

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

UNSTARRED QUESTION NO. 423

ANSWERED ON 24.07.2023

UNDERGROUND WATER RECOVERY

423. DR. FAUZIA KHAN

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

- (a) whether Government is aware of the current state of affairs related to the recovery of underground water resources in many States in the country;
- (b) if so, details regarding the current state of underground water-resource recovery in these States, if not, the reasons for the lack of information;
- (c) whether Government has identified any specific challenges or issues hindering the recovery of underground water resources in these States;
- (d) if so, details regarding the challenges or issues identified; and
- (e) the measures which have been proposed by Government to address the recovery of underground water resources in these States?

ANSWER

THE MINISTER OF STATE FOR JAL SHAKTI

(SHRI BISHWESWAR TUDU)

(a) & (b) Yes sir. The Dynamic Ground Water Resources of the country are being periodically assessed jointly by Central Ground Water Board (CGWB) and State Governments. In order to understand the current state of underground water resources, a comparison has been made between latest assessment (2022) with the assessment carried out in 2017.

The average 'Stage of Ground Water Extraction (i.e. gross groundwater extraction for all uses on an average to available groundwater resource)' for the country as a whole works out to 60.08% in 2022 assessment as compared with 2017 assessment (63.33%), indicating overall improvement (groundwater recovery) in the ground water regime. Further, the 'Stage of Groundwater Extraction' in the States of Haryana, Punjab and Rajasthan is more than 100 %. The State-wise details in this regard are given at **Annexure I**.

Further, the comparison reveals that the over-exploited ('stage of groundwater extraction' is more than 100 %) assessment units (blocks/mandals/firkas /district/valley etc) in 2017 were 1186 (17.23%) out of 6881 assessment units whereas in 2022, there were 1006 (14.19%) over exploited units out of 7089 assessment units indicating an improved trend (groundwater recovery) in groundwater scenario. Further, the percentage of Over-exploited assessment units (in terms of total assessment units) have increased in the States of Haryana, Punjab and Rajasthan in the 2022 assessment when compared with 2017 assessment. The State-wise details are given at **Annexure II**.

The water level data collected by CGWB during November 2022 has been compared with the mean of groundwater level data of November (2012-2021). Analysis of water level data indicates that about 61.1% of the wells monitored have registered rise in ground water levels. The State-wise details are given in **Annexure III**.

(c) & (d) Ground water levels in certain parts of the country are declining because of continuous withdrawal necessitated by increased demand for fresh water for various uses, vagaries of rainfall, increased population, industrialization & urbanization including increasing concretisation (in urban areas) etc. Further, Agriculture sector being one of the most important contributors to the Indian economy and food sufficiency is a major groundwater extractor in most parts of the country due to various reasons.

(e) Water being State subject identification of groundwater challenges and its sustainable management falls under States' mandate, however, Central Government has taken a number of important measures in this regard in the country including in States with groundwater stress, which can be seen at web-link <https://cdnbbsr.s3waas.gov.in/s3a70dc40477bc2adceef4d2c90f47eb82/uploads/2023/02/2023021742.pdf>

Government of India is implementing Jal Shakti Abhiyan (JSA) in the country in which special emphasis is being given for rainwater harvesting/groundwater recharge. First JSA was launched in 2019 in water stressed blocks of 256 districts which continued during the years 2021,2022 also (across entire country both rural and urban areas) with the primary aim to effectively harvest the monsoon rainfall through creation of artificial recharge structures, watershed management, recharge and reuse structures, intensive afforestation and awareness generation etc. JSA for the year 2023 has been launched by Hon'ble President of India on 4th March 2023 with the theme "Source Sustainability for Drinking Water".

Hon'ble Prime Minister has launched Amrit Sarovar Mission on 24th April 2022. The Mission is aimed at developing and rejuvenating 75 water bodies in each district of the country as a part of celebration of Azadi ka Amrit Mahotsav for rainwater harvesting/recharge.

Central Government is promoting participatory groundwater management in the country with community participation at village level for conjunctive use of surface water and groundwater based on scientific means. Further, crop diversification, crop rotation, use of micro irrigation techniques like drip/sprinkler irrigation systems, increasing water use efficiency by use of improved techniques, availability of surface water through canal-based system, energy efficient electric tariff policy etc are being vigorously promoted in agriculture sector.

