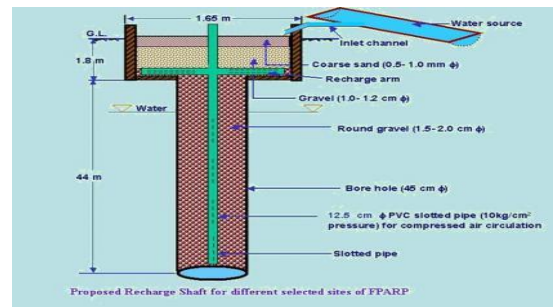
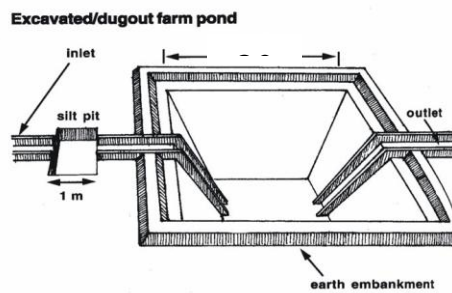




CENTRAL GROUND WATER BOARD
MINISTRY OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION
GOVERNMENT OF INDIA



**ARTIFICIAL RECHARGE TO GROUND WATER AND
WATER CONSERVATION PLAN OF BONLI BLOCK,
DISTRICT SAWAI MADHOPUR, RAJASTHAN**

Western Region, Jaipur
February 2017

ARTIFICIAL RECHARGE TO GROUND WATER AND WATER CONSERVATION PLAN OF BONLI BLOCK, DISTRICT SAWAI MADHOPUR

Plan at a Glance

1.	Area of the Bonli Block	1004.50 Sq. km.
2.	Area identified for Artificial Recharge	983.38 sq km
3.	Dynamic Ground Water Resources (as on 31.03.2011)	
	Net Ground Water Availability	63.43 MCM
	Annual Ground Water Draft	68.63 MCM
	Stage of Ground Water Development	108.20 %
4.	Volume of water to be harnessed	16.169 MCM
	Volume of water available for recharge through RS	7.95 MCM
	Volume of water available for recharge through PT	3.2 MCM
5.	Volume of unsaturated aquifer zone available for recharge	410.058 MCM
6.	Total number of structures to be proposed	
	Recharge structures	227 shafts in 204 Nos. of existing village ponds
	Existing village pond with recharge shaft/ well	
	Percolation Tanks	16 Nos
	Sprinkler Irrigation	300 ha
	Expected Annual GW recharge	8.92 MCM
	Provision for supplemental irrigation, thus reducing GW withdrawal for irrigation	0.24
	Total recharge/ saving of ground water	9.16 MCM
7.	Estimated Cost	20.843 crore
	Artificial Recharge Plan	17.75 crore
	Sprinkler Irrigation	1.50 crore
	Piezometer construction	0.60 crore
	Operation and maintenance	0.993 crore

ARTIFICIAL RECHARGE TO GROUND WATER AND WATER CONSERVATION PLAN OF BONLI BLOCK, DISTRICT SAWAI MADHOPUR

Introduction

The **Bonli Block, district Sawai Madhopur** is one of the over exploited blocks of Rajasthan and is under severe stress, as evident from the stage of ground water development, which has attained an alarming level of **108.20%**. 983.38 sq. km. area is potential zone area and thus feasible for artificial recharge.

Location of the block

The Bonli Block covers an area of 1004.50 Sq. km. and falls in **northern-central** part of Sawai Madhopur district. It is located between North latitudes 26°10' & 26°29' and East longitudes 76°06' & 76°37'.

Surface Water Availability

As per the studies carried out by Water Resources Department (WRD), Government of Rajasthan there is very little surplus water available for further development at 75% dependability. Based on the data made available from GWD, the surplus runoff available at 75% dependability level has been worked out for the zones as part of watershed within the block. The nature of aquifer (Alluvium/ Hard rock) is also considered while computing the number of Artificial Recharge structures feasible.

Accordingly about 16.17 MCM has been considered for recharge plan in the block. Optimum utilization of rainwater runoff depends on availability of land, feasible conditions, etc. Volume of Aquifer available for Artificial Recharge is given in **Table.1**

Supply Side Management

Feasible Artificial Recharge and Water Conservation Structures

About 0.035 MCM/year surplus has been considered for each recharge shaft and 0.2 MCM/year for percolation tank wherever feasible. The areas with shallow water level (<5m) have not been considered for construction of Artificial Recharge Structures

The number of Recharge Shaft is decided based on the number of suitable ponds available within the zone. If still some surplus remained unallocated, than few Percolation tanks are proposed at suitable locations. However, in some of the blocks entire available surplus cannot be utilized due to non availability of ponds for Recharge shaft or suitable location for Percolation tanks. Zone wise number of Recharge Structures proposed to be constructed is given in **Table 2**.

