

GOVERNMENT OF INDIA
MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION
LOK SABHA

UNSTARRED QUESTION NO. 4013

ANSWERED ON 19.12.2024

DEPLETING GROUNDWATER LEVELS

4013. SHRI SHRIRANG APPA CHANDU BARNE SHRI ARVIND GANPAT SAWANT

Will the Minister of **JAL SHAKTI** be pleased to state:

- (a) whether depleting groundwater levels has been a cause of concern for a long time across the country;
- (b) if so, whether the country is suffering from the worst water crisis affecting almost 600 million of its population and if so, the details thereof;
- (c) the details and names of the cities which probably exhausted their groundwater resources at present in the country, State-wise particularly in Maharashtra;
- (d) the percentage of groundwater level declined in the country during the last ten years and the current year;
- (e) whether there is a need to construct checkdams on small rivers and to construct water bodies to recharge the groundwater;
- (f) if so, the details thereof along with the steps taken/being taken by the Government in this regard; and
- (g) whether the Government has issued any guidelines to the States to ensure groundwater conservation and management and if so, the details thereof and the response of the State Governments thereto?

ANSWER

THE MINISTER OF STATE FOR JAL SHAKTI

(SHRI RAJ BHUSHAN CHOUDHARY)

(a) & (b) The average water availability of any region or country is largely dependent upon hydro-meteorological and geological factors. This along with high temporal and spatial variation in Monsoonal rainfall and varied socio-economic developments in terms of rapid urbanization, industrialization etc., each region of the country may have different water availability status.

Central Ground Water Board (CGWB) monitors groundwater levels throughout the country at regular prescribed intervals. The perusal of data from the monitoring conducted during November 2023 indicates that about 84.8% of the wells across the country record the water level data within the range of 0-10 meters below ground level (mbgl), indicating ease of access to ground water. Further, CGWB also conducts Dynamic Ground Water Resources Assessment of the country in association with States/UTs every year. In 2023, the Stage of ground water Extraction (SoE), which is defined as the ratio of total extraction of ground water for all purposes over the total extractable ground water in the country, is assessed at 59.26% showing marked improvement from the year 2017 level of 63.33%. Further, during the said period, total ground water recharge in the country has increased from 432 Billion Cubic Meters (BCM) to 449 BCM and total ground water extraction has reduced from 249 BCM to 241 BCM.

(c) For assessing the fluctuation in ground water level of the major Indian cities on a long-term basis, the water level data of urban areas collected by CGWB during November 2023 has been compared with the decadal average (2013-2022). Analysis of water level data with respect to cities (mainly those with population greater than 10.00 Lakh) indicates that about 57% of the wells monitored have registered rise in ground water levels. The details in this regard, including for the cities of Maharashtra are given at **Annexure- I**.

(d) In order to assess the long term fluctuation in ground water level, the water level data collected by CGWB for the entire country during November 2023 has been compared with the decadal mean of November (2013-2022). Analysis of water level data indicates that about 48.24% of the wells monitored have registered decline in ground water levels. State-wise Decadal Water Level Fluctuation with Mean (Post-Monsoon 2013 to 2022) and Post-monsoon 2023 in respect of Country is presented in **Annexure- II**.

(e) & (f) Water being a State subject, sustainable development and management of groundwater resources is primarily the responsibility of the State Governments. However, the Central Government facilitates the efforts of the State Governments by way of technical and financial assistance through its various schemes and projects. In this direction, the important steps taken by the Ministry of Jal Shakti and other central ministries for sustainable management of ground water resources in the country by way of constructing water conservation and recharge structures are given below:-

- i. The Government is implementing Jal Shakti Abhiyan (JSA) in the country since 2019 which is a mission mode and time bound programme for harvesting the rainfall and taking up water conservation activities. Currently, JSA 2024 is being implemented in the country with special focus on 151 water stressed districts of the country. JSA is an umbrella campaign whose primary aim is to effectively harvest the monsoon rainfall through creation of artificial recharge structures, watershed management, recharge and reuse structures and awareness generation etc. Activities also include construction of check dams, recharge shafts and desilting of existing water bodies like ponds, tanks etc. with an aim to augment storage capacity and increase groundwater recharge. As per the available information, since the inception of JSA, construction of around 1.57 cr. water conservation and rain water harvesting structures have been completed/ongoing in the country and an expenditure of Rs. 1.15 lakh cr has been incurred though convergence with MGNREGS alone.
- ii. CGWB has taken up National Aquifer Mapping and Management Programme (NAQUIM) with an aim to delineate aquifer disposition and their characterization. Entire mappable area of the country of around 25 lakh sq. km, has been mapped under the scheme and management plans have been shared with the respective State governments for implementation. The plans comprise of recommendations for demand management as well as construction of artificial recharge structures.
- iii. Master Plan for Artificial Recharge to Groundwater- 2020 has been prepared by the CGWB for the entire country and shared with States/UTs providing a broad outline for construction of around

