

7.23 Rajasthan

The State of Rajasthan has diversified geology, ranging from Archean metamorphics to recent alluvial sediments. Based upon geological diversities, geomorphological setup and ground water potentialities, the state of Rajasthan can be divided into three broad hydrogeological units. (i) Unconsolidated formation (ii) Semi-consolidated formation (iii) Consolidated (Fissured formation). Large part of the State is underlain by Quaternary sediments (Thar Desert) consisting of clay, silt, sand and gravel of various grades. The fine sand and clay with or without Kankar layers have formed multi layered aquifer system. Exploratory drilling data reveals that the yield vary from meagre to $10 \text{ m}^3/\text{day}$, transmissivity ranges between 80 to $300 \text{ m}^2/\text{day}$ and storage co-efficient vary from 1.1×10^{-5} to 3.9×10^{-6} in the state. Sandstone belonging to the Vindhyan formation is compact in nature and has low primary porosity. Ground Water occurs within the weathered residue and in the secondary porosity underneath. In general, the thickness varies from 5 to 10m. Yield potential is limited due to compact nature of the formation. The limestone is also having low ground water potential. The yields of dug wells vary from 0.25 to $0.75 \text{ m}^3/\text{day}$. The yield of the wells drilled in Vindhyan formation has been observed to be $15 \text{ m}^3/\text{day}$, tapping fractures between 50-75mbgl. In consolidated formation (Fissured) the thickness of the weathered zone varies from 5 to 50m. Ground Water occurs under unconfined condition within the weathered zone. The results of the exploratory drilling carried out by CGWB in hard rock areas indicate presence of productive fractures down to a depth of 100m and yield varies from 3 to $15 \text{ m}^3/\text{day}$, whereas transmissivity varies from 3 to $30 \text{ m}^2/\text{day}$.

The Ground water resources for the state have been assessed block-wise. Total Annual Groundwater Recharge of the State has been assessed as 13.21bcm and Annual Extractable Ground Water Resource as 11.99bcm. The Annual Ground Water extraction is 16.77bcm and the Stage of ground water extraction in the state is 140%. Out of the 295 assessed blocks, 185 blocks have been categorized as 'Over Exploited', 33 as 'Critical', 29 as 'Semi-Critical', 45 blocks as 'Safe' and 3 as 'Saline'.

As compared to 2013 estimate, the Annual Ground Water Recharge and Annual Extractable Ground Water Resource have increased from 12.51 to 13.21bcm and 11.26 to 11.99bcm respectively. Annual ground water extraction and stage of ground water extraction has increased marginally from 15.71 to 16.77bcm and 139.52 to 139.88% respectively. The marginal change in recharge is due to changes in norms of GEC-2015 methodology and increased draft is due to revision of well census data.

