

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO-322
ANSWERED ON- 25/07/2024

MINING OF MINERAL SAND IN COASTAL AREAS

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Will the PRIME MINISTER be pleased to state:-

- (a) the Ministry's stance on the potential application of emerging technologies, like in-situ leaching or bioleaching, to minimize environmental impacts and enhance the efficiency of mineral sand mining in coastal areas;
- (b) the assessment of cumulative radiological impact of multiple mineral sand mining projects in coastal areas, and how these impacts align with international best practices for radiation protection;
- (c) whether any measures are being taken to enhance the transparency and traceability of mineral sand supply chains; and
- (d) how will the Ministry ensure compliance with international standards for responsible mineral sourcing, the details thereof?

ANSWER

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS
AND PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH)

- (a) Emerging technologies like in-situ leaching or Bioleaching are applied to extract minerals embedded in ore bodies in their natural geological location by using chemicals/microorganisms. The same is not applicable in case of Mineral sands mining in coastal areas where the minerals are found liberated from the original source and mining typically is carried out by mechanized/manual methods and involves beneficiation and physical separation techniques to extract minerals without the use of Comminution method or chemicals thus ensuring minimal impact on the environment. However, the water used in the processing of these mineral sands has impact on the environment but is addressed by recycling and reusing.

- (b) Mining of beach sands does not have any radiological implication unless the mined-out sand is subjected to further mineral separation in plants. During mineral separation, monazite fraction (which is radioactive) gets concentrated. Atomic Energy Regulatory Board (AERB) has issued guidelines for safe management of these monazite enriched tailings which is in line with the principles of radiation protection followed internationally. As per AERB records, the radiological dose in these facilities were well within the prescribed dose limit.
- (c) Yes. The mineral sand supply chain in India consists of mining of Mineral sands, (a source of radioactive mineral), its beneficiation, separation and refining for extraction of various minerals, supply of radioactivity free minerals to various industries and processing of radioactive mineral for production of strategic products for use by Government of India (Department of Atomic Energy).

As mineral sands in India contain radioactive mineral, it is kept under the purview of Government entities for effective traceability of radioactive material. The Government entities in this field extract minerals that are free from radioactivity from the mineral sand. These minerals which are free from radioactivity are freely traded worldwide and as such there are no restrictions on their supply. The mineral containing radioactivity is the property of Government of India and is captively consumed by CPSE under Department of Atomic Energy for extracting strategic products for use by the Department. Non-strategic products (Ilmenite, Rutile, Garnet, Sillimanite etc.) extracted from this mineral sand are also freely traded worldwide including India and there are no restrictions on their supply. The minerals / products, which are free from radioactivity, finding commercial applications are usually supplied based on established demand of the buyer Industry. Since user segment of these processed minerals are Industry in value chain, the material is supplied based on their established demand and capacity as per certificate of registration and consent to Establish/Operate subject to availability a given point of time.

Further, the minerals extracted from mineral sand / Beach Sand Minerals (BSM) ore are subject to canalisation for their exports. During the canalisation process it is ensured that no product with the higher permissible radioactivity is exported out of the country.

As such, the transparency and traceability with respect to the mineral sands and products extracted from it with whom radioactivity is attributed is taken care of under the present mechanism.

- (d) The statutory provisions prescribed by Central and State Governments are complied.
