

OPTION A

DESCRIBE A MODELING PROJECT. DO YOU USE DISTRIBUTED MODELING, OR LUMPED, OR SOME OTHER VARIATION? DO YOU PRODUCE AN ENSEMBLE OF OUTPUT? IS YOUR MODELING APPROACH DIFFERENT DEPENDING ON THE WATERSHED FOCUS?

Introduction:

Water is one of the most important natural resources and is a key element in the socio economic development of a country. The demand for water is continuously increasing due to population growth and development in industrial and agriculture sector. As quantum of available water resources remains more or less constant, the ever increasing demand is bound to lead scarcity of water in a foreseeable future. Up till now, water resources development planning was project oriented and main aim was to create irrigation to agricultural land. Ever increasing demand of water has forced the State to implement several water resources projects simultaneously. This has not only strained the limited financial resources but their diverse purpose has created conflicts with each other with time leading to various disputes in development. Under such circumstances, project specific planning is no more useful for optimal utilisation of water resources. In addition to this, most development decisions today are multi-objective in nature, involving economic, social and environmental dimensions and values which has long term effects on society.

The National Water Policy -2014 lay down that resource planning in the case of water has to be done for a hydrological basin as a whole, or for a sub-basin. All individual developmental projects and proposals should be formulated by the States and considered within the frame work of such an overall plan for a basin or sub-basin, so that the best possible combination of various options can be made.

Tools for development of Decision Support Systems, using the basin wide approach are available and to initiate the work leading towards “ Integrated Water Resources Development “ in Bhadar (S) Basin, a preliminary exercise considering the Bhadar-I Water Resources project has been carried out with the available datasets of the project in Central Designs Organisation and outcome of the same is discussed in the report.

DESCRIBE A MODELING PROJECT:

1. Bhadar(S) Water Resources Project

Bhadar(s) Water Resources Project is constructed across river Bhadar near village Nilakha in Gondal taluka, of Rajkot District. The catchment area upto the dam site is 940 mile² (2434.60 km²) and natural gradient of the river up to the dam site is 1:880. As per project planning, the gross capacity of the reservoir was 237.86 Mm³ with live storage capacity of 223.71 Mm³ at FRL of 107.90 m. In 1986, silt survey was carried out and the gross capacity of the reservoir is revised to 200.34 Mm³ with live storage capacity of 199.07 Mm³ at FRL of 107.90 m. The capacity at sill of outlet, as per project planning and as per silt survey-1986 is 13.97 and 1.27 Mm³ respectively. The full Reservoir level (FRL) of the dam is at level 107.90m.

The scheme envisages the construction of the earthen dam of 4318 m long with gated ogee shape spillway of 378 m length. The construction of this project was started in 1960. The dam works were completed in the year 1964 while the canal works were completed in the year 1969 The total culturable command Area (C.C.A.) of 26,587 ha covers with canal network i.e. L.B.M.C. with 6 distributors, 29 minors and 21 Direct outlets. Main canal capacity at H.R. is 506 cusecs.

2. Cropping Pattern and crop water requirement:

At the time of construction of the project, following cropping pattern was envisaged:

Crop	Percentage of C.C.A.
Kharif	33.25
Rabi	27.00
Hotweather	1.50
Two Seasonal	2.00
Perennial	4.25
Total	68.00

Source: Appraisal Summary of “ Modernisation of Canal System of Bhadar Irrigation Project (Rajkot), CWC Report no. CWC/GJMIP/IDA-USAID-18 of May 1981
 Keeping in view the soil classification and predominant Kharif and Rabi crops being sown in the area under rainfed irrigated conditions, the following cropping pattern has been proposed in year 1981:

Crop	% (C.C.A.)	Crop	% (C.C.A.)	Crop	% (C.C.A.)
Kharif		Rabi		Two Seasonal	

Groundnut	20.00	Wheat	20.00	Cotton	15.00
		Mustard	3.00		
		Total	23.00		
Total cropping intensity					58.0%

Source: Appraisal Summary of “ Modernisation of Canal System of Bhadar Irrigation Project (Rajkot), CWC Report no. CWC/GJMIP/IDA-USAID-18 of May 1981

3. Reservoir sedimentation

After the construction of the reservoir, sedimentation survey has been carried out in year 2000, 2004. The capacities

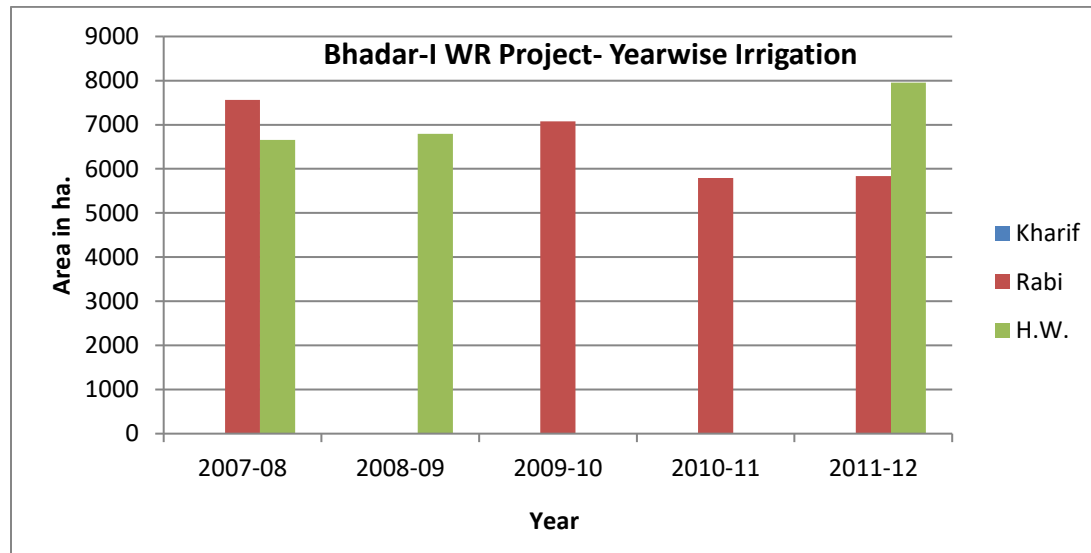
BHADAR(S) RESERVOIR											
Name of State -Gujarat			Name of the District - Rajkot			Name of River - Bhadar			Year of Impoundment - 1964		
Catchment Area - 2406.00 Sq.km			Reservoir Area at FRL - 44.00 Sq.Km			MDDL -97.56m			FRL - 107.90m		
S. No	Year of Survey	Period (Years)	Reservoir Capacity(M.Cum)			Loss of Capacity (M.Cum)			Observed Rate of Siltation Since Last Survey		Remarks
			Gross	Live	Dead	Since Last Survey	Cumulative	% Cumulative	(Th.Cum/SqKm/yr)	(M.Cum/yr)	
1	2	3	4	5	6	7	8	9	10	11	12
1	1964		237.86	223.7	14.16						
2	2004	40	146.31	145.98	0.33	91.55	91.55	38.49	0.951	2.289	
Average rate of silting(Th.Cum/Sq.km/Yr) in 40 years							0.951				
Average rate of silting (mm/yr) in 40 years							0.951				
Average rate of silting (M.Cum/yr) in 40 years							2.289				

4. Data availability

- Fortnightly reservoir performance data for period July 1990 to June 2014.
- Annual yield series as per Appraisal Summary report of 1981 for period 1958-1977 and that derived from fortnightly reservoir performance data for period 1990 to 2013.
- RL-A-Capacity tables having gross storage capacity of 200.339 Mcum and as per sedimentation survey of year 2000 having gross storage capacity of 188.138 Mcum.

5. Irrigation Development

Irrigation has been commenced in the project command since early sixties. The season wise actual irrigation area served during the years 2007-08 to 2011-12 as available in Central Designs Organisation, Gandhinagar are reproduced below:



It can be observed that the actual cropping pattern has been changed over the period and at present Kharif irrigation is not being practiced whereas Hot Weather crops are gaining popularity in the command area.

DO YOU USE DISTRIBUTED MODELING, LUMPED, OR SOME OTHER VARIATION?

6. Tools used- MIKE BASIN: LUMP Modeling

MIKE BASIN is a powerful multi-purpose modelling package for professionals working with water resources projects. At first glance MIKE BASIN gives the impression of being "just" a simulation package for river basin water allocation investigations. But it provides functionalities within a GIS environment for many kinds of investigations. The philosophy behind MIKE BASIN is to be a

simple, intuitive and easy to-use "office" package, which serves the analysis needs, large or small, for water resources practitioners.

The main areas of work, which MIKE BASIN supports, are:

- Water allocation scenario modeling;
- Reservoir/hydropower operation;
- Hydrological modelling;
- Irrigation demand and yield assessment;
- In-stream nutrient modelling;
- Catchment nutrient load assessment;
- Time series data management and analysis.

For river basin modeling analysis, either on basin scale or project scale, MIKE BASIN operates on the basis of a schematic river network, which can either be digitized on the screen, based on an imported shape file, or traced from a digital elevation model. Besides rivers (referred to as reaches or branches), other building blocks which constitute a MIKE BASIN model are:

- Water User nodes;
- Irrigation usage nodes;
- Hydrological Catchment polygons;
- Reservoirs nodes (Lakes, Rule Curve Reservoirs, Allocation Pool reservoirs);
- Hydropower Plant nodes;
- Link channel lines.

7. Water Utilisation

This reservoir has been constructed for irrigation purpose only, however, drinking water supply is added later on for Rajkot and Jetpur town. The annual provision for the same is around 28.32 Mcm.

The month wise crop water requirement for cropping pattern mentioned in “Appraisal Summary of “ Modernisation of Canal System of Bhadar Irrigation Project (Rajkot) “is as below and detailed computations are attached herewith vide **Annexure- 4**

Figs are in Mm³

June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	Total
1.09	0.86	5.87	19.51	20.13	21.30	21.63	23.17	15.72	0.00	0.00	0.00	129.26

8. Modeling

Model has been developed for Bhadar-I WR Project with the available data sets in CDO. The Mike Basin Model has been developed as under:

A. Model validation (Base case scenario)

- Simulation has been carried out for period July 1990 to June 1999 and June 2000 to June 2014 , on monthly basis, using the reservoir performance data wherein data related to withdrawal from the reservoir for irrigation, domestic water supply, observed evaporation losses, spills from reservoir and other losses.

B. Scenario-2

- Simulation has been carried out for period July 1990 to June 1999 and June 2000 to June 2014, on monthly basis, using the reservoir performance data wherein data related to withdrawal from the reservoir for irrigation, domestic water supply, spills from reservoir and other losses. In place of observed evaporation losses, losses as per Chief Engineers circular dated 1978 is introduced and flood control rule levels have been incorporated. The RL-A-C table is replaced as per the reservoir sedimentation survey carried out in the year 2000. The gross storage capacity of the reservoir is reduced from 200.39 Mcm to 188.138 Mcm.

C. Scenario-3

- Simulation by using the data as per scenario 2 but replacing demands by demands as available in Appraisal Summary of “ Modernisation of Canal System of Bhadar Irrigation Project (Rajkot), CWC Report no. CWC/GJMIP/IDA-USAID-18 of May 1981 and providing monsoon rule levels

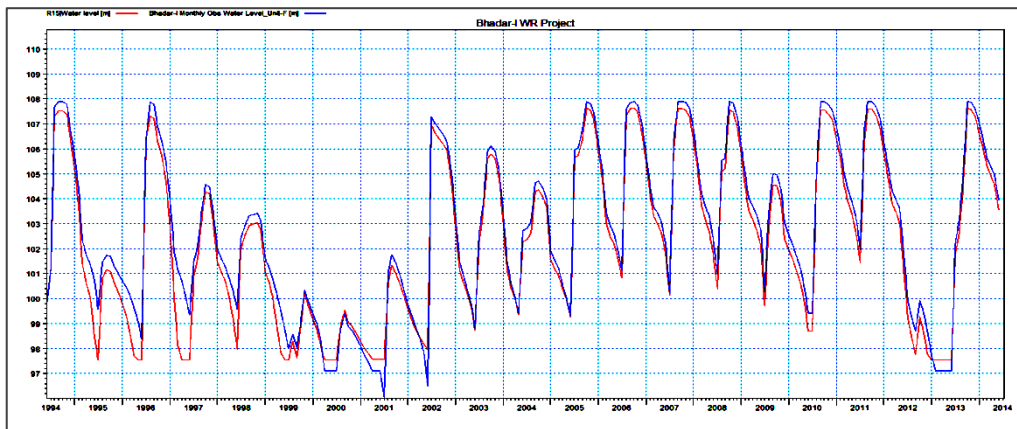
D. Scenario-4

- Simulation by using the demands as available in Appraisal Summary of “ Modernisation of Canal System of Bhadar Irrigation Project (Rajkot), CWC Report no. CWC/GJMIP/IDA-USAID-18 of May 1981 and providing monsoon rule levels and also introducing “ truncation levels” for irrigation below which no irrigation water is to be supplied to ensure annual provision of water supply

9. Results

A. Model validation (Base case scenario)

Simulation has been carried out for period July 1990 to June 1999 and June 2000 to June 2014, on monthly basis, using the reservoir performance data wherein data related to reservoir levels, withdrawals from the reservoir for irrigation, domestic water supply, evaporation, spills, losses are available. As an end result, if the observed water levels fairly tallies with the simulated levels, than it can be said that the model is fairly validated. The graph showing the observed historic levels (Annexure 5a) and the simulated levels(Annexure 5b) is given below:



The simulated results fairly tally with the historic data and hence this model can be further used to test various policy interventions for the project.

The observed releases for domestic water supply and also for irrigation are given as Annexure 6a and Annexure 7a

B. Scenario-2

Simulation has been carried out for period (a) July 1990 to June 1999 and (b) June 2000 to June 2014, on monthly basis, using the reservoir performance data wherein data related to withdrawal from the reservoir for irrigation, domestic water supply, spills from reservoir and other losses. In place of observed evaporation losses, losses as per Chief Engineers circular dated 1978 is introduced and flood control rule levels have been incorporated. For case (b) the RL-A-C table is replaced as per the reservoir sedimentation survey carried out in the year 2000. The gross storage capacity of the reservoir is reduced from 200.39 Mcm to 188.138 Mcm. The results fairly tally with the historical data.

The simulated releases as well as deficits for domestic water supply and also for irrigation are given as Annexure 6b and Annexure 7b.

For most of the period, the results are similar to the Base case scenario.

C. Scenario-3

Simulation has been carried out by replacing the water withdrawals for irrigation and water supply by the demands as per the Appraisal Summary report of 1981 mentioned earlier in this report. Annual demands for irrigation have been considered as 129.26 Mm³ and for domestic water supply as 28.32 Mm³. The simulated releases as well as deficits for domestic water supply and also for irrigation are given as Annexure 6c and Annexure 7c.

D. Scenario-3

Simulation has been carried out by replacing the water withdrawals for irrigation and water supply by the demands as per the Appraisal Summary report of 1981 mentioned earlier in this report. An annual demand for irrigation has been considered as 129.26 Mm³ and for domestic water supply as 28.32 Mm³. Truncation levels for irrigation to ensure maximum domestic water supply reliability were introduced. The simulated releases as well as deficits for domestic water supply and also for irrigation are given as Annexure 6d and Annexure 7d.

10. Conclusion

Step by step approach to introduce policy interventions, for simulation helps in deducing the likely impact of the measure thereby help in futuristic planning of the available replenishment in the reservoir.

A chart showinh the monthwise simulated levels, flood control levels and the introduced truncation levels for irrigation supplies are given as Annexure-8. It can be observed that in certain years like year 2000, 2001 etc there is very poor replenishment in the reservoir as such both the demands for irrigation and domestic water supply cannot be met with.

11. Further work

The analysis has been carried out using the RI-A-Capacity upto year 2000. The demands have changed over the years and also the capacity reduced to 146.31 mcm as per sedimentation survey of year 2004. If these data are made available, the model can be refined and also the monsoon flood control levels can be refined to test the performance of the reservoir. The flood control levels can also be refined. Further, measures to import water to achieve desired dependability can also be worked out based on such exercises.

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**PROFORMA:
VI**

**CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT**

ESTIMATION OF RUNOFF

YEAR:- 1990 -1991

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	99.030	99.360	6.8865	8.4784	1.5919	0.0000	0.4800	0.0000	0.0000	99.195	6.7260	0.1145	0.7701	2.8420
2	JUL2	99.360	99.090	8.4784	7.1595	-1.3189	0.0000	0.5600	0.0000	0.0000	99.225	6.7500	0.1145	0.7729	0.0140
3	AUG1	99.090	98.910	7.1595	6.3499	-0.8096	0.0000	0.5410	0.0000	0.0000	99.000	6.5700	0.1015	0.6669	0.3983
4	AUG2	98.910	102.810	6.3499	48.8143	42.4644	0.0000	0.4870	0.0000	0.0000	100.860	10.3120	0.1015	1.0467	43.9980
5	SEP1	102.810	103.140	48.8143	54.5219	5.7076	0.0000	0.5160	0.0000	0.0000	102.975	18.3216	0.1015	1.8596	8.0832
6	SEP2	103.140	103.480	54.5219	61.5374	7.0155	0.0000	0.5310	0.0000	0.0000	103.310	19.7946	0.1015	2.0091	9.5556
7	OCT1	103.480	103.540	61.5374	62.7947	1.2573	0.0000	0.4760	0.0000	0.0000	103.510	20.7333	0.0890	1.8453	3.5786
8	OCT2	103.540	103.390	62.7947	59.6376	-3.1571	0.0000	0.5530	0.0000	0.7050	103.465	20.5115	0.0890	1.8255	-0.0735
9	NOV1	103.390	103.260	59.6376	56.7341	-2.9035	0.0000	0.4680	0.0000	0.7420	103.325	19.8606	0.0760	1.5094	-0.1841
10	NOV2	103.260	102.660	56.7341	46.3082	-10.4259	8.2860	0.4950	0.0000	0.4790	102.960	18.2566	0.0760	1.3875	0.2216
11	DEC1	102.660	102.470	46.3082	43.1746	-3.1336	0.8760	0.4160	0.0000	0.7800	102.565	16.5546	0.0635	1.0512	-0.0104
12	DEC2	102.470	101.800	43.1746	32.7620	-10.4126	7.9560	0.5110	0.0000	1.0870	102.135	14.8737	0.0635	0.9445	0.0859
13	JAN1	101.800	101.470	32.7620	28.0595	-4.7025	2.2460	0.5130	0.0000	1.1060	101.635	13.3745	0.0635	0.8493	0.0118
14	JAN2	101.470	100.670	28.0595	18.2106	-9.8489	7.0490	0.5440	0.0000	1.5310	101.070	11.0148	0.0635	0.6994	-0.0255
15	FEB1	100.670	100.400	18.2106	15.4210	-2.7896	0.9730	0.5370	0.0000	0.6930	100.535	9.4436	0.0635	0.5997	0.0131
16	FEB2	100.400	100.090	15.4210	12.7875	-2.6335	1.5020	0.4430	0.0000	0.1150	100.245	8.7229	0.0635	0.5539	-0.0196
17	MAR1	100.090	99.910	12.7875	11.5383	-1.2492	0.0000	0.4690	0.0000	0.0520	100.000	8.1300	0.1015	0.8252	0.0970
18	MAR2	99.910	99.670	11.5383	10.0512	-1.4871	0.0000	0.5400	0.0000	0.0920	99.790	7.6428	0.1015	0.7757	-0.0794
19	APR1	99.670	99.420	10.0512	8.7802	-1.2710	0.0000	0.4700	0.0000	0.0080	99.545	7.1162	0.1145	0.8148	0.0218
20	APR2	99.420	99.150	8.7802	7.4325	-1.3477	0.0000	0.5100	0.0000	0.0310	99.285	6.7980	0.1145	0.7784	-0.0283
21	MAY1	99.150	98.870	7.4325	6.1722	-1.2603	0.0000	0.4800	0.0000	0.0140	99.010	6.5780	0.1270	0.8354	0.0691
22	MAY2	98.870	98.570	6.1722	4.7980	-1.3742	0.0000	0.5310	0.0000	0.0690	98.720	5.4668	0.1270	0.6943	-0.0799
23	JUN1	98.570	99.060	4.7980	7.0230	2.2250	0.0000	0.4510	0.0000	0.0000	98.815	5.8411	0.1145	0.6688	3.3448
24	JUN2	99.060	98.840	7.0230	6.0388	-0.9842	0.0000	0.4800	0.0000	0.0000	98.950	6.3730	0.1145	0.7297	0.2255
				TOTAL		-0.8477	28.8880	12.0020	0.0000	7.5040				24.5133	72.0596

