

Annexure 2.1
(Referred to in paragraph 2.5.2.1)
Details of equipment at WTP HP-I and HP-II

Instruments Required for testing	Non-Availability of instrument in HP-I	Availability of instrument in HP-I
1. Ph meter (both lab benchtop and portable digital display, 0-14 range)	1. UV visible spectrophotometer	1. UV visible spectrophotometer
2. TDS/Conductivity meter (both benchtop based and portable type)	2. Hot plate big size/ induction plate	2. Hot plate big size/ induction plate
3. Nephelometer (Turbidity meter) both bench top and portable type.	3. Heating mentie capacity 1 litre	3. Heating mentie capacity 1 litre
4. Digital balance single pan capacity 200g. Tarring device accuracy 0.0001g	4. Water bath big size (12 holes) temperature 50 to 100 degrees Celsius	4. Water bath big size (12 holes) temperature 50 to 100 degrees Celsius
5. UV-Visible Spectrophotometer (should cover wavelength of important metals/ ions)	5. Vacuum pump 1 HP capacity	5. Vacuum pump 1 HP capacity
6. Hot plate big size/ induction plate.	6. Flame photometer	6. Flame photometer
7. Heating mentie capacity 1 litre.	7. Refrigerator	7. Refrigerator
8. Water bath big size (12 holes) temperature 50 to 100 degrees Celsius.	8. Desiccator	8. Desiccator
9. Vacuum pump 1 HP capacity	9. Hot air oven standard make Big Size	9. Hot air oven standard make Big Size
10. Flame photometer	10. Dispensets	10. Magnetic Stirrer with speed control and Teflon paddle
11. Hot air oven standard make Big Size	11. Digital Auto Pipettes	11. Digital thermometers
12. Dispensets	12. Magnetic Stirrer with speed control and Teflon paddle	12. Double distillation apparatus
13. Digital Auto Pipettes	13. Digital thermometers	13. Specific ion meter along with electrodes
14. Magnetic Stirrer with speed control and Teflon paddle.	14. Double distillation apparatus	14. Centrifuge
15. Jackson turbidity meter	15. Specific ion meter along with electrodes	15. Colorimeter
16. Digital thermometers	16. Centrifuge	16. DO meter digital.
17. Desiccator	17. Colorimeter	
18. Double distillation apparatus	18. DO meter digital.	
19. Specific ion meter along with electrodes		
20. Centrifuge		
21. Refrigerator		
22. Colorimeter		
23. DO meter digital		
24. Jar tester		

Annexure 2.2
(Referred to in paragraph 2.5.2.3)
Details of tests at WTP Sonia Vihar and WTP Dwarka

Stage	Parameters as per DJB norms	Parameters Actually analysed in Dwarka WTP	Shortfall (per cent)	Parameters Actually analysed in Sonia Vihar WTP	Shortfall (per cent)
Raw Water	Total – 13 (pH, Turbidity, NH ₃ , Chlorides, Diss. Oxy., T. Hardness, T./ Pth Alk., Nitrite, Nitrate, Cr, CN, Fe, Colour/ Odour)	Total - 3 (pH, Turbidity, T./ Pth Alk.)	69	Total - 4 (pH, Turbidity, NH ₃ , T./ Pth Alk)	62
Clarified Water	Total – 4 (Turbidity, pH, Alkalinity, Residual Chlorine)	Total - 3 (Turbidity, pH, Alkalinity)	25	Total - 2 (Turbidity, pH)	50
Filtered water	Total parameters- 3 (R/ Alumina, Turbidity, Residual Chlorine)	Total-1 (Turbidity)	67	Total- 2 (Turbidity, Residual Chlorine)	33
Treated water	Total -5 (Turbidity, pH, Hardness, Alkalinity Residual Chlorine)	Total- 4 (Turbidity, pH, Alkalinity Residual Chlorine)	20	Total-3 (Turbidity, pH, Alkalinity Residual Chlorine)	40