Dynamic Groundwater Resources Assessment of India – 2017

STATE-WISE GROUND WATER RESOURCES OF INDIA, 2017

S. No.	States / Union Territories	Ground Water Recharge						Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction			Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season Recharge from rainfall	Non-monsoon Season Recharge from rainfall	Recharge from other sources	Total Annual Ground Water Recharge	Irrigation	Industrial			Domestic	Total				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	States														
1	Andhra Pradesh	9.96	5.62	1.21	4.42	21.22	1.07	20.15	7.85	0.14	0.90	8.90	1.48	12.31	44.15
2	Arunachal Pradesh	1.89	0.18	0.95	0.01	3.02	0.36	2.67	0.00	0.00	0.01	0.01	0.03	0.64	0.28
3	Assam	20.22	0.43	7.28	0.74	28.67	4.42	24.26	1.97	0.06	0.69	2.73	0.79	21.43	11.25
4	Bihar	19.83	3.95	3.14	4.50	31.41	2.43	28.99	10.78	0.66	1.83	13.26	1.83	15.78	45.76
5	Chhattisgarh	7.82	1.36	0.76	1.64	11.57	1.00	10.57	3.98	0.05	0.67	4.70	0.79	5.76	44.43
6	Delhi	0.13	0.03	0.03	0.11	0.32	0.02	0.30	0.09	0.02	0.24	0.36	0.29	0.02	119.61
7	Goa	0.19	0.06	0.01	0.05	0.27	0.11	0.16	0.02	0.02	0.04	0.04	0.05	0.07	33.50
8	Gujarat	15.95	3.40	0.00	3.02	22.37	1.12	21.25	12.84	0.11	0.63	13.58	0.90	7.98	63.89
9	Haryana	3.56	2.55	1.03	3.00	10.15	1.01	9.13	11.53	0.34	0.63	12.50	0.72	0.87	136.91
10	Himachal Pradesh	0.34	0.02	0.11	0.04	0.51	0.05	0.46	0.20	0.00	0.19	0.39	0.34	0.16	86.37
11	Jammu & Kashmir	1.00	0.50	0.88	0.51	2.89	0.29	2.60	0.20	0.07	0.50	0.76	0.50	1.84	29.47
12	Jharkhand	5.25	0.13	0.41	0.42	6.21	0.52	5.69	0.80	0.22	0.56	1.58	0.56	4.13	27.73
13	Karnataka	6.59	4.36	2.67	3.22	16.84	2.05	14.79	9.39	0.95	1.14	10.34	1.14	5.41	69.87
14	Kerala	3.91	0.04	0.68	1.13	5.77	0.56	5.21	1.22	0.01	1.44	2.67	1.57	2.41	51.27
15	Madhya Pradesh	27.10	1.51	0.82	6.99	36.42	1.95	34.47	17.43	0.22	1.24	18.88	1.72	15.84	54.76
16	Maharashtra	20.59	2.29	0.53	8.23	31.64	1.74	29.90	15.10	0.003	1.22	16.33	2.28	12.91	54.62
17	Manipur	0.23	0.01	0.17	0.02	0.43	0.04	0.39	0.00	0.00	0.00	0.01	0.04	0.34	1.44
18	Meghalaya	1.37	0.01	0.43	0.02	1.83	0.19	1.64	0.03	0.00	0.01	0.04	0.02	1.59	2.28
19	Mizoram	0.16	0.00	0.05	0.00	0.21	0.22	1.98	0.00	0.00	0.02	0.02	0.02	1.96	0.99
20	Nagaland	1.65	0.03	0.52	0.00	2.20	0.22	1.98	0.00	0.19	0.00	0.01	0.01	0.18	3.82
21	Odisha	10.53	2.34	1.50	2.37	16.74	1.17	15.57	5.28	0.14	1.15	6.57	1.30	8.85	42.18
22	Punjab	5.54	11.83	1.31	5.25	23.93	2.35	21.58	34.56	0.20	1.01	35.78	1.41	1.09	165.77
23	Rajasthan	9.74	0.78	0.24	2.44	13.21	1.22	11.99	14.85	0.00	1.92	16.77	2.67	0.88	139.88
24	Sikkim	5.20	0.00	0.43	0.00	5.63	4.11	1.52	0.00	0.00	0.00	0.00	0.01	1.51	0.06
25	Tamil Nadu	6.67	9.41	1.89	2.26	20.22	2.02	18.20	13.06	0.00	1.67	14.73	1.85	5.66	80.94
26	Telangana	7.56	1.42	1.88	2.76	13.62	1.25	12.37	7.09	0.00	1.00	8.09	1.39	4.26	65.45
27	Tripura	0.80	0.06	0.40	0.26	1.53	0.29	1.24	0.02	0.00	0.08	0.10	0.11	1.11	7.88
28	Uttar Pradesh	37.73	11.67	1.59	18.93	69.92	4.60	65.32	40.89	0.00	4.95	45.84	5.96	20.36	70.18
29	Uttarakhand	1.15	0.93	0.09	0.87	3.04	0.15	2.89	1.30	0.13	0.22	1.64	0.22	1.25	56.83
30	West Bengal**	18.71	1.51	5.26	3.85	29.33	2.77	26.56	10.84	0.00	1.00	11.84	1.53	14.19	44.60
	Total States	251.36	66.41	36.30	77.06	431.13	39.09	392.04	221.33	2.38	24.77	248.47	31.52	172.82	63.38
	Union Territories														
1	Andaman & Nicobar	0.35	0.00	0.02	0.00	0.37	0.04	0.33	0.00	0.00	0.01	0.01	0.01	0.32	2.74
2	Chandigarh	0.02	0.01	0.00	0.01	0.04	0.00	0.04	0.00	0.00	0.03	0.03	0.03	0.00	89.00
3	Dadra & Nagar Haveli	0.06	0.00	0.00	0.01	0.07	0.00	0.07	0.01	0.01	0.01	0.02	0.01	0.04	31.34
4	Daman & Diu	0.02	0.00	0.00	0.00	0.02	0.00	0.02	0.01	0.00	0.00	0.01	0.00	0.00	61.40
5	Lakshadweep	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	65.99
6	Puducherry	0.09	0.07	0.02	0.05	0.23	0.02	0.20	0.11	0.01	0.04	0.15	0.04	0.05	74.33
	Total UTs	0.54	0.08	0.05	0.07	0.73	0.08	0.66	0.23	0.00	0.10	0.23	0.10	0.43	34.51
	Grand Total	251.90	66.49	36.34	77.13	431.86	39.16	392.70	221.46	2.38	24.87	248.69	31.62	173.25	63.33

Note:

*Industrial and domestic draft has not been estimated separately in Goa, Himachal Pradesh, Karnataka, Rajasthan, Tamil Nadu, Uttar Pradesh, Chandigarh, Dadra & Nagar Haveli and Puducherry