CENTRAL DESIGNS ORGANISATION

**UNIT-F
BHADAR IRRIGATION PROJECT**

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

YEAR:- 1991 -1992

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	98.840	101.740	6.0388	31.8953	25.8565	0.0000	0.4530	0.0000	0.0000	100.290	8.8318	0.1145	1.0112	27.3207
2	JUL2	101.740	105.430	31.8953	110.3186	78.4233	0.0000	0.5220	0.0000	0.0000	103.585	21.1031	0.1145	2.4163	81.3616
3	AUG1	105.430	105.430	110.3186	110.3186	0.0000	0.0000	0.5000	0.0000	0.0000	105.430	30.0250	0.1015	3.0475	3.5475
4	AUG2	105.430	105.430	110.3186	110.3186	0.0000	0.0000	0.4810	0.0000	0.0000	105.430	30.0250	0.1015	3.0475	3.5285
5	SEP1	105.430	105.400	110.3186	109.3580	-0.9606	0.0000	0.4750	0.0000	0.0000	105.415	29.9455	0.1015	3.0395	2.5539
6	SEP2	105.400	104.640	109.3580	88.3958	-20.9622	15.7580	0.4660	0.0000	2.0490	105.020	27.8748	0.1015	2.8293	0.1401
7	OCT1	104.640	103.870	88.3958	69.9435	-18.4523	13.9530	0.4650	0.0000	1.8597	104.255	24.4336	0.0890	2.1746	0.0000
8	OCT2	103.870	103.600	69.9435	64.0520	-5.8915	3.1760	0.5160	0.0000	0.6200	103.735	21.9134	0.0890	1.9503	0.3708
9	NOV1	103.600	103.480	64.0520	61.5374	-2.5146	0.0000	0.4410	0.0000	0.5230	103.540	20.8812	0.0760	1.5870	0.0364
10	NOV2	103.480	103.330	61.5374	58.2975	-3.2399	0.1500	0.6990	0.0000	0.8575	103.405	20.2157	0.0760	1.5364	0.0030
11	DEC1	103.330	102.380	58.2975	41.6891	-16.6085	13.5420	0.6630	0.0000	1.2590	102.855	17.8014	0.0635	1.1304	-0.0141
12	DEC2	102.380	102.230	41.6891	39.1999	-2.4892	0.0000	0.7110	0.0000	0.8490	102.305	15.5211	0.0635	0.9856	0.0563
13	JAN1	102.230	101.210	39.1999	24.7422	-14.4577	10.6030	0.6520	0.0000	2.3388	101.720	13.6040	0.0635	0.8639	0.0000
14	JAN2	101.210	101.040	24.7422	22.4942	-2.2480	0.0000	0.6640	0.0000	0.8780	101.125	11.2700	0.0635	0.7156	0.0096
15	FEB1	101.040	100.640	22.4942	17.8992	-4.5950	1.6690	0.6590	0.0000	1.5980	100.840	10.2580	0.0635	0.6514	-0.0176
16	FEB2	100.640	100.430	17.8992	15.7305	-2.1688	0.0000	0.6430	0.0000	0.9340	100.535	9.4436	0.0635	0.5997	0.0079
17	MAR1	100.430	100.220	15.7305	13.7488	-1.9817	0.0000	0.6990	0.0000	0.3840	100.325	8.9165	0.1015	0.9050	0.0064
18	MAR2	100.220	99.970	13.7488	11.9481	-1.8007	0.0000	0.6990	0.0000	0.2440	100.095	8.3599	0.1015	0.8485	-0.0092
19	APR1	99.970	99.730	11.9481	10.3908	-1.5573	0.0000	0.5890	0.0000	0.0740	99.850	7.7820	0.1145	0.8910	-0.0033
20	APR2	99.730	99.420	10.3908	8.7802	-1.6106	0.0000	0.6810	0.0000	0.1120	99.575	7.1630	0.1145	0.8202	0.0026
21	MAY1	99.420	99.150	8.7802	7.4325	-1.3477	0.0000	0.4440	0.0000	0.0190	99.285	6.7980	0.1270	0.8633	-0.0214
22	MAY2	99.150	98.820	7.4325	5.9499	-1.4826	0.0000	0.6160	0.0000	0.0720	98.985	6.5109	0.1270	0.8269	0.0323
23	JUN1	98.820	98.480	5.9499	4.4110	-1.5389	0.0000	0.4440	0.0000	0.4540	98.650	5.1910	0.1145	0.5944	-

															0.0465
24	JUN2	98.480	98.360	4.4110	3.8896	-0.5214	0.0000	0.4210	0.0000	0.0000	98.420	4.4162	0.1145	0.5057	0.4053
TOTAL						-2.1492	58.8510	13.6030	0.0000	15.1250				33.8412	119.2710

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

YEAR:- 1992 -1993

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	98.360	98.970	3.8896	6.6167	2.7271	0.0000	0.4020	0.0000	0.0000	98.665	5.2501	0.1145	0.6011	3.7302
2	JUL2	98.970	104.480	6.6167	83.9864	77.3698	0.0000	0.4270	0.0000	0.0000	101.725	13.6175	0.1145	1.5592	79.3560
3	AUG1	104.480	105.030	83.9864	99.7186	15.7322	0.0000	0.6540	0.0000	0.0000	104.755	26.6406	0.1015	2.7040	19.0902
4	AUG2	105.030	105.700	99.7186	119.1435	19.4249	0.0000	0.7370	0.0000	0.0000	105.365	29.6826	0.1015	3.0128	23.1747
5	SEP1	105.700	107.200	119.1435	172.9290	53.7855	0.0000	0.7170	0.0000	0.0000	106.450	35.6700	0.1015	3.6205	58.1230
6	SEP2	107.200	107.320	172.9290	178.2576	5.3286	0.0000	0.7220	0.0000	0.0000	107.260	40.1396	0.1015	4.0742	10.1248
7	OCT1	107.320	107.440	178.2576	183.1968	4.9392	0.0000	0.6580	0.0000	0.0000	107.380	40.7948	0.0890	3.6307	9.2279
8	OCT2	107.440	107.380	183.1968	180.9219	-2.2749	0.0000	0.7410	0.0000	0.0000	107.410	40.9627	0.0890	3.6457	2.1118
9	NOV1	107.380	107.240	180.9219	174.7052	-6.2167	0.5000	0.7130	0.0000	2.0480	107.310	40.4126	0.0760	3.0714	0.1157
10	NOV2	107.240	106.690	174.7052	155.2685	-19.4367	14.9580	0.7040	0.0000	0.8380	106.965	38.5272	0.0760	2.9281	-0.0087
11	DEC1	106.690	106.230	155.2685	138.6727	-16.5958	12.9260	0.4020	0.0000	1.0300	106.460	35.7264	0.0635	2.2686	0.0309
12	DEC2	106.230	105.670	138.6727	118.1291	-20.5436	15.9410	0.7180	0.0000	1.7480	105.950	32.8110	0.0635	2.0835	-0.0532
13	JAN1	105.670	105.140	118.1291	102.2728	-15.8563	12.0190	0.7380	0.0000	1.2720	105.405	29.8925	0.0635	1.8982	0.0709
14	JAN2	105.140	104.280	102.2728	78.9966	-23.2762	19.6660	0.7160	0.0000	1.3100	104.710	26.4331	0.0635	1.6785	0.0943
15	FEB1	104.280	103.290	78.9966	57.4042	-21.5924	18.1390	0.7280	0.0000	1.3060	103.785	22.1862	0.0635	1.4088	-0.0106
16	FEB2	103.290	102.470	57.4042	43.1746	-14.2296	12.0520	0.7240	0.0000	0.3880	102.880	17.9098	0.0635	1.1373	0.0717
17	MAR1	102.470	102.340	43.1746	41.0253	-2.1493	0.0000	0.4380	0.0000	0.1240	102.405	15.9034	0.1015	1.6142	0.0269
18	MAR2	102.340	102.170	41.0253	38.2352	-2.7901	0.0000	0.7790	0.0000	0.3520	102.255	15.3306	0.1015	1.5561	-

															0.1030
19	APR1	102.170	102.020	38.2352	35.9012	-2.3340	0.0000	0.7150	0.0000	0.0290	102.095	14.7215	0.1145	1.6856	0.0956
20	APR2	102.020	101.830	35.9012	33.1862	-2.7150	0.0000	0.7380	0.0000	0.3430	101.925	14.1575	0.1145	1.6210	- 0.0130
21	MAY1	101.830	101.530	33.1862	28.8965	-4.2897	0.0000	0.7410	0.0000	1.8600	101.680	13.4960	0.1270	1.7140	0.0253
22	MAY2	101.530	101.220	28.8965	24.8654	-4.0311	0.0000	0.7620	0.0000	1.7330	101.375	12.4300	0.1270	1.5786	0.0425
23	JUN1	101.220	100.700	24.8654	18.5220	-6.3434	4.2570	0.7380	0.0000	0.1420	100.960	10.5820	0.1145	1.2116	0.0052
24	JUN2	100.700	102.110	18.5220	37.3016	18.7796	0.0000	0.6980	0.0000	0.0000	101.405	12.5644	0.1145	1.4386	20.916 2
				TOTAL		33.4120	110.4580	16.110 0	0.0000	14.5230				51.7423	226.24 53

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

YEAR:- 1993 -1994

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	102.110	103.840	37.3016	69.2970	31.9954	0.0000	0.7189	0.0000	0.0000	102.975	18.3216	0.1145	2.0978	34.812 1

2	JUL2	103.840	103.970	69.2970	72.0985	2.8015	0.0000	0.7189	0.0000	0.0000	103.905	22.8413	0.1145	2.6153	6.1357
3	AUG1	103.970	103.840	72.0985	69.2970	-2.8015	0.0000	0.7599	0.0000	0.0000	103.905	22.8413	0.1015	2.3184	0.2768
4	AUG2	103.840	103.600	69.2970	64.0520	-5.2450	0.0000	0.7599	0.0000	2.3641	103.720	21.8316	0.1015	2.2159	0.0949
5	SEP1	103.600	103.450	64.0520	60.9088	-3.1433	0.0000	0.7205	0.0000	0.2655	103.525	20.8073	0.1015	2.1119	- 0.0453
6	SEP2	103.450	103.870	60.9088	69.9435	9.0348	0.0000	0.7205	0.0000	0.0000	103.660	21.5043	0.1015	2.1827	11.937 9
7	OCT1	103.870	103.750	69.9435	67.3393	-2.6043	0.0000	0.7574	0.0000	0.0026	103.810	22.3226	0.0890	1.9867	0.1425
8	OCT2	103.750	103.840	67.3393	69.2970	1.9578	0.0000	0.7574	0.0000	0.0000	103.795	22.2407	0.0890	1.9794	4.6946
9	NOV1	103.840	103.690	69.2970	66.0244	-3.2727	0.0000	0.7957	0.0000	0.9003	103.765	22.0771	0.0760	1.6779	0.1012
10	NOV2	103.690	103.450	66.0244	60.9088	-5.1156	2.5850	0.7957	0.0000	0.1443	103.570	21.0291	0.0760	1.5982	0.0076
11	DEC1	103.450	102.390	60.9088	41.8550	-19.0537	15.2950	0.9527	0.0000	1.6603	102.920	18.0832	0.0635	1.1483	0.0026
12	DEC2	102.390	102.200	41.8550	38.7020	-3.1530	0.2660	0.9527	0.0000	0.8913	102.295	15.4830	0.0635	0.9832	- 0.0599
13	JAN1	102.200	102.020	38.7020	35.9012	-2.8008	0.0000	0.9564	0.0000	0.9106	102.110	14.7786	0.0635	0.9384	0.0046
14	JAN2	102.020	101.800	35.9012	32.7620	-3.1392	0.0000	0.9564	0.0000	1.2826	101.910	14.1170	0.0635	0.8964	- 0.0038
15	FEB1	101.800	101.610	32.7620	30.0175	-2.7445	0.0000	0.8439	0.0000	1.0401	101.705	13.5635	0.0635	0.8613	0.0007
16	FEB2	101.610	101.400	30.0175	27.0830	-2.9345	0.0000	0.8439	0.0000	1.2581	101.505	12.9314	0.0635	0.8211	- 0.0113
17	MAR1	101.400	101.210	27.0830	24.7422	-2.3408	0.0000	0.9729	0.0000	0.1381	101.305	12.1052	0.1015	1.2287	- 0.0011
18	MAR2	101.210	100.960	24.7422	21.4824	-3.2598	0.0000	0.9729	0.0000	1.1691	101.085	11.0844	0.1015	1.1251	0.0073
19	APR1	100.960	100.690	21.4824	18.4182	-3.0642	0.0000	0.9260	0.0000	0.9430	100.825	10.2175	0.1145	1.1699	- 0.0253
20	APR2	100.690	100.400	18.4182	15.4210	-2.9972	0.0000	0.9260	0.0000	1.0000	100.545	9.4692	0.1145	1.0842	0.0130
21	MAY1	100.400	100.140	15.4210	13.1400	-2.2810	0.0000	0.9917	0.0000	0.2023	100.270	8.7834	0.1270	1.1155	0.0285
22	MAY2	100.140	99.740	13.1400	10.4474	-2.6926	0.0000	0.9917	0.0000	0.5883	99.940	7.9908	0.1270	1.0148	- 0.0978
23	JUN1	99.740	100.210	10.4474	13.6559	3.2085	0.0000	0.8557	0.0000	0.0000	99.975	8.0720	0.1145	0.9242	4.9884
24	JUN2	100.210	101.250	13.6559	25.2350	11.5791	0.0000	0.8557	0.0000	0.0000	100.730	9.9610	0.1145	1.1405	13.575 3
				TOTAL		-12.0666	18.1460	20.503 4	0.0000	14.7606				35.2360	76.579 4

**CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT**

ESTIMATION OF RUNOFF

YEAR:- 1994 -1995

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	101.250	107.470	25.2350	184.2369	159.0019	0.0000	0.8661	149.7600	0.0000	104.360	24.8756	0.1145	2.8483	312.4763
2	JUL2	107.470	107.680	184.2369	191.7736	7.5367	0.0000	0.8661	20.0300	0.0000	107.575	41.9304	0.1145	4.8010	33.2338
3	AUG1	107.680	107.870	191.7736	199.1327	7.3591	0.0000	0.8672	0.0000	0.0000	107.775	43.1751	0.1015	4.3823	12.6086
4	AUG2	107.870	107.900	199.1327	200.3390	1.2063	0.0000	0.8672	13.5900	0.0000	107.885	43.8658	0.1015	4.4524	20.1159
5	SEP1	107.900	107.900	200.3390	200.3390	0.0000	0.0000	0.7710	74.3300	0.0000	107.900	43.9600	0.1015	4.4619	79.5629
6	SEP2	107.900	107.900	200.3390	200.3390	0.0000	0.0000	0.7710	19.4000	0.0000	107.900	43.9600	0.1015	4.4619	24.6329
7	OCT1	107.900	107.900	200.3390	200.3390	0.0000	0.0000	0.7710	0.0000	0.0000	107.900	43.9600	0.0890	3.9124	4.6834
8	OCT2	107.900	107.780	200.3390	195.5606	-4.7784	0.0000	0.8042	0.0000	0.0448	107.840	43.5832	0.0890	3.8789	-0.0505
9	NOV1	107.780	107.375	195.5606	180.6999	-14.8607	10.7720	0.7766	0.0000	0.0514	107.578	41.9450	0.0760	3.1878	-0.0729
10	NOV2	107.375	106.760	180.6999	157.7818	-22.9181	15.6830	0.9766	0.0000	3.2174	107.068	39.0886	0.0760	2.9707	-0.0703
11	DEC1	106.760	106.270	157.7818	140.1923	-17.5895	13.6080	0.8162	0.0000	0.8878	106.515	36.0366	0.0635	2.2883	0.0108
12	DEC2	106.270	105.710	140.1923	119.4817	-20.7106	15.6200	0.8162	0.0000	2.1798	105.990	33.0262	0.0635	2.0972	0.0025
13	JAN1	105.710	105.160	119.4817	102.7372	-16.7445	12.0950	0.8168	0.0000	2.0522	105.435	30.0515	0.0635	1.9083	0.1278
14	JAN2	105.160	104.400	102.7372	81.8340	-20.9032	17.1680	0.8168	0.0000	1.2572	104.780	26.7558	0.0635	1.6990	0.0378
15	FEB1	104.400	103.420	81.8340	60.2801	-21.5539	17.3460	0.7670	0.0000	2.0070	103.910	22.8686	0.0635	1.4522	0.0183
16	FEB2	103.420	102.390	60.2801	41.8550	-18.4251	15.4090	0.7670	0.0000	1.1460	102.905	18.0182	0.0635	1.1442	0.0411
17	MAR1	102.390	101.905	41.8550	34.2467	-7.6083	3.9260	0.9006	0.0000	1.2664	102.148	14.9212	0.1015	1.5145	-0.0008
18	MAR2	101.905	101.740	34.2467	31.8953	-2.3514	0.0000	0.9296	0.0000	0.0000	101.823	13.8808	0.1015	1.4089	-0.0129
19	APR1	101.740	101.560	31.8953	29.3150	-2.5803	0.0000	0.9296	0.0000	0.1174	101.650	13.4150	0.1145	1.5360	0.0027
20	APR2	101.560	101.350	29.3150	26.4670	-2.8480	0.0000	0.9296	0.0000	0.4314	101.455	12.7479	0.1145	1.4596	-0.0274
21	MAY1	101.350	101.040	26.4670	22.4942	-3.9728	0.0000	0.9890	0.0000	1.6130	101.195	11.5948	0.1270	1.4725	0.1017
22	MAY2	101.040	100.700	22.4942	18.5220	-3.9722	0.0000	0.9890	0.0000	1.7240	100.870	10.3390	0.1270	1.3131	0.0539
23	JUN1	100.700	99.940	18.5220	11.7432	-6.7788	2.9730	0.9196	0.0000	1.8840	100.320	8.9044	0.1145	1.0196	0.0174
24	JUN2	99.940	99.550	11.7432	9.4120	-2.3312	0.0000	0.9196	0.0000	0.5604	99.745	7.5384	0.1145	0.8631	0.0119

TOTAL

-15.8230

124.6000

20.643

277.110

20.4402

60.5341

487.50

6

0

49

CENTRAL DESIGNS ORGANISATION

UNIT-F

BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm ³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