**Annexure 2.3
(Referred to in paragraph 2.5.3)**

Testing of Water Quality

Requirement as per BIS 10500: 2012		Tests conducted by DJB at different levels: After UGR flushing
Organoleptic and Physical Parameters	i) Colour, Hazen units, Max ii) Odour iii) pH value iv) Taste v) Turbidity, NTU, Ma vi) Total dissolved solids, mg/l, max	i) Colour, Hazen units, Max ii) Odour iii) pH value iv) Turbidity, NTU, Max v) Total dissolved solids, mg/l, max
General Parameters Concerning Substances Undesirable in Excessive Amounts	i) Aluminium ii) Ammonia iii) Anionic detergents iv) Barium v) Boron vi) Calcium vii) Chloramines viii) Chloride ix) Copper x) Fluoride xi) Free residual chlorine, xii) Iron xiii) Magnesium xiv) Manganese xv) Mineral oil xvi) Nitrate xvii) Phenolic compounds xviii) Selenium xix) Silver xx) Sulphate xxi) Sulphide xxii) Total alkalinity xxiii) Total hardness xxiv) Zinc	i) Ammonia ii) Calcium iii) Chloride iv) Fluoride v) Free residual chlorine vi) Magnesium vii) Nitrate viii) Sulphate ix) Total alkalinity x) Total hardness
Parameters Concerning Toxic Substances	i) Cadmium ii) Cyanide iii) Lead iv) Mercury v) Molybdenum vi) Nickel vii) Pesticides, µg/l viii) Polychlorinated biphenyls ix) Polynuclear aromatic hydrocarbon x) Total arsenic xi) Total chromium xii) Trihalomethanes	nil
Parameters Concerning Radioactive Substances	i) Alpha emitters Bq/l, ii) Beta emitters Bq/l	nil
Bacteriological Quality of Drinking Water	i) E. coli or thermotolerant coliform bacteria ii) Total coliform bacteria	i) Total Coliform Bacteria
Total parameters	46	16

Annexure 3.1
(Referred to in paragraph 3.1.1)
Shortage and inequitable supply of potable water