Central Government is implementing Atal Bhujal Yojana involving the local communities at village levels with an outlay of Rs. 6,000 crore, in collaboration with States, in certain water stressed areas of Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh. Under Atal Bhujal Yojana, the focus is on demand side management of the ground water and accordingly water saving interventions such as use of micro irrigation (drip/sprinkler system), shifting of cropping patten from high water intensive crops to low water intensive crops, use of pipe in irrigation to reduce losses, mulching etc. are being encouraged and incentivised.

Department of Agriculture & Farmers Welfare is implementing Per Drop More Crop (PDMC) Scheme which is operational from 2015-16 in the Country. PDMC focuses on water use efficiency at farm level through Micro Irrigation mainly (Drip and Sprinkler Irrigation System).

Master Plan for Artificial Recharge to Groundwater- 2020 has been prepared by the CGWB in collaboration with States/UTs providing a broad outline of the project and expected investments. The Master Plan envisages construction of about 1.42 crore Rain water harvesting and artificial recharge structures in the Country to harness 185 Billion Cubic Meter (BCM) of water. The Master plan has been shared with States/UTs for suitable interventions.

Ministry of Housing & Urban Affairs (MoHUA) has formulated Model Building Bye Laws (MBBL), 2016 for the States/UTs. As per MBBL, all buildings having a plot size of 100 Sq.m. or, more shall mandatorily include the complete proposal of rainwater harvesting. 35 States/ UTs have adopted the features of the Bye Laws.

In addition, Several States have done notable work in the field of water conservation/rainwater harvesting such as 'Mukhyamantri Jal Swavlamban Abhiyan' in Rajasthan, 'JalyuktShibar' in Maharashtra, 'SujalamSufalam Abhiyan' in Gujarat, 'Mission Kakatiya' in Telangana, 'Neeru Chettu' in Andhra Pradesh, 'Jal Jeevan Hariyali' in Bihar, 'Jal Hi Jeevan' in Haryana, 'PaniBachao Paise Kamao' scheme in Punjab and 'Kudimaramath' scheme in Tamil Nadu etc.

ANNEXURE REFERRED TO IN REPLY TO PART (a) & (b) OF UNSTARRED QUESTION NO. 423 TO BE ANSWERED IN RAJYA SABHA ON 24.07.2023 REGARDING “UNDERGROUND WATER RECOVERY”.

Comparison of the Stage of Ground Water Extraction between the Assessment year 2017 and 2022

S. No.	States / Union Territories	Stage of Ground Water Extraction (%) Assessment year 2017	Stage of Ground Water Extraction (%) Assessment year 2022
1	Andhra Pradesh	44.15	28.81
2	Arunachal Pradesh	0.28	0.79
3	Assam	11.25	12.38
4	Bihar	45.76	44.94
5	Chhattisgarh	44.43	49.58
6	Delhi	119.61	98.16
7	Goa	33.50	23.63
8	Gujarat	63.89	53.23
9	Haryana	136.91	134.14
10	Himachal Pradesh	86.37	37.56
11	Jharkhand	27.73	31.35
12	Karnataka	69.87	69.93
13	Kerala	51.27	52.56
14	Madhya Pradesh	54.76	59.1
15	Maharashtra	54.62	54.68
16	Manipur	1.44	7.95
17	Meghalaya	2.28	3.55
18	Mizoram	3.82	3.96
19	Nagaland	0.99	2.89
20	Odisha	42.18	44.25
21	Punjab	165.77	165.99
22	Rajasthan	139.88	151.07
23	Sikkim	0.06	6.04
24	Tamil Nadu	80.89	75.59
25	Telangana	65.45	41.6
26	Tripura	7.88	9.70
27	Uttar Pradesh	70.18	70.66
28	Uttarakhand	56.83	48.04
29	West Bengal	44.60	47.01
30	Andaman and Nicobar	2.74	1.35
31	Chandigarh	89.00	80.99
32	Dadra & Nagar Haveli	31.34	133.2
	Daman & Diu	61.40	157.927
33	Jammu and Kashmir	29.47	24.18
34	Ladakh	Included in J&K	41.36
35	Lakshadweep	65.99	61.6
36	Puducherry	74.33	69.17
	Grand Total	63.33	60.08