YEAR:- 1995 -1996

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	99.550	99.120	9.4120	7.2960	-2.1160	0.0000	0.4130	0.0000	0.8700	99.335	6.8380	0.1145	0.7830	-0.0500
2	JUL2	99.120	101.430	7.2960	27.5015	20.2055	0.0000	0.4280	0.0000	0.0000	100.275	8.7955	0.1145	1.0071	21.6406
3	AUG1	101.430	101.580	27.5015	29.5940	2.0925	0.0000	0.6210	0.0000	0.0000	101.505	12.9314	0.1015	1.3125	4.0260
4	AUG2	101.580	101.740	29.5940	31.8953	2.3013	0.0000	0.5830	0.0000	0.0000	101.660	13.4420	0.1015	1.3644	4.2487
5	SEP1	101.740	101.860	31.8953	33.6104	1.7151	0.0000	0.4930	0.0000	0.0000	101.800	13.8200	0.1015	1.4027	3.6108
6	SEP2	101.860	101.680	33.6104	31.0286	-2.5818	0.0000	0.4860	0.0000	0.7440	101.770	13.7390	0.1015	1.3945	0.0427
7	OCT1	101.680	101.520	31.0286	28.7570	-2.2716	0.0000	0.6830	0.0000	0.4150	101.600	13.2800	0.0890	1.1819	0.0083
8	OCT2	101.520	101.320	28.7570	26.0974	-2.6596	0.0000	0.7040	0.0000	0.8290	101.420	12.6194	0.0890	1.1231	-0.0035
9	NOV1	101.320	101.160	26.0974	24.0878	-2.0096	0.0000	0.6930	0.0000	0.4590	101.240	11.8036	0.0760	0.8971	0.0395
10	NOV2	101.160	101.010	24.0878	22.0958	-1.9920	0.0000	0.6920	0.0000	0.4520	101.085	11.0844	0.0760	0.8424	-0.0056
11	DEC1	101.010	100.880	22.0958	20.5212	-1.5746	0.0000	0.7140	0.0000	0.2110	100.945	10.5415	0.0635	0.6694	0.0198
12	DEC2	100.880	100.730	20.5212	18.8334	-1.6878	0.0000	0.6870	0.0000	0.3230	100.805	10.1635	0.0635	0.6454	-0.0324
13	JAN1	100.730	100.610	18.8334	17.5878	-1.2456	0.0000	0.7230	0.0000	0.0000	100.670	9.7990	0.0635	0.6222	0.0996
14	JAN2	100.610	100.460	17.5878	16.0399	-1.5479	0.0000	0.7680	0.0000	0.1900	100.535	9.4436	0.0635	0.5997	0.0098
15	FEB1	100.460	100.280	16.0399	14.3062	-1.7337	0.0000	0.6960	0.0000	0.4980	100.370	9.0254	0.0635	0.5731	0.0334
16	FEB2	100.280	100.120	14.3062	12.9990	-1.3072	0.0000	0.6830	0.0000	0.0850	100.200	8.6140	0.0635	0.5470	0.0078
17	MAR1	100.120	99.880	12.9990	11.3334	-1.6656	0.0000	0.7060	0.0000	0.1040	100.000	8.1300	0.1015	0.8252	-0.0304
18	MAR2	99.880	99.630	11.3334	9.8248	-1.5086	0.0000	0.7910	0.0000	0.0330	99.755	7.5616	0.1015	0.7675	0.0829
19	APR1	99.630	99.360	9.8248	8.4784	-1.3464	0.0000	0.5860	0.0000	0.0000	99.495	7.0382	0.1145	0.8059	0.0455
20	APR2	99.360	99.060	8.4784	7.0230	-1.4554	0.0000	0.6380	0.0000	0.0260	99.210	6.7380	0.1145	0.7715	-0.0199

21	MAY1	99.060	98.750	7.0230	5.6275	-1.3955	0.0000	0.6980	0.0000	0.0000	98.905	6.1957	0.1270	0.7869	0.0894
22	MAY2	98.750	98.360	5.6275	3.8896	-1.7379	0.0000	0.7130	0.0000	0.4160	98.555	4.8496	0.1270	0.6159	0.0070
23	JUN1	98.360	98.050	3.8896	2.6857	-1.2038	0.0000	0.6960	0.0000	0.0930	98.205	3.8684	0.1145	0.4429	0.0281
24	JUN2	98.050	106.340	2.6857	142.8516	140.1659	0.0000	0.7020	0.0000	0.0000	102.195	15.1020	0.1145	1.7292	142.5970
				TOTAL		133.4396	0.0000	15.5970	0.0000	5.7480				21.7104	176.4950

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

YEAR:- 1996 -1997

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	106.340	106.610	142.8516	152.3961	9.5445	0.0000	0.8400	0.0000	0.0000	106.475	35.8110	0.1145	4.1004	14.4848
2	JUL2	106.610	107.860	152.3961	198.7306	46.3345	0.0000	0.9900	0.0000	0.0000	107.235	40.0031	0.1145	4.5804	51.904

3	AUG1	107.860	107.860	198.7306	198.7306	0.0000	0.0000	0.9400	0.0000	0.0000	107.860	43.7088	0.1015	4.4364	5.3764
4	AUG2	107.860	107.770	198.7306	195.1819	-3.5487	0.0000	0.9900	0.0000	0.0000	107.815	43.4262	0.1015	4.4078	1.8491
5	SEP1	107.770	107.560	195.1819	187.3572	-7.8247	4.5870	0.8900	0.0000	0.0000	107.665	42.4849	0.1015	4.3122	1.9645
6	SEP2	107.560	106.870	187.3572	161.5291	-25.8282	20.5280	0.9100	0.0000	0.4210	107.215	39.8939	0.1015	4.0492	0.0801
7	OCT1	106.870	106.460	161.5291	147.2028	-14.3263	9.5370	0.9100	0.0000	0.6880	106.665	36.8742	0.0890	3.2818	0.0905
8	OCT2	106.460	106.315	147.2028	141.9019	-5.3009	0.6260	0.9800	0.0000	0.5990	106.388	35.3159	0.0890	3.1431	0.0472
9	NOV1	106.315	106.200	141.9019	137.5330	-4.3688	0.6260	0.9300	0.0000	0.2080	106.258	34.5658	0.0760	2.6270	0.0221
10	NOV2	106.200	105.450	137.5330	110.9590	-26.5740	20.6630	0.9300	0.0000	2.5580	105.825	32.1385	0.0760	2.4425	0.0195
11	DEC1	105.450	104.620	110.9590	87.8054	-23.1536	18.6630	0.9500	0.0000	1.7750	105.035	27.9534	0.0635	1.7750	0.0094
12	DEC2	104.620	103.910	87.8054	70.8055	-16.9999	10.6100	1.0300	0.0000	3.7970	104.265	24.4757	0.0635	1.5542	-
13	JAN1	103.910	103.000	70.8055	52.4870	-18.3185	15.6290	0.9200	0.0000	0.4570	103.455	20.4622	0.0635	1.2993	-
14	JAN2	103.000	101.860	52.4870	33.6104	-18.8766	15.7710	1.0400	0.0000	1.0410	102.430	16.0051	0.0635	1.0163	-
15	FEB1	101.860	101.310	33.6104	25.9742	-7.6362	5.5580	0.9900	0.0000	0.2540	101.585	13.2250	0.0635	0.8398	0.0056
16	FEB2	101.310	101.170	25.9742	24.2206	-1.7536	0.0000	0.8100	0.0000	0.2360	101.240	11.8036	0.0635	0.7495	0.0419
17	MAR1	101.170	100.980	24.2206	21.7227	-2.4979	0.0000	0.9900	0.0000	0.3980	101.075	11.0380	0.1015	1.1204	0.0105
18	MAR2	100.980	100.710	21.7227	18.6258	-3.0969	0.0000	1.2000	0.0000	0.8300	100.845	10.2715	0.1015	1.0426	-
19	APR1	100.710	100.460	18.6258	16.0399	-2.5859	0.0000	1.0500	0.0000	0.4650	100.585	9.5716	0.1145	1.0959	0.0250
20	APR2	100.460	100.130	16.0399	13.0695	-2.9704	0.0000	1.1000	0.0000	0.8880	100.295	8.8439	0.1145	1.0126	0.0302
21	MAY1	100.130	99.790	13.0695	10.7304	-2.3391	0.0000	1.1200	0.0000	0.1630	99.960	8.0372	0.1270	1.0207	-
22	MAY2	99.790	99.360	10.7304	8.4784	-2.2520	0.0000	1.2100	0.0000	0.1190	99.575	7.1630	0.1270	0.9097	-
23	JUN1	99.360	99.520	8.4784	9.2662	0.7878	0.0000	1.0900	0.0000	0.0000	99.440	6.9524	0.1145	0.7960	2.6738
24	JUN2	99.520	101.460	9.2662	27.9200	18.6538	0.0000	1.0600	0.0000	0.0000	100.490	9.3284	0.1145	1.0681	20.781
															9
					TOTAL	-114.9316	122.7980	23.870	0.0000	14.8970				52.6811	99.314
							0								5

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

YEAR:- 1997 -1998

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	101.460	102.070	27.9200	36.6792	8.7592	0.0000	1.0500	0.0000	0.0000	101.765	13.7255	0.1145	1.5716	11.3808
2	JUL2	102.070	102.100	36.6792	37.1460	0.4668	0.0000	1.0800	0.0000	0.0000	102.085	14.6834	0.1145	1.6813	3.2281
3	AUG1	102.100	102.010	37.1460	35.7456	-1.4004	0.0000	1.0000	0.0000	0.0000	102.055	14.5693	0.1015	1.4788	1.0784
4	AUG2	102.010	103.390	35.7456	59.6376	23.8920	0.0000	1.2100	0.0000	0.0000	102.700	17.1300	0.1015	1.7387	26.8407
5	SEP1	103.390	103.870	59.6376	69.9435	10.3059	0.0000	1.1100	0.0000	0.0000	103.630	21.3407	0.1015	2.1661	13.5819
6	SEP2	103.870	104.570	69.9435	86.4078	16.4643	0.0000	1.0800	0.0000	0.0000	104.220	24.2862	0.1015	2.4650	20.0094
7	OCT1	104.570	104.600	86.4078	87.2150	0.8072	0.0000	1.0700	0.0000	0.0000	104.585	25.8599	0.0890	2.3015	4.1787
8	OCT2	104.600	104.480	87.2150	83.9864	-3.2286	0.0000	1.1900	0.0000	0.0000	104.540	25.6614	0.0890	2.2839	0.2453
9	NOV1	104.480	104.300	83.9864	79.4695	-4.5169	0.8100	1.1500	0.0000	0.8100	104.390	25.0019	0.0760	1.9001	0.1532
10	NOV2	104.300	103.260	79.4695	56.7341	-22.7354	17.1530	1.1300	0.0000	2.8280	103.780	22.1589	0.0760	1.6841	0.0597
11	DEC1	103.260	102.780	56.7341	48.2906	-8.4435	5.9300	1.0200	0.0000	0.8350	103.020	18.5180	0.0635	1.1759	0.5174
12	DEC2	102.780	101.990	48.2906	35.4486	-12.8420	9.4740	1.0400	0.0000	1.3050	102.385	15.8258	0.0635	1.0049	-0.0181
13	JAN1	101.990	101.810	35.4486	32.9034	-2.5452	0.0000	1.1300	0.0000	0.4940	101.900	14.0900	0.0635	0.8947	-0.0265
14	JAN2	101.810	101.600	32.9034	29.8730	-3.0304	0.0000	1.2000	0.0000	0.9550	101.705	13.5635	0.0635	0.8613	-0.0141
15	FEB1	101.600	101.430	29.8730	27.5015	-2.3715	0.0000	1.0800	0.0000	0.4720	101.515	12.9681	0.0635	0.8235	0.0040
16	FEB2	101.430	101.250	27.5015	25.2350	-2.2665	0.0000	0.9600	0.0000	0.5020	101.340	12.2676	0.0635	0.7790	-0.0255
17	MAR1	101.250	101.050	25.2350	22.6270	-2.6080	0.0000	0.9000	0.0000	0.5690	101.150	11.3860	0.1015	1.1557	0.0167
18	MAR2	101.050	100.820	22.6270	19.8003	-2.8267	0.0000	1.1500	0.0000	0.6000	100.935	10.5145	0.1015	1.0672	-0.0095
19	APR1	100.820	100.580	19.8003	17.2777	-2.5226	0.0000	1.0800	0.0000	0.3090	100.700	9.8800	0.1145	1.1313	-0.0023
20	APR2	100.580	100.310	17.2777	14.5849	-2.6928	0.0000	1.1400	0.0000	0.4920	100.445	9.2132	0.1145	1.0549	-0.0059
21	MAY1	100.310	99.970	14.5849	11.9481	-2.6368	0.0000	1.1400	0.0000	0.3750	100.140	8.4688	0.1270	1.0755	-0.0463
22	MAY2	99.970	99.570	11.9481	9.5092	-2.4389	0.0000	1.1900	0.0000	0.3010	99.770	7.5964	0.1270	0.9647	0.0168
23	JUN1	99.570	99.880	9.5092	11.3334	1.8242	0.0000	1.0600	0.0000	0.0000	99.725	7.4920	0.1145	0.8578	3.7420
24	JUN2	99.880	102.410	11.3334	42.1858	30.8524	0.0000	1.1200	0.0000	0.0000	101.145	11.3628	0.1145	1.3010	33.2734

TOTAL**14.2658****33.3670****26.280****0.0000****10.8470****33.4186****118.17****84****CENTRAL DESIGNS ORGANISATION****UNIT-F****BHADAR IRRIGATION PROJECT****ESTIMATION OF RUNOFF**

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

YEAR:- 1998 -1999

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm³)	Capacity at End (Mm³)	Difference of Capacity (Mm³)	Canal Releases (Mm³)	Water Supply (Mm³)	Flow Over the Waste Weir (Mm³)	Other Losses (Mm³)	Average RL (m)	Area at Average RL (Mm²)	Evaporation Depth	Evaporation Losses (Mm³)	Runoff (Mm³)
1	JUL1	102.410	102.560	42.1858	44.6578	2.4720	0.0000	1.1280	0.0000	0.0000	102.485	16.2290	0.1145	1.8582	5.4582
2	JUL2	102.560	102.930	44.6578	51.1339	6.4761	0.0000	1.1520	0.0000	0.0000	102.745	17.3249	0.1145	1.9837	9.6118
3	AUG1	102.930	103.020	51.1339	52.7777	1.6438	0.0000	1.1570	0.0000	0.0000	102.975	18.3216	0.1015	1.8596	4.6604
4	AUG2	103.020	103.320	52.7777	58.0742	5.2965	0.0000	1.1640	0.0000	0.0000	103.170	19.1780	0.1015	1.9466	8.4071
5	SEP1	103.320	103.170	58.0742	54.9580	-3.1162	0.0000	1.0900	0.0000	0.0520	103.245	19.5082	0.1015	1.9801	0.0058
6	SEP2	103.170	103.360	54.9580	58.9676	4.0096	0.0000	1.0730	0.0000	0.0000	103.265	19.5963	0.1015	1.9890	7.0717
7	OCT1	103.360	103.320	58.9676	58.0742	-0.8934	0.0000	1.0370	0.0000	0.0000	103.340	19.9267	0.0890	1.7735	1.9171
8	OCT2	103.320	103.410	58.0742	60.0705	1.9964	0.0000	1.0120	0.0000	0.0000	103.365	20.0368	0.0890	1.7833	4.7916
9	NOV1	103.410	103.260	60.0705	56.7341	-3.3364	0.0000	1.1630	0.0000	0.7030	103.335	19.9047	0.0760	1.5128	0.0423
10	NOV2	103.260	103.120	56.7341	54.2312	-2.5029	0.0000	1.0730	0.0000	0.0000	103.190	19.2660	0.0760	1.4642	0.0343
11	DEC1	103.120	102.535	54.2312	44.2458	-9.9854	6.5900	1.1890	0.0000	1.5470	102.828	17.6822	0.0635	1.1228	0.4634
12	DEC2	102.535	101.620	44.2458	30.1619	-14.0839	10.4270	1.1360	0.0000	1.5780	102.078	14.6549	0.0635	0.9306	-0.0123
13	JAN1	101.620	101.440	30.1619	27.6410	-2.5209	0.0000	1.1930	0.0000	0.5030	101.530	13.0231	0.0635	0.8270	0.0021
14	JAN2	101.440	101.220	27.6410	24.8654	-2.7756	0.0000	1.1620	0.0000	0.8130	101.330	12.2212	0.0635	0.7760	-0.0246
15	FEB1	101.220	100.980	24.8654	21.7227	-3.1427	0.0000	1.0900	0.0000	1.3660	101.100	11.1540	0.0635	0.7083	0.0216
16	FEB2	100.980	100.800	21.7227	19.5600	-2.1627	0.0000	0.8900	0.0000	0.6080	100.890	10.3930	0.0635	0.6600	-0.0047
17	MAR1	100.800	100.520	19.5600	16.6588	-2.9012	0.0000	1.1890	0.0000	0.7290	100.660	9.7720	0.1015	0.9919	0.0087
18	MAR2	100.520	100.190	16.6588	13.4925	-3.1663	0.0000	1.1380	0.0000	1.1140	100.355	8.9891	0.1015	0.9124	-0.0019
19	APR1	100.190	99.820	13.4925	10.9236	-2.5689	0.0000	1.1680	0.0000	0.4660	100.005	8.1421	0.1145	0.9323	-0.0026
20	APR2	99.820	99.490	10.9236	9.1204	-1.8032	0.0000	1.0900	0.0000	0.0240	99.655	7.3296	0.1145	0.8392	0.1500
21	MAY1	99.490	99.080	9.1204	7.1140	-2.0064	0.0000	0.9170	0.0000	0.1610	99.285	6.7980	0.1270	0.8633	-0.0651

22	MAY2	99.080	98.690	7.1140	5.3473	-1.7667	0.0000	0.9870	0.0000	0.0170	98.885	6.1169	0.1270	0.7768	0.0141
23	JUN1	98.690	98.210	5.3473	3.2243	-2.1230	0.0000	0.8920	0.0000	0.9370	98.450	4.5125	0.1145	0.5167	0.2227
24	JUN2	98.210	98.000	3.2243	2.5210	-0.7033	0.0000	0.5800	0.0000	0.0000	98.105	3.6204	0.1145	0.4145	0.2912
				TOTAL		-39.6648	17.0170	25.670	0.0000	10.6180				29.4228	43.063
								0							0

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm ³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

YEAR:- 1999 -2000

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	98.000	98.600	2.5210	4.9270	2.4060	0.0000	0.1590	0.0000	0.0000	98.300	4.1040	0.1145	0.4699	3.0349
2	JUL2	98.600	98.570	4.9270	4.7980	-0.1290	0.0000	0.0300	0.0000	0.0000	98.585	4.9459	0.1145	0.5663	0.4673
3	AUG1	98.570	98.420	4.7980	4.1530	-0.6450	0.0000	0.3470	0.0000	0.0000	98.495	4.6570	0.1015	0.4727	0.1747
4	AUG2	98.420	98.050	4.1530	2.6857	-1.4673	0.0000	0.8520	0.0000	0.2240	98.235	3.9428	0.1015	0.4002	0.0089
5	SEP1	98.050	99.120	2.6857	7.2960	4.6103	0.0000	0.3860	0.0000	0.0000	98.585	4.9459	0.1015	0.5020	5.4983
6	SEP2	99.120	98.940	7.2960	6.4833	-0.8127	0.0000	0.4250	0.0000	0.0000	99.030	6.5940	0.1015	0.6693	0.2816
7	OCT1	98.940	100.520	6.4833	16.6588	10.1755	0.0000	0.5260	0.0000	0.0000	99.730	7.5036	0.0890	0.6678	11.3693
8	OCT2	100.520	100.340	16.6588	14.8636	-1.7952	0.0000	0.8440	0.0000	0.1578	100.430	9.1748	0.0890	0.8166	0.0232
9	NOV1	100.340	100.100	14.8636	12.8580	-2.0056	0.0000	0.9200	0.0000	0.4476	100.220	8.6624	0.0760	0.6583	0.0203
10	NOV2	100.100	99.850	12.8580	11.1285	-1.7295	0.0000	0.8460	0.0000	0.2226	99.975	8.0720	0.0760	0.6135	-0.0474
11	DEC1	99.850	99.600	11.1285	9.6550	-1.4735	0.0000	0.7420	0.0000	0.2495	99.725	7.4920	0.0635	0.4757	-0.0063
12	DEC2	99.600	99.400	9.6550	8.6830	-0.9720	0.0000	0.6320	0.0000	0.0000	99.500	7.0460	0.0635	0.4474	0.1074
13	JAN1	99.400	99.210	8.6830	7.7111	-0.9719	0.0000	0.4990	0.0000	0.0421	99.305	6.8140	0.0635	0.4327	0.0019
14	JAN2	99.210	98.970	7.7111	6.6167	-1.0945	0.0000	0.5980	0.0000	0.0988	99.090	6.6420	0.0635	0.4218	0.0241
15	FEB1	98.970	98.720	6.6167	5.4874	-1.1292	0.0000	0.5680	0.0000	0.1396	98.845	5.9593	0.0635	0.3784	-0.0432
16	FEB2	98.720	98.420	5.4874	4.1530	-1.3344	0.0000	0.5770	0.0000	0.4562	98.570	4.8977	0.0635	0.3110	0.0098
17	MAR1	98.420	97.870	4.1530	2.1968	-1.9562	0.0000	0.1440	0.0000	1.5577	98.145	3.7196	0.1015	0.3775	0.1230
18	MAR2	97.870	97.100	2.1968	0.6108	-1.5860	0.0000	0.0000	0.0000	1.4590	97.485	1.9863	0.1015	0.2016	0.0746
19	APR1	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1145	0.1578	0.1578
20	APR2	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1145	0.1578	0.1578
21	MAY1	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1270	0.1750	0.1750
22	MAY2	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1270	0.1750	0.1750
23	JUN1	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1145	0.1578	0.1578
24	JUN2	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1145	0.1578	0.1578
				TOTAL		-1.9102	0.0000	9.0950	0.0000	5.0549				9.8639	22.1036

