

GSI has established “inferred” lithium resources in J&K

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In news– Recently, the Geological Survey of India (GSI) has established “inferred” lithium resources of 5.9 million tonnes in **Salal-Haimana area of Reasi District of Jammu and Kashmir.**

Key updates-

- These resources have been established as part of the “Reasi Sersandu-Kherikot-Rahotkot-Darabi” mineral block, where prospecting has been ongoing since 2021-22.
- Under the United Nations Framework for Classification for Reserves and Resources of Solid Fuels and Mineral Commodities (UNFC 1997), the stage of prospecting is categorised as ‘G4’ when it entails reconnaissance surveys – a fairly advanced stage of prospecting.
- The finds in this case are learnt to include bauxite (the ore for aluminium) and rare earth elements, alongside lithium.
- There are two caveats with the latest lithium find: first, the new find is categorised as “inferred” – one of three categories that mineral resources are subdivided into, in order of increasing geological confidence.
- The “inferred” mineral resource is the part of a resource for which quantity, grade and mineral content are estimated only with a low level of confidence based on information gathered from locations such as outcrops, trenches, pits, workings and drill holes that may be of limited or uncertain quality, and also of lower

reliability from geological evidence.

- **Second, the lithium find in J&K, in inferred terms, is also comparatively small**, considering that proven reserves in Bolivia are 21 million tonnes, 17 million tonnes in Argentina, 6.3 million tonnes in Australia, and 4.5 million tonnes in China
- **Currently, India is almost entirely dependent on import of these cells** and the move to ink sourcing pacts for lithium is seen as another salvo in the front against imports from China, the major source of both the raw material and cells.
- According to the Ministry of Mines' approved annual Field Season programme (prospecting plan), **the GSI takes up different stages of mineral exploration –**
 - **Reconnaissance surveys** (G4).
 - Preliminary exploration (G3), and
 - General exploration (G2) as per the guidelines of UNFC and the Minerals (Evidence of Mineral Contents) Amendment Rules, 2021 (Amended MMDR Act 2021) for augmenting mineral resources for various mineral commodities, including lithium.

About Lithium-

- Lithium (Li), chemical element of Group 1 (Ia) in the periodic table, the alkali metal group, lightest of the solid elements.
- The metal itself which is soft, white, and lustrous and several of its alloys and compounds are produced on an industrial scale. Three fragments of Lithium metal.
- The principal industrial applications for lithium metal are in metallurgy, where the active element is used as a scavenger (remover of impurities) in the refining of such metals as iron, nickel, copper, and zinc and their alloys.
- A large variety of nonmetallic elements are scavenged by lithium, including oxygen, hydrogen, nitrogen, carbon,

sulphur, and the halogens.

- A lithium-ion (Li-ion) battery is an advanced battery technology that uses lithium ions as a key component of its electrochemistry.
- It is also extensively used in the production of other organic chemicals, especially pharmaceuticals.
- With 8 million tons, Chile has the world's largest known lithium reserves. This puts the South American country ahead of Australia, Argentina and China.
- **Lithium can be extracted in different ways, depending on the type of the deposit** – generally either through solar evaporation of large brine pools, or from hard-rock extraction of the ore.
- **In India, there is some potential to recover lithium from brines of Sambhar and Pachpadra areas in Rajasthan, and Rann of Kutch, Gujarat.**
- The major mica belts located in **Rajasthan, Bihar and Andhra Pradesh** and the pegmatite belts in **Odisha, Chhattisgarh, alongside rock mining being undertaken at Mandya, Karnataka, are other potential geological domains of the country.**
- This is part of a concerted domestic exploration push for the alkali metal – a vital ingredient of the Lithium-ion rechargeable batteries that power electric vehicles (EVs), laptops and mobile phones.
- The Atomic Minerals Directorate for Exploration and Research (AMD), an arm of the Department of Atomic Energy, had earlier conducted preliminary surveys that had shown the presence of lithium resources of 1,600 tonnes in the igneous rocks of the Marlagalla–Allapatna region of Karnataka's Mandya district.