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

Dynamic Groundwater Resources Assessment of India – 2017

S. No.	District	Ground Water Recharge					Total Annual Ground Water Recharge	Total Natural Discharges	Annual Extractable Ground Water Resources	Current Annual Ground Water Extraction			Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Recharge from rainfall	Season Recharge from other sources	Non-monsoon Season Recharge from rainfall	Recharge from other sources	Irrigation				Industrial	Domestic	Total			
		3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Ajmer	31499.64	1909.99	0.00	6165.97	39575.60	3642.12	35933.48	48623.83	0.00	49785.53	53602.36	6721.01	0.00	149.17
2	Awar	67625.60	2334.06	7670.66	6876.18	84506.70	7250.58	77256.12	133272.95	0.00	15523.23	148795.88	20801.13	0.00	192.60
3	Banswara	11442.43	671.59	0.00	8804.14	20918.16	1963.99	18954.16	8478.74	0.00	2047.09	10525.83	2776.19	7699.23	55.53
4	Baran	36016.40	3343.56	0.00	14570.65	53930.61	5096.20	48833.41	52215.36	0.00	5754.77	57970.13	10067.08	5458.80	118.71
5	Barnar	26062.15	848.48	1095.32	2337.67	30343.62	2752.42	27591.20	29153.67	0.00	5130.98	34284.65	6926.82	1111.73	124.26
6	Bharatpur	35548.66	2103.91	1707.37	6165.18	45525.13	3891.52	41633.61	42957.44	0.00	6946.86	49904.30	9164.32	0.00	119.87
7	Bhilwara	46128.14	3370.82	0.00	10712.12	60211.07	5848.11	54362.96	71234.43	0.00	4140.45	75374.88	5589.60	0.00	138.65
8	Bikaner	25309.35	238.29	0.00	1056.16	26603.80	4842.20	24098.53	33254.17	0.00	7780.14	41034.31	10097.11	3056.66	170.26
9	Bundi	25607.90	3117.63	0.00	23490.04	52215.57	5321.41	47373.38	37377.47	0.00	2621.85	39999.33	3539.50	11977.46	84.43
10	Chittaurgarh	44079.09	2881.40	0.00	10838.87	57799.35	5247.94	52477.94	71489.31	0.00	1507.33	73046.64	2102.40	0.00	139.19
11	Churu	12074.34	35.25	402.37	105.74	12617.69	1048.81	11568.89	10251.14	0.00	2507.38	12758.51	3359.88	1700.28	110.28
12	Dausa	22053.97	1096.58	339.45	2170.75	25680.74	2538.02	23122.73	38362.34	0.00	2442.62	40804.96	3586.91	0.00	176.47
13	Dhaulpur	19953.14	1250.76	507.45	5118.52	26829.87	2470.97	24358.90	27560.32	0.00	2977.89	30538.21	4020.15	915.27	125.37
14	Dungarpur	8885.85	850.45	0.00	5171.62	14907.91	1441.49	13466.43	8043.55	0.00	803.94	8847.49	1085.32	4337.56	65.70
15	Ganganagar	2210.84	19189.90	675.73	23394.56	45471.02	4547.10	40923.91	15048.98	0.00	701.40	15750.38	946.89	24928.04	38.49
16	Hanumangarh	2568.60	7812.14	644.97	10004.22	21019.92	1972.46	19047.46	11596.72	0.00	804.30	12401.02	1092.42	6364.93	65.11
17	Jaipur	67725.26	2528.05	2717.35	6459.00	79429.66	7460.03	71969.62	127627.58	0.00	30581.96	158209.54	41285.64	0.00	219.83
18	Jaaisalmer	6675.67	20.93	0.00	67.65	6764.24	676.42	6087.82	15320.95	0.00	2507.25	17828.21	3384.79	0.00	292.85
19	Jaisalmer	41635.13	1163.35	0.00	10449.12	53247.59	5215.00	48032.59	80857.75	0.00	4419.60	85277.35	5966.46	1226.27	177.54
20	Jhalawar	42154.25	2887.02	0.00	10237.03	55278.30	4142.54	51135.76	48876.38	0.00	2379.16	51255.53	3211.86	3106.90	100.23
21	Jhunjhunun	19229.72	399.90	1797.73	1605.99	23033.23	2248.00	20785.24	36766.57	0.00	8484.85	45251.41	11454.55	0.00	217.71
22	Jodhpur	41757.40	455.46	343.58	1398.79	43955.22	4245.17	39710.05	71755.44	0.00	15090.92	86906.36	20318.74	2908.99	218.60
23	Karauli	35541.37	1124.88	0.00	3034.51	39700.76	3852.35	35848.41	51625.62	0.00	5115.96	66741.58	6855.39	202.68	158.28
24	Kota	28567.82	5750.88	704.84	22295.64	57319.18	5582.10	51737.08	46949.05	0.00	6564.63	53513.68	8862.25	0.00	103.43
25	Nagaur	51135.16	304.20	4927.39	987.86	57354.61	5212.12	52142.49	86573.31	0.00	14578.75	101152.06	19881.32	631.27	193.99
26	Pali	42904.89	1150.86	0.00	5741.24	49796.99	4240.12	45556.86	54088.68	0.00	3093.54	57182.22	4176.28	1022.26	125.52
27	Pratapgarh	14691.60	1405.81	0.00	4566.11	20663.52	1490.84	19172.68	22976.94	0.00	519.51	23496.45	701.34	886.18	122.55
28	Rajsamand	8162.25	681.32	126.20	2268.41	11238.18	1123.82	10114.36	10550.75	0.00	1727.95	12276.70	2332.73	0.00	121.40
29	Sawai Madhopur	40235.26	1850.13	0.00	6918.79	49004.17	4021.59	44982.58	49878.33	0.00	10646.89	60525.22	14266.83	0.00	134.55
30	Sikar	27736.92	859.39	802.04	1591.48	30991.84	3099.18	27892.65	41094.91	0.00	8435.53	49530.44	17380.95	342.71	177.58
31	Sirohi	30948.50	938.03	0.00	2837.73	34724.26	3062.64	31661.61	31618.65	0.00	1387.52	33006.17	1873.15	1618.03	104.25
32	Tonk	31072.29	3525.37	0.00	11588.52	46186.17	4440.55	41745.62	31884.16	0.00	7598.61	39482.76	10258.12	2833.47	94.58
33	Udaipur	26718.64	2380.40	0.00	14613.91	43712.96	4371.30	39341.66	37258.03	0.00	2616.28	39874.31	3531.98	1960.28	101.35
	Total (Ham)	913950.21	78480.77	24462.65	243644.04	1320537.67	121616.44	1198921.22	1484623.21	0.00	192427.64	1677050.85	267439.09	88012.77	139.88
	Total (Bcm)	9.74	0.78	0.24	2.44	13.21	1.22	11.99	14.85	0.00	1.92	16.77	2.67	0.88	0.11

CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2017)												
S.No.	States / Union Territories	Total No. of Assessed	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
	States											
1	Andhra Pradesh	670	501	75	60	9	24	4	45	7	40	6
2	Arunachal Pradesh	11	11	100	0	0	0	0	0	0	0	0
3	Assam	28	28	100	0	0	0	0	0	0	0	0
4	Bihar	534	432	81	72	13	18	3	12	2	0	0
5	Chattisgarh	146	122	84	22	15	2	1	0	0	0	0
6	Delhi	34	3	9	7	21	2	6	22	65	0	0
7	Goa	12	12	100	0	0	0	0	0	0	0	0
8	Gujarat	248	194	78	11	4	5	2	25	10	13	5
9	Haryana	128	26	20	21	16	3	2	78	61	0	0
10	Himachal Pradesh	8	3	38	1	13	0	0	4	50	0	0
11	Jammu & Kashmir	22	22	100	0	0	0	0	0	0	0	0
12	Jharkhand	260	245	94	10	4	2	1	3	1	0	0
13	Karnataka	176	97	55	26	15	8	5	45	26	0	0
14	Kerala	152	119	78	30	20	2	1	1	1	0	0
15	Madhya Pradesh	313	240	77	44	14	7	2	22	7	0	0
16	Maharashtra	353	271	77	61	17	9	3	11	3	1	0
17	Manipur	9	9	100	0	0	0	0	0	0	0	0
18	Meghalaya	11	11	100	0	0	0	0	0	0	0	0
19	Mizoram	26	26	100	0	0	0	0	0	0	0	0
20	Nagaland	11	11	100	0	0	0	0	0	0	0	0
21	Odisha	314	303	96	5	2	0	0	0	0	6	2
22	Punjab	138	22	16	5	4	2	1	109	79	0	0
23	Rajasthan	295	45	15	29	10	33	11	185	63	3	1
24	Sikkim	4	4	100	0	0	0	0	0	0	0	0
25	Tamil Nadu	1166	427	37	163	14	79	7	462	40	35	3
26	Telangana	584	278	48	169	29	67	11	70	12	0	0
27	Tripura	59	59	100	0	0	0	0	0	0	0	0
28	Uttar Pradesh*	830	540	65	151	18	48	6	91	11	0	0
29	Uttarakhand	18	13	72	5	28	0	0	0	0	0	0
30	West Bengal **	268	191	71	76	28	1	0	0	0	0	0
	Total States	6828	4265	62	968	14	312	5	1185	17	98	1
	Union Territories											
1	Andaman & Nicobar	36	35	97	0	0	0	0	0	0	1	3
2	Chandigarh	1	0	0	1	100	0	0	0	0	0	0
3	Dadra & Nagar Haveli	1	1	100	0	0	0	0	0	0	0	0
4	Daman & Diu	2	1	50	0	0	1	50	0	0	0	0
5	Lakshdweep	9	6	67	3	33	0	0	0	0	0	0
6	Puducherry	4	2	50	0	0	0	0	1	25	1	25
	Total UTs	53	45	85	4	8	1	2	1	2	2	4
	Grand Total	6881	4310	63	972	14	313	5	1186	17	100	1
Note												
Blocks - Bihar, Chattisgarh, Haryana, Jharkhand, Kerala, M.P., Manipur, Mizoram, Orissa, Punjab, Rajasthan, Tripura, Uttar Pradesh,												
Taluks -Karnataka, Goa, Gujarat, Maharashtra												
Mandals - Andhra Pradesh, Telangana												
Districts/Valley - Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Meghalaya, Mizoram, Nagaland												
Islands - Lakshdweep, Andaman & Nicobar Islands												
Firka -Tamil Nadu												
Region - Puducherry												
UT - Chandigarh, Dadar & Nagar Haveli, Daman & Diu												
Tehsil-NCT Delhi												
*Uttar Pradesh: There are total 820 block and 10 Cities												
**The Ground Water resources assessment as on 2013 has been considered for the state of West Bengal												

CATEGORIZATION of ASSESSMENT UNITS, 2017								
RAJASTHAN								
S.No	District	S.No	Semi-Critical	S.No	Critical	S.No Over-Exploited		
1	Ajmer					1 Arain		
						2 Bhinay		
						3 Jawaja		
						4 Kekri		
						5 Masuda		
						6 Pisangan		
						7 Sarwar		
						8 Shrinagar		
						9 Silora		
		2	Alwar					1 Bansur
								2 Behror
								3 Kathumar
								4 Kishangarh
								5 Kotkasim
						6 Laxmangarh		
						7 Mandawar		
						8 Neemrana		
						9 Rajgarh		
						10 Ramgarh		
						11 Reni		
						12 Thanagazi		
						13 Tijara		
						14 Umrain		
3	Baran	1	Anta			1 Atru		
		2	Kishanganj			2 Baran		
		3	Shahbad			3 Chhabra		
4	Barmer			1	Dhanau	4 Chhipabarod		
				2	Kalyanpur	1 Baitu		
				3	Ramsar	2 Balotra		
				4	Sedwa	3 Dhorimana		
				5	Sindhary	4 Gadra Road		
						5 Gida		
						6 Gudamalani		
						7 Patodi		
						8 Samadri		
						9 Shiv		
						10 Siwana		
		5	Bharatpur			1	Deeg	1 Bayana
						2	Nagar	2 Kumher
						3	Kaman	3 Nadbai
				4	Pahari	4 Rupbas		
6	Bhilwara					5 Sewar		
						6 Weir		
						1 Asind		
						2 Banera		
						3 Bhilwara		
						4 Bijoliya		
						5 Hurda		
						6 Jahazpur		
						7 Kotri		
						8 Mandal		
						9 Mandalgarh		
						10 Raipur		
						11 Sahara		
						12 Shahpura		
7	Bikaner	1	Panchoo	1	Kolayat	1 Bikaner		
						2 Dungargarh		
8	Bundi	1	Bundi			3 Nokha		
						1 Hindoli		
9	Chittaurgarh					2 Nainwa		
						1 Bari Sadri		
						2 Begun		
						3 Bhadesar		
						4 Bhupalsagar		
						5 Chittaurgarh		
						6 Dungla		
						7 Gangrar		
						8 Kapasan		
						9 Nimbahera		
						10 Rashmi		
				11 Rawatbhata				