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	200.3390
O.S.L.	97.5400	1.2700

YEAR:- 2000 -2001

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	97.100	99.000	0.6108	6.7500	6.1392	0.0000	0.1640	0.0000	0.0000	98.050	3.4840	0.1145	0.3989	6.7021
2	JUL2	99.000	98.760	6.7500	5.6742	-1.0758	0.0000	0.6140	0.0000	0.2461	98.880	6.0972	0.1145	0.6981	0.4824
3	AUG1	98.760	99.510	5.6742	9.2176	3.5434	0.0000	0.5040	0.0000	0.0000	99.135	6.6780	0.1015	0.6778	4.7252
4	AUG2	99.510	99.390	9.2176	8.6318	-0.5858	0.0000	0.5040	0.0000	0.1490	99.450	6.9680	0.1015	0.7073	0.7745
5	SEP1	99.390	99.150	8.6318	7.4325	-1.1993	0.0000	0.4860	0.0000	0.0050	99.270	6.7860	0.1015	0.6888	- 0.0196
6	SEP2	99.150	98.880	7.4325	6.2166	-1.2159	0.0000	0.5540	0.0000	0.0750	99.015	6.5820	0.1015	0.6681	0.0812
7	OCT1	98.880	98.940	6.2166	6.4833	0.2667	0.0000	0.1510	0.0000	0.0000	98.910	6.2154	0.0890	0.5532	0.9709
8	OCT2	98.940	98.720	6.4833	5.4874	-0.9959	0.0000	0.1090	0.0000	0.2969	98.830	5.9002	0.0890	0.5251	- 0.0649
9	NOV1	98.720	98.570	5.4874	4.7980	-0.6894	0.0000	0.0940	0.0000	0.2078	98.645	5.1713	0.0760	0.3930	0.0054
10	NOV2	98.570	98.420	4.7980	4.1530	-0.6450	0.0000	0.0940	0.0000	0.2054	98.495	4.6570	0.0760	0.3539	0.0083
11	DEC1	98.420	98.240	4.1530	3.3574	-0.7956	0.0000	0.0940	0.0000	0.4337	98.330	4.1784	0.0635	0.2653	- 0.0026
12	DEC2	98.240	98.080	3.3574	2.7846	-0.5728	0.0000	0.1020	0.0000	0.2654	98.160	3.7568	0.0635	0.2386	0.0332
13	JAN1	98.080	97.970	2.7846	2.4462	-0.3384	0.0000	0.0960	0.0000	0.0014	98.025	3.4220	0.0635	0.2173	- 0.0237
14	JAN2	97.970	97.750	2.4462	1.8975	-0.5487	0.0000	0.0940	0.0000	0.4241	97.860	2.9820	0.0635	0.1894	0.1588
15	FEB1	97.750	97.580	1.8975	1.4735	-0.4240	0.0000	0.0940	0.0000	0.1369	97.665	2.4555	0.0635	0.1559	- 0.0372
16	FEB2	97.580	97.450	1.4735	1.1911	-0.2824	0.0000	0.0710	0.0000	0.0299	97.515	2.0505	0.0635	0.1302	- 0.0513
17	MAR1	97.450	97.270	1.1911	0.8927	-0.2984	0.0000	0.0860	0.0000	0.0171	97.360	1.7888	0.1015	0.1816	- 0.0138
18	MAR2	97.270	97.100	0.8927	0.6108	-0.2819	0.0000	0.0510	0.0000	0.2171	97.185	1.5123	0.1015	0.1535	0.1397
19	APR1	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1145	0.1578	0.1578
20	APR2	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1145	0.1578	0.1578
21	MAY1	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1270	0.1750	0.1750
22	MAY2	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1270	0.1750	0.1750

23	JUN1	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1145	0.1578	0.1578
24	JUN2	97.100	97.100	0.6108	0.6108	0.0000	0.0000	0.0000	0.0000	0.0000	97.100	1.3780	0.1145	0.1578	0.1578
				TOTAL		0.0000	0.0000	3.9620	0.0000	2.7108				8.1771	14.8499

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2001 -2002

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	96.000	101.250	0.0000	18.5828	18.5828		0.3490			98.625	2.9069	0.1145	0.3328	19.2647
2	JUL2	101.250	101.100	18.5828	17.1269	-1.4559		0.8290			101.175	9.8929	0.1145	1.1327	0.5058
3	AUG1	101.100	101.350	17.1269	19.6509	2.5240		0.9730			101.225	10.0699	0.1015	1.0221	4.5191
4	AUG2	101.350	101.770	19.6509	24.9970	5.3461		0.9670			101.560	11.3008	0.1015	1.1470	7.4601
5	SEP1	101.770	101.620	24.9970	22.9170	-2.0800		1.0230			101.695	11.8449	0.1015	1.2023	0.1453
6	SEP2	101.620	101.410	22.9170	20.2917	-2.6253		1.0150		0.4230	101.515	11.1195	0.1015	1.1286	-0.0586
7	OCT1	101.410	101.190	20.2917	17.9420	-2.3497		0.9010		0.4380	101.300	10.3396	0.0890	0.9202	-0.0905
8	OCT2	101.190	100.920	17.9420	15.4967	-2.4453		1.0990		0.4240	101.055	9.4841	0.0890	0.8441	-0.0782
9	NOV1	100.920	100.640	15.4967	13.3306	-2.1661		1.0520		0.3300	100.780	8.4934	0.0760	0.6455	-0.1386
10	NOV2	100.640	100.370	13.3306	11.5488	-1.7818		1.1240		0.1000	100.505	7.5047	0.0760	0.5704	0.0125
11	DEC1	100.370	100.060	11.5488	9.7750	-1.7738		1.0590		0.2730	100.215	6.7017	0.0635	0.4256	-0.0163
12	DEC2	100.060	99.760	9.7750	7.8162	-1.9588		1.0950		0.4040	99.910	5.8922	0.0635	0.3742	-0.0856
13	JAN1	99.760	99.520	7.8162	6.4622	-1.3540		0.5900		0.3560	99.640	5.2251	0.0635	0.3318	-0.0762
14	JAN2	99.520	99.300	6.4622	5.3880	-1.0742		0.2890		0.3640	99.410	4.6738	0.0635	0.2968	-0.1244
15	FEB1	99.300	99.090	5.3880	4.3380	-1.0500		0.2140		0.4690	99.195	4.1959	0.0635	0.2664	-0.1006
16	FEB2	99.090	98.900	4.3380	3.6285	-0.7095		0.1230		0.3400	98.995	3.7608	0.0635	0.2388	-

17	MAR1	98.900	98.690	3.6285	2.9141	-0.7143		0.1490		0.2150	98.795	3.3231	0.1015	0.3373	0.0077
															-
															0.0130
18	MAR2	98.690	98.440	2.9141	2.2070	-0.7071		0.1590		0.2000	98.565	2.7477	0.1015	0.2789	-
															0.0693
19	APR1	98.440	98.200	2.2070	1.5958	-0.6112		0.1610		0.1990	98.320	2.1928	0.1145	0.2511	-
															0.0001
20	APR2	98.200	97.900	1.5958	0.8542	-0.7416		0.1430		0.3780	98.050	1.6909	0.1145	0.1936	-
															0.0270
21	MAY1	97.900	97.690	0.8542	0.4665	-0.3877		0.1410		0.0700	97.795	1.2173	0.1270	0.1546	-
															0.0221
22	MAY2	97.690	96.500	0.4665	0.0734	-0.3931		0.1070		0.2180	97.095	0.5283	0.1270	0.0671	-
															0.0010
23	JUN1	96.500	97.840	0.0734	0.7070	0.6336					97.170	0.5645	0.1145	0.0646	0.6983
24	JUN2	97.840	107.290	0.7070	161.7340	161.0270		0.0460	130.268		102.565	15.2880	0.1145	1.7505	293.09
									0						15
				TOTAL	161.7340	0.0000		13.608	130.268	5.2010				13.9770	324.78
								0	0						80

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm ³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2002 -2003

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	107.290	107.130	161.7340	154.8570	-6.8770		0.5330		1.9340	107.210	38.4770	0.1145	4.4056	-
															0.0044
2	JUL2	107.130	107.010	154.8570	149.7858	-5.0712		0.7380		0.0180	107.070	37.8078	0.1145	4.3290	0.0138
3	AUG1	107.010	106.890	149.7858	145.5888	-4.1970		0.7800			106.950	37.1760	0.1015	3.7734	0.3564
4	AUG2	106.890	106.770	145.5888	141.6832	-3.9056	0.4600	0.9390			106.830	36.4320	0.1015	3.6978	1.1912
5	SEP1	106.770	106.650	141.6832	137.8060	-3.8772	0.5000	0.7900			106.710	35.6888	0.1015	3.6224	1.0352
6	SEP2	106.650	106.530	137.8060	134.0140	-3.7920		0.9330			106.590	34.9456	0.1015	3.5470	0.6880
7	OCT1	106.530	106.380	134.0140	128.9910	-5.0230		1.0730		0.9100	106.455	34.1090	0.0890	3.0357	-
															0.0043
8	OCT2	106.380	106.220	128.9910	123.6837	-5.3073		1.0490		1.3080	106.300	33.2725	0.0890	2.9613	0.0109

9	NOV1	106.220	105.690	123.6837	106.9278	-16.7559	10.7100	1.0860		2.6600	105.955	31.4447	0.0760	2.3898	0.0899
10	NOV2	105.690	105.050	106.9278	87.6616	-19.2662	14.1900	1.0180		1.8900	105.370	28.3652	0.0760	2.1558	- 0.0125
11	DEC1	105.050	104.380	87.6616	70.8662	-16.7954	13.1900	1.1180		0.9780	104.715	25.0744	0.0635	1.5922	0.0829
12	DEC2	104.380	103.330	70.8662	47.7700	-23.0962	19.8420	1.0000		0.9170	103.855	20.9928	0.0635	1.3330	- 0.0042
13	JAN1	103.330	101.942	47.7700	27.2525	-20.5175	18.0230	1.0700		0.4710	102.636	15.6071	0.0635	0.9911	0.0376
14	JAN2	101.942	101.470	27.2525	20.9326	-6.3200	4.0800	1.1670		0.3180	101.706	11.8890	0.0635	0.7550	0.0000
15	FEB1	101.470	101.220	20.9326	18.2624	-2.6702		1.1340		0.8620	101.345	10.5015	0.0635	0.6668	- 0.0073
16	FEB2	101.220	100.968	18.2624	15.9345	-2.3279		0.9120		0.8010	101.094	9.6175	0.0635	0.6107	- 0.0042
17	MAR1	100.968	100.670	15.9345	13.5580	-2.3766		1.1200		0.3490	100.819	8.6460	0.1015	0.8776	- 0.0300
18	MAR2	100.670	100.340	13.5580	11.3592	-2.1988		1.2140		0.2570	100.505	7.5047	0.1015	0.7617	0.0340
19	APR1	100.340	100.000	11.3592	9.4463	-1.9129		1.0000		0.1570	100.170	6.5804	0.1145	0.7535	- 0.0024
20	APR2	100.000	99.730	9.4463	7.6068	-1.8395		0.9570		0.2180	99.865	5.7806	0.1145	0.6619	- 0.0026
21	MAY1	99.730	99.330	7.6068	5.5360	-2.0708		0.9370		0.5020	99.530	4.9610	0.1270	0.6300	- 0.0018
22	MAY2	99.330	98.812	5.5360	3.3213	-2.2147		1.0000		0.7160	99.071	3.9266	0.1270	0.4987	0.0000
23	JUN1	98.812	98.350	3.3213	1.9778	-1.3435		0.8310		0.1930	98.581	2.7904	0.1145	0.3195	0.0000
24	JUN2	98.350	102.660	1.9778	36.6240	34.6462		0.8330			100.505	7.5047	0.1145	0.8593	36.338 5
				TOTAL		-125.1100	80.9950	23.232 0	0.0000	15.4590				45.2287	39.804 7

CENTRAL DESIGNS ORGANISATION

UNIT-F

BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm ³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2003 -2004

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	102.630	103.140	36.2160	44.1796	7.9636		0.9100			102.885	16.8029	0.1145	1.9239	10.7975
2	JUL2	103.140	103.830	44.1796	58.8501	14.6705		0.9600			103.485	19.3971	0.1145	2.2210	17.8515
3	AUG1	103.830	105.550	58.8501	102.6490	43.7989		1.0800			104.690	24.9504	0.1015	2.5325	47.4113
4	AUG2	105.550	105.900	102.6490	113.1410	10.4920		1.1700			105.725	30.1246	0.1015	3.0577	14.7197
5	SEP1	105.900	105.980	113.1410	115.5850	2.4440		1.1300			105.940	31.3519	0.1015	3.1822	6.7562
6	SEP2	105.980	106.100	115.5850	119.4392	3.8542		1.1000			106.040	31.9712	0.1015	3.2451	8.1993
7	OCT1	106.100	106.040	119.4392	117.4470	-1.9922		1.0300			106.070	32.1570	0.0890	2.8620	1.8998
8	OCT2	106.040	105.920	117.4470	113.7230	-3.7240		1.1300			105.980	31.5996	0.0890	2.8124	0.2184
9	NOV1	105.920	105.760	113.7230	109.0670	-4.6560		1.0500		1.2760	105.840	30.7630	0.0760	2.3380	0.0080
10	NOV2	105.760	105.120	109.0670	89.5595	-19.5075	15.6490	1.0400		0.4790	105.440	28.7119	0.0760	2.1821	-0.1574
11	DEC1	105.120	104.170	89.5595	66.3575	-23.2020	18.8020	1.1200		1.8200	104.645	24.7272	0.0635	1.5702	0.1102
12	DEC2	104.170	103.340	66.3575	47.9841	-18.3734	13.8380	1.2100		2.0610	103.755	20.5431	0.0635	1.3045	0.0401
13	JAN1	103.340	102.190	47.9841	30.4425	-17.5417	13.7630	1.1500		1.5540	102.765	16.2081	0.0635	1.0292	-0.0455
14	JAN2	102.190	101.560	30.4425	22.0850	-8.3575	5.1500	1.2100		1.2630	101.875	12.5378	0.0635	0.7961	0.0617
15	FEB1	101.560	100.830	22.0850	14.7704	-7.3146	5.0880	1.1400		0.4760	101.195	9.9620	0.0635	0.6326	0.0219
16	FEB2	100.830	100.610	14.7704	13.1033	-1.6670		1.0100		0.1130	100.720	8.2595	0.0635	0.5245	-0.0196
17	MAR1	100.610	100.340	13.1033	11.3592	-1.7441		1.0000		0.0020	100.475	7.4210	0.1015	0.7532	0.0111
18	MAR2	100.340	100.030	11.3592	9.6106	-1.7486		1.0200		0.0380	100.185	6.6208	0.1015	0.6720	-0.0185
19	APR1	100.030	99.760	9.6106	7.8162	-1.7944		1.0500		0.0800	99.895	5.8550	0.1145	0.6704	0.0060
20	APR2	99.760	99.400	7.8162	5.8815	-1.9347		1.1000		0.2970	99.580	5.0813	0.1145	0.5818	0.0442
21	MAY1	99.400	102.960	5.8815	41.0176	35.1361		1.0700			101.180	9.9099	0.1270	1.2586	37.4646
22	MAY2	102.960	102.720	41.0176	37.4400	-3.5776		1.0100		0.4170	102.840	16.5798	0.1270	2.1056	-

0.0450

23	JUN1	102.720	102.870	37.4400	39.6760	2.2360		0.7800			102.795	16.3568	0.1145	1.8728	4.8888
24	JUN2	102.870	102.810	39.6760	38.7816	-0.8944		0.7900			102.840	16.5798	0.1145	1.8984	1.7940
				TOTAL		2.5656	72.2900	25.2600	0.0000	9.8760				42.0267	152.0183

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2004 -2005

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	102.810	103.170	38.7181	44.8411	6.1230		1.0200			102.990	17.3234	0.1145	1.9835	9.1265
2	JUL2	103.170	103.080	44.8411	43.0974	-1.7437		0.9800			103.125	17.8713	0.1145	2.0463	1.2826
3	AUG1	103.080	104.450	43.0974	72.5185	29.4211		0.9400			103.765	20.5739	0.1015	2.0883	32.4494
4	AUG2	104.450	104.640	72.5185	76.8310	4.3125		0.9800			104.545	24.2310	0.1015	2.4594	7.7519
5	SEP1	104.640	104.570	76.8310	75.1488	-1.6822		1.0300			104.605	24.4947	0.1015	2.4862	1.8340
6	SEP2	104.570	104.700	75.1488	78.3760	3.2272		1.0700			104.635	24.6249	0.1015	2.4994	6.7966
7	OCT1	104.700	104.640	78.3760	76.8310	-1.5450		1.0800			104.670	24.7768	0.0890	2.2051	1.7401
8	OCT2	104.640	104.420	76.8310	71.8534	-4.9776		1.0700		1.7569	104.530	24.1650	0.0890	2.1507	0.0000
9	NOV1	104.420	104.240	71.8534	67.8790	-3.9744		1.1300		1.0840	104.330	23.1628	0.0760	1.7604	0.0000
10	NOV2	104.240	103.960	67.8790	61.8962	-5.9828	2.4220	1.1500		0.7331	104.100	22.0750	0.0760	1.6777	0.0000
11	DEC1	103.960	103.090	61.8962	43.2857	-18.6105	16.1360	1.1500		0.0746	103.525	19.5255	0.0635	1.2399	-0.0100
12	DEC2	103.090	101.920	43.2857	26.9932	-16.2925	13.8960	1.1900		0.2502	102.505	15.0606	0.0635	0.9563	0.0000
13	JAN1	101.920	101.740	26.9932	24.5808	-2.4124	0.1023	1.1600		0.3583	101.830	12.4693	0.0635	0.7918	0.0000
14	JAN2	101.740	101.550	24.5808	21.9465	-2.6343		1.1900		0.7069	101.645	11.6119	0.0635	0.7374	0.0000
15	FEB1	101.550	101.380	21.9465	19.9410	-2.0055		1.0500		0.2615	101.465	10.9292	0.0635	0.6940	0.0000
16	FEB2	101.380	101.190	19.9410	17.9475	-1.9935		1.0700		0.2696	101.285	10.2972	0.0635	0.6539	0.0000
17	MAR1	101.190	100.860	17.9475	14.9898	-2.9577		1.1300		0.8737	101.025	9.3988	0.1015	0.9540	0.0000
18	MAR2	100.860	100.580	14.9898	12.9016	-2.0882		1.1100		0.1353	100.720	8.3042	0.1015	0.8429	0.0000
19	APR1	100.580	100.310	12.9016	11.1692	-1.7324		0.8900		0.0051	100.445	7.3127	0.1145	0.8373	0.0000
20	APR2	100.310	100.000	11.1692	9.4520	-1.7172		0.9650			100.155	6.5697	0.1145	0.7522	0.0000
21	MAY1	100.000	99.670	9.4520	7.2443	-2.2077		1.1900		0.3030	99.835	5.7065	0.1270	0.7247	0.0100

