

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO - 3948
ANSWERED ON 12/08/2026

**ENVIRONMENTAL SAFEGUARDS FOR HEAVY MINERAL SAND MINING AND
RARE EARTH MINERALS**

3948. DR. M K VISHNU PRASAD

Will the PRIME MINISTER be pleased to state:-

- (a) whether the Department of Atomic Energy (DAE) or Indian Rare Earths Limited (IREL) has conducted geological mapping and radiation safety assessments regarding atomic minerals such as monazite, ilmenite and zircon in the beach sand deposits along the Cuddalore coastline and if so, the details thereof;
- (b) the steps taken by the DAE in coordination with State regulatory bodies to prevent illegal beach sand mining, unauthorized export of strategic monazite sands and radiation hazard exposure to local fishing communities; and
- (c) whether the Government proposes to establish a high-level monitoring task force under DAE to ensure sustainable mineral extraction while protecting coastal ecology and local livelihoods in Tamil Nadu's coastal belts and if so, the details thereof?

ANSWER

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

- (a) Yes, Atomic Minerals Directorate for Exploration and Research (AMD), a constituent unit of Department of Atomic Energy (DAE), has carried out exploration in the coastal tracts of Cuddalore district, Tamil Nadu, for Beach Sand Minerals (BSM) and established a BSM deposit, viz. "Pudupuram-Cuddalore BSM deposit", containing 1.912 Million tonnes (Mt) of Total Heavy Minerals (THM), including Monazite (0.005 Mt), Ilmenite (0.926 Mt) and Zircon (0.063 Mt).
- (b & c) The steps adopted by the Government of India to curb illegal beach sand mining & unauthorized export of strategic monazite sands in India are listed below:

1. Ministry of Mines (MoM) has issued Notification No. G.S.R 134(E) dated 20.02.2019 for amending the Threshold value of "Monazite" for BSM occurring in beach sand or placer deposits as "0.00%" in Total Heavy Minerals (THM), which resulted in bringing the overall BSM deposits of the Country under the complete control of the Government companies.
2. Directorate General of Foreign Trade, Department of Commerce, Ministry of Commerce and Industry, Government of India issued Notification No. 26/2015-2020 dated 21.08.2018 on export policy on BSM under which export of BSM have been brought under State Trading Enterprise and shall be canalized through IREL (India) Limited (IREL), a Public Sector Undertaking under DAE.
3. Monazite Test Certification (MTC) by AMD has been reintroduced for every export consignments of beach sand minerals as per the Standard Operating Procedures (SOP) for Canalization.
4. Rule 45 of the Mineral Conservation and Development Rules, (MCDR) 2017 makes it mandatory for all miners, traders, stockiest, exporters and end-users of minerals to register and report on the production, trade and utilization of minerals to the State Government(s) and Indian Bureau of Mines or AMD as the case maybe. It facilitates end-to end national-scale accounting of all minerals produced in the country from pithead to its end-use, reducing the scope for illegal mining, royalty evasion, etc.
5. State Governments were requested to set up Task Forces at State and District Level to control illegal mining.
6. The MoM through Indian Bureau of Mines, has developed the mining Surveillance System (MSS), a satellite-based monitoring system which aims to establish a regime of responsive mineral administration, through public participation, by curbing instances of illegal mining activity through automatic remote sensing detection technology.

Section 23C of the Mines and Minerals (Development and Regulation) Act, 1957 empowers the State Governments to make rules for preventing illegal mining, transportation and storage of minerals and for the purposes connected therewith. Hence, control of illegal mining comes under the legislative and administrative purview of the State Governments.

As regards, radiation hazard exposure to local fishing communities, adequate environmental safeguards are being taken in India during the planning phase of the projects pertaining to extraction of rare earth bearing minerals from the coastal area. Assessments

to evaluate the potential environmental impact of mining rare earth bearing mineral, including effects on land, water, biodiversity, and local communities are conducted. In case of mining of minerals in coastal areas prior to execution of mining lease, a Letter of Intent (LOI) is issued to the Lessee with a condition that the lessee will have to conduct Environmental Impact Assessment (EIA) and submit the report to Ministry of Environment, Forest and Climate Change (MoEF & CC) including radiological survey of Bhabha Atomic Research Centre (BARC). Only after clearance of MoEF & CC which tantamount that the impact is not detrimental, the lease is executed for mining.

Further, the mining operations for atomic minerals including RE bearing minerals from coastal areas are environment friendly as no drilling and blasting are undertaken unlike bulk minerals. The mined-out land is simultaneously backfilled, free of monazite on account of which background radiation in the deposits reduces to less than 0.5 micro-sievert per hour and subsequently original topography is restored followed by green belt development.

Health Physics Unit (HPU), an independent unit under Environmental Assessment Division (EAD) of BARC, Government of India monitors the radiological aspects in each of the plants of IREL.