1.42 crore rain water harvesting and artificial recharge structures in the country to harness 185 BCM (Billion cubic meter) of water.

- iv. MoJS is implementing Atal Bhujal Yojana, which is a community led scheme for participatory ground water management focusing on demand side management of ground water in 80 water stressed districts in 7 States. Construction of various rain water harvesting and recharge structures like check dams, ponds, shafts etc. are incentivized under the scheme.
- v. Mission Amrit Sarovar was launched by the Government of India which aimed at developing and rejuvenating at least 75 water bodies in each district of the country. As an outcome nearly 69,000 Amrit Sarovars have been constructed/rejuvenated in the country.
- vi. Details of several other significant initiatives of the Government of India for improvement of groundwater situation in the country can be seen through the link below- <https://jalshakti-dowr.gov.in/document/steps-taken-by-the-central-government-to-control-water-depletion-and-promote-rain-water-harvesting-conservation/>

(g) Realizing the significance of holistic and sustainable development of water resources in the country, Ministry of Water Resources had formulated the National Water Policy (NWP) in 1987 itself which was subsequently reviewed and updated in 2002 and 2012. From the ground water perspective, the NWP, *inter-alia*, calls for rainwater harvesting and conservation of water, mapping the aquifers of the country, proper regulation of extraction by setting up regulatory authorities and integrated development of surface and ground water. Based on the NWP, this Ministry had drafted a Model 'Groundwater (Regulation and Control of Development and Management) Bill' 2005, providing a regulatory framework to curb indiscriminate extraction of ground water while also making provisions for rain water harvesting and artificial recharge. The Model Bill has been circulated to all States/UTs and so far 21 States/UTs have adopted it.

ANNEXURE-I

ANNEXURE REFERRED TO IN REPLY TO PART (c) OF UNSTARRED QUESTION NO. 4013 TO BE ANSWERED IN LOK SABHA ON 19.12.2024 REGARDING “DEPLETING GROUNDWATER LEVELS”.

Decadal Water Level Comparison Between Mean of [Nov (2013 to 2022)] and Nov 2023 groundwater levels in major Cities of the Country