22	MAY2	99.670	99.300	7.2443	5.3880	-1.8563		1.1800		0.0600	99.485	4.8528	0.1270	0.6163	0.0000
23	JUN1	99.300	98.900	5.3880	3.5370	-1.8510		1.1600		0.2328	99.100	4.0020	0.1145	0.4582	0.0000
24	JUN2	98.900	105.950	3.5370	114.6545	111.1175		1.1400			102.425	14.6748	0.1145	1.6803	113.9378
				TOTAL		75.9364	32.5563	26.0250	0.0000	7.1050				33.2961	174.9188

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2005 -2006

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	105.950	106.160	114.6545	121.5624	6.9079		0.9060			106.055	32.0437	0.1145	3.6690	11.4829
2	JUL2	106.160	106.040	121.5624	117.4992	-4.0632		1.0610			106.100	32.3060	0.1145	3.6990	0.6968
3	AUG1	106.040	106.680	117.4992	138.7966	21.2974		0.8360			106.360	33.5796	0.1015	3.4083	25.5417
4	AUG2	106.680	106.770	138.7966	141.6831	2.8865		1.0110			106.725	35.7820	0.1015	3.6319	7.5294
5	SEP1	106.770	107.070	141.6831	152.3215	10.6384		0.9240			106.920	36.9850	0.1015	3.7540	15.3164
6	SEP2	107.070	107.890	152.3215	187.7390	35.4175		0.8930	4.9210		107.480	39.8524	0.1015	4.0450	45.2765
7	OCT1	107.890	107.890	187.7390	187.7390	0.0000		0.9110	10.3130		107.890	42.1961	0.0890	3.7555	14.9795
8	OCT2	107.890	107.800	187.7390	184.1480	-3.5910		0.9730			107.845	41.9536	0.0890	3.7339	1.1159
9	NOV1	107.800	107.650	184.1480	177.4975	-6.6505	0.7500	0.9630		1.8003	107.725	41.2790	0.0760	3.1372	0.0000
10	NOV2	107.650	107.420	177.4975	167.4124	-10.0851	4.7111	0.9210		1.3994	107.535	40.1786	0.0760	3.0536	0.0000
11	DEC1	107.420	106.860	167.4124	144.6126	-22.7998	17.0735	0.9780		2.3255	107.140	38.1544	0.0635	2.4228	0.0000
12	DEC2	106.860	106.250	144.6126	124.7465	-19.8661	14.7528	0.9060		2.0020	106.555	34.7285	0.0635	2.2053	0.0000
13	JAN1	106.250	105.710	124.7465	107.5425	-17.2040	12.6101	0.9620		1.6254	105.980	31.5992	0.0635	2.0065	0.0000
14	JAN2	105.710	105.100	107.5425	89.1640	-18.3785	15.4609	0.9250		0.1802	105.405	28.5413	0.0635	1.8124	0.0000
15	FEB1	105.100	104.230	89.1640	67.6600	-21.5040	17.7480	0.8930		1.2911	104.665	24.7551	0.0635	1.5719	0.0000
16	FEB2	104.230	103.500	67.6600	51.2020	-16.4580	13.1570	0.9160		1.0482	103.865	21.0524	0.0635	1.3368	0.0000
17	MAR1	103.500	103.120	51.2020	43.8646	-7.3374	3.7813	0.9730		0.6886	103.310	18.6649	0.1015	1.8945	0.0000
18	MAR2	103.120	102.960	43.8646	40.9678	-2.8968		0.9290		0.1884	103.040	17.5314	0.1015	1.7794	0.0000

19	APR1	102.960	102.780	40.9678	38.2894	-2.6784		0.7630			102.870	16.7285	0.1145	1.9154	0.0000
20	APR2	102.780	102.590	38.2894	35.7535	-2.5359		0.7200		0.0023	102.685	15.8395	0.1145	1.8136	0.0000
21	MAY1	102.590	102.380	35.7535	32.8442	-2.9093		0.9520		0.0568	102.485	14.9646	0.1270	1.9005	0.0000
22	MAY2	102.380	101.850	32.8442	26.0825	-6.7617	3.0146	0.9340		1.1101	102.115	13.4092	0.1270	1.7030	0.0000
23	JUN1	101.850	101.280	26.0825	18.9262	-7.1563	14.2648	0.9610			101.565	11.3008	0.1145	1.2939	9.3634
24	JUN2	101.280	101.130	18.9262	17.3265	-1.5997	3.4069	0.9780			101.205	9.9996	0.1145	1.1450	3.9302
				TOTAL		-97.3280	120.7310	22.1890	15.2340	13.7183				60.6884	135.2327

CENTRAL DESIGNS ORGANISATION

**UNIT-F
BHADAR IRRIGATION PROJECT**

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2006 -2007

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	101.130	104.730	17.3265	79.1506	61.8241		0.6513			102.930	17.0258	0.1145	1.9495	64.4249
2	JUL2	104.730	107.590	79.1506	174.8435	95.6929		0.6812	165.4360		106.160	32.6036	0.1145	3.7331	265.5432
3	AUG1	107.590	107.590	174.8435	174.8435	0.0000		0.7510	189.3760		107.590	40.5157	0.1015	4.1123	194.2393
4	AUG2	107.590	107.850	174.8435	186.1430	11.2995		0.7315	78.8600		107.720	41.2502	0.1015	4.1869	95.0779
5	SEP1	107.850	107.890	186.1430	187.7390	1.5960		0.7418	13.4320		107.870	42.0883	0.1015	4.2720	20.0418
6	SEP2	107.890	107.890	187.7390	187.7390	0.0000		0.7510	31.1570		107.890	42.1961	0.1015	4.2829	36.1909
7	OCT1	107.890	107.890	187.7390	187.7390	0.0000		0.7713			107.890	42.1961	0.0890	3.7555	4.5268
8	OCT2	107.890	107.750	187.7390	181.9310	-5.8080		0.7610		1.7217	107.820	41.8188	0.0890	3.7219	0.3966
9	NOV1	107.750	107.510	181.9310	171.3435	-10.5875	4.4314	0.6918		2.3677	107.630	40.7444	0.0760	3.0966	0.0000
10	NOV2	107.510	107.000	171.3435	149.3640	-21.9795	16.4161	0.7178		1.9046	107.255	38.6973	0.0760	2.9410	0.0000
11	DEC1	107.000	106.410	149.3640	129.9985	-19.3655	14.0831	0.8033		2.2148	106.705	35.6580	0.0635	2.2643	0.0000
12	DEC2	106.410	105.790	129.9985	110.0025	-19.9960	15.3874	0.7612		1.7960	106.100	32.3060	0.0635	2.0514	0.0000
13	JAN1	105.790	105.200	110.0025	91.9790	-18.0235	13.5981	0.7813		1.8006	105.495	29.0318	0.0635	1.8435	0.0000
14	JAN2	105.200	104.460	91.9790	72.7402	-19.2388	15.1894	0.7418		1.6803	104.830	25.6269	0.0635	1.6273	0.0000
15	FEB1	104.460	103.770	72.7402	57.5300	-15.2102	11.1801	0.6810		1.9429	104.115	22.1448	0.0635	1.4062	0.0000

16	FEB2	103.770	103.660	57.5300	54.9284	-2.6016	0.3053	0.7030		0.3010	103.715	20.3509	0.0635	1.2923	0.0000
17	MAR1	103.660	103.540	54.9284	52.1228	-2.8056		0.7238		0.0669	103.600	19.8510	0.1015	2.0149	0.0000
18	MAR2	103.540	103.410	52.1228	49.3615	-2.7613		0.7468		0.0534	103.475	19.3210	0.1015	1.9611	0.0000
19	APR1	103.410	103.250	49.3615	46.3055	-3.0560		0.7612		0.1483	103.330	18.7467	0.1145	2.1465	0.0000
20	APR2	103.250	103.080	46.3055	43.0974	-3.2081		0.7510		0.3921	103.165	18.0349	0.1145	2.0650	0.0000
21	MAY1	103.080	102.900	43.0974	40.0330	-3.0644		0.7368		0.1275	102.990	17.3234	0.1270	2.2001	0.0000
22	MAY2	102.900	102.220	40.0330	30.8218	-9.2112	6.0092	0.7518		0.5046	102.560	15.3196	0.1270	1.9456	0.0000
23	JUN1	102.220	100.340	30.8218	11.3588	-19.4630	17.2182	0.7313		0.3366	101.280	10.2786	0.1145	1.1769	0.0000
24	JUN2	100.340	100.190	11.3588	10.4257	-0.9331	3.1226	0.7618			100.265	6.8402	0.1145	0.7832	3.7345
				TOTAL		-6.9008	116.9409	17.6858	478.2610	17.3590				60.8298	684.1757

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2007 -2008

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	100.190	106.340	10.4257	127.7746	117.3489		0.8900		0.0704	103.265	18.4679	0.1145	2.1146	120.4239
2	JUL2	106.340	106.310	127.7746	126.8299	-0.9447		0.8100		0.1358	106.325	33.4148	0.1145	3.8260	3.8271
3	AUG1	106.310	107.750	126.8299	181.9310	55.1011		0.9100		0.1433	107.030	37.6095	0.1015	3.8174	59.9718
4	AUG2	107.750	107.900	181.9310	188.1376	6.2066		0.7300	362.7400	0.1701	107.825	41.8457	0.1015	4.2473	374.0940
5	SEP1	107.900	107.900	188.1376	188.1340	-0.0036		0.8900	110.0270	0.1610	107.900	42.2497	0.1015	4.2883	115.3628
6	SEP2	107.900	107.900	188.1340	188.1340	0.0000		0.8100	125.9900	0.1610	107.900	42.2495	0.1015	4.2883	131.2493
7	OCT1	107.900	107.900	188.1340	188.1340	0.0000		0.8600	84.3880	0.1610	107.900	42.2495	0.0890	3.7602	89.1692
8	OCT2	107.900	107.870	188.1340	186.9410	-1.1930		0.9000	9.7790	0.1714	107.885	42.1689	0.0890	3.7530	13.4104
9	NOV1	107.870	107.750	186.9410	181.9310	-5.0100		0.9300	0.6760	0.2299	107.810	41.7649	0.0760	3.1741	0.0000
10	NOV2	107.750	107.610	181.9310	175.7243	-6.2067	2.1230	0.9100		0.0559	107.680	41.0234	0.0760	3.1178	0.0000
11	DEC1	107.610	107.200	175.7243	158.0670	-17.6573	11.9870	0.9200		2.2462	107.405	39.4339	0.0635	2.5041	0.0000
12	DEC2	107.200	106.690	158.0670	139.1013	-18.9657	12.9330	0.9800		2.6947	106.945	37.1338	0.0635	2.3580	0.0000
13	JAN1	106.690	106.170	139.1013	121.9163	-17.1850	12.2880	0.9300		1.8109	106.430	33.9540	0.0635	2.1561	0.0000
14	JAN2	106.170	105.560	121.9163	102.9552	-18.9611	14.0390	1.0300		1.9294	105.865	30.9087	0.0635	1.9627	0.0000
15	FEB1	105.560	104.950	102.9552	84.8805	-18.0747	13.2990	0.9400		2.0707	105.255	27.7953	0.0635	1.7650	0.0000
16	FEB2	104.950	104.220	84.8805	67.4410	-17.4395	13.1630	0.8400		1.8867	104.585	24.4070	0.0635	1.5498	0.0000
17	MAR1	104.220	103.840	67.4410	59.2184	-8.2226	4.3610	0.9200		0.7322	104.030	21.7670	0.1015	2.2094	0.0000
18	MAR2	103.840	103.660	59.2184	54.9284	-4.2900		0.8000		1.4085	103.750	20.5070	0.1015	2.0815	0.0000
19	APR1	103.660	103.510	54.9284	51.4322	-3.4962		0.9600		0.2707	103.585	19.7859	0.1145	2.2655	0.0000
20	APR2	103.510	103.330	51.4322	47.7759	-3.6563		0.9000		0.5682	103.420	19.1098	0.1145	2.1881	0.0000
21	MAY1	103.330	103.110	47.7759	43.6693	-4.1066		0.9500		0.8367	103.220	18.2672	0.1270	2.3199	0.0000
22	MAY2	103.110	102.400	43.6693	33.0970	-10.5723	6.0230	1.0000		1.4964	102.755	16.1642	0.1270	2.0529	0.0000

23	JUN1	102.400	101.130	33.0970	17.3265	-15.7705	13.4171	0.9200		0.0462	101.765	12.1158	0.1145	1.3873	0.0001
24	JUN2	101.130	100.980	17.3265	15.9302	-1.3963		0.9500		0.0362	101.055	9.5053	0.1145	1.0884	0.6783
				TOTAL		5.5045	103.6331	21.6800	693.6000	19.4935				64.2755	908.1866

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2008 -2009

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	100.980	103.970	15.9302	62.0974	46.1672		1.0585		0.0568	102.475	14.9163	0.1145	1.7079	48.9904
2	JUL2	103.970	105.520	62.0974	101.7324	39.6350		1.1182		0.1022	104.745	25.1577	0.1145	2.8806	43.7360
3	AUG1	105.520	105.610	101.7324	104.4837	2.7513		0.8298		0.1118	105.565	29.3489	0.1015	2.9789	6.6718
4	AUG2	105.610	105.610	104.4837	104.4837	0.0000		0.6967		0.1201	105.610	29.5546	0.1015	2.9998	3.8166
5	SEP1	105.610	106.710	104.4837	139.7313	35.2476		0.8492		0.1242	106.160	32.6036	0.1015	3.3093	39.5303
6	SEP2	106.710	107.900	139.7313	188.1380	48.4067		1.0001	175.5570	0.1483	107.305	38.9234	0.1015	3.9507	229.0628
7	OCT1	107.900	107.900	188.1380	188.1380	0.0000		1.0424	36.9350	0.1610	107.900	42.2500	0.0890	3.7602	41.8986
8	OCT2	107.900	107.810	188.1380	184.5470	-3.5910		1.1417	2.0030	0.1707	107.855	42.0074	0.0890	3.7387	3.4631
9	NOV1	107.810	107.650	184.5470	177.4975	-7.0495		1.0388		2.8713	107.730	41.3078	0.0760	3.1394	0.0000
10	NOV2	107.650	107.240	177.4975	159.7086	-17.7889	12.0527	1.0582		1.6641	107.445	39.6571	0.0760	3.0139	0.0000
11	DEC1	107.240	106.760	159.7086	141.3578	-18.3508	13.2820	1.0607		1.6293	107.000	37.4610	0.0635	2.3788	0.0000
12	DEC2	106.760	106.180	141.3578	122.2702	-19.0876	14.3908	1.1471		1.4489	106.470	34.2020	0.0635	2.1718	0.0710
13	JAN1	106.180	105.610	122.2702	104.4837	-17.7865	13.4149	1.0531		1.3452	105.895	31.0761	0.0635	1.9733	0.0000
14	JAN2	105.610	104.990	104.4837	85.9369	-18.5468	14.4138	1.1533		1.2006	105.300	28.0180	0.0635	1.7791	0.0000
15	FEB1	104.990	104.320	85.9369	69.6364	-16.3005	12.7596	1.0241		0.9476	104.655	24.7117	0.0635	1.5692	0.0000
16	FEB2	104.320	104.040	69.6364	63.5614	-6.0750	3.0900	0.9293		0.6303	104.180	22.4470	0.0635	1.4254	0.0000
17	MAR1	104.040	103.880	63.5614	60.1988	-3.3626		1.0649		0.1184	103.960	21.4714	0.1015	2.1793	0.0000
18	MAR2	103.880	103.690	60.1988	55.6406	-4.5582		1.1563		1.3046	103.785	20.6631	0.1015	2.0973	0.0000
19	APR1	103.690	103.510	55.6406	51.4322	-4.2084		1.0746		0.8609	103.600	19.8510	0.1145	2.2729	0.0000
20	APR2	103.510	103.330	51.4322	47.7759	-3.6563		1.0885		0.3797	103.420	19.1098	0.1145	2.1881	0.0000

21	MAY1	103.330	103.140	47.7759	44.2552	-3.5207		1.0772		0.1151	103.235	18.3341	0.1270	2.3284	0.0000
22	MAY2	103.140	102.690	44.2552	37.0325	-7.2227	3.2689	1.1581		0.6429	102.915	16.9514	0.1270	2.1528	0.0000
23	JUN1	102.690	101.020	37.0325	16.2728	-20.7597	17.8153	1.0801		0.4174	101.855	12.6370	0.1145	1.4469	0.0000
24	JUN2	101.020	100.280	16.2728	10.9790	-5.2938	3.6535	0.9463		0.0305	100.650	8.0175	0.1145	0.9180	0.2545
				TOTAL		-4.9512	108.1415	24.847	214.495	16.6019				58.3609	417.49
								2	0					53	

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2009 -2010

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	100.280	101.710	10.9790	24.1647	13.1857		0.7500		0.2660	100.995	9.2925	0.1145	1.0640	15.2657
2	JUL2	101.710	103.420	24.1647	49.5660	25.4013		0.7500		0.4392	102.565	15.3432	0.1145	1.7568	28.3473
3	AUG1	103.420	103.330	49.5660	47.7759	-1.7901		1.1000		0.4804	103.375	18.9308	0.1015	1.9215	1.7118
4	AUG2	103.330	105.000	47.7759	86.2010	38.4251		1.0300		0.5678	104.165	22.3773	0.1015	2.2713	42.2942
5	SEP1	105.000	105.150	86.2010	90.5715	4.3705		1.0200		0.6833	105.075	26.9293	0.1015	2.7333	8.8071
6	SEP2	105.150	104.970	90.5715	85.4087	-5.1628		1.0100		1.4275	105.060	26.8502	0.1015	2.7253	0.0000
7	OCT1	104.970	104.820	85.4087	81.4784	-3.9303		1.1200		0.4981	104.895	25.9799	0.0890	2.3122	0.0000
8	OCT2	104.820	104.330	81.4784	69.8581	-11.6203	6.5325	1.0900		1.8295	104.575	24.3630	0.0890	2.1683	0.0000
9	NOV1	104.330	103.340	69.8581	47.9732	-21.8849	17.4642	1.0700		1.7620	103.835	20.9036	0.0760	1.5887	0.0000
10	NOV2	103.340	103.020	47.9732	41.9676	-6.0056	2.4239	1.0500		1.1564	103.180	18.0962	0.0760	1.3753	0.0000
11	DEC1	103.020	102.810	41.9676	38.7181	-3.2495		1.1300		1.0431	102.915	16.9514	0.0635	1.0764	0.0000
12	DEC2	102.810	102.560	38.7181	35.3320	-3.3861		1.0700		1.3103	102.685	15.8395	0.0635	1.0058	0.0000
13	JAN1	102.560	102.350	35.3320	32.4650	-2.8670		1.1200		0.8060	102.455	14.8197	0.0635	0.9410	0.0000
14	JAN2	102.350	102.140	32.4650	29.8064	-2.6586		1.1000		0.6723	102.245	13.9571	0.0635	0.8863	0.0000
15	FEB1	102.140	101.900	29.8064	26.7520	-3.0544		1.0100		1.2158	102.020	13.0482	0.0635	0.8286	0.0000
16	FEB2	101.900	101.710	26.7520	24.1647	-2.5873		1.0200		0.7862	101.805	12.3016	0.0635	0.7811	0.0000
17	MAR1	101.710	101.500	24.1647	21.2530	-2.9117		1.0000		0.7494	101.605	11.4511	0.1015	1.1623	0.0000
18	MAR2	101.500	101.190	21.2530	17.9475	-3.3055		1.1200		1.1194	101.345	10.5038	0.1015	1.0661	0.0000
19	APR1	101.190	100.830	17.9475	14.7549	-3.1926		1.0800		1.0425	101.010	9.3455	0.1145	1.0701	0.0000

