

**GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA**

UNSTARRED QUESTION NO:244
ANSWERED ON:14.03.2012
THORIUM BASED NUCLEAR ENERGY
Majumdar Shri Prasanta Kumar; Tirkey Shri Manohar

Will the Minister of ATOMIC ENERGY be pleased to state:

- (a) the details of thorium reserves available in the country, location-wise;
- (b) the steps taken/proposed to be taken for extraction of thorium from these locations;
- (c) the time by which thorium is likely to be extracted;
- (d) whether the Government has any plan for generating thorium based nuclear energy; and
- (e) if so, the details thereof and if not, the reasons therefor?

Answer

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY):

(a) The Atomic Minerals Directorate for Exploration and Research (AMD), a constituent Unit of the Department of Atomic Energy (DAE) has established the presence of 10.70 million tonnes of Monazite in the country, which contains 9,63,000 tonnes of Thorium Oxide (ThO₂). Indian Monazite contains about 9-10% of ThO₂ and about 8,46,477 tonnes of Thorium Metal can be obtained from 9,63,000 tonnes of ThO₂ which will be used for future programmes of DAE. The state-wise thorium reserves in the country are as given below:

STATE MONAZITE (Million Tonnes)

KERALA#	1.51
TAMILNADU	2.16
ANDHRA PRADESH	3.74
ODISHA	1.85
WEST BENGAL	1.22
BIHAR	0.22

TOTAL 10.70

#Including resources of lake and sea bed

(b) & (c) The commercial exploitation of thorium deposits is being carried out by the Indian Rare Earths Limited (IREL), a Public Sector Undertaking of the Department of Atomic Energy. Since the year 1952, the IREL has been processing monazite and sufficient quantity of thorium has been stockpiled for future use. Extraction of thorium is a continuous process.

(d) & (e) India is pursuing a three stage nuclear power generation programme aimed at long term energy independence based on use of our abundant Thorium resources. The programme is to use Thorium for electricity generation in the long-term. In order to realize this goal, we are well into the first stage based natural Uranium fuel, both from domestic and imported sources. This will be followed by second stage comprising of fast reactors. It is proposed to set up a large power generation capacity based on fast reactors before getting into the third stage. Thorium in itself cannot produce electricity and it has to be first converted to Uranium-233 in a nuclear reactor. A comprehensive three-stage nuclear power programme is, therefore, being implemented sequentially.