - Finally, while the scope of a survey is limited to the inspection of books and verification of cash and inventory, in a search, the entire premises can be inspected to unravel undisclosed assets, with the help of police.
- 2. **The post of Deputy Speaker**
 - **CONTEXT: The Supreme Court issued notices to the Centre and five states (Rajasthan, Uttarakhand, Madhya Pradesh, Uttar Pradesh, and Jharkhand) over the failure to elect a Deputy Speaker.**
 - **Constitutional status:**
 - Article 93 deals with the position of Speaker and Deputy speaker of the Lok Sabha.
 - Article 178 contains the corresponding position for Speaker and Deputy Speaker of the Legislative Assembly of a state.
 - **Is it mandatory to have a Deputy Speaker?**
 - Both Articles 93 and 178 use the word “shall”, indicating that the election of Speaker and Deputy Speaker is mandatory under the Constitution.
 - **Time frame and procedure for election of a deputy speaker:**
 - Articles 93 and 178 mentions as soon as may be but they do not lay down a specific time frame.
 - In general, the practice in both Lok Sabha and the state Assemblies has been to elect the Speaker during the first session of the new House.
 - The election of the Deputy Speaker usually takes place in the second session.

- The Rules of Procedure and Conduct of Business in Lok Sabha says the election of Deputy Speaker shall be held on such date as the Speaker may fix.
- The Deputy Speaker is elected once a motion proposing his name is carried in the House.
- Once elected, the Deputy Speaker usually continues in office for the entire duration of the House.
- **Removal:**
- Under Article 94 or Article 179 for state legislatures, the Speaker or Deputy Speaker shall vacate his office if:
 - ✓ he ceases to be a member of the House.
 - ✓ They may also resign to each other, or
 - ✓ may be removed from office by a resolution of the House of the People passed by a majority of all the then members of the House.
- **Powers of the Deputy Speaker:**
- Article 95(1) says that while the office of Speaker is vacant, the duties of the office shall be performed by the Deputy Speaker.
- In general, the Deputy Speaker has the same powers as the Speaker when presiding over a sitting of the House.
- It has been repeatedly held that no appeal lies to the Speaker against a ruling given by the Deputy Speaker or any person presiding over the House in the absence of the Speaker.
- **Can the courts intervene in cases of a delay in electing the Deputy Speaker?**
- In 2021, a petition was filed before the Delhi High Court, which argued that delay in the election of the Deputy Speaker violated Article 93 (Pawan Reley v. Speaker, Lok Sabha & Ors).
- However, there is no precedent of a court forcing the legislature to elect the Deputy Speaker.
- Courts usually don't intervene in the procedural conduct of Parliament.
- Article 122(1) says that the validity of any proceedings in Parliament shall not be called in question on the ground of any alleged irregularity of procedure.
- However, the courts do have jurisdiction to at least inquire into why there has been no election to the post of Deputy Speaker since the Constitution does envisage an election "as soon as may be".
- 3. **BIMARU Tag**
- **CONTEXT: Recently, the Prime Minister used the BIMARU term in the context of Rajasthan and Uttar Pradesh states.**
- The 'BIMARU' acronym has been used to refer to Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh, to imply they have lagged in terms of economic growth, healthcare, and education.
- **What do BIMARU states mean?**
- BIMARU means "sickly" in Hindi. The term was used to highlight the backwardness, especially with regard to poor performance in demographic indicators and contribution to population explosion.
- These states had exceptionally high levels of mortality, morbidity, illiteracy, undernutrition, and social inequality and lagged behind in per capita income.
- It was coined by Ashish Bose in 1980 to pinpoint India's demographic malady.
- Bose mainly argued that from a family planning and population control perspective, these four states, with their high population growth rates were likely to offset the gains made elsewhere in the country.
- **Role of Bihar states in Population growth**
- On the key demographic indicator Total Fertility Rate (TFR), there are now two distinct Indias, one on the road to achieving replacement levels, and one still a long distance off.
- The national goal of reaching a "stabilising population", meaning a TFR of 2.1 was achieved recently.
- BIMARU states accounted for 41 percent of India's total population in 2001 and will account for 43.5 percent in 2026 which has political implications.
- Population in Indian states also dictates the delimitation process or the number of seats allotted to them in Parliament.
- Currently, the seats are proportional to the Indian population as of the 1971 census. It was frozen until 2001 (extended to 2026) to give states time to meet family planning goals.
- **How has BIMARU been used over time?**
- The BIMARU tag has been used to criticise the parties in power in these states, and also to showcase success in achieving some progress.
- In 2012 the average growth rate of the five poorest states exceeded the national average for the first time in any Plan period.
- NITI Aayog's 2019-20 Health Index also ranked Rajasthan, Madhya Pradesh, Bihar, and Uttar Pradesh (in highest to lowest order) at the last four positions out of 19 large states.
- As per IIM Ahmedabad's study of total and rural government hospitals per million people, all the BIMARU states were below the national average of 20.74 except Rajasthan.