CATEGORIZATION of ASSESSMENT UNITS, 2017									
RAJASTHAN									
S. No	District	S. No	Semi-Critical	S. No	Critical	S. No	Over-Exploited		
10	Churu	1	Ratangarh			1	Bidasar		
		2	Churu			2	Sujangarh		
11	Dausa					3	Rajgarh		
						1	Bandikui		
						2	Dausa		
						3	Lalsot		
						4	Lawan		
						5	Mahwa		
12	Dhaulpur	1	Bari			6	Sikrai		
		2	Baseri			1	Dhaulpur		
13	Dungarpur					2	Rajakhera		
		1	Dovda			3	Saipau		
		2	Dungarpur						
14	Jaipur	3	Simalwara						
				1	Phagi	1	Amber		
						2	Bassi		
						3	Chaksu		
						4	Dudu		
						5	Govindgar		
						6	Jalsu		
						7	Jamwa Ramgarh		
						8	Jhotwara		
						9	Kotputli		
						10	Paota		
						11	Sambhar		
						12	Sanganer		
						13	Shahpura		
						14	Viratnaga		
15	Jaisalmer					1	Jaisalmer		
						2	Sam		
						3	Sankra		
16	Jalor	1	Chitalwana			1	Ahore		
						2	Bhinmal		
						3	Jalor		
						4	Jaswantpura		
						5	Raniwara		
						6	Sanchore		
						7	Sayla		
17	Jhalawar	1	Bhawani Mandi	1	Jhalrapatan	1	Khanpur		
		2	Dug	2	Manoharthana				
		3	Aklera	3	Pirawa				
				4	Bakani				
18	Jhunjhunun					1	Alsisar		
						2	Buhana		
						3	Chirawa		
						4	Jhunjhunu		
						5	Khetri		
						6	Nawalgarh		
						7	Surajgarh		
						8	Udaipurwati		
		19	Jodhpur					1	Balesar
								2	Baori
								3	Bapini
								4	Bhopalgarh
								5	Bilara
								6	Dechu
						7	Lohawat		
						8	Mandor		
						9	Osian		
						10	Phalodi		
						11	Pipar City		
						12	Shekhala		
						13	Shergarh		
						14	Tinwari		
20	Karauli	1	Nadoti			1	Hindaun		
						2	Karauli		
						3	Mandrial		
						4	Sapotra		
						5	Todabhim		

CATEGORIZATION of ASSESSMENT UNITS, 2017							
RAJASTHAN							
S. No	District	S. No	Semi-Critical	S. No	Critical	S. No	Over-Exploited
21	Kota	1	Itawa	1	Ladpura	1	Khairabad
		2	Sultanpur			2	Sangod
22	Nagaur	1	Nagaur	1	Ladhu	1	Degana
						2	Didwana
						3	Jayal
						4	Khinvsar
						5	Kuchaman
						6	Makrana
						7	Merta
						8	Molasar
						9	Mundwa
						10	Nawa
						11	Parbatsar
						12	Riyan
23	Pali			1	Sumerpur	1	Bali
						2	Desuri
						3	Jaitaran
						4	Marwar Ju
						5	Raipur
						6	Rani
						7	Sojat
24	Pratapgarh			1	Dhariawad	1	Amrod
						2	Chhoti Sadri
						3	Pratapgarh
25	Rajsamand			1	Khamnor	1	Amet
				2	Kumbhalgarh	2	Bhim
				3	Deogarh	4	Railmagra
						5	Rajsamand
26	Sawai Madhopur					1	Bamanwas
						2	Bonli
						3	Chauth Ka Berwada
						4	Gangapur
						5	Khandar
						6	Sawai Madhopur
27	Sikar	1	Fatehpur			1	Danta Ramgarh
						2	Dhod
						3	Khandela
						4	Lachhmangarh
						5	Neem Ka Thana
						6	Patan
						7	Piprali
						8	Sri Madhopur
28	Sirohi	1	Pindwara	1	Abu Road	1	Reodar
				2	Sirohi	2	Sheoganj
29	Tonk	1	Deoli			1	Malpura
		2	Tonk			2	Niwai
						3	Uniarra
30	Udaipur	1	Jallara	1	Girwa	1	Badgaon
		2	Kotra	2	Gogunda	2	Bhinder
		3	Salumbar	3	Jhadol	4	Mavi
		4	Sarada	4	Kherwara		
		5	Semari	5	Kurawad		
				6	Lasadiya		
				7	Phalasiya		
				8	Rishabhdev		
				9	Sayara		
ABSTRACT							
Total No. of Assessed Units		Semicritical		Critical		Over Exploited	
295		29		33		185	

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2017							
RAJASTHAN							
S. No	District	S. No	Fluoride	S. No	Arsenic	S. No	Salinity/Tag
1	Alwar					1	Kathumar
						2	Laxmangarh
2	Barmer					1	Baitu
						2	Balotra
						3	Barmer
						4	Chohtan
						5	Dhorimana
						6	Gadra Road
						7	Gida
						8	Gudamalani
						9	Kalyanpur
						10	Patodi
						11	Ramsar
						12	Samadri
						13	Sedwa
						14	Shiv
						15	Sindhary
						16	Siwana
3	Bharatpur					1	Deeg
						2	Kumher
						3	Nadbai
						4	Nagar
						5	Sewar
						6	Weir
4	Bikaner					1	Bikaner
						2	Dungargarh
						3	Khajuwala ©
						4	Kolayat
						5	Lunkaransar
						6	Nokha
5	Churu					1	Taranagar(C)
						2	Bidasar
						3	Churu
						4	Rajgarh
						5	Ratangarh
						6	Sardarshahar
						7	Sujargarh
6	Ganganagar					1	Vjainagar
						2	Anoopgarh
						3	Ganganagar
						4	Gharsana
						5	Karanpur
						6	Padampur
						7	Raisinghnagar
						8	Sadulshahar
						9	Suratgarh
7	Hanumangarh					1	Bhadra
						2	Hanumangarh
						3	Nohar
						4	Pilibangan
						5	Rawatsar(C)
						6	Sangria
						7	Tibbi
8	Jaipur					1	Phagi
9	Jaisalmer					1	Jaisalmer
						2	Sam
						3	Sankra
10	Jalor					1	Ahore
						2	Bhinmal
						3	Chitalwana
						4	Jalor
						5	Sayla
11	Jhunjhunun					1	Alsisar
12	Jodhpur					1	Balesar
						2	Bap
						3	Bilara
						4	Luni
						5	Mandor
						6	Shergarh
13	Nagaur					1	Degana
						2	Jayal
						3	Ladnu
						4	Makrana