S N	State/UT	Name of City	No. of wells Anal ysed	Rise					Fall					Rise		Fall			
				0-2 m		2-4 m		>4 m	0-2 m		2-4 m		>4 m						
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	Vijayawada	5	0	0.00	0	0.00	0	0.00	4	80.00	1	20.00	0	0.00	0	0.00	5	100.00
2		Vishakapatnam	18	1	5.56	4	22.22	0	0.00	5	27.78	5	27.78	3	16.67	5	27.78	13	72.22
3	Assam	Guwahati	33	19	57.58	1	3.03	1	3.03	9	27.27	3	9.09	0	0.00	21	63.64	12	36.36
4	Bihar	Patna(phreatic)	5	3	60.00	0	0.00	0	0.00	1	20.00	1	20.00	0	0.00	3	60.00	2	40.00
5		Patna(Deeper)	5	0	0.00	0	0.00	0	0.00	3	60.00	2	40.00	0	0.00	0	0.00	5	100.00
6	Chhattisgarh	Bhilai	6	2	33.33	1	16.67	0	0.00	2	33.33	1	16.67	0	0.00	3	50.00	3	50.00
7		Raipur	13	6	46.15	4	30.77	0	0.00	3	23.08	0	0.00	0	0.00	10	76.92	3	23.08
8	Delhi	Delhi	79	28	35.44	18	22.78	15	18.99	7	8.86	4	5.06	7	8.86	61	77.22	18	22.78
9	Gujarat	Ahmedabad (phreatic)	2	0	0.00	0	0.00	0	0.00	1	50.00	1	50.00	0	0.00	0	0.00	2	100.00
10		Ahmedabad (Confined)	3	0	0.00	0	0.00	0	0.00	1	33.33	2	66.67	0	0.00	0	0.00	3	100.00
11		Rajkot	3 wells established in Nov 2023																
12		Surat	1	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
13		Vadodara (phreatic)	2	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00	0	0.00	1	50.00	1	50.00
14		Vadodara (Confined)	2	0	0.00	0	0.00	0	0.00	1	50.00	0	0.00	1	50.00	0	0.00	2	100.00
15		Gandhinagar	1	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00
16	Haryana	Ambala	2	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00	0	0.00	1	50.00	1	50.00
17		Faridabad	3	1	33.33	1	33.33	0	0.00	1	33.33	0	0.00	0	0.00	2	66.67	1	33.33
18		Gurugram	4	0	0.00	1	25.00	1	25.00	1	25.00	1	25.00	0	0.00	2	50.00	2	50.00
19		Yamuna nagar	3	1	33.33	1	33.33	0	0.00	1	33.33	0	0.00	0	0.00	2	66.67	1	33.33
20	Chandigarh	Chandigarh	20	8	40.00	3	15.00	1	5.00	2	10.00	1	5.00	5	25.00	12	60.00	8	40.00
21	Jharkhand	Ranchi	13	6	46.15	1	7.69	0	0.00	6	46.15	0	0.00	0	0.00	7	53.85	6	46.15
22		Dhanbad	8	2	25.00	0	0.00	1	12.50	5	62.50	0	0.00	0	0.00	3	37.50	5	62.50
23		Jamshedpur	10	6	60.00	0	0.00	1	10.00	2	20.00	0	0.00	1	10.00	7	70.00	3	30.00
24	Karnataka	Bangalore	24	2	8.33	0	0.00	0	0.00	11	45.83	6	25.00	5	20.83	2	8.33	22	91.67
25	Kerala	Kannur	13	12	92.31	0	0.00	0	0.00	1	7.69	0	0.00	0	0.00	12	92.31	1	7.69
26		Kochi	18	17	94.44	0	0.00	0	0.00	1	5.56	0	0.00	0	0.00	17	94.44	1	5.56
27		Kollam	8	7	87.50	0	0.00	0	0.00	1	12.50	0	0.00	0	0.00	7	87.50	1	12.50
28		Kozhikode	14	10	71.43	0	0.00	0	0.00	4	28.57	0	0.00	0	0.00	10	71.43	4	28.57
29		Malappuram	10	10	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	10	100.00	0	0.00
30		Thiruvananthapuram	9	4	44.44	1	11.11	0	0.00	4	44.44	0	0.00	0	0.00	5	55.56	4	44.44
31		Thrissur	15	15	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	15	100.00	0	0.00
32	Madhya Pradesh	Bhopal	10	6	60.00	0	0.00	0	0.00	4	40.00	0	0.00	0	0.00	6	60.00	4	40.00
33		Gwalior	1	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00
34		Indore	14	3	21.43	4	28.57	0	0.00	7	50.00	0	0.00	0	0.00	7	50.00	7	50.00
35		Jabalpur	13	10	76.92	0	0.00	0	0.00	2	15.38	1	7.69	0	0.00	10	76.92	3	23.08
36	Maharashtra	Aurangabad	6	3	50.00	1	16.67	0	0.00	2	33.33	0	0.00	0	0.00	4	66.67	2	33.33
37		Mumbai City	6	2	33.33	0	0.00	0	0.00	3	50.00	0	0.00	1	16.67	2	33.33	4	66.67
38		Mumbai	17	10	58.82	1	5.88	0	0.00	6	35.29	0	0.00	0	0.00	11	64.71	6	35.29