Sl. No.	Year	ACE(M)	Population (In lacs)	Availability of water (In MGD)	Desired water availability based on per capita availability in NCTD for respective year (in MGD)	Shortage (per cent)	Per Capita availability of water (in GPCD)	Requirement of water (In MGD) as per DJB	GPCD criteria used by ACE for per capita requirement calculation
1	2017-18	ACE(M)-1	32.18	78.58	146.20	46.25	24.42	99.50	30.92
2	2017-18	ACE(M)-2	29.00	61.31	131.76	53.47	21.14	174.00	60.00
3	2017-18	ACE(M)-3	22.16	65.00	100.68	35.44	29.33	70.00	31.59
4	2017-18	ACE(M)-4	26.50	39.00	120.40	67.61	14.72	78.79	29.73
5	2017-18	ACE(M)-5	23.88	70.92	108.50	34.63	29.70	117.77	49.32
6	2017-18	ACE(M)-6	15.50	55.00	70.42	21.90	35.48	76.11	49.10
7	2017-18	ACE(M)-7	14.10	24.58	64.06	61.63	17.43	70.50	50.00
8	2017-18	ACE(M)-8	13.28	45.57	60.34	24.47	34.31	58.31	43.91
9	2017-18	ACE(M)-9	13.85	47.40	62.93	24.67	34.22	62.33	45.00
10	2017-18	ACE(M)-10	14.39	54.96	65.38	15.94	38.19	58.25	40.48
11	2017-18	ACE(M)-11	30.30	57.72	137.66	58.07	19.05	144.33	47.63
12	2017-18	CE(W)Pr-I	17.31	62.82	78.65	20.12	36.29	71.50	41.30
13	2018-19	ACE(M)-1	33.36	79.29	150.86	47.44	23.77	103.26	30.95
14	2018-19	ACE(M)-2	29.90	62.21	135.21	53.99	20.81	179.40	60.00
15	2018-19	ACE(M)-3	23.06	70.00	104.28	32.87	30.36	75.00	32.52
16	2018-19	ACE(M)-4	26.90	39.00	121.64	67.94	14.50	78.81	29.30
17	2018-19	ACE(M)-5	24.65	71.20	111.47	36.13	28.88	120.19	48.76
18	2018-19	ACE(M)-6	16.00	55.50	72.35	23.29	34.69	78.56	49.10
19	2018-19	ACE(M)-7	14.70	24.58	66.47	63.02	16.72	73.50	50.00
20	2018-19	ACE(M)-8	13.48	45.62	60.96	25.16	33.84	59.14	43.87
21	2018-19	ACE(M)-9	14.06	47.90	63.58	24.66	34.07	63.23	44.97
22	2018-19	ACE(M)-10	14.59	55.71	65.98	15.56	38.18	59.58	40.84
23	2018-19	ACE(M)-11	31.14	58.33	140.82	58.58	18.73	148.26	47.61
24	2018-19	CE(W)Pr-I	18.16	63.91	82.11	22.17	35.20	74.22	40.87
25	2019-20	ACE(M)-1	34.26	79.64	156.60	49.14	23.25	106.89	31.20
26	2019-20	ACE(M)-2	30.80	62.16	140.78	55.85	20.18	184.80	60.00
27	2019-20	ACE(M)-3	24.15	77.00	110.39	30.25	31.88	85.00	35.20
28	2019-20	ACE(M)-4	27.02	40.00	123.51	67.61	14.80	78.92	29.21
29	2019-20	ACE(M)-5	25.32	71.43	115.73	38.28	28.21	122.58	48.41
30	2019-20	ACE(M)-6	16.80	56.00	76.79	27.07	33.33	82.49	49.10
31	2019-20	ACE(M)-7	15.05	24.58	68.79	64.27	16.33	75.25	50.00
32	2019-20	ACE(M)-8	13.80	45.67	63.08	27.60	33.09	60.50	43.84
33	2019-20	ACE(M)-9	14.28	48.00	65.27	26.46	33.61	64.26	45.00
34	2019-20	ACE(M)-10	14.89	57.68	68.06	15.25	38.74	62.47	41.95
35	2019-20	ACE(M)-11	31.89	60.89	145.77	58.23	19.09	151.95	47.65
36	2019-20	CE(W)Pr-I	18.98	64.89	86.77	25.22	34.18	77.24	40.69
37	2020-21	ACE(M)-1	35.34	80.49	159.43	49.51	22.78	110.98	31.40
38	2020-21	ACE(M)-2	31.75	63.36	143.23	55.76	19.96	190.50	60.00
39	2020-21	ACE(M)-3	24.87	78.00	112.19	30.48	31.36	90.00	36.19
40	2020-21	ACE(M)-4	27.05	40.00	122.03	67.22	14.79	78.93	29.18
41	2020-21	ACE(M)-5	26.37	72.10	118.96	39.39	27.34	126.38	47.93
42	2020-21	ACE(M)-6	17.40	56.50	78.49	28.02	32.47	85.43	49.10
43	2020-21	ACE(M)-7	15.25	25.58	68.80	62.82	16.77	76.25	50.00
44	2020-21	ACE(M)-8	14.13	45.72	63.74	28.27	32.36	61.87	43.79

Performance Audit on “Functioning of Delhi Jal Board”

Sl. No.	Year	ACE(M)	Population (In lacs)	Availability of water (In MGD)	Desired water availability based on per capita availability in NCTD for respective year (in MGD)	Shortage (per cent)	Per Capita availability of water (in GPCD)	Requirement of water (In MGD) as per DJB	GPCD criteria used by ACE for per capita requirement calculation
45	2020-21	ACE(M)-9	14.50	48.20	65.41	26.31	33.24	65.25	45.00
46	2020-21	ACE(M)-10	15.37	58.37	69.34	15.82	37.98	63.60	41.38
47	2020-21	ACE(M)-11	32.55	61.76	146.84	57.94	18.97	155.04	47.63
48	2020-21	CE(W)Pr-I	19.86	65.62	89.59	26.76	33.04	80.60	40.58
49	2021-22	ACE(M)-1	36.97	82.04	164.88	50.24	22.19	116.41	31.49
50	2021-22	ACE(M)-2	32.73	63.76	145.97	56.32	19.48	196.38	60.00
51	2021-22	ACE(M)-3	25.67	80.01	114.48	30.11	31.17	115.00	44.80
52	2021-22	ACE(M)-4	21.50	29.00	95.89	69.76	13.49	62.41	29.03
53	2021-22	ACE(M)-5	27.18	72.92	121.22	39.84	26.83	129.64	47.70
54	2021-22	ACE(M)-6	18.30	58.71	81.61	28.06	32.08	89.75	49.04
55	2021-22	ACE(M)-7	15.39	26.58	68.64	61.27	17.27	76.95	50.00
56	2021-22	ACE(M)-8	14.49	45.79	64.62	29.14	31.60	63.45	43.79
57	2021-22	ACE(M)-9	14.75	48.50	65.78	26.27	32.88	66.38	45.00
58	2021-22	ACE(M)-10	15.71	58.78	70.06	16.10	37.42	64.80	41.25
59	2021-22	ACE(M)-11	33.27	62.54	148.38	57.85	18.80	158.29	47.58
60	2021-22	CE(W)Pr-I	20.78	66.10	92.67	28.67	31.81	84.12	40.48