Table 1: Volume of Aquifer available for artificial recharge

District	Block	Area of Block (Sq. km.)	Potential area suitable for recharge (Sq. km.)	Type of Aquifer	Area feasible for artificial recharge (Sq km)	Sp Yield	Average DTW (mbgl) NOV 2013	Thickness of unsaturated zone 3 m below ground level (m)	Volume of sub surface storage space available for artificial recharge (MCM)
Sawai Madhopur	Bonli	1004.5	983.38	SR	349.9	0.070	12.5	9.5	232.684
				HR	633.48	0.020	17	14	177.374

Table 2: Number of recharge structure

ZoneCode	Sub_Basin	Type of Aquifer	Zone-Area (sq. km.)	Total Surplus (MCM)	Water Level >5m	Feasible RS_Prop	Feasible PT_Prop
Banas_Banas_002_RJ2902_AL	Banas	SR	7.701	0.138	N	0	0
Banas_Banas_003_RJ2902_AL	Banas	SR	153.224	8.101	Y	14	14
Banas_Banas_015_RJ2902_AL	Banas	SR	0.566	0.058	Y	0	0
Banas_Gudia_040_RJ2902_AL	Gudia	SR	97.454	0.000	Y	0	0
Banas_Gudia_041_RJ2902_AL	Gudia	SR	122.584	2.371	Y	56	2
Banas_Kalisil_043_RJ2902_AL	Kalisil	SR	0.014	0.000	N	0	0
Banas_Morel_067_RJ2902_AL	Morel	SR	483.117	5.502	Y	157	0
Banas_Morel_068_RJ2902_AL	Morel	SR	145.900	0.000	Y	0	0
				16.169		227	16

Recharge Shaft

It is proposed to construct Recharge Shaft in existing ponds. The selected ponds should be atleast 3m deep and shallow ponds will be deepened accordingly. It is proposed that the inlet for the Recharge Shaft should be atleast 1m above bed of pond so that the pond retains adequate water for use by villagers.

. The tentative location of villages for construction of recharge shaft/well in existing village pond and their cost estimates are shown in Fig 1 and Table 3.

Table 3: Tentative locations of village for village pond with recharge shaft

S.No.	Village	Long	Lat	Watershed	No of Shafts	Unit cost (Rs in lac)	Total cost (Rs in lac)
1.	Jatawti	76.247	26.218	Banas_Banas_003_RJ2902_AL	2	5	10
2.	Jatawti	76.254	26.216	Banas_Banas_003_RJ2902_AL	1	5	5
3.	Hathroli	76.264	26.214	Banas_Banas_003_RJ2902_AL	1	5	5
4.	Hathroli	76.272	26.216	Banas_Banas_003_RJ2902_AL	1	5	5
5.	Sawasa	76.233	26.199	Banas_Banas_003_RJ2902_AL	1	5	5
6.	Khirni	76.334	26.237	Banas_Banas_003_RJ2902_AL	1	5	5
7.	Jolanda	76.317	26.219	Banas_Banas_003_RJ2902_AL	1	5	5
8.	Dehlo	76.366	26.225	Banas_Banas_003_RJ2902_AL	1	5	5
9.	Bharja Nadi	76.402	26.208	Banas_Banas_003_RJ2902_AL	1	5	5
10.	Bharja Nadi	76.389	26.198	Banas_Banas_003_RJ2902_AL	1	5	5
11.	Kundli Nadi	76.411	26.214	Banas_Banas_003_RJ2902_AL	1	5	5
12.	Bhookha	76.462	26.217	Banas_Banas_003_RJ2902_AL	1	5	5
13.	Peepalwara Nadi	76.482	26.218	Banas_Banas_003_RJ2902_AL	1	5	5
14.	Qila Bonli	76.229	26.306	Banas_Gudia_041_RJ2902_AL	2	5	10
15.	Rawasa	76.228	26.302	Banas_Gudia_041_RJ2902_AL	2	5	10
16.	Rawasa	76.244	26.296	Banas_Gudia_041_RJ2902_AL	2	5	10
17.	Rawasa	76.207	26.302	Banas_Gudia_041_RJ2902_AL	1	5	5
18.	Kolara	76.169	26.271	Banas_Gudia_041_RJ2902_AL	2	5	10
19.	Kolara	76.195	26.264	Banas_Gudia_041_RJ2902_AL	1	5	5
20.	Bas Torda	76.213	26.269	Banas_Gudia_041_RJ2902_AL	2	5	10
21.	Bas Torda	76.218	26.276	Banas_Gudia_041_RJ2902_AL	2	5	10
22.	Golpur	76.166	26.257	Banas_Gudia_041_RJ2902_AL	2	5	10
23.	Bandhawal	76.163	26.244	Banas_Gudia_041_RJ2902_AL	1	5	5
24.	Bandhawal	76.147	26.240	Banas_Gudia_041_RJ2902_AL	4	5	20
25.	Neemod	76.161	26.213	Banas_Gudia_041_RJ2902_AL	2	5	10
26.	Bagroli	76.172	26.219	Banas_Gudia_041_RJ2902_AL	2	5	10
27.	Bagroli	76.183	26.237	Banas_Gudia_041_RJ2902_AL	1	5	5
28.	Mangrol	76.194	26.238	Banas_Gudia_041_RJ2902_AL	1	5	5
29.	Bahnoli	76.209	26.245	Banas_Gudia_041_RJ2902_AL	1	5	5
30.	Baragaon Sarwar	76.210	26.255	Banas_Gudia_041_RJ2902_AL	4	5	20
31.	Kolara	76.192	26.259	Banas_Gudia_041_RJ2902_AL	3	5	15
32.	Kolara	76.196	26.261	Banas_Gudia_041_RJ2902_AL	2	5	10
33.	Hindupura	76.232	26.248	Banas_Gudia_041_RJ2902_AL	4	5	20
34.	Baragaon Sarwar	76.217	26.260	Banas_Gudia_041_RJ2902_AL	1	5	5
35.	Rasoolpura	76.234	26.265	Banas_Gudia_041_RJ2902_AL	1	5	5
36.	Baragaon Sarwar	76.234	26.272	Banas_Gudia_041_RJ2902_AL	1	5	5
37.	Rasoolpura	76.239	26.267	Banas_Gudia_041_RJ2902_AL	1	5	5