		Suburban																	
36		Nagpur	78	30	38.46	4	5.13	1	1.28	37	47.44	6	7.69	0	0.00	35	44.87	43	55.13
37		Nashik	3	1	33.33	0	0.00	0	0.00	1	33.33	0	0.00	1	33.33	1	33.33	2	66.67
38		Pune	15	4	26.67	1	6.67	0	0.00	7	46.67	2	13.33	1	6.67	5	33.33	10	66.67
39		Vasai Virar	2	1	50.00	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00	1	50.00
40	Odisha	Bhubaneshwar	38	21	55.26	1	2.63	0	0.00	13	34.21	3	7.89	0	0.00	22	57.89	16	42.11
41	Punjab	Amritsar	4	0	0.00	0	0.00	0	0.00	4	100.00	0	0.00	0	0.00	0	0.00	4	100.00
42		Jalandhar	2	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00	1	50.00	1	50.00
43		Ludhiana	2	1	50.00	0	0.00	0	0.00	0	0.00	0	0.00	1	50.00	1	50.00	1	50.00
44		SAS nagar	2	0	0.00	1	50.00	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00	1	50.00
45		Patiala	1	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
46	Rajasthan	Ajmer	3	1	33.33	0	0.00	1	33.33	1	33.33	0	0.00	0	0.00	2	66.67	1	33.33
47		Bikaner	1	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00
48		Jaipur	11	1	9.09	0	0.00	1	9.09	1	9.09	3	27.27	5	45.45	2	18.18	9	81.82
49		Jaisalmer	1	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00
50		Jodhpur	5	3	60.00	1	20.00	0	0.00	1	20.00	0	0.00	0	0.00	4	80.00	1	20.00
51		Kota	2	0	0.00	0	0.00	0	0.00	2	100.00	0	0.00	0	0.00	0	0.00	2	100.00
52	Tamil Nadu	Chennai	9	6	66.67	2	22.22	0	0.00	1	11.11	0	0.00	0	0.00	8	88.89	1	11.11
53		Coimbatore	6	1	16.67	0	0.00	2	33.33	2	33.33	0	0.00	1	16.67	3	50.00	3	50.00
54		Madurai	11	3	27.27	4	36.36	3	27.27	0	0.00	0	0.00	1	9.09	10	90.91	1	9.09
55		Trichy	6	2	33.33	1	16.67	1	16.67	2	33.33	0	0.00	0	0.00	4	66.67	2	33.33
56		vellore	2	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	100.00	0	0.00
57	Telangana	Hyderabad	37	6	16.22	7	18.92	3	8.11	13	35.14	3	8.11	5	13.51	16	43.24	21	56.76
58	Uttar Pradesh	Agra	1	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00
59		Allahabad	4	0	0.00	0	0.00	0	0.00	3	75.00	0	0.00	1	25.00	0	0.00	4	100.00
60		Ghaziabad	1	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
61		Kanpur	6	5	83.33	0	0.00	0	0.00	1	16.67	0	0.00	0	0.00	5	83.33	1	16.67
62		Lucknow	3	0	0.00	0	0.00	0	0.00	0	0.00	2	66.67	1	33.33	0	0.00	3	100.00
63		Meerut	1	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
64		Varanasi	1	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
65	Uttaranchal	Dehradun	9	3	33.33	4	44.44	1	11.11	1	11.11	0	0.00	0	0.00	8	88.89	1	11.11
66	West Bengal	Kolkata (Confined)	12	2	16.67	0	0.00	0	0.00	7	58.33	2	16.67	1	8.33	2	16.67	10	83.33
	TOTAL		695	289	41.58	72	10.36	35	5.04	203	29.21	54	7.77	42	6.04	396	56.98	299	43.02

ANNEXURE-II

ANNEXURE REFERRED TO IN REPLY TO PART (d) OF UNSTARRED QUESTION NO. 4013 TO BE ANSWERED IN LOK SABHA ON 19.12.2024 REGARDING “DEPLETING GROUNDWATER LEVELS”.

State-wise Decadal Water Level Decadal Fluctuation with Mean (Post-Monsoon 2013 to 2022) and post-Monsoon 2023