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2017							
RAJASTHAN							
S. No	District	S. No	Fluoride	S. No	Arsenic	S. No	Salinity/Tag
						5	Merta
						6	Nagaur
						7	Nawa
14	Pali					1	Jaitaran
						2	Marwar Ju
						3	Pali
						4	Rani
						5	Rohat
						6	Sojat
						7	Sumerpur
15	Sikar					1	Fatehpur
						2	Lachhmangarh
						3	Piprali
16	Tonk					1	Malpura
						2	Tonk
ABSTRACT							
Total No. of Assessed Units		Fluoride		Arsenic		Saline	
295		Nil		Nil		88 (3 Completely Saline)	

State-wise Summary of Assessment units approved or deteriorated from 2013 to 2017 assessment				
S. No.	States / Union Territories	Improved	Deteriorated	No Change
	States			
1	Andhra Pradesh	46	65	514
2	Arunachal Pradesh	Nil	Nil	11
3	Assam	Nil	Nil	27
4	Bihar	3	100	431
5	Chhattisgarh	4	5	137
6	Delhi	3	6	13
7	Goa	Nil	Nil	12
8	Gujarat	Nil	2	207
9	Haryana	13	23	79
10	Himachal Pradesh	1	3	4
11	Jammu & Kashmir	Nil	Nil	22
12	Jharkhand	3	1	256
13	Karnataka	10	10	156
14	Kerala	Nil	12	140
15	Madhya Pradesh	26	15	272
16	Maharashtra	3	63	286
17	Manipur	0	0	13
18	Meghalaya	Nil	Nil	11
19	Mizoram	Nil	Nil	22
20	Nagaland	Nil	Nil	11
21	Odisha	Nil	5	303
22	Punjab	3	11	124
23	Rajasthan	6	23	210
24	Sikkim*			
25	Tamil Nadu	185	67	839
26	Telangana*			
27	Tripura	Nil	Nil	37
28	Uttar Pradesh	79	91	650
29	Uttarakhand	3	1	Nil
30	West Bengal**			
	Total States	388	503	4787
	Union Territories			
1	Andaman & Nicobar	Nil	Nil	33
2	Chandigarh	Nil	1	Nil
3	Dadra & Nagar Haveli	Nil	Nil	1
4	Daman & Diu	Nil	Nil	2
5	Lakshadweep	Nil	Nil	9
6	Puducherry	Nil	Nil	3
	Total UTs	0	1	48
	Grand Total	388	504	4835

Note

*In State of Telangana the mandal boundaries have been redistributed and therefore comparison of categorization

**In the State of West Bengal, the Ground water resources 2013 is considered

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2017 AND 2013)									
RAJASTHAN									
S. No	District	Assessment Unit	Stage of Ground Water Extraction (%) 2013	Categorization 2013	District	Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Remarks
1	Barmer	Chohlan	98	Critical	Improved	Chohlan	69.69	Safe	Improved
2	Barmer	Sindhary	101	Over Exploited	Barmer	Sindhary	99.50	Critical	Improved
3	Jalore	Chitalwana	95	Critical	Jalore	Chitalwana	75.55	Semi-Critical	Improved
4	Nagaur	Nagaur	97	Critical	Nagaur	Nagaur	72.97	Semi-Critical	Improved
5	Pali	Rohat	80	Semi-Critical	Pali	Rohat	25.98	Safe	Improved
6	Sirohi	Sirohi	104	Over Exploited	Sirohi	Sirohi	91.30	Critical	Improved
COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2017 AND 2013)									
RAJASTHAN									
S. No	District	Assessment Unit	Stage of Ground Water Extraction (%) 2013	Categorization 2013	District	Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Remarks
Deteriorated									
1	Bikaner	Kolayat	82	Safe	Bikaner	Kolayat	99.87	Critical	Deteriorated
2	Churu	Churu	88	Safe	Churu	Churu	89.83	Semi-Critical	Deteriorated
3	Churu	Ralangarh	74	Safe	Churu	Ralangarh	79.88	Semi-Critical	Deteriorated
4	Dungarpur	Dungarpur	85	Safe	Dungarpur	Dungarpur	89.32	Semi-Critical	Deteriorated
5	Jhalawar	Bakani	98	Semi-Critical	Jhalawar	Bakani	100.28	Over Exploited	Deteriorated
6	Jhalawar	Dug	89	Safe	Jhalawar	Dug	89.97	Semi-Critical	Deteriorated
7	Jhalawar	Jhalrapatan	98	Semi-Critical	Jhalawar	Jhalrapatan	99.08	Critical	Deteriorated
8	Jhalawar	Manoharthana	97	Semi-Critical	Jhalawar	Manoharthana	99.82	Critical	Deteriorated
9	Jhalawar	Pirawa	100	Semi-Critical	Jhalawar	Pirawa	99.55	Critical	Deteriorated
10	Karauli	Nadoti	82	Safe	Karauli	Nadoti	87.55	Critical	Deteriorated
11	Pali	Sumerpur	98	Semi-Critical	Pali	Sumerpur	95.06	Critical	Deteriorated
12	Rajsamand	Deogarh	97	Semi-Critical	Rajsamand	Deogarh	99.13	Critical	Deteriorated
13	Rajsamand	Khamnor	96	Semi-Critical	Rajsamand	Khamnor	99.09	Critical	Deteriorated
14	Rajsamand	Kumbhalgarh	99	Semi-Critical	Rajsamand	Kumbhalgarh	99.91	Critical	Deteriorated
15	Sirohi	Abu Road	99	Semi-Critical	Sirohi	Abu Road	99.90	Critical	Deteriorated
16	Tonk	Deoli	88	safe	Tonk	Deoli	86.45	Semi-Critical	Deteriorated
17	Tonk	Tonk	86	safe	Tonk	Tonk	84.89	Semi-Critical	Deteriorated
18	Udaipur	Girwa	95	Semi-Critical	Udaipur	Girwa	94.44	Critical	Deteriorated
19	Udaipur	Gogunda	96	Semi-Critical	Udaipur	Gogunda	94.31	Critical	Deteriorated
20	Udaipur	Jhadol	97	Semi-Critical	Udaipur	Jhadol	95.94	Critical	Deteriorated
21	Udaipur	Khenwara	93	Semi-Critical	Udaipur	Khenwara	99.41	Critical	Deteriorated
22	Udaipur	Kotra	82	safe	Udaipur	Kotra	89.15	Semcritical	Deteriorated
23	Udaipur	Lasadiya	98	Semi-Critical	Udaipur	Lasadiya	99.03	Critical	Deteriorated