Annexure 3.2
(Referred to in paragraph 3.4(iii))

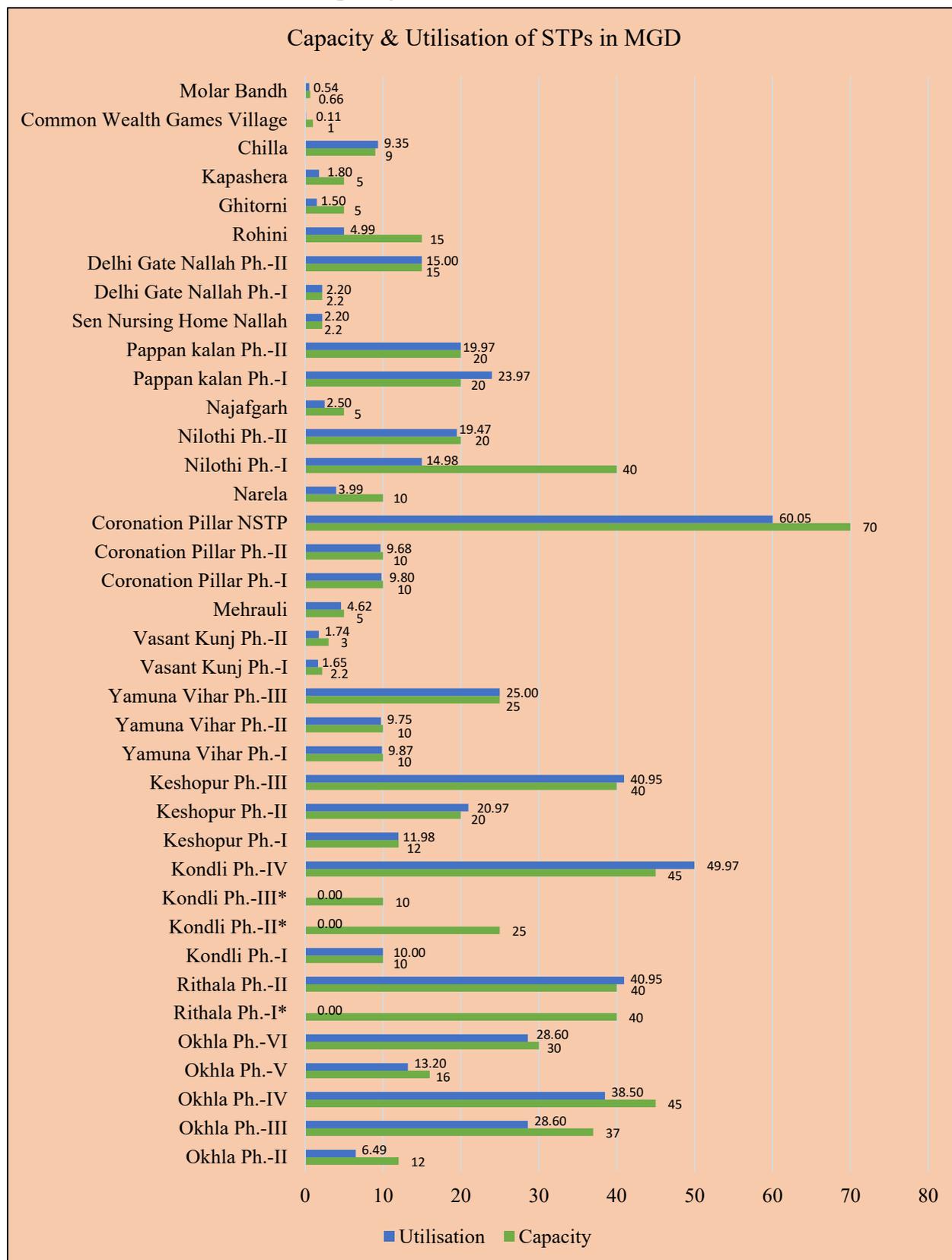
Testing of Water Quality

Requirement as per BIS 10500: 2012		Tests conducted by DJB at different levels:	
		At Consumer level	At Borewells
Organoleptic and Physical Parameters	i) Colour, Hazen units, Max ii) Odour iii) pH value iv) Taste v) Turbidity, NTU, Ma vi) Total dissolved solids, mg/l, max	i) Colour, Hazen units, Max ii) Odour iii) pH value iv) Turbidity, NTU, Max v) Total dissolved solids, mg/l, max	
General Parameters Concerning Substances Undesirable in Excessive Amounts	i) Aluminium ii) Ammonia iii) Anionic detergents iv) Barium v) Boron vi) Calcium vii) Chloramines viii) Chloride ix) Copper x) Fluoride xi) Free residual chlorine, xii) Iron xiii) Magnesium xiv) Manganese xv) Mineral oil xvi) Nitrate xvii) Phenolic compounds xviii) Selenium xix) Silver xx) Sulphate xxi) Sulphide xxii) Total alkalinity xxiii) Total hardness xxiv) Zinc	i) Ammonia ii) Calcium iii) Chloride iv) Fluoride v) Iron vi) Magnesium vii) Nitrate viii) Sulphate ix) Total alkalinity x) Total hardness	i) Ammonia ii) Fluoride iii) Iron iv) Nitrate
Parameters Concerning Toxic Substances	i) Cadmium ii) Cyanide iii) Lead iv) Mercury v) Molybdenum vi) Nickel vii) Pesticides, µg/l viii) Polychlorinated biphenyls ix) Polynuclear aromatic hydrocarbon x) Total arsenic xi) Total chromium xii) Trihalomethanes	nil	nil
Parameters Concerning Radioactive Substances	i) Alpha emitters Bq/l, ii) Beta emitters Bq/l	nil	nil