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Comparison of Over-exploited Assessment Units of 2017 with 2022

S.No.	State/Union Territories	2017			2022		
		Total No. of Assessed Units	Over-Exploited		Total No. of Assessed Units	Over-Exploited	
			Nos.	%		Nos.	%
1	Andhra Pradesh	670	45	7	667	6	0.9
2	Arunachal Pradesh	11	0	0	11	0	0
3	Assam	28	0	0	28	0	0
4	Bihar	534	12	2	535	8	1.50
5	Chhattisgarh	146	0	0	146	0	0
6	Delhi	34	22	65	34	15	44.12
7	Goa	12	0	0	12	0	0
8	Gujarat	248	25	10	252	23	9.13
9	Haryana	128	78	61	143	88	61.54
10	Himachal Pradesh	8	4	50	10	0	0
11	Jharkhand	260	3	1	263	5	1.90
12	Karnataka	176	45	26	234	49	20.94
13	Kerala	152	1	1	152	0	0
14	Madhya Pradesh	313	22	7	317	26	8.20
15	Maharashtra	353	11	3	353	11	3.12
16	Manipur	9	0	0	9	0	0
17	Meghalaya	11	0	0	12	0	0
18	Mizoram	26	0	0	26	0	0
19	Nagaland	11	0	0	11	0	0
20	Odisha	314	0	0	314	0	0
21	Punjab	138	109	79	153	117	76.47
22	Rajasthan	295	185	63	302	219	72.52
23	Sikkim	4	0	0	6	0	0
24	Tamil Nadu	1166	462	40	1166	360	30.87
25	Telangana	584	70	12	594	13	2.20
26	Tripura	59	0	0	59	0	0
27	Uttar Pradesh	830	91	11	836	63	7.54
28	Uttarakhand	18	0	0	18	0	0
29	West Bengal*	268	0	0	345	0	0
30	Andaman and Nicobar	36	0	0	36	0	0
31	Chandigarh	1	0	0	1	0	0
32	Dadra & Nagar Haveli	1	0	0	1	1	100.00
	Daman & Diu	2	0	0	2	2	100.00
33	Jammu and Kashmir	22	0	0	20	0	0
34	Ladakh**	0	0	0	8	0	0
35	Lakshadweep	9	0	0	9	0	0
36	Puducherry	4	1	25	4	0	0
	Grand Total	6881	1186	17.23	7089	1006	14.19

* The Ground Water resources assessment as on 2013 has been considered for the state of West Bengal for 2017 assessment also.

** In 2017 assessment, Ladakh is included in Jammu and Kashmir.

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State-wise Decadal Water Level Fluctuation with Mean [November (2012 to 2021)] and November 2022