(TO BE PUBLISHED IN THE GAZETTE OF INDIA PART-I, SECTION -I)

No. T-13014/1/2017-GW

Government of India

Ministry of Water Resources, River Development, Ganga Rejuvenation

Shram Shakti Bhawan, Rafi Marg
New Delhi, Dated: 18th May, 2017

RESOLUTION

Sub: Constitution of Central Level Expert Group for overall re-assessment of ground water resources of the country, 2017.

The last assessment of state-wise annual replenishable ground water resources for the entire country has been made as on 31st March 2013 based on the Methodology, Ground Water Resources Estimation Committee (GEC) -97. Since then there have been changes in ground water scenario in many places of the country. Accordingly, a Central Level Expert Group is hereby constituted for over-all supervision of the re-assessment of ground water resources (As on 31st March, 2017) in the entire country. The composition and terms of reference of the Expert Group are as follows:-

1) Composition:

(i).	Chairman, CGWB	Chairman
(ii).	Member(RM), CWC	Member
(iii).	Member (WP&P), CWC or representative	Member
(iv).	Member (SM&L), CGWB	Member
(v).	Member (SAM), CGWB	Member
(vi).	Member (ED&MM), CGWB	Member
(vii).	Member (RGI), CGWB	Member
(viii).	Additional Director General (Stat), MOWR, RD&GR	Member
(ix).	Chief General Manager, NABARD	Member
(x).	Director, NIH, Roorkee or representative	Member
(xi).	Representative of NITI Aayog	Member
(xii).	Joint Secretary, Ministry of Agriculture & Farmers Welfare	Member
(xiii).	Joint Secretary, Ministry of Environment, Forests & Climate Change	Member
(xiv).	Joint Secretary, Ministry of Rural Development (Watershed Development Programme)	
(xv).	Joint Secretary, Ministry of Drinking Water Supply & Sanitation	Member
(xvi).	Joint Secretary, Ministry of Urban Development	Member
(xvii).	Representative of IIT, Delhi (Water Resources Section) Civil Engineering Department	Member
(xviii).	Chief Engineer (HQ), NWDA or representative	Member
(xix).	Technical Expert (WM), NRAA, Ministry of Agriculture & Farmers Welfare	Member
(xx).	Representative of India Meteorology Department	Member
(xxi).	Representative of Geological Survey of India	Member
(xxii).	Secretary In-Charge, Water Resources, Uttar Pradesh	Member
(xxiii).	Secretary In-Charge, Water Resources, Punjab	Member
(xxiv).	Secretary In-Charge, Water Resources, Maharashtra	Member
(xxv).	Secretary In-Charge, Water Resources, Andhra Pradesh	Member
(xxvi).	Secretary In- Charge, Water Resources, Rajasthan	Member
(xxvii).	Secretary In- Charge, Water Resources, Madhya Pradesh	Member
(xxviii).	Secretary In- Charge, Water Resources, Gujarat	Member
(xxix).	Secretary In- Charge, Water Resources, West Bengal	Member
(xxx).	Representative of Department of Civil Engg., Indian Institute of Science (IISc), Bangalore	Member
(xxxi).	Member (TT&WQ), CGWB	Member Secretary

The committee may co-opt any other Member(s), if necessary.

- 2) Terms of Reference: –
- (i) To ensure the assessment of annual replenishable ground water resources of the States in coordination with the respective state level committees for the reference year 2017. The Committee will work on ground water assessments in accordance with the methodology and will adopt improved procedures and practices wherever possible for the sake of achieving greater accuracy of assessment(s).
 - (ii) To supervise the estimation of status of utilization of the annual replenishable ground water resource as on 31st March 2017 of the States to be carried by the respective State level committees.
 - (iii) To prepare a National level report on assessment of ground water resources and status of its utilization as on 31st March, 2017.
 - (iv) To work towards integration of ground water and surface water data with a view to facilitating planning for constructive/integrated use of water resources.
 - (v) Any other aspect relevant to the terms referred to above.

3) Time frame:-
The Committee will submit its report within one year.

4) Expenditure
Expenditure on account of TA/DA to official Members of the Expert Group will be met from the source from which they draw their salaries and that of non-official Members (if any), will be borne by the Central Ground Water Board.

This issues with the approval of Hon'ble Minister (WR,RD&GR) .


(Ashok Gupta)
Director (GW)
dirgw-mowr@nic.in

ORDER

Ordered that the Resolution be published in the Gazette of India for general information.

Ordered that a copy of the Resolution published be communicated to this Ministry for record.


(Ashok Gupta)
Director (GW)

To
The Manager,
Government of India Press,
Faridabad (Haryana).

Copy to:

1. PS to Minister (WR,RD&GR)
2. PS to MoS (WR,RD&GR)
3. Sr. PPS to Secretary (WR,RD&GR).
4. PPS to Joint Secretary (A&GW)
5. All members concerned.
6. Chairman, CGWB, Faridabad
7. Member (TT&WQ) and Member Secretary of the CLEG-2017, CGWB, Faridabad for information and necessary action.

Copy also to:

NIC for uploading the Resolution on Ministry's website under GW Section.