20	APR2	100.830	100.370	14.7549	11.5484	-3.2065		1.0900		1.2233	100.600	7.8010	0.1145	0.8932	0.0000
21	MAY1	100.370	99.910	11.5484	8.8589	-2.6895		1.1100		0.7498	100.140	6.5332	0.1270	0.8297	0.0000
22	MAY2	99.910	99.420	8.8589	5.9830	-2.8759		1.1300		1.0736	99.665	5.2940	0.1270	0.6723	0.0000
23	JUN1	99.420	99.420	5.9830	5.9830	0.0000		1.1000		0.1120	99.420	4.7000	0.1145	0.5382	1.7502
24	JUN2	99.420	99.420	5.9830	5.9830	0.0000		1.0600		0.1345	99.420	4.7000	0.1145	0.5382	1.7327
				TOTAL		-4.9960	26.4206	25.1300	0.0000	21.1484				32.2059	99.9089

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2010 -2011

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	99.420	100.740	5.9830	14.0976	8.1146		1.1070		0.2533	100.080	6.3756	0.1145	0.7300	10.2049
2	JUL2	100.740	105.250	14.0976	93.4710	79.3734		1.1600		0.5959	102.995	17.3482	0.1145	1.9864	83.1157
3	AUG1	105.250	106.790	93.4710	142.3337	48.8627		1.1300		0.9695	106.020	31.8396	0.1015	3.2317	54.1939
4	AUG2	106.790	107.900	142.3337	188.1380	45.8043		1.1580	76.5730	1.1914	107.345	39.1266	0.1015	3.9713	128.6980
5	SEP1	107.900	107.900	188.1380	188.1380	0.0000		1.0900	178.5590	1.2838	107.900	42.2500	0.1015	4.2884	185.2212
6	SEP2	107.900	107.900	188.1380	188.1380	0.0000		1.1100	56.7120	1.2838	107.900	42.2500	0.1015	4.2884	63.3942
7	OCT1	107.900	107.900	188.1380	188.1380	0.0000		1.1300	3.4340	1.1257	107.900	42.2500	0.0890	3.7603	9.4500
8	OCT2	107.900	107.770	188.1380	182.8178	-5.3202		1.1600		1.1179	107.835	41.8997	0.0890	3.7291	0.6868
9	NOV1	107.770	107.650	182.8178	177.4975	-5.3203		1.0800		1.1097	107.710	41.1926	0.0760	3.1306	0.0000
10	NOV2	107.650	107.530	177.4975	172.2185	-5.2790		1.1200		1.0798	107.590	40.5157	0.0760	3.0792	0.0000
11	DEC1	107.530	107.280	172.2185	161.3502	-10.8683	5.8840	1.1500		1.3302	107.405	39.4339	0.0635	2.5041	0.0000
12	DEC2	107.280	106.850	161.3502	144.2870	-17.0632	12.4722	1.1600		1.0318	107.065	37.7828	0.0635	2.3992	0.0000
13	JAN1	106.850	106.380	144.2870	129.0342	-15.2528	10.8820	1.1400		1.0020	106.615	35.1000	0.0635	2.2289	0.0000
14	JAN2	106.380	105.920	129.0342	113.7236	-15.3106	11.3842	1.1500		0.7092	106.150	32.5540	0.0635	2.0672	0.0000
15	FEB1	105.920	105.450	113.7236	99.5840	-14.1396	10.6770	1.0400		0.5223	105.685	29.9266	0.0635	1.9003	0.0000
16	FEB2	105.450	104.980	99.5840	85.6728	-13.9112	10.7710	1.0300		0.3578	105.215	27.5973	0.0635	1.7524	0.0000

17	MAR1	104.980	104.510	85.6728	73.8444	-11.8284	7.4740	1.1300		0.6709	104.745	25.1577	0.1015	2.5535	0.0000
18	MAR2	104.510	104.320	73.8444	69.6364	-4.2080		1.1500		0.6668	104.415	23.5587	0.1015	2.3912	0.0000
19	APR1	104.320	104.120	69.6364	65.2822	-4.3542		1.1100		0.6522	104.220	22.6378	0.1145	2.5920	0.0000
20	APR2	104.120	103.920	65.2822	61.0914	-4.1908		1.1200		0.5835	104.020	21.7230	0.1145	2.4873	0.0000
21	MAY1	103.920	103.730	61.0914	56.5860	-4.5054		1.1600		0.6969	103.825	20.8540	0.1270	2.6485	0.0000
22	MAY2	103.730	103.250	56.5860	46.3055	-10.2805	5.8940	1.1700		0.7554	103.490	19.3786	0.1270	2.4611	0.0000
23	JUN1	103.250	102.380	46.3055	32.8442	-13.4613	10.0000	1.0900		0.4871	102.815	16.4563	0.1145	1.8842	0.0000
24	JUN2	102.380	102.020	32.8442	28.2260	-4.6182	1.9212	1.1200			102.200	13.7730	0.1145	1.5770	0.0000
				TOTAL		22.2430	87.3596	26.9650	315.2780	19.4769				63.6422	534.9647

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2011 -2012

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	101.970	102.930	27.5962	40.5004	12.9042		0.9500		0.5082	102.450	14.7955	0.1145	1.6941	16.0565
2	JUL2	102.930	106.770	40.5004	141.6831	101.1827		0.9500		0.8840	104.850	25.7355	0.1145	2.9467	105.9634
3	AUG1	106.770	107.750	141.6831	181.9310	40.2479		0.8400	26.0770	0.9800	107.260	38.7196	0.1015	3.9300	72.0749
4	AUG2	107.750	107.900	181.9310	188.1380	6.2070		0.8600	66.4920	1.0000	107.825	41.8458	0.1015	4.2473	78.8063
5	SEP1	107.900	107.900	188.1380	188.1380	0.0000		0.9100	114.2630	1.1000	107.900	42.2500	0.1015	4.2884	120.5614
6	SEP2	107.900	107.900	188.1380	188.1380	0.0000		0.8700	39.0980	1.1500	107.900	42.2500	0.1015	4.2884	45.4064
7	OCT1	107.900	107.800	188.1380	184.1480	-3.9900		0.8600	4.3740	1.1197	107.850	41.9805	0.0890	3.7363	6.1000
8	OCT2	107.800	107.670	184.1480	178.3841	-5.7639		0.9600		1.1249	107.735	41.3366	0.0890	3.6790	0.0000
9	NOV1	107.670	107.550	178.3841	173.0935	-5.2906		1.0000		1.2025	107.610	40.6328	0.0760	3.0881	0.0000
10	NOV2	107.550	107.220	173.0935	158.8878	-14.2057	8.9720	0.9100		1.3346	107.385	39.3298	0.0760	2.9891	0.0000
11	DEC1	107.220	106.830	158.8878	143.6358	-15.2520	10.9800	0.8300		1.0554	107.025	37.5848	0.0635	2.3866	0.0000
12	DEC2	106.830	106.270	143.6358	125.4539	-18.1819	13.8040	0.8900		1.2846	106.550	34.6975	0.0635	2.2033	0.0000
13	JAN1	106.270	105.820	125.4539	110.8686	-14.5853	10.6300	0.9100		1.0142	106.045	31.9853	0.0635	2.0311	0.0000

14	JAN2	105.820	105.340	110.8686	96.1966	-14.6720	10.8000	1.0200		0.9841	105.580	29.4158	0.0635	1.8679	0.0000
15	FEB1	105.340	104.840	96.1966	81.9988	-14.1978	10.6420	0.9600		0.8808	105.090	27.0083	0.0635	1.7150	0.0000
16	FEB2	104.840	104.330	81.9988	69.8581	-12.1407	8.9490	0.8500		0.7919	104.585	24.4070	0.0635	1.5498	0.0000
17	MAR1	104.330	104.120	69.8581	65.2822	-4.5759	0.7900	0.9500		0.5357	104.225	22.6623	0.1015	2.3002	0.0000
18	MAR2	104.120	103.940	65.2822	61.4938	-3.7884		1.0000		0.5790	104.030	21.7670	0.1015	2.2094	0.0000
19	APR1	103.940	103.760	61.4938	57.2940	-4.1998		0.9500		0.8478	103.850	20.9780	0.1145	2.4020	0.0000
20	APR2	103.760	103.600	57.2940	53.5040	-3.7900		0.9500		0.5274	103.680	20.1974	0.1145	2.3126	0.0000
21	MAY1	103.600	103.300	53.5040	47.1840	-6.3200	2.2000	0.9400		0.7384	103.450	19.2250	0.1270	2.4416	0.0000
22	MAY2	103.300	101.750	47.1840	24.7195	-22.4645	18.8730	1.0200		0.6468	102.525	15.1548	0.1270	1.9247	0.0000
23	JUN1	101.750	100.250	24.7195	10.7885	-13.9310	11.4380	0.9500		0.4770	101.000	9.3100	0.1145	1.0660	0.0000
24	JUN2	100.250	99.880	10.7885	8.6516	-2.1369		0.9500		0.4621	100.065	6.3303	0.1145	0.7248	0.0000
				TOTAL		-18.9446	108.0780	22.2800	250.3040	21.2291				62.0223	444.9688

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2012 -2013

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	99.880	99.600	8.6516	6.8880	-1.7636		0.9086		0.1867	99.740	5.4712	0.1145	0.6265	-0.0418
2	JUL2	99.600	99.300	6.8880	5.3880	-1.5000		0.9344		0.1639	99.450	4.7705	0.1145	0.5462	0.1445
3	AUG1	99.300	98.990	5.3880	3.9276	-1.4604		0.8900		0.1529	99.145	4.1136	0.1015	0.4175	0.0000
4	AUG2	98.990	98.690	3.9276	2.8406	-1.0870		0.7200		0.0237	98.840	3.3822	0.1015	0.3433	0.0000
5	SEP1	98.690	99.640	2.8406	7.0916	4.2510		0.7300		0.1268	99.165	4.1632	0.1015	0.4226	5.5304
6	SEP2	99.640	99.940	7.0916	9.0566	1.9650		0.7100		0.1704	99.790	5.5952	0.1015	0.5679	3.4133
7	OCT1	99.940	99.730	9.0566	7.6037	-1.4529		0.9233		0.1524	99.835	5.7065	0.0890	0.5079	0.1307
8	OCT2	99.730	99.420	7.6037	5.9830	-1.6207		0.7280		0.4402	99.575	5.0838	0.0890	0.4525	0.0000
9	NOV1	99.420	99.090	5.9830	4.3463	-1.6367		0.7800		0.5257	99.255	4.3556	0.0760	0.3310	0.0000
10	NOV2	99.090	98.720	4.3463	2.9294	-1.4169		0.7520		0.3956	98.905	3.5434	0.0760	0.2693	0.0000
11	DEC1	98.720	98.110	2.9294	1.3566	-1.5728		0.4607		0.9622	98.415	2.3607	0.0635	0.1499	0.0000
12	DEC2	98.110	97.750	1.3566	0.5610	-0.7956		0.2810		0.4214	97.930	1.4678	0.0635	0.0932	0.0000
13	JAN1	97.750	97.100	0.5610	0.0000	-0.5610		0.1300		0.3965	97.425	0.5488	0.0635	0.0348	0.0003
14	JAN2	97.100	97.100	0.0000	0.0000	0.0000					97.100	0.0000	0.0635	0.0000	0.0000

15	FEB1	97.100	97.100	0.0000	0.0000	0.0000					97.100	0.0000	0.0635	0.0000	0.0000
16	FEB2	97.100	97.100	0.0000	0.0000	0.0000					97.100	0.0000	0.0635	0.0000	0.0000
17	MAR1	97.100	97.100	0.0000	0.0000	0.0000					97.100	0.0000	0.1015	0.0000	0.0000
18	MAR2	97.100	97.100	0.0000	0.0000	0.0000					97.100	0.0000	0.1015	0.0000	0.0000
19	APR1	97.100	97.100	0.0000	0.0000	0.0000					97.100	0.0000	0.1145	0.0000	0.0000
20	APR2	97.100	97.100	0.0000	0.0000	0.0000					97.100	0.0000	0.1145	0.0000	0.0000
21	MAY1	97.100	97.100	0.0000	0.0000	0.0000					97.100	0.0000	0.1270	0.0000	0.0000
22	MAY2	97.100	97.100	0.0000	0.0000	0.0000					97.100	0.0000	0.1270	0.0000	0.0000
23	JUN1	97.100	97.540	0.0000	0.2260	0.2260				0.0104	97.320	0.3715	0.1145	0.0425	0.2789
24	JUN2	97.540	102.140	0.2260	29.8064	29.5804		0.0800		0.1964	99.840	5.7188	0.1145	0.6548	30.5116
					TOTAL	21.1548	0.0000	9.0280	0.0000	4.3252				5.4599	39.9679

CENTRAL DESIGNS ORGANISATION
UNIT-F
BHADAR IRRIGATION PROJECT

ESTIMATION OF RUNOFF

	R.L.(m)	Capacity (Mm³)
F.R.L.	107.9000	188.1380
O.S.L.	97.5400	0.2260

YEAR:- 2013 -2014

Sr. No.	Month & Fort-night	Reservoir Level Beginning (m)	Reservoir Level End (m)	Capacity at Beginning (Mm ³)	Capacity at End (Mm ³)	Difference of Capacity (Mm ³)	Canal Releases (Mm ³)	Water Supply (Mm ³)	Flow Over the Waste Weir (Mm ³)	Other Losses (Mm ³)	Average RL (m)	Area at Average RL (Mm ²)	Evaporation Depth	Evaporation Losses (Mm ³)	Runoff (Mm ³)
1	JUL1	102.140	102.230	29.8064	30.9482	1.1418		0.3040		0.1867	102.185	13.7088	0.1145	1.5697	3.2022
2	JUL2	102.230	103.160	30.9482	44.6458	13.6976		0.0630		0.1639	102.695	15.8785	0.1145	1.8181	15.7426
3	AUG1	103.160	104.800	44.6458	80.9580	36.3122		0.0580		0.1529	103.980	21.5532	0.1015	2.1876	38.7107
4	AUG2	104.800	105.030	80.9580	87.0899	6.1319		0.3830		0.0237	104.915	26.0860	0.1015	2.6477	9.1863
5	SEP1	105.030	104.940	87.0899	84.6164	-2.4735		0.7180		0.1268	104.985	26.4550	0.1015	2.6852	1.0565
6	SEP2	104.940	107.900	84.6164	188.1380	103.5216		0.6620	170.4710	0.1704	106.420	33.8920	0.1015	3.4400	278.2650
7	OCT1	107.900	107.900	188.1380	188.1380	0.0000		1.0000	71.8940	0.1524	107.900	42.2500	0.0890	3.7603	76.8067
8	OCT2	107.900	107.870	188.1380	186.9410	-1.1970		1.2850	8.7720	0.4402	107.885	42.1692	0.0890	3.7531	13.0533
9	NOV1	107.870	107.780	186.9410	183.2612	-3.6798		1.0680		0.5257	107.825	41.8458	0.0760	3.1803	1.0942
10	NOV2	107.780	107.610	183.2612	175.7243	-7.5369	0.7740	1.0950		2.5438	107.695	41.1071	0.0760	3.1241	0.0000
11	DEC1	107.610	107.290	175.7243	161.7606	-13.9637	8.8460	1.0820		1.5157	107.450	39.6850	0.0635	2.5200	0.0000

12	DEC2	107.290	107.020	161.7606	150.2090	-11.5516	5.8320	1.1200		2.1721	107.155	38.2288	0.0635	2.4275	0.0000
13	JAN1	107.020	106.660	150.2090	138.1872	-12.0218	6.5880	1.0700		2.0464	106.840	36.4946	0.0635	2.3174	0.0000
14	JAN2	106.660	106.300	138.1872	126.5150	-11.6722	7.2560	1.1720		1.0684	106.480	34.2640	0.0635	2.1758	0.0000
15	FEB1	106.300	105.970	126.5150	115.2751	-11.2399	6.3620	1.0870		1.7284	106.135	32.4796	0.0635	2.0625	0.0000
16	FEB2	105.970	105.640	115.2751	105.4008	-9.8743	6.2540	0.9410		0.7379	105.805	30.5739	0.0635	1.9414	0.0000
17	MAR1	105.640	105.460	105.4008	99.8914	-5.5094	0.6790	1.0830		0.7753	105.550	29.2820	0.1015	2.9721	0.0000
18	MAR2	105.460	105.280	99.8914	94.3662	-5.5252		1.1680		1.4781	105.370	28.3652	0.1015	2.8791	0.0000
19	APR1	105.280	105.130	94.3662	90.0085	-4.3577		1.1130		0.0905	105.205	27.5478	0.1145	3.1542	0.0000
20	APR2	105.130	104.940	90.0085	84.6164	-5.3921		1.1310		1.2018	105.035	26.7185	0.1145	3.0593	0.0000
21	MAY1	104.940	104.770	84.6164	80.1834	-4.4330		1.1440		0.0171	104.855	25.7626	0.1270	3.2719	0.0000
22	MAY2	104.770	103.940	80.1834	61.4938	-18.6896	14.4610	1.2200		0.0528	104.355	23.2743	0.1270	2.9558	0.0000
23	JUN1	103.940	103.020	61.4938	41.9676	-19.5262	15.3390	1.1140		0.8587	103.480	19.3402	0.1145	2.2145	0.0000
24	JUN2	103.020	102.810	41.9676	38.7181	-3.2495		1.1630		0.1456	102.915	16.9514	0.1145	1.9409	0.0000
				TOTAL		8.9117	72.3910	22.244	251.137	18.3753				64.0584	437.11
								0	0						74

Observed Water level(m)

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY
1990		99.03	99.09	102.81	103.48	103.39	102.66	101.80	100.67	100.09	99.67	99.15
1991	98.57	98.84	105.43	105.43	104.64	103.60	103.33	102.23	101.04	100.43	99.97	99.42
1992	98.82	98.36	104.48	105.70	107.32	107.38	106.69	105.67	104.28	102.47	102.17	101.83
1993	101.22	102.11	103.97	103.60	103.87	103.84	103.45	102.20	101.80	101.40	100.96	100.40
1994	99.74	101.25	107.68	107.90	107.90	107.78	106.76	105.71	104.40	102.39	101.74	101.35
1995	100.70	99.55	101.43	101.74	101.68	101.32	101.01	100.73	100.46	100.12	99.63	99.06
1996	98.36	106.34	107.86	107.77	106.87	106.32	105.45	103.91	101.86	101.17	100.71	100.13
1997	99.36	101.46	102.10	103.39	104.57	104.48	103.26	101.99	101.60	101.25	100.82	100.31
1998	99.57	102.41	102.93	103.32	103.36	103.41	103.12	101.62	101.22	100.80	100.19	99.49
1999	98.69											
2000	98.00	98.57	98.05	98.94	100.34	99.85	99.40	98.97	98.42	97.10	97.10	97.10
2001	97.10	98.76	99.39	98.88	98.72	98.42	98.08	97.75	97.45	97.10	97.10	97.10
2002	96.00	101.10	101.77	101.41	100.92	100.37	99.76	99.30	98.90	98.44	97.90	96.50
2003	107.29	107.01	106.77	106.53	106.22	105.05	103.33	101.47	100.97	100.34	99.73	98.81
2004	102.63	103.83	105.90	106.10	105.92	105.12	103.34	101.56	100.61	100.03	99.40	102.72
2005	102.81	103.08	104.64	104.70	104.42	103.96	101.92	101.55	101.19	100.58	100.00	99.30
2006	105.95	106.04	106.77	107.89	107.80	107.42	106.25	105.10	103.50	102.96	102.59	101.85
2007	101.13	107.59	107.85	107.89	107.75	107.00	105.79	104.46	103.66	103.41	103.08	102.22
2008	100.19	106.31	107.90	107.90	107.87	107.61	106.69	105.56	104.22	103.66	103.33	102.40
2009	100.98	105.52	105.61	107.90	107.81	107.24	106.18	104.99	104.04	103.69	103.33	102.69
2010	100.28	103.42	105.00	104.97	104.33	103.02	102.56	102.14	101.71	101.19	100.37	99.42
2011	99.42	105.25	107.90	107.90	107.77	107.53	106.85	105.92	104.98	104.32	103.92	103.25
2012	101.97	106.77	107.90	107.90	107.67	107.22	106.27	105.34	104.33	103.94	103.60	101.75
2013	99.88	99.30	98.69	99.94	99.42	98.72	97.75	97.10	97.10	97.10	97.10	97.10
2014	102.14											