S N	State Name	No Of Wells Analysed	No. of wells in different depth range												Total No. of wells		Total % * of wells	
			Rise						Fall						Rise	Fall	Rise	Fall
			0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4	0 to 2	2 to 4	> 4				
1	Andhra Pradesh	693	92	13.3	27	3.9	34	4.9	381	55.0	119	17.2	40	5.8	153	540	22.08	77.92
2	Arunachal Pradesh	21	3	14.3	1	4.8	0	0.0	16	76.2	1	4.8	0	0.0	4	17	19.05	80.95
3	Assam	209	97	46.4	7	3.3	0	0.0	92	44.0	8	3.8	5	2.4	104	105	49.76	50.24
4	Bihar	606	226	37.3	27	4.5	0	0.0	327	54.0	21	3.5	4	0.7	253	352	41.75	58.09
5	Chhattisgarh	692	340	49.1	42	6.1	4	0.6	260	37.6	32	4.6	13	1.9	386	305	55.78	44.08
6	Goa	80	49	61.3	3	3.8	2	2.5	24	30.0	0	0.0	2	2.5	54	26	67.50	32.50
7	Gujarat	503	193	38.4	67	13.3	47	9.3	148	29.4	28	5.6	19	3.8	307	195	61.03	38.77
8	Haryana	577	170	29.5	54	9.4	33	5.7	184	31.9	67	11.6	69	12.0	257	320	44.54	55.46
9	Himachal Pradesh	52	28	53.8	0	0.0	3	5.8	20	38.5	0	0.0	1	1.9	31	21	59.62	40.38
10	Jharkhand	230	90	39.1	12	5.2	3	1.3	101	43.9	14	6.1	10	4.3	105	125	45.65	54.35
11	Karnataka	1160	403	34.7	69	5.9	32	2.8	501	43.2	116	10.0	37	3.2	504	654	43.45	56.38
12	Kerala	1169	809	69.2	51	4.4	6	0.5	284	24.3	13	1.1	5	0.4	866	302	74.08	25.83
13	Madhya Pradesh	1060	397	37.5	101	9.5	47	4.4	385	36.3	87	8.2	43	4.1	545	515	51.42	48.58
14	Maharashtra	1387	549	39.6	96	6.9	37	2.7	512	36.9	119	8.6	71	5.1	682	702	49.17	50.61
15	Meghalaya	29	12	41.4	0	0.0	0	0.0	17	58.6	0	0.0	0	0.0	12	17	41.38	58.62
16	Nagaland	9	3	33.3	1	11.1	0	0.0	4	44.4	1	11.1	0	0.0	4	5	44.44	55.56
17	Odisha	1133	576	50.8	35	3.1	8	0.7	442	39.0	59	5.2	13	1.1	619	514	54.63	45.37
18	Punjab	176	47	26.7	8	4.5	6	3.4	64	36.4	24	13.6	27	15.3	61	115	34.66	65.34
19	Rajasthan	753	146	19.4	69	9.2	38	5.0	223	29.6	121	16.1	156	20.7	253	500	33.60	66.40
20	TamilNadu	771	285	37.0	154	20.0	121	15.7	163	21.1	34	4.4	14	1.8	560	211	72.63	27.37
21	Telangana	616	156	25.3	76	12.3	82	13.3	223	36.2	46	7.5	33	5.4	314	302	50.97	49.03
22	Tripura	63	20	31.7	1	1.6	0	0.0	37	58.7	4	6.3	1	1.6	21	42	33.33	66.67
23	Uttar Pradesh	606	275	45.4	31	5.1	9	1.5	229	37.8	47	7.8	15	2.5	315	291	51.98	48.02
24	Uttarakhand	147	58	39.5	20	13.6	12	8.2	43	29.3	10	6.8	4	2.7	90	57	61.22	38.78
25	West Bengal	573	325	56.7	11	1.9	1	0.2	213	37.2	18	3.1	5	0.9	337	236	58.81	41.19
26	Andaman & Nicobar	108	72	66.7	0	0.0	0	0.0	36	33.3	0	0.0	0	0.0	72	36	66.67	33.33
27	Chandigarh	12	6	50.0	0	0.0	0	0.0	1	8.3	1	8.3	4	33.3	6	6	50.00	50.00
28	Daman & Diu and Dadra & Nagar Haveli	23	13	56.5	0	0.0	0	0.0	8	34.8	1	4.3	1	4.3	13	10	56.52	43.48
29	Delhi	58	22	37.9	13	22.4	8	13.8	6	10.3	5	8.6	4	6.9	43	15	74.14	25.86
30	Jammu & Kashmir	211	121	57.3	3	1.4	0	0.0	79	37.4	7	3.3	1	0.5	124	87	58.77	41.23
31	Puducherry	7	4	57.1	1	14.3	0	0.0	2	28.6	0	0.0	0	0.0	5	2	71.43	28.57
	Total	13734	5587	40.7	980	7.1	533	3.9	5025	36.6	1003	7.3	597	4.3	7100	6625	51.70	48.24

*In 9 out of the total wells analyzed (3 in Maharashtra, 2 in Karnataka and 1 each in Bihar, Chattisgarh, Gujarat and Kerala), the water levels of November 2023 and the decadal mean were exactly in match showing neither rise nor fall.