Bacteriological Quality of Drinking Water	i) E. coli or thermotolerant coliform bacteria ii) Total coliform bacteria	nil	nil
Total parameters	46	15	4

Annexure 4.1
(Referred to in paragraph 4.2.1)
212.59 MGD of untreated sewage from 1080 colonies

Sl. No.	Drainage Zone	Unsewered Areas/ Group of Colonies	Sewerage Generation (MGD)
1	Rohini- Rithala	Kirari GOC	41.00
		Begumpur GOC	6.55
		Budh Vihar GoC	7.03
2	Kanjhawala Bawana	Kanjhawala GOC	11.00
		Nizampur GOC	3.50
		Ghewra GOC	4.60
		Katewara	4.60
		Daryapur	3.70
		Bawana village	4.80
		Sultanpur Dabas	3.00
		Pooth Khurd	5.80
		Bankner	6.30
		Bawana	11.80
		3	Nilothi
Shiv Enclave	5.17		
Ranhola GoC	7.38		
Vikaspuri GoC	6.59		
4	Najafgarh	Galibpur GOC	0.22
		Jafarpur GOC	0.66
		Khera Dabar GOC	0.26
		Shikarpur GOC	0.12
		Hasanpur GOC	0.43
		Tikri Kalan GOC	0.76
		Tajpur Khurd GOC	2.38
		Sarangpur GOC	0.59
		Kazipur GOC	0.24
		Kair GOC	0.66
		Kanganheri GOC	0.44
		Goyla Vihar GOC	1.76
		Mitraon GOC	4.40
		Dichaon GOC	1.54
5	Okhla	Sangam Vihar	3.56
		Sangam Vihar GOC	1.79
		Tajpur Pahari GOC	9.99
6	Shahdara	Sonia Vihar GOC	7.04
		Gokalpur GOC	1.92
7	Narela	Palla GOC	1.54
8	Coronation Pillar	Wazirabad GOC	4.82
		Bhalaswa GOC	2.19
9	South Delhi	Chhattarpur GOC	4.95
		Samalka GOC	0.53
		Bijwasan East GOC	1.50
		Mahipalpur GOC	2.97
10	Outer South Delhi	Fatehpurberi and Chandanhola	10.00
		Rajpurkhurd	10.00
Total			212.59

Annexure 4.2
(Referred to in paragraph 4.3)
Capacity & Utilisation of STPs



*Rithala Ph.-I, Kondli Ph.-II and Kondli Ph.-III are under rehabilitation.