(Ashok Gupta)
Director (GW)

Speed Post/ email

CGWB/V3/10/2017/GWR Estimation 3896

Central Ground Water Board
Ministry of Water Resources, River
Development & Ganga Rejuvenation
Bhujal Bhawan, Faridabad

Dated: / /

29 APR 2019

Sub: Summary of record of the 3rd Meeting of Central Level Expert Group for Overall Re-Assessment of Ground Water Resources Assessment 2017

Sir,

Please find enclosed the Summary of records of the 3rd Meeting of Central Level Expert Group for Overall Re-Assessment of Ground Water Resources Assessment 2017 held under the Chairmanship of Chairman CGWB at Jamnagar House, New Delhi, on 23.04.2019 Hrs.

This issues with the approval of Chairman, CGWB.

Encl: as above

Yours faithfully


Dr. S Suresh
Sr. Hydrogeologist

26/4/19

Distribution as per list

Summary of record of the 3rd Meeting of Central Level Expert Group for Overall Re-Assessment of Ground Water Resources Assessment 2017

The 3rd meeting of the Central Level Expert Group (CLEG) for over-all assessment of the Ground Water Resources 2017 was held under the Chairmanship of Chairman CGWB at Jamnagar House, New Delhi on 23.04.2019 at 11:30 Hrs. The list of participants are provided as Annexure-I

Member (HQ) welcomed the participants for the meeting and requested Chairman to address the participants. Chairman, Central Ground Water Board (CGWB) welcomed all the members of the committee and informed the committee that Ministry of Water Resources, RD & GR has extended the tenure of the CLEG upto 30.04.2019. In some of the States, due to the various administrative reasons, the assessment has not yet been approved, however, the assessment has been made jointly by State GW Department and CGWB and CLEG may deliberate on the assessment made for various States. Chairman, advised for the presentation to commence.

A presentation was made on the assessment done by various States. It included the status of approval by SLC, compilation of resources at the National and State Level, the changes with respect to previous assessment and reasons for change provided by the respective States. The members of CLEG deliberated on the Ground water Resources Assessment -2017 (GWRA-2017) for each State and found that clarifications provided by the States were found tenable, however, the annual groundwater recharge in GWRA-2017 for West Bengal is found very high in comparison to 2013 assessment. The reasons for the changes in West Bengal was not found reasonable and adequate and further, SLC has also not approved the GWRA-2017 assessment. The Members also deliberated on the possibility of using the results of 2013 assessment pending SLC approval of GWRA- 2017 and issuing a corrigendum after the receipt of appropriate reasons for the change and approval from SLC. It was also found that by using the results of 2013 assessment for West Bengal, Total Annual Ground Water Recharge works out to be around 432 bcm. The following decisions were taken during the meeting:

1. The State GW agency and CGWB need to pursue the respective State Level Committees for early approval of the GWRA-2017 assessment, where SLC approval is still awaited.
2. The results of 2013 assessment in respect of West Bengal may be used in place of GWRA-2017 assessment for national compilation of GWRA-2017 with a rider that after approval of GWRA-2017 by SLC of West Bengal, a corrigendum may be issued separately, incorporating the results of GWRA-2017.
3. A letter may be sent to the Principal Secretary & Chairman, SLC, West Bengal from CLEG, seeking his personal intervention in expediting SLC approval.
4. The committee approved GWRA-2017, with the inclusion of 2013 figures instead of 2017 in respect of West Bengal, as mentioned in the point no 2.

List of Participants of the 3rd meeting of the Central Level Expert Group (CLEG)

S.No	Participants
1.	Shri K.C. Naik, Chairman , CGWB
2.	Dr. E. Sampath Kumar, Member, CGWB
3.	Shri G.C. Pati, Member, CGWB
4.	Shri Umakant, Joint Secretary, Department of Land Resources, Ministry of Rural Development
5.	Dr. C.P. Kumar, Scientist G, NIH Roorkee
6.	Dr. A.R. Khan, General Manager, NABARD, Mumbai
7.	Shri Gopal Sharan, Scientist-C, NITI Aayog
8.	Shri K. Venu Gopal, Director, Ground water and Water Audit Department, Vijayawada, Andhra Pradesh
9.	Shri B.K. Karjee, Chief Engineer (FMO) CWC, New Delhi
10.	Shri Bharat Bhusan Singla, Director, Water Resources Punjab
11.	Prof. B.R. Chahar, Civil Engineering Department, IIT Delhi
12.	Shri Mrigank Ghatak, Director, DGCO, Geological Survey of India, Delhi
13.	Shri Afroz Alam, SE-I, NWDA, New Delhi
14.	Shri Parmod Kumar, Dy. Director, Central Water Commission, New Delhi
15.	Shri G.P. Sharma, Suptg Hydrogeologist, Ground water Department , Jaipur
16.	Dr. Vijay Bhusan, Sr. Geologist, Ground water Surveys and Development Agency, Maharashtra
17.	Shri. N. Srinivasu, Dy. Director, A.P. Ground Water Department
18.	Shri Ravikant Singh, Sr Hydrogeologist, Ground water Department U.P
19.	Shri Atul Sood, Sr. Geophysicist, Water Resources & Environment Directorate (Water Resources Department), Punjab
20.	Shri Sanjay Marwaha, RD, CGWB Faridabad
21.	Shri Anoop Nagar, Regional Director, NWR, Chandigarh
22.	Shri Y.B. Kaushik, Regional Director, NR Lucknow
23.	Shri Amlanjyoti Kar, Suptdg Hg, CGWB ER Kolkata
24.	Dr. S. Suresh, Sr. Hg. , CHQ, CGWB, Faridabad
25.	Shri S.K. Sinha, Suptdg, Hydrologist, CHQ, CGWB, Faridabad
26.	Shri. S.K. Mohiddin, Sr Hydrogeologist, Scientist C, CGWB NWR Chandigarh
27.	Shri P. Sudhakar, Sc-D, CHQ, CGWB, Faridabad
28.	Dr. Seraj Khan, Sr Hydrogeologist, NR Lucknow
29.	Ms Parveen Kaur, Scientist B, CHQ, CGWB, Faridabad
30.	Ms Madhumanti Roy, Sc-B, CHQ, CGWB, Faridabad