ANSWER WRITTING

Q. "Swami Dayanand Saraswati's ideas contributed immensely towards the socio-religious reforms of the nineteenth century" Discuss the main ideas and contributions of Swami Dayanand Saraswati.

Swami Dayanand Saraswati was one of the most influential figures of 19th-century India. A believer in the supreme authority of the Vedas, he established the Arya Samaj in 1875, leading a reform movement within orthodox Hinduism. He was given the epithet of Maharishi and is considered one of the Makers of Modern India.

Main ideas and contributions of Swami Dayanand Saraswati:

- **Vedas- the mine of knowledge:** Swami Dayanand put emphasis on the Veda and gave the slogan **"Go back to the Vedas"**. He emphasized that Indian society can be reformed and reconstructed by following Vedic practices.
- **Arya Samaj:** It was a monotheistic Hindu order that rejected the ritualistic excesses and social dogmas of orthodox Hinduism and promoted a united Hindu society based on Vedic teachings.
 - ✓ The Samaj directs its members to condemn ritualistic practices like idol worship, pilgrimage and bathing in holy rivers, animal sacrifice, offering in temples, sponsoring priesthood etc.
 - ✓ Crucial among his "ten founding principles of Arya Samaj" is the idea that all activities must be done for the benefit of humankind as a whole.
- **Educational reforms:** Maharishi Dayanand was fully convinced that the lack of knowledge was the main culprit behind the adulteration of Hinduism.
 - ✓ He set up several Gurukuls to teach his followers the knowledge of the Vedas.
 - ✓ Inspired by his beliefs, teachings and ideas, his disciples established the Dayanand Anglo Vedic College Trust and Management Society. The first DAV High School was established in Lahore in 1886.
- **Social Reforms:** Swami Dayanand spearheaded his crusade against the caste system and untouchability.
 - ✓ Citing the Vedas, he claimed that caste is not supposed to be hereditary but rather based on an individual's talents and disposition.
 - ✓ Furthermore, he was against the practice of untouchability, which he believed was an outcome of centuries of Brahmanical domination. He advocated Vedic education for all castes.
- **Championed the cause of women:** His views on women were also against the grain of orthodox Hindu thinking at the time.
 - ✓ He campaigned for the education of women and created provisions for them to read in DAV schools and colleges.
 - ✓ He asserted the right of women over property.
 - ✓ He opposed child marriage and argued in favour of legislation to stop this evil practice. He also condemned polygamy and polyandry.
- **Contribution towards Indian nationalism:** He injected a sense of pride and dignity in every Indian by unfolding the glorious cultural heritage of this land before them. **"India for Indians"** was his doctrine.
 - ✓ He also emphasized that until and unless India broke the shackles of economic and political slavery of the Europeans, it cannot achieve independence.
 - ✓ He used the word "Swaraj" and emphasized "Swadeshi". His teaching had considerable influence on the nationalist of that time such as Subhas Chandra Bose, Lala Lajpat Rai, Madam Cama, Vinayak Damodar Savarkar etc.

