

**GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA**

UNSTARRED QUESTION NO:5875

ANSWERED ON:29.04.2015

INDIGENOUS ATOMIC MATERIALS

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Will the Minister of ATOMIC ENERGY be pleased to state:

(a) the details of quantity and quality of material for atomic energy which is indigenously available, area-wise and that imported from other countries;

(b) the details of their use in power generation and in other fields for human welfare; and

(c) the detailed plan of the Government to enhance production of Atomic Energy and the action taken in this regard?

Answer

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

(a) As of March, 2015, Atomic Minerals Directorate for Exploration and Research (AMD), a constituent unit of Department of Atomic Energy (DAE) has established 2,19,140 tonne in-situ U3O8 (1,85,831 tonne Uranium) reserves and 11.93 million tonne of in-situ resources of Monazite containing about 1.07 million tonnes of Thorium Oxide (ThO2), in the country. Details of Uranium and Monazite reserves identified in different States are as under:

State	Uranium reserves		Monazite
	U3O8 (t)	U (t)	
Andhra Pradesh	96,462	81,799	3.72
Telangana	18,550	15,731	-
Jharkhand	63,093	53,503	0.22
Meghalaya	21,180	17,961	-
Rajasthan	9,163	7,770	-
Karnataka	4,682	3,970	-
Chhattisgarh	3,986	3,380	-
Uttar Pradesh	785	666	-
Uttarakhand	100	85	-
Himachal Pradesh	784	665	-
Maharashtra	355	301	-
Odisha	-	-	2.41
Tamil Nadu	-	-	2.46
Kerala	-	-	1.90
West Bengal	-	-	1.22
Grand Total	2,19,140	1,85,831	11.93

[1 tonne of U3O8 = 0.848 tonnes of U]

The details of uranium in the form Uranium Ore Concentrate (UOC) and Uranium Di-oxide Pellets imported from various firms /countries are as under:

	Natural Uranium Ore concentrate	Natural Uranium Di-oxide Pellets	Enriched Uranium Di-oxide Pellets
M/s. AREVA, France	299.87 MT	-	-
M/s. TVEL Corporation, Russia	-	1514.69	58.29
M/s. NAC Kazatomprom, Kazakhstan	2095.9	-	-

(b) The above material i.e., Uranium and Monazite is used for nuclear power generation and for conducting research. The related elements namely Beryllium and Boron that are required in the nuclear power reactors are developed in-house. The materials have both nuclear as well as non-nuclear applications as below:

i) Beryllium Metal/Components Beryllium Metal/ Components have applications in the nuclear, defence and space programmes in the country.

In nuclear industry, beryllium metal and beryllia ceramic are used in photo-neutron source and moderator and reflector material. Beryllium has been a strategic material and its production is monitored by Government.

ii) Boron Based Materials Bhabha Atomic Research Centre (BARC), a constituent unit of DAE has indigenously developed technology for boron materials. These materials find extensive applications in nuclear industry in the following forms:

- (a) Natural Boron carbide Powder.
- (b) Enriched Boron carbide Pellets.
- (c) Special Boron alloy pellets.

(d) Natural boron carbide+ZrB₂ (Zirconium di-boride) composites.

(c) The electricity generation from nuclear power is proposed to be enhanced by installing more nuclear power capacity. Based on both indigenous technologies and with foreign cooperation, Department plans to start work on 16 new reactors during the XII Five Year Plan. The present installed nuclear power capacity of 5780 MW is expected to reach 10,080 MW on progressive completion of the projects under commissioning/construction.

These reactors are expected to be operational in the XIII / XIV Five Year Plan, based on their actual date of start. The details are enclosed as Annexure-1.