GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION No. 3206
TO BE ANSWERED ON 31.03.2022

URANIUM AS FUEL FOR NUCLEAR REACTORS

3206. Shri Sushil Kumar Modi:

Will the PRIME MINISTER be pleased to state:

(a) number of nuclear reactors using uranium as fuel;

(b) amount of uranium demand in India for producing nuclear energy;

(c) number of indigenous uranium mines and reserves in the country, State-wise details of mine output;

(d) whether India imports uranium from other countries to meet energy needs, if so, the country-wise details thereof during the last 3 years; and

(e) whether Government has taken necessary steps to ensure supply security of nuclear fuel and reduce dependency on imported uranium, if so, the details thereof?

ANSWER

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

(a) All the 22 reactors in operation in the country use Uranium as fuel.

(b) The approximate requirements of atomic fuel/uranium are as follows:

Pressurised Heavy Water Reactors (PHWRs)

Unit Capacity (MW)	Annual requirement at 85% Capacity Factor (tons UO_2)
220	45
540	100
700	125

Light Water Reactors (LWRs) currently in operation:

Unit Capacity(MW)	Annual Fuel Requirement (tons, low enriched uranium)
160	6 (at 85% CF)
1000	25 (at 90% CF)

(c) The number of indigenous Uranium Mines, State wise- details of mine output is tabulated below.

Sl. No	**State**	**Number of Uranium Mines**	**Mine output (Tons)**
1	Jharkhand	07	15,92,292.00
2	Andhra Pradesh	01	6,71,560.00

As on **February, 2022,**Atomic Minerals Directorate for Exploration and Research (AMD), a constituent unit of Department of Atomic Energy has established 3,69,042 tonne (t) *in situ* U_3O_8 in 45 uranium deposits located in Andhra Pradesh, Telangana, Jharkhand, Meghalaya, Rajasthan, Karnataka, Chhattisgarh, Uttar Pradesh, Uttarakhand, Himachal Pradesh and Maharashtra. State-wise details of the uranium resource are given in **Table 1**.

(d) Yes, Sir. The details of imports countries-wise during last three years are given in **Table 2.**

(e) Yes Sir, Natural uranium required for PHWRs under International Atomic Energy Agency (IAEA) safeguards was imported from Kazakhstan, Canada, Russia and France and a reserve is being maintained to ensure supply security of fuel to these reactors. Towards fuel requirement of Boiling Water Reactors (BWRs) and Water Water Energy Reactors (VVERs), imports are made from Russia.

Uranium fuel requirement for the reactors which are under domestic safeguards is adequately met by Uranium Corporation of India Limited (UCIL), a Public Sector Enterprise under the Department of Atomic Energy (DAE). Time to time, projects which include capacity expansion of some of existing units as well as for establishing new projects in various parts of the country, are planned for maintaining sustained supply from UCIL.

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Table 1

State-wise details of the uranium resources

State	District	Name of the deposit	Resource (tonne) U_3O_8	Status
Andhra Pradesh	Kadapa	Tummalapalle Group	2,15,582	Existing mine (Under investigation)
	Guntur	Koppunuru	2,761	Under investigation
	Sub-total		**2,18,343**	
Telangana	Nalgonda	Lambapur	1,450	Planned mining centre
		Peddagattu	7,585	Planned mining centre
		Chitrial	9,515	Under investigation
	Sub-total		**18,550**	
Jharkhand	East Singhbhum	Jaduguda	8,038	Existing mine
		Jaduguda North - Baglasai - Mechua	7,555	Under investigation
		Bhatin	1,700	Existing mine
		Narwapahar (NWP) + NWP Extn.	11,780	Existing mine
		Narwapahar Deep	10,723*	Extension of existing mine
		Singridungri-Banadungri	9,856*	Under investigation
		Turamdih Group	11,510	Existing mine
		Banduhurang	6,489	Existing mine
		Bagjata	1,860	Existing mine
		Mohuldih	3,330	Existing mine
		Garadih	1,270	Small deposit

		Kanyaluka	1,970	Small deposit
		Nimdih	815	Small deposit
		Rajgaon	1,200	Small deposit
		Rajdah	1,019	Under investigation
	Saraikela-Kharswan	Bangurdih	1,785	Under investigation
	Sub-total		**80,900**	
Meghalaya	South West Khasi Hills	KPM (Domiasiat)	9,500	Planned mining centre
		Wahkyn - Wahkut	9,764	Exploratory mining planned (Under investigation)
		Gomaghat-Phlangdiloin	1,000	Small deposit
		Tyrnai	600	Small deposit
		Lostoin	869	Small deposit
		Umthongkut	1,535	Small deposit
	Sub-total		**23,268**	
Rajasthan	Sikar	Rohil	8,610	Exploratory mining centre (Under investigation)
		Rohil (West)	955	Small deposit
		Jahaz	3,570	Under investigation
	Udaipur	Umra	1,160	Small deposit
	Sub-total		**14,295**	
Karnataka	Yadgir	Gogi	4,267	Exploratory mining centre
		Kanchankayi	2,194	Under investigation
		Hulkal	800	Under investigation
	South Canara	Walkunji-Yellakki	415	Small deposit

	Sub-total		**7,676**	
Chhattisgarh	Rajnandgaon	Bodal	1,530	Small deposit
		Bhandaritola	518	Small deposit
	Surguja	Jajawal	1,438	Small deposit
		Dumath - Dhabi	500	Small deposit
	Sub-total		**3,986**	
Uttar Pradesh	Sonbhadra	Naktu	785	Under investigation
	Sub-total		**785**	
Uttarakhand	Rudraprayag	Pokhri-Tunji	100	Small deposit
	Sub-total		**100**	
Himachal Pradesh	Una	Rajpura	364	Under investigation
	Shimla	Kasha-Kaladi	200	Small deposit
	Mandi	Tileli	220	Small deposit
	Sub-total		**784**	
Maharashtra	Gondia	Mogarra	355	Small deposit
	Sub-total		**355**	
Grand total			**3,69,042**	

* Redistribution of U resources of Narwapahar Deep and Singridungri – Banadungri has been done in accordance with the recasting of U – resources with the boundaries of mining lease areas by Uranium Corporation of India Limited (UCIL).

Table - 2

DETAILS OF FUEL IMPORTED DURING THE LAST THREE YEARS

SR. NO.	YEAR	ENRICHED URANIUM FUEL PELLETS SUPPLIED BY JSC TVEL RUSSIA	NATURAL URANIUM ORE CONCENETRATE SUPPLIED BY M/S. JSC NAC KAZATOMPORM KAZAKHSTAN	NATURAL URANIUM ORE CONCENETRATE SUPPLIED BY M/S. CAMECO , CANADA
		QUANTITY RECD (IN MTU)	QUANTITY RECD (IN MTU)	QUANTITY RECD (IN MTU)
1	2018-19	0	2057.87	986.6012
2	2019-20	56.78	1499.98	1001.291
3	2020-21	0	999.82	1000.479
	TOTAL	**56.78**	**4557.67**	**2988.3712**