AVG	100.45	102.69	104.31	104.80	104.81	104.35	103.47	102.48	101.67	101.04	100.63	100.15
MIN	96.00	98.36	98.05	98.88	98.72	98.42	97.75	97.10	97.10	97.10	97.10	96.50
MAX	107.29	107.59	107.90	107.90	107.90	107.78	106.85	105.92	104.98	104.32	103.92	103.25

Bhadar_base_case_200_WL (m)

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY
1990		99.29	99.35	102.88	103.54	103.45	102.74	101.89	100.80	100.26	99.89	99.42

1991	98.86	99.14	105.47	105.47	104.69	103.66	103.39	102.31	101.14	100.54	100.13	99.64
1992	99.07	98.61	104.52	105.73	107.30	107.30	106.59	105.56	104.12	102.26	101.94	101.59
1993	100.96	101.88	103.81	103.44	103.71	103.69	103.30	101.99	101.57	101.14	100.67	100.00
1994	99.10	101.00	107.30	107.30	107.30	107.19	106.13	104.92	103.36	100.74	99.47	98.30
1995	97.54	97.54	100.79	101.14	101.08	100.66	100.26	99.81	99.27	98.59	97.68	97.54
1996	97.54	106.27	107.30	107.22	106.27	105.74	104.68	102.84	100.02	98.12	97.54	97.54
1997	97.54	100.90	101.61	103.00	104.29	104.19	102.85	101.49	101.06	100.67	100.08	99.17
1998	97.98	101.97	102.53	102.93	102.97	103.04	102.71	101.09	100.64	100.06	98.93	97.83
1999	97.54											

AVG	98.46	100.74	103.63	104.35	104.57	104.32	103.63	102.43	101.33	100.26	99.59	99.00
MIN	97.54	97.54	99.35	101.14	101.08	100.66	100.26	99.81	99.27	98.12	97.54	97.54
MAX	100.96	106.27	107.30	107.30	107.30	107.30	106.59	105.56	104.12	102.26	101.94	101.59

Bhadar_base_case_188_WL(m)

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY
2000	99.03	99.03	99.95	100.45	100.04	99.92	99.73	99.48	99.30	99.17	99.05	99.05
2001	99.04	99.04	101.50	102.09	101.73	101.37	100.99	100.50	100.12	99.86	99.66	99.39
2002	99.24	107.30	107.02	106.78	106.54	106.23	105.06	103.35	101.51	101.03	100.41	99.79
2003	98.95	102.69	103.86	105.93	106.13	105.95	105.15	103.39	101.63	100.70	100.17	99.55
2004	102.77	102.86	103.12	104.67	104.73	104.45	104.00	101.99	101.61	101.26	100.68	100.14
2005	99.45	105.97	106.06	106.79	107.30	107.21	106.78	105.44	104.04	101.82	100.92	100.15
2006	97.74	97.54	107.19	107.30	107.30	107.16	106.22	104.93	103.30	102.11	101.69	101.15
2007	99.28	97.54	106.01	107.30	107.30	107.27	107.01	105.90	104.65	102.91	101.98	101.43
2008	99.39	97.54	104.99	105.09	107.30	107.21	106.52	105.34	103.87	102.73	102.13	101.54
2009	100.30	97.54	102.82	104.58	104.55	103.84	102.25	101.74	101.29	100.65	99.66	97.87
2010	97.54	97.54	105.05	107.30	107.30	107.17	106.91	106.07	105.05	103.86	103.11	102.55
2011	101.42	98.48	106.01	107.30	107.30	107.07	106.50	105.45	104.35	103.07	102.51	101.89
2012	97.54	97.54	97.54	97.54	99.51	98.85	97.59	97.54	97.54	97.54	97.54	97.54
2013	97.54	102.16	103.17	105.04	107.30	107.27	107.01	106.24	105.48	104.74	104.27	103.82
2014	102.57											

AVG	99.45	100.20	103.88	104.87	105.31	105.07	104.41	103.38	102.41	101.53	100.98	100.42
MIN	97.54	97.54	97.54	97.54	99.51	98.85	97.59	97.54	97.54	97.54	97.54	97.54
MAX	102.77	107.30	107.19	107.30	107.30	107.27	107.01	106.24	105.48	104.74	104.27	103.82

Bhadar_senario_2_WL (m)

Annex-5c

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY
2000	99.03	98.90	99.92	100.44	100.01	99.90	99.69	99.38	99.17	98.99	98.71	98.58
2001	98.44	98.35	101.39	102.00	101.63	101.20	100.72	100.12	99.74	99.41	99.07	98.57
2002	98.09	107.30	107.02	106.77	106.54	106.22	105.04	103.29	101.34	100.82	100.09	99.47
2003	98.30	102.60	103.84	105.95	106.15	105.98	105.18	103.40	101.60	100.62	100.02	99.36
2004	102.86	102.95	103.19	104.76	104.82	104.55	104.09	102.09	101.70	101.38	100.80	100.25
2005	99.49	106.01	106.10	106.85	107.30	107.30	106.90	105.57	104.23	102.16	101.45	101.08
2006	99.83	97.85	107.30	107.30	107.30	107.17	106.25	104.98	103.36	102.24	101.90	101.54
2007	100.25	97.54	106.18	107.30	107.30	107.30	107.07	105.98	104.75	103.09	102.27	101.82
2008	100.47	97.54	105.15	105.26	107.30	107.30	106.65	105.48	104.07	103.04	102.54	102.03
2009	101.26	97.54	102.99	104.72	104.71	104.01	102.53	102.03	101.63	101.16	100.39	99.36
2010	97.68	98.08	105.17	107.30	107.30	107.27	107.03	106.20	105.22	104.11	103.41	103.01
2011	101.97	100.12	106.33	107.30	107.30	107.18	106.66	105.62	104.60	103.39	102.98	102.48
2012	99.41	97.54	97.43	97.25	99.67	99.05	98.03	97.54	97.38	97.31	97.19	97.13
2013	97.11	102.20	103.21	105.10	107.30	107.30	107.05	106.29	105.55	104.85	104.42	104.02
2014	102.94											

AVG	99.81	100.32	103.94	104.88	105.33	105.12	104.49	103.43	102.45	101.61	101.09	100.62
MIN	97.11	97.54	97.43	97.25	99.67	99.05	98.03	97.54	97.38	97.31	97.19	97.13
MAX	102.94	107.30	107.30	107.30	107.30	107.30	107.07	106.29	105.55	104.85	104.42	104.02

Bhadar_senario_3_WL(m)

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY
2000	99.03	98.09	99.10	99.37	97.54	97.54	97.39	97.35	97.48	97.36	97.44	97.54
2001	97.54	97.54	101.03	101.64	100.56	97.54	97.36	97.28	97.22	97.19	97.13	97.11
2002	97.10	107.30	106.96	106.68	106.27	105.30	104.09	102.59	99.94	97.54	97.30	97.17
2003	97.11	102.46	103.69	105.81	105.85	104.98	103.81	101.98	97.54	97.39	97.23	97.27
2004	102.51	102.59	102.84	104.47	104.29	103.04	101.02	97.54	97.38	97.31	97.19	97.13
2005	97.11	105.84	105.90	106.61	107.30	106.99	106.07	104.98	103.73	102.07	99.36	98.53
2006	97.54	100.30	107.30	107.30	107.30	106.59	105.62	104.46	103.04	100.87	97.54	97.27
2007	97.13	98.04	106.15	107.30	107.30	107.30	106.54	105.49	104.31	102.81	100.67	99.89
2008	98.59	97.59	105.10	105.16	107.30	107.30	106.42	105.42	104.27	102.98	101.06	100.29
2009	99.47	98.64	103.00	104.68	104.41	103.06	100.93	97.54	97.38	97.31	97.19	97.13
2010	97.11	97.96	105.12	107.30	107.30	106.74	105.84	104.80	103.54	101.84	98.49	97.54
2011	97.22	97.14	106.03	107.30	107.30	106.61	105.70	104.64	103.33	101.38	97.54	97.27
2012	97.13	97.11	97.34	97.21	97.87	97.54	97.36	97.28	97.22	97.19	97.13	97.11

2013	97.10	102.03	102.93	104.82	107.30	107.30	106.49	105.48	104.32	103.00	101.00	100.20
2014	99.50											

AVG	98.08	100.19	103.75	104.69	104.85	104.13	103.19	101.92	100.76	99.73	98.31	97.96
MIN	97.10	97.11	97.34	97.21	97.54	97.54	97.36	97.28	97.22	97.19	97.13	97.11
MAX	102.51	107.30	107.30	107.30	107.30	107.30	106.54	105.49	104.32	103.00	101.06	100.29

Bhadar_senario_4_WL (m)

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY
2000	99.03	98.09	99.10	99.37	97.54	97.54	97.39	97.35	97.48	97.36	97.44	97.54
2001	97.54	97.54	101.03	101.64	100.56	97.54	97.36	97.28	97.22	97.19	97.13	97.11
2002	97.10	107.30	106.96	106.68	106.27	105.30	104.09	102.59	99.94	97.54	97.30	97.17
2003	97.11	102.46	103.69	105.81	105.85	104.98	103.81	101.98	97.54	97.39	97.23	97.27
2004	102.51	102.59	102.84	104.47	104.29	103.04	101.02	97.54	97.38	97.31	97.19	97.13
2005	97.11	105.84	105.90	106.61	107.30	106.99	106.07	104.98	103.73	102.07	99.36	98.53
2006	97.54	100.30	107.30	107.30	107.30	106.59	105.62	104.46	103.04	100.87	97.54	97.27
2007	97.13	98.04	106.15	107.30	107.30	107.30	106.54	105.49	104.31	102.81	100.67	99.89
2008	98.59	97.59	105.10	105.16	107.30	107.30	106.42	105.42	104.27	102.98	101.06	100.29
2009	99.47	98.64	103.00	104.68	104.41	103.06	100.93	97.54	97.38	97.31	97.19	97.13
2010	97.11	97.96	105.12	107.30	107.30	106.74	105.84	104.80	103.54	101.84	98.49	97.54
2011	97.22	97.14	106.03	107.30	107.30	106.61	105.70	104.64	103.33	101.38	97.54	97.27
2012	97.13	97.11	97.34	97.21	97.87	97.54	97.36	97.28	97.22	97.19	97.13	97.11
2013	97.10	102.03	102.93	104.82	107.30	107.30	106.49	105.48	104.32	103.00	101.00	100.20
2014	99.50											

AVG	98.08	100.19	103.75	104.69	104.85	104.13	103.19	101.92	100.76	99.73	98.31	97.96
MIN	97.10	97.11	97.34	97.21	97.54	97.54	97.36	97.28	97.22	97.19	97.13	97.11
MAX	102.51	107.30	107.30	107.30	107.30	107.30	106.54	105.49	104.32	103.00	101.06	100.29

Observed Water Supply demand

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	Annex-7A		MCM
											APRIL	MAY	Grand Total
1990	0.00	1.04	1.03	1.05	1.03	0.96	0.93	1.06	0.98	1.01	0.98	1.01	11.07
1991	0.93	0.98	0.98	0.94	0.98	1.14	1.37	1.32	1.30	1.40	1.27	1.06	13.67
1992	0.87	0.83	1.39	1.44	1.40	1.42	1.12	1.45	1.45	1.22	1.45	1.50	15.54
1993	1.44	1.44	1.52	1.44	1.51	1.59	1.91	1.91	1.69	1.95	1.85	1.98	20.23
1994	1.71	1.73	1.73	1.54	1.58	1.75	1.63	1.63	1.53	1.83	1.86	1.98	20.52
1995	1.84	0.84	1.20	0.98	1.39	1.39	1.40	1.49	1.38	1.50	1.22	1.41	16.04

1996	1.40	1.83	1.93	1.80	1.89	1.86	1.98	1.96	1.80	2.19	2.15	2.33	23.12
1997	2.15	2.13	2.21	2.19	2.26	2.28	2.06	2.33	2.04	2.05	2.22	2.33	26.25
1998	2.18	2.28	2.32	2.16	2.05	2.24	2.33	2.36	1.98	2.33	2.26	1.90	26.38
1999	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47
2000	0.00	0.78	1.01	1.04	0.26	0.19	0.20	0.19	0.17	0.14	0.00	0.00	3.96
2001	0.00	1.18	1.94	2.04	2.00	2.18	2.15	0.88	0.34	0.31	0.30	0.25	13.56
2002	0.05	1.27	1.72	1.72	2.12	2.10	2.12	2.24	2.05	2.33	1.96	1.94	21.61
2003	1.66	1.87	2.25	2.23	2.16	2.09	2.33	2.36	2.15	2.02	2.15	2.08	25.35
2004	1.57	2.00	1.92	2.10	2.15	2.28	2.34	2.35	2.12	2.24	1.86	2.37	25.30
2005	2.30	1.97	1.85	1.82	1.88	1.88	1.88	1.89	1.81	1.90	1.48	1.89	22.55
2006	1.94	1.33	1.48	1.49	1.53	1.41	1.56	1.52	1.38	1.47	1.51	1.49	18.13
2007	1.49	1.70	1.64	1.70	1.76	1.84	1.90	1.96	1.78	1.72	1.86	1.95	21.30
2008	1.87	2.18	1.53	1.85	2.18	2.10	2.21	2.21	1.95	2.22	2.16	2.24	24.69
2009	2.03	1.50	2.13	2.03	2.21	2.12	2.20	2.22	2.03	2.12	2.17	2.24	25.00
2010	2.16	2.27	2.29	2.20	2.29	2.20	2.31	2.29	2.07	2.28	2.23	2.33	26.92
2011	2.21	1.90	1.70	1.78	1.82	1.91	1.72	1.93	1.81	1.95	1.90	1.96	22.59
2012	1.90	1.84	1.61	1.44	1.65	1.53	0.74	0.13	0.00	0.00	0.00	0.00	10.85
2013	0.08	0.37	0.44	1.38	2.29	2.16	2.20	2.24	2.03	2.25	2.24	2.36	20.05
2014	2.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28

AVG	1.42	1.41	1.51	1.53	1.62	1.62	1.62	1.60	1.43	1.54	1.48	1.54	18.34
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47
MAX	2.30	2.28	2.32	2.23	2.29	2.28	2.34	2.36	2.15	2.33	2.26	2.37	26.92

Bhadar_base_case_200_DOM_net to flow

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	MCM Grand Total
1990	0.00	1.04	1.02	1.04	1.02	0.96	0.94	1.04	0.99	1.02	0.98	1.02	11.07
1991	0.93	0.96	0.99	0.93	0.99	1.14	1.37	1.31	1.31	1.39	1.27	1.07	13.67
1992	0.86	0.83	1.39	1.45	1.39	1.43	1.12	1.45	1.45	1.21	1.45	1.50	15.53
1993	1.43	1.45	1.53	1.45	1.53	1.58	1.90	1.90	1.69	1.96	1.84	1.98	20.23
1994	1.71	1.74	1.74	1.53	1.58	1.76	1.63	1.63	1.52	1.82	1.87	1.98	20.53
1995	0.03	0.83	1.21	0.98	1.39	1.37	1.39	1.50	1.38	1.50	0.37	0.11	12.06
1996	1.40	1.82	1.93	1.79	1.90	1.87	1.98	1.96	1.79	1.56	0.05	0.00	18.04
1997	2.15	2.14	2.22	2.18	2.25	2.28	2.06	2.33	2.03	2.06	2.23	2.33	26.27
1998	2.18	2.28	2.33	2.15	2.06	2.23	2.33	2.36	1.98	2.33	2.26	0.72	25.20
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG	1.07	1.31	1.44	1.35	1.41	1.46	1.47	1.55	1.42	1.48	1.23	1.07	16.26
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	2.18	2.28	2.33	2.18	2.25	2.28	2.33	2.36	2.03	2.33	2.26	2.33	26.27

Bhadar_base_case_200_WDDeficite_DOM

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	MCM Grand Total
1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1991	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1993	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	1.31	3.98
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	2.10	2.33	5.07
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.18
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.29	0.48	1.02
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	2.10	2.33	5.07

Bhadar_base_case_188_DOM_net to flow

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	MCM Grand Total
2000	0.00	0.78	1.02	1.04	0.27	0.18	0.19	0.19	0.17	0.13	0.00	0.00	3.96
2001	0.00	1.18	1.93	2.05	2.01	2.18	2.14	0.88	0.34	0.29	0.31	0.24	13.55
2002	0.05	1.26	1.71	1.71	2.12	2.10	2.12	2.25	2.06	2.33	1.97	1.93	21.60
2003	1.66	1.87	2.25	2.23	2.17	2.10	2.33	2.36	2.15	2.01	2.15	2.09	25.37
2004	1.58	2.01	1.93	2.10	2.14	2.28	2.33	2.36	2.13	2.25	1.87	2.36	25.33
2005	2.31	1.96	1.85	1.81	1.87	1.89	1.87	1.87	1.81	1.90	1.48	1.87	22.51
2006	1.94	1.34	1.47	1.50	1.53	1.40	1.55	1.53	1.38	1.47	1.50	1.50	18.12
2007	1.50	1.69	1.63	1.71	1.77	1.84	1.90	1.96	1.79	1.71	1.87	1.96	21.33
2008	1.87	2.17	1.53	1.84	2.20	2.10	2.20	2.20	1.96	2.22	2.15	2.22	24.65
2009	2.02	1.50	2.14	2.02	2.22	2.13	2.20	2.22	2.03	2.12	2.18	0.55	23.33
2010	2.15	2.28	2.28	2.20	2.28	2.20	2.30	2.28	2.08	2.28	2.23	2.33	26.88
2011	2.20	1.90	1.69	1.79	1.82	1.92	1.71	1.93	1.81	1.96	1.89	1.96	22.58
2012	0.00	0.11	0.00	1.45	1.66	1.53	0.08	0.00	0.00	0.00	0.00	0.00	4.82
2013	0.08	0.37	0.43	1.37	2.28	2.15	2.20	2.25	2.03	2.25	2.26	2.36	20.02
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG	1.16	1.36	1.46	1.66	1.76	1.73	1.67	1.62	1.45	1.53	1.46	1.42	18.27

MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	2.31	2.28	2.28	2.23	2.28	2.28	2.33	2.36	2.15	2.33	2.26	2.36	26.88

Bhadar_base_case_188_WDDeficite_Dom													MCM
YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70	1.70
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	1.89	1.74	1.61	0.00	0.00	0.00	0.67	0.13	0.00	0.00	0.00	0.00	6.05
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG	0.13	0.12	0.11	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.11	0.52
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	1.89	1.74	1.61	0.00	0.00	0.00	0.67	0.13	0.00	0.00	0.00	1.70	6.05

