

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
STARRED QUESTION NO. 280
TO BE ANSWERED ON 30.08.2012

URANIUM IN GROUNDWATER

*280. SHRI PRABHAT JHA :
SHRI ARVIND KUMAR SINGH :
SMT. KUSUM RAI :

Will the PRIME MINISTER be pleased to state:

- (a) whether uranium has been found in ground water in some states;
- (b) if so, the details thereof, State-wise;
- (c) whether uranium contamination in groundwater of some States is more than 12 times the permissible limits of WHO;
- (d) if so, the details thereof;
- (e) the details of the people who have died due to uranium in groundwater, so far, State-wise;
- (f) whether uranium treatment facility has been installed by Government in uranium affected areas;
- (g) if so, the details thereof, State-wise; and
- (h) if not, the reasons therefor?

ANSWER

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

(a) to (h) A statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO RAJYA SABHA STARRED QUESTION NO.280 FOR ANSWER ON 30.08.2012 BY SHRI PRABHAT JHA, SHRI ARVIND KUMAR SINGH, SHRIMATI KUSUM RAI REGARDING URANIUM IN GROUND WATER.

- (a) Yes, Sir. Due to its natural occurrence, uranium is present in all environmental matrices such as water, soil, sediment, food materials and biota. On a global basis, its concentration in soil varies from 1-5 parts per million (ppm) while in water it varies from 1-3 parts per billion (ppb). The uranium content in water, which is in contact with granite rocks, is relatively high.
- (b) Bhabha Atomic Research Centre (BARC) has carried out study for uranium content in groundwater and analysed the uranium content of 1109 number of water samples collected from four districts of Punjab (Bhatinda, Mansa, Faridkot and Ferozpur) in collaboration with Guru Nanak Dev University (GNDU), Amritsar. The results of the study reveal that about 42% of total samples have Uranium concentration above the Atomic Energy Regulatory Board (AERB) permissible (radiological) limit (60 ppb) for drinking water.

Hydrogeochemical survey is one of the tools for survey and exploration for concealed uranium deposits, wherein uranium content in ground water is assessed. Atomic Minerals Directorate for Exploration & Research (AMD) being an exploration agency for identifying natural resources of uranium, frequently utilise this technique. In general, U content recorded by AMD in ground water samples from different parts of India, where AMD is engaged in survey and exploration, are in the range of <1–100 ppb, with occasional values upto 5840 ppb. Such anomalously high values are recorded generally in granitic terrains. It may be clarified that the areas surveyed by AMD are in remote parts of India, where human population is minimal.

Uranium content recorded in ground water in areas where AMD has carried out such studies in the recent past is as listed below:

Sl.No.	Location	State	U (ppb)
1	Didwana and Singhi Talab, Nagaur District	Rajasthan	17-1755
2	Bap-Malar playa, Bikaner, Jodhpur and Jaisalmer Districts	Rajasthan	8-25
3	Popawas-Ghatiyala-Keru Sector, Jodhpur and Pali districts	Rajasthan	<1 - 170
4	Hurra Ki Dhani, Sikar	Rajasthan	<1 - 44
5	Daurala, Sikar	Rajasthan	556-5100
6	Mahendragarh district	Haryana	2-2936
7	Una district	Himachal Pradesh	2-80
8	Phalodi-Lohawat, Jodhpur district	Rajasthan	4-29
9	Jabera-Selwara-Katangi, Damoh and Jabalpur districts	Madhya Pradesh	<1 - 330
10	Piparia-Kalan, Seoni district	Madhya Pradesh	<1 - 4500
11	Pongar, Seoni district	Madhya Pradesh	<1-4285
12	MedhaDhana, Betul district	Madhya Pradesh	<1-5198
13	Thumpani, Bastar district	Chhattisgarh	<1-57
14	Sukma, Dantewada district	Chhattisgarh	<1-820
15	Vishnupali, Raigarh district	Chhattisgarh	<1-400
16	Sajjaldine-Siregepalle, Kadappa district	Andhra Pradesh	1-195
17	Chenchalapalle-Mulapalle, Kadappa district	Andhra Pradesh	2-5840
18	Chandragiri-Tirupati-Nayudupet area, Chittoor and Nellore districts	Andhra Pradesh	<1-984
19	Sedam, Gulbarga district	Karnataka	18-271
20	Kallur, Gulbarga district	Karnataka	<1-25
21	Kurgunta, Gulbarga district	Karnataka	112-474
22	Karankot, Gulbarga district	Karnataka	27-508
23	Kanasgeri-Malamatti-Vantamuri-Mallapur, Beglaum district	Karnataka	<2-14
24	Raigarh and Mahasamund districts	Chhattisgarh	<1-164
25	Kattukottai-Gangavalli-Uppiliapuram, Salem and Tiruchirapalli district	Tamil Nadu	<1-12
26	Kenda-Jitujori-Amghata-Puncha-Hura area, Purulia district	West Bengal	<1-210

In addition, AMD has carried out preliminary hydrogeochemical studies on 165 number of random water samples collected from areas around Bhatinda, Mansa, Faridkot and Ferozpur districts of Punjab, which indicated <1 to 270 ppb U, with 14 samples having U values higher than 60 ppb.

BARC has also carried out a study in collaboration with Guru Nanak Dev University (GNDU), Amritsar for establishment of uranium content in groundwater in Malwa region of Punjab state. The maximum concentration of uranium in ground water in the Malwa region was found to be 684 ppb.

- (c) Yes, Sir.
- (d) Answer to part (b) of the question may be referred to.
- (e) From the few known studies in Canada and Finland there is no evidence of correlation between cancer and uranium in drinking water.
- (f)&(g) Water purification systems based on Reverse Osmosis (RO) technique have been installed in many districts of Punjab by the State Government.
- (h) Does not arise in view of answer to (f)&(g) above