Swami Dayananda Saraswati is ranked highest among the makers of modern India. He worked tirelessly for the political, religious and cultural emancipation of the country. Today his legacy carries on through the Arya Samaj centres found across India as well as the Dayanand Anglo-Vedic schools and colleges.

MCQs

1. With reference to Lithium, consider the following statements::
 1. It has the lowest density of all metals.
 2. It is used in rechargeable batteries for mobile phones, laptops, digital cameras and electric vehicles.
 3. Lithium is a rare element abundantly available in India.
 Which of the statements given above is/are incorrect?

a) 1 only b) 1 and 2 only c) 3 only d) 2 and 3 only
2. What is/are the purpose/purposes of 'District Mineral Foundations' in India?
 1. Promoting mineral exploration activities in mineral-rich districts.
 2. Protecting the interests of the persons affected by mining operations.
 3. Authorizing State Governments to issue licences for mineral exploration.
 Select the correct answer using the code given below.

a) 1 and 2 only b) 2 only c) 1 and 3 only d) 1, 2 and 3
3. 'lithium triangle' often mentioned in news, which of the following countries can be associated with it?
 1. Bolivia
 2. Chile
 3. Argentina
 4. Uruguay
 Choose the correct answer using the codes given below

- a) **1,2 and 3 only**
 b) 2,3 and 4 only
 c) 1,2 and 4 only
 d) 1,3 and 4 only
4. The 'BIMARU' acronym has been used to refer to which of the following states, to imply they have lagged in terms of economic growth, healthcare, and education
1. Bihar
 2. Madhya Pradesh
 3. Rajasthan
 4. Uttar Pradesh
 5. Uttarakhand
- Choose the correct answer using the codes given below
- a) 1,2,3 and 5 only
 b) 2,3,4 and 5 only
 c) 1,3,4 and 5 only
 d) **1,2,3 and 4 only**
5. Recently the Supreme Court issued notices to the Centre and five states (Rajasthan, Uttarakhand, Madhya Pradesh, Uttar Pradesh, and Jharkhand) over the failure to elect a Deputy Speaker, with reference to this Consider the following statements
1. The date of election to the post of deputy speaker is decided by president.
 2. Like Deputy Prime Minister, Deputy Speaker does not mentioned in Constitution.
- Which of the above statement/s is/are correct?
- a) 1 only
 b) 2 only
 c) Both 1 and 2
 d) **Neither 1 nor 2**
6. With reference to the I-T Act, 1961 consider the following
1. Search, as defined under Section 132, can take place anywhere within the jurisdiction of the authorized officer.
 2. A survey under Section 133A(1) can only be conducted within the limits of the area assigned to the officer at which a business or profession, or an activity for a charitable purpose, is carried on.
- Which of the above statement/s is/are correct?
- a) 1 only
 b) 2 only
 c) **Both 1 and 2**
 d) Neither 1 nor 2
7. A report called “Global Sea-Level Rise and Implications” recently released by which of the following organisation?
- a) **World Meteorological Organisation**
 b) UN Environment Programme
 c) Indian Ocean Association
 d) Arctic Council
8. The term “B-1B Lancers” often mentioned in news is related to which of the following?
- a) **Aircraft**
 b) Submarine
 c) Tank
 d) Guided missile
9. Among the following, which one is the least water-efficient crop?
- a) Sugarcane
 b) Sunflower
 c) **Pearl millet**
 d) Red gram
10. Which of the following is/are the aim/aims of “Digital India” Plan of the Government of India?
1. Formation of India’s own Internet companies like China did.
 2. Establish a policy framework to encourage overseas multinational corporations that collect Big Data to build their large data centres within our national geographical boundaries.
 3. Connect many of our villages to the Internet and baring Wi-Fi to many of our schools, public places and major tourist centres.
- Select the correct answer using the code given below:
- a) 1 and 2 only **b) 3 only** c) 2 and 3 only d) 1, 2 and 3