Annexure 6.1
(Referred to in paragraph 6.2.2.1 (B))
Savings under GIA and Centrally Sponsored Schemes

(i) Savings in selected heads:

(₹ in crore)

Year	Sl. No.	Head of Account	Actual allocation	Actual expenditure	Funds not utilized	Percentage of un-utilized funds (in per cent)
2017-18	1	I.T Infrastructure and Digitized mapping	69.73	24.78	44.95	64.46
	2	Yamuna Rejuvenation	27.50	0.33	27.17	98.80
	3	Urgent and Emergent works in Water supply and sanitation	35.00	-	35.00	100
2018-19	1	Raw Water arrangement	168.75	47.60	121.15	71.79
	2	Water Supply in Resettlement Colonies	10.00	4.33	5.67	56.70
	3	Use of treated effluent	7.50	1.54	5.96	79.47
	4	Urgent and Emergent works in Water supply and sanitations	69.00	20.09	48.91	70.88
2019-20	1	GIA-Construction of Iron removal plant at Palla& Installation of Tube wells	11.25	-	11.25	100
	2	Use of treated effluent	7.50	1.86	5.64	75.20
	3	Water Supply in Resettlement Colonies (new scheme)	20.00	7.25	12.75	63.75
	4	Mukhyamantri Muft Sewer Connection Yojna (GIA-House Service Connections)	50.00	-	50.00	100
2020-21	1	Raw water arrangement	119.97	50.44	69.53	57.96
	2	GIA-Construction of Iron removal plant at Palla& Installation of Tube wells	10.00	-	10.00	100
	3	Use of treated effluent	50.00	1.35	48.65	97.30
	4	Water Supply in Squatter Resettlement Colonies (new scheme)	10.00	2.70	7.30	73.00
	5	GIA for Rain Water Harvesting	50.00	12.35	37.65	75.30
	6	EAP Funding YAP-III (Central)	225.00	58.16	166.84	74.15
	7	GIA for Septage Management (New head)	40.00	0.07	39.93	99.83

(ii) Details of GIA and expenditure of centrally sponsored schemes:

(₹ in crore)

Sl. No.	Year	Name of Scheme	GIA	Actual Expenditure	Savings	Percentage of un-utilized funds (in per cent)
1	2017-18 to 2021-22	AMRUT	355.24	342.79	12.45	(3.50)
2	2017-18 to 2021-22	Yamuna Action Plan III	1001.37	938.33	63.04	(34.27)
3	2017-18 to 2021-22	JICA	305.02	88.27	216.75	(71.06)
4	2017-18 to 2021-22	Namami Gange	200.00	180.30	19.70	(9.85)
Total			1861.64	1549.69	311.94	(16.76)

Annexure 7.1
(Referred to in paragraph 7.3)
Cases of re-employment in violation of extant instructions

Sl. No.	Post for which Consultant appointed	Vacant post against which appointment made initially	Date of appointment	Audit remarks
1.	Consultant (Finance)	Joint Director (F&A)	June 2016	The engagement was extended till 4 June 2023, up to the age of 67 years. Extension beyond 1 July, 2019 was also against the vacant post of Law Officer which was not in the respective category/discipline.
2.	Consultant (Law)	Chief Law Officer	18 April 2016	The engagement was extended continuously up to the age of 69 years.
3.	Consultant (Finance/Accounts & Audit)	System Administrator	September 2017	DJB extended his engagement (six months) on the same terms and conditions beyond the age of 65 years.
4.	Consultant (Horticulture)	D.D., Horticulture	1 April 2022	Ex-post-facto approval from the Board was taken after their engagement.
5.	Consultant (T&QC)	Chief Water Analyst	1 April 2022	