Bhadar_senario_2_DOM_net to flow											Annex-7b		MCM
YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
2000	0.00	0.78	1.02	1.04	0.27	0.18	0.19	0.19	0.17	0.13	0.00	0.00	3.96
2001	0.00	1.18	1.93	2.05	2.01	2.18	2.14	0.88	0.34	0.29	0.31	0.24	13.55
2002	0.05	1.26	1.71	1.71	2.12	2.10	2.12	2.25	2.06	2.33	1.97	1.93	21.60
2003	1.66	1.87	2.25	2.23	2.17	2.10	2.33	2.36	2.15	2.01	2.15	2.09	25.37
2004	1.58	2.01	1.93	2.10	2.14	2.28	2.33	2.36	2.13	2.25	1.87	2.36	25.33
2005	2.31	1.96	1.85	1.81	1.87	1.89	1.87	1.87	1.81	1.90	1.48	1.87	22.51
2006	1.94	1.34	1.47	1.50	1.53	1.40	1.55	1.53	1.38	1.47	1.50	1.50	18.12
2007	1.50	1.69	1.63	1.71	1.77	1.84	1.90	1.96	1.79	1.71	1.87	1.96	21.33

2008	1.87	2.17	1.53	1.84	2.20	2.10	2.20	2.20	1.96	2.22	2.15	2.22	24.65
2009	2.02	1.50	2.14	2.02	2.22	2.13	2.20	2.22	2.03	2.12	2.18	2.25	25.03
2010	2.15	2.28	2.28	2.20	2.28	2.20	2.30	2.28	2.08	2.28	2.23	2.33	26.88
2011	2.20	1.90	1.69	1.79	1.82	1.92	1.71	1.93	1.81	1.96	1.89	1.96	22.58
2012	1.89	0.00	0.00	1.45	1.66	1.53	0.70	0.00	0.00	0.00	0.00	0.00	7.23
2013	0.08	0.37	0.43	1.37	2.28	2.15	2.20	2.25	2.03	2.25	2.26	2.36	20.02
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG	1.28	1.35	1.46	1.66	1.76	1.73	1.72	1.62	1.45	1.53	1.46	1.54	18.54
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	2.31	2.28	2.28	2.23	2.28	2.28	2.33	2.36	2.15	2.33	2.26	2.36	26.88

Bhadar_senario_2_WDDeficite_DOM

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	MCM Grand Total
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	1.85	1.61	0.00	0.00	0.00	0.05	0.13	0.00	0.00	0.00	0.00	3.64
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVG	0.00	0.12	0.11	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.24
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	0.00	1.85	1.61	0.00	0.00	0.00	0.05	0.13	0.00	0.00	0.00	0.00	3.64

Bhadar_senario_3_DOM_net to flow

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	Annex-7c		MCM Grand Total
											APRIL	MAY	

DEMAND	2.23	2.30	2.30	2.23	2.30	2.23	2.30	2.30	2.08	2.30	2.23	2.30	27.12
2000	2.25	2.32	2.32	2.25	0.78	0.00	0.00	0.00	0.00	0.00	0.13	0.16	10.20
2001	0.15	2.32	2.32	2.25	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.35
2002	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	0.00	0.00	0.00	20.43
2003	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	0.00	0.00	0.00	2.32	20.66
2004	2.25	2.32	2.32	2.25	2.32	2.25	2.32	0.00	0.00	0.00	0.00	0.00	16.02
2005	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	1.53	26.53
2006	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	0.00	0.00	22.75
2007	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	2.32	27.32
2008	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	2.32	27.32
2009	2.25	2.32	2.32	2.25	2.32	2.25	2.32	0.00	0.00	0.00	0.00	0.00	16.02
2010	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	1.53	0.00	24.28
2011	0.00	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	0.00	0.00	20.51
2012	0.00	0.00	0.00	2.25	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.69
2013	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	2.32	27.32
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG	1.66	2.01	2.01	2.10	1.94	1.65	1.70	1.39	1.12	1.08	0.71	0.73	18.09
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	2.32	27.32

Bhadar_senario_3_WDDeficit_DOM

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	MCM Grand Total
2000	0.00	0.00	0.00	0.00	1.54	2.25	2.32	2.32	2.10	2.32	2.12	2.16	17.12
2001	2.10	0.00	0.00	0.00	0.00	2.25	2.32	2.32	2.10	2.32	2.25	2.32	17.96
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	2.25	2.32	6.89
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	2.32	2.25	0.00	6.66
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	2.10	2.32	2.25	2.32	11.30
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.79
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	2.32	4.57
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	2.10	2.32	2.25	2.32	11.30
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	2.32	3.03
2011	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	2.32	6.81
2012	2.25	2.32	2.32	0.00	1.88	2.25	2.32	2.32	2.10	2.32	2.25	2.32	24.63
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG	0.44	0.15	0.15	0.00	0.23	0.45	0.46	0.77	0.84	1.08	1.39	1.43	7.40
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	2.25	2.32	2.32	0.00	1.88	2.25	2.32	2.32	2.10	2.32	2.25	2.32	24.63

Bhadar_senario_4_DOM_net to flow											Annex-7d		MCM
YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
DEMAND	2.23	2.30	2.30	2.23	2.30	2.23	2.30	2.30	2.08	2.30	2.23	2.30	27.12
2000	2.25	2.32	2.32	2.25	0.78	0.00	0.00	0.00	0.00	0.00	0.13	0.16	10.20
2001	0.15	2.32	2.32	2.25	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.35
2002	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	0.00	0.00	0.00	20.43
2003	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	0.00	0.00	0.00	2.32	20.66
2004	2.25	2.32	2.32	2.25	2.32	2.25	2.32	0.00	0.00	0.00	0.00	0.00	16.02
2005	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	1.53	26.53
2006	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	0.00	0.00	22.75
2007	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	2.32	27.32
2008	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	2.32	27.32
2009	2.25	2.32	2.32	2.25	2.32	2.25	2.32	0.00	0.00	0.00	0.00	0.00	16.02
2010	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	1.53	0.00	24.28
2011	0.00	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	0.00	0.00	20.51
2012	0.00	0.00	0.00	2.25	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.69
2013	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	2.32	27.32
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG	1.66	2.01	2.01	2.10	1.94	1.65	1.70	1.39	1.12	1.08	0.71	0.73	18.09
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	2.25	2.32	2.32	2.25	2.32	2.25	2.32	2.32	2.10	2.32	2.25	2.32	27.32

Bhadar_senario_4_WDDeficite_DOM												MCM	
YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
2000	0.00	0.00	0.00	0.00	1.54	2.25	2.32	2.32	2.10	2.32	2.12	2.16	17.12
2001	2.10	0.00	0.00	0.00	0.00	2.25	2.32	2.32	2.10	2.32	2.25	2.32	17.96
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	2.25	2.32	6.89
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	2.32	2.25	0.00	6.66
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	2.10	2.32	2.25	2.32	11.30
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.79

2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	2.32	4.57
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	2.10	2.32	2.25	2.32	11.30
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	2.32	3.03
2011	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	2.32	6.81
2012	2.25	2.32	2.32	0.00	1.88	2.25	2.32	2.32	2.10	2.32	2.25	2.32	24.63
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AVG	0.44	0.15	0.15	0.00	0.23	0.45	0.46	0.77	0.84	1.08	1.39	1.43	7.40
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	2.25	2.32	2.32	0.00	1.88	2.25	2.32	2.32	2.10	2.32	2.25	2.32	24.63

Annex-6a

Observed Canal release

MCM

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
1990	0.00	0.00	0.00	0.00	8.56	8.55	9.30	2.74	0.00	0.00	0.00	0.00	29.14
1991	0.00	0.00	16.28	16.58	0.16	13.11	10.60	1.85	0.00	0.00	0.00	0.00	58.57
1992	0.00	0.00	0.00	0.00	15.97	27.94	31.69	33.43	0.00	0.00	0.00	4.40	113.42
1993	0.00	0.00	0.00	0.00	2.67	15.06	0.00	0.00	0.00	0.00	0.00	0.00	17.73
1994	0.00	0.00	0.00	0.00	27.34	28.29	29.26	36.26	3.55	0.00	0.00	3.07	127.77
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	25.95	9.84	22.00	28.33	31.40	6.15	0.00	0.00	0.00	0.00	123.67
1997	0.00	0.00	0.00	0.00	18.56	14.91	0.00	0.00	0.00	0.00	0.00	0.00	33.47
1998	0.00	0.00	0.00	0.00	0.00	16.47	0.00	0.00	0.00	0.00	0.00	0.00	16.47
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.46	0.50	0.00	24.90	33.03	22.10	0.00	0.00	0.00	0.00	81.00
2003	0.00	0.00	0.00	0.00	0.00	15.65	32.64	18.91	5.09	0.00	0.00	0.00	72.29
2004	0.00	0.00	0.00	0.00	0.00	2.42	30.03	0.10	0.00	0.00	0.00	0.00	32.56
2005	0.00	0.00	0.00	0.00	0.00	5.46	31.83	28.07	30.91	3.78	0.00	3.01	103.06
2006	17.67	0.00	0.00	0.00	0.00	20.85	29.47	28.79	11.49	0.00	0.00	6.01	114.27
2007	20.34	0.00	0.00	0.00	0.00	2.12	24.92	26.33	26.46	4.36	0.00	6.02	110.56

2008	13.42	0.00	0.00	0.00	0.00	12.05	27.67	27.83	15.85	0.00	0.00	3.27	100.09
2009	21.47	0.00	0.00	0.00	6.53	19.89	0.00	0.00	0.00	0.00	0.00	0.00	47.89
2010	0.00	0.00	0.00	0.00	0.00	0.00	18.36	22.27	21.45	7.47	0.00	5.89	75.44
2011	11.92	0.00	0.00	0.00	0.00	8.97	24.78	21.43	19.59	0.79	0.00	21.0	108.56
2012	11.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7	11.44
2013	0.00	0.00	0.00	0.00	0.00	0.77	14.68	13.84	12.62	0.68	0.00	14.4	57.05
2014	15.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6	15.34

AVG	4.46	0.00	1.71	1.08	4.07	10.63	15.19	11.60	5.88	0.68	0.00	2.69	57.99
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	21.47	0.00	25.95	16.58	27.34	28.33	33.03	36.26	30.91	7.47	0.00	21.0	127.77

Bhadar_base_case_200_WDD_IRR_net to flow

MCM

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
1990	0.00	0.00	0.00	0.00	8.57	8.55	9.29	2.73	0.00	0.00	0.00	0.00	29.15
1991	0.00	0.00	16.28	16.59	0.16	13.12	10.61	1.85	0.00	0.00	0.00	0.00	58.60
1992	0.00	0.00	0.00	0.00	15.96	27.94	31.69	33.43	0.00	0.00	0.00	4.39	113.41
1993	0.00	0.00	0.00	0.00	2.68	15.06	0.00	0.00	0.00	0.00	0.00	0.00	17.74
1994	0.00	0.00	0.00	0.00	27.35	28.28	29.27	36.27	3.56	0.00	0.00	0.00	124.72
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	25.95	9.82	21.99	28.33	31.39	6.16	0.00	0.00	0.00	0.00	123.65
1997	0.00	0.00	0.00	0.00	18.56	14.90	0.00	0.00	0.00	0.00	0.00	0.00	33.47
1998	0.00	0.00	0.00	0.00	0.00	16.46	0.00	0.00	0.00	0.00	0.00	0.00	16.46
1999													

AVG	0.00	0.00	4.69	2.93	10.59	16.96	12.47	8.94	0.40	0.00	0.00	0.49	57.47
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	0.00	0.00	25.95	16.59	27.35	28.33	31.69	36.27	3.56	0.00	0.00	4.39	124.72

Bhadar_base_case_200_WDDeficit_IRR

MCM

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
1990	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1991	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1993	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1995	2.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98

1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999													

AVG	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	2.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98

Bhadar_base_case_188_IRR_net to flow													MCM
YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.46	0.49	0.00	24.91	33.02	22.10	0.00	0.00	0.00	0.00	80.98
2003	0.00	0.00	0.00	0.00	0.00	15.66	32.65	18.91	5.08	0.00	0.00	0.00	72.30
2004	0.00	0.00	0.00	0.00	0.00	2.41	30.02	0.11	0.00	0.00	0.00	0.00	32.54
2005	0.00	0.00	0.00	0.00	0.00	5.47	31.82	28.07	30.89	3.78	0.00	3.03	103.05
2006	11.67	0.00	0.00	0.00	0.00	20.84	29.46	28.79	11.49	0.00	0.00	6.00	108.26
2007	7.29	0.00	0.00	0.00	0.00	2.13	24.91	26.33	26.47	4.37	0.00	6.03	97.51
2008	4.41	0.00	0.00	0.00	0.00	12.05	27.67	27.83	15.85	0.00	0.00	3.27	91.07
2009	9.15	0.00	0.00	0.00	6.54	19.88	0.00	0.00	0.00	0.00	0.00	0.00	35.56
2010	0.00	0.00	0.00	0.00	0.00	0.00	18.35	22.26	21.46	7.47	0.00	5.89	75.43
2011	11.92	0.00	0.00	0.00	0.00	8.97	24.78	21.43	19.60	0.78	0.00	21.08	108.55
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.78	14.68	13.85	12.60	0.67	0.00	14.46	57.04
2014	0.00												0.00

AVG	2.96	0.00	0.03	0.04	0.47	8.08	19.10	14.98	10.25	1.22	0.00	4.27	57.49
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	11.92	0.00	0.46	0.49	6.54	24.91	33.02	28.79	30.89	7.47	0.00	21.08	108.55

Bhadar_base_case_188_WDDeficite_IRR													MCM
YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	6.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.01
2007	13.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.06
2008	9.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.01
2009	12.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.32
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	11.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.43
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00												0.00

AVG	3.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.46
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	13.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.06

Bhadar_bhadar_senario_2_IRR_net to flow											Annex-6a		MCM
YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.46	0.49	0.00	24.91	33.02	22.10	0.00	0.00	0.00	0.00	80.98
2003	0.00	0.00	0.00	0.00	0.00	15.66	32.65	18.91	5.08	0.00	0.00	0.00	72.30
2004	0.00	0.00	0.00	0.00	0.00	2.41	30.02	0.11	0.00	0.00	0.00	0.00	32.54
2005	0.00	0.00	0.00	0.00	0.00	5.47	31.82	28.07	30.89	3.78	0.00	3.03	103.05
2006	17.68	0.00	0.00	0.00	0.00	20.84	29.46	28.79	11.49	0.00	0.00	6.00	114.26
2007	11.30	0.00	0.00	0.00	0.00	2.13	24.91	26.33	26.47	4.37	0.00	6.03	101.52
2008	9.11	0.00	0.00	0.00	0.00	12.05	27.67	27.83	15.85	0.00	0.00	3.27	95.77
2009	14.49	0.00	0.00	0.00	6.54	19.88	0.00	0.00	0.00	0.00	0.00	0.00	40.91
2010	0.00	0.00	0.00	0.00	0.00	0.00	18.35	22.26	21.46	7.47	0.00	5.89	75.43
2011	11.92	0.00	0.00	0.00	0.00	8.97	24.78	21.43	19.60	0.78	0.00	21.08	108.55
2012	2.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79
2013	0.00	0.00	0.00	0.00	0.00	0.78	14.68	13.85	12.60	0.67	0.00	14.46	57.04
2014	0.00												0.00

AVG	4.49	0.00	0.03	0.04	0.47	8.08	19.10	14.98	10.25	1.22	0.00	4.27	59.01
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	17.68	0.00	0.46	0.49	6.54	24.91	33.02	28.79	30.89	7.47	0.00	21.08	114.26

Bhadar_senarior_2_WDDeficite_IRR

MCM

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	9.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.05
2008	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.32
2009	6.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	8.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.64
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00												0.00

AVG	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	9.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.05

Bhadar_bhadar_senarior_3_IRR_net to flow

Annex-6C

MCM

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
DEMAND	1.09	0.86	5.84	19.49	20.11	21.28	21.61	23.17	15.70	0.00	0.00	0.00	129.16
2000	0.00	1.12	0.86	2.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40
2001	0.00	1.12	0.86	5.65	8.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.47
2002	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	6.05	0.00	0.00	0.00	96.89
2003	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	0.00	0.00	0.00	0.00	90.84
2004	0.00	1.12	0.86	5.65	20.14	19.47	12.50	0.00	0.00	0.00	0.00	0.00	59.74

2005	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2006	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	10.72	0.00	0.00	122.49
2007	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2008	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2009	0.00	1.12	0.86	5.65	20.14	19.47	11.81	0.00	0.00	0.00	0.00	0.00	59.05
2010	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2011	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	15.21	0.00	0.00	126.98
2012	0.00	0.00	0.00	5.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.65
2013	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2014	0.00												0.00

AVG	0.00	1.04	0.80	5.42	16.46	15.29	15.87	13.90	10.90	8.06	0.00	0.00	81.89
MIN	0.00	0.00	0.00	2.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15

Bhadar_senarior_3_WDDeficite_IRR

MCM

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
2000	0.00	0.00	0.00	3.24	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	124.76
2001	0.00	0.00	0.00	0.00	11.30	19.47	21.99	21.61	20.93	17.38	0.00	0.00	112.68
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.88	17.38	0.00	0.00	32.26
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.93	17.38	0.00	0.00	38.31
2004	0.00	0.00	0.00	0.00	0.00	0.00	9.49	21.61	20.93	17.38	0.00	0.00	69.41
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	0.00	0.00	6.66
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	10.18	21.61	20.93	17.38	0.00	0.00	70.10
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	0.00	0.00	2.17
2012	0.00	1.12	0.86	0.00	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	123.50
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00												0.00

AVG	0.00	0.08	0.06	0.23	3.68	4.17	6.12	7.72	10.03	9.32	0.00	0.00	38.66
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	0.00	1.12	0.86	3.24	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	124.76

Bhadar_senario_4_IRR_net to flow										Annex-6D			MCM
YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
DEMAND	1.09	0.86	5.84	19.49	20.11	21.28	21.61	23.17	15.70	0.00	0.00	0.00	129.16
2000	0.00	1.12	0.86	2.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40
2001	0.00	1.12	0.86	5.65	8.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.47
2002	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	6.05	0.00	0.00	0.00	96.89
2003	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	0.00	0.00	0.00	0.00	90.84
2004	0.00	1.12	0.86	5.65	20.14	19.47	12.50	0.00	0.00	0.00	0.00	0.00	59.74
2005	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2006	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	10.72	0.00	0.00	122.49
2007	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2008	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2009	0.00	1.12	0.86	5.65	20.14	19.47	11.81	0.00	0.00	0.00	0.00	0.00	59.05
2010	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2011	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	15.21	0.00	0.00	126.98
2012	0.00	0.00	0.00	5.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.65
2013	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15
2014	0.00												0.00
AVG	0.00	1.04	0.80	5.42	16.46	15.29	15.87	13.90	10.90	8.06	0.00	0.00	81.89
MIN	0.00	0.00	0.00	2.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	0.00	1.12	0.86	5.65	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	129.15

MCM

Bhadar_senario_4_WDDeficitIRR

YEAR	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	Grand Total
2000	0.00	0.00	0.00	3.24	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	124.76
2001	0.00	0.00	0.00	0.00	11.30	19.47	21.99	21.61	20.93	17.38	0.00	0.00	112.68
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.88	17.38	0.00	0.00	32.26
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.93	17.38	0.00	0.00	38.31
2004	0.00	0.00	0.00	0.00	0.00	0.00	9.49	21.61	20.93	17.38	0.00	0.00	69.41
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	0.00	0.00	6.66
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	10.18	21.61	20.93	17.38	0.00	0.00	70.10
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	0.00	0.00	2.17
2012	0.00	1.12	0.86	0.00	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	123.50
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00												0.00
AVG	0.00	0.08	0.06	0.23	3.68	4.17	6.12	7.72	10.03	9.32	0.00	0.00	38.66
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAX	0.00	1.12	0.86	3.24	20.14	19.47	21.99	21.61	20.93	17.38	0.00	0.00	124.76

Annex-8