S. No.	Name of State	No. of wells Analysed	Rise						Fall						Rise		Fall		Wells showing no change	
			0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		No	%	No	%	No	%
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andaman and Nicobar	99	70	70.7	2	2.0	0	0.0	26	26.3	0	0.0	0	0.0	72	72.7	26	26.3	1	1.0
2	Andhra Pradesh	662	335	50.6	91	13.7	65	9.8	157	23.7	11	1.7	3	0.5	491	74.2	171	25.8	0	0.0
3	Arunachal Pradesh	9	1	11.1	0	0.0	0	0.0	7	77.8	1	11.1	0	0.0	1	11.1	8	88.9	0	0.0
4	Assam	163	84	51.5	2	1.2	1	0.6	72	44.2	2	1.2	2	1.2	87	53.4	76	46.6	0	0.0
5	Bihar	638	291	45.6	19	3.0	4	0.6	279	43.7	36	5.6	9	1.4	314	49.2	324	50.8	0	0.0
6	Chandigarh	14	4	28.6	1	7.1	0	0.0	5	35.7	2	14.3	2	14.3	5	35.7	9	64.3	0	0.0
7	Chhattisgarh	757	386	51.0	86	11.4	20	2.6	214	28.3	36	4.8	14	1.8	492	65.0	264	34.9	1	0.1
8	Dadra & Nagar Haveli	15	9	60.0	0	0.0	0	0.0	5	33.3	1	6.7	0	0.0	9	60.0	6	40.0	0	0.0
9	Daman & Diu	7	4	57.1	0	0.0	0	0.0	3	42.9	0	0.0	0	0.0	4	57.1	3	42.9	0	0.0
10	Delhi	84	31	36.9	11	13.1	18	21.4	12	14.3	6	7.1	6	7.1	60	71.4	24	28.6	0	0.0
11	Goa	63	10	15.9	0	0.0	0	0.0	47	74.6	5	7.9	1	1.6	10	15.9	53	84.1	0	0.0
12	Gujarat	709	287	40.5	113	15.9	76	10.7	169	23.8	35	4.9	29	4.1	476	67.1	233	32.9	0	0.0
13	Haryana	258	102	39.5	24	9.3	18	7.0	65	25.2	22	8.5	27	10.5	144	55.8	114	44.2	0	0.0
14	Himachal Pradesh	84	23	27.4	4	4.8	0	0.0	52	61.9	3	3.6	2	2.4	27	32.1	57	67.9	0	0.0
15	Jammu & Kashmir	271	102	37.6	6	2.2	3	1.1	150	55.4	10	3.7	0	0.0	111	41.0	160	59.0	0	0.0
16	Jharkhand	173	73	42.2	8	4.6	5	2.9	70	40.5	15	8.7	1	0.6	86	49.7	86	49.7	1	0.6
17	Karnataka	1328	545	41.0	188	14.2	157	11.8	395	29.7	27	2.0	15	1.1	890	67.0	437	32.9	1	0.1
18	Kerala	1410	602	42.7	35	2.5	7	0.5	718	50.9	35	2.5	12	0.9	644	45.7	765	54.3	1	0.1
19	Madhya Pradesh	1259	650	51.6	262	20.8	92	7.3	199	15.8	40	3.2	16	1.3	1004	79.7	255	20.3	0	0.0
20	Maharashtra	1474	661	44.8	231	15.7	105	7.1	394	26.7	62	4.2	19	1.3	997	67.6	475	32.2	2	0.1
21	Meghalaya	24	12	50.0	1	4.2	0	0.0	11	45.8	0	0.0	0	0.0	13	54.2	11	45.8	0	0.0
22	Nagaland	4	0	0.0	2	50.0	0	0.0	1	25.0	1	25.0	0	0.0	2	50.0	2	50.0	0	0.0
23	Odisha	1211	686	56.6	29	2.4	3	0.2	465	38.4	26	2.1	2	0.2	718	59.3	493	40.7	0	0.0
24	Pondicherry	4	3	75.0	0	0.0	0	0.0	1	25.0	0	0.0	0	0.0	3	75.0	1	25.0	0	0.0
25	Punjab	230	54	23.5	2	0.9	2	0.9	89	38.7	47	20.4	36	15.7	58	25.2	172	74.8	0	0.0
26	Rajasthan	889	270	30.4	114	12.8	88	9.9	249	28.0	82	9.2	86	9.7	472	53.1	417	46.9	0	0.0
27	Tamil Nadu	620	220	35.5	160	25.8	136	21.9	86	13.9	11	1.8	7	1.1	516	83.2	104	16.8	0	0.0
28	Telangana	512	217	42.4	106	20.7	135	26.4	44	8.6	4	0.8	6	1.2	458	89.5	54	10.5	0	0.0
29	Tripura	20	7	35.0	1	5.0	0	0.0	10	50.0	2	10.0	0	0.0	8	40.0	12	60.0	0	0.0
30	Uttar Pradesh	631	341	54.0	45	7.1	10	1.6	189	30.0	28	4.4	18	2.9	396	62.8	235	37.2	0	0.0
31	Uttarakhand	45	21	46.7	6	13.3	2	4.4	10	22.2	3	6.7	3	6.7	29	64.4	16	35.6	0	0.0
32	West Bengal	762	180	23.6	23	3.0	13	1.7	352	46.2	105	13.8	89	11.7	216	28.3	546	71.7	0	0.0
	TOTAL	14429	6281	43.5	1572	10.9	960	6.7	4546	31.5	658	4.6	405	2.8	8813	61.1	5609	38.9	7	0.0