38.	Sarwari	76.245	26.272	Banas_Gudia_041_RJ2902_AL	1	5	5
39.	Hindupura	76.251	26.262	Banas_Gudia_041_RJ2902_AL	1	5	5
40.	Hindupura	76.256	26.259	Banas_Gudia_041_RJ2902_AL	1	5	5
41.	Hindupura	76.242	26.259	Banas_Gudia_041_RJ2902_AL	1	5	5
42.	Didwari	76.265	26.246	Banas_Gudia_041_RJ2902_AL	1	5	5
43.	Didwari	76.268	26.245	Banas_Gudia_041_RJ2902_AL	1	5	5
44.	Didwari	76.267	26.242	Banas_Gudia_041_RJ2902_AL	1	5	5
45.	Didwari	76.277	26.243	Banas_Gudia_041_RJ2902_AL	1	5	5
46.	Didwari	76.283	26.239	Banas_Gudia_041_RJ2902_AL	1	5	5
47.	Harsota	76.278	26.261	Banas_Gudia_041_RJ2902_AL	1	5	5
48.	Khirni	76.303	26.240	Banas_Gudia_041_RJ2902_AL	1	5	5
49.	Bhedoli	76.283	26.393	Banas_Morel_067_RJ2902_AL	1	5	5
50.	Datooli	76.285	26.403	Banas_Morel_067_RJ2902_AL	1	5	5
51.	Datooli	76.292	26.399	Banas_Morel_067_RJ2902_AL	1	5	5
52.	Hanumatpur	76.308	26.391	Banas_Morel_067_RJ2902_AL	1	5	5
53.	Dhoralala	76.326	26.405	Banas_Morel_067_RJ2902_AL	1	5	5
54.	Dhoralala	76.333	26.411	Banas_Morel_067_RJ2902_AL	1	5	5
55.	Dhoralala	76.320	26.413	Banas_Morel_067_RJ2902_AL	1	5	5
56.	Peelookhera Kalan	76.311	26.410	Banas_Morel_067_RJ2902_AL	1	5	5
57.	Peelookhera Kalan	76.311	26.417	Banas_Morel_067_RJ2902_AL	1	5	5
58.	Peelookhera Kalan	76.312	26.419	Banas_Morel_067_RJ2902_AL	1	5	5
59.	Peelookhera Kalan	76.317	26.422	Banas_Morel_067_RJ2902_AL	1	5	5
60.	Peelookhera Kalan	76.317	26.426	Banas_Morel_067_RJ2902_AL	1	5	5
61.	Peelookhera Kalan	76.312	26.428	Banas_Morel_067_RJ2902_AL	1	5	5
62.	Gotor	76.300	26.424	Banas_Morel_067_RJ2902_AL	1	5	5
63.	Peepalda	76.335	26.398	Banas_Morel_067_RJ2902_AL	1	5	5
64.	Peepalda	76.337	26.395	Banas_Morel_067_RJ2902_AL	1	5	5
65.	Peepalda	76.335	26.392	Banas_Morel_067_RJ2902_AL	1	5	5
66.	Peepalda	76.336	26.385	Banas_Morel_067_RJ2902_AL	1	5	5
67.	Peepalda	76.344	26.385	Banas_Morel_067_RJ2902_AL	1	5	5
68.	Peepalda	76.351	26.394	Banas_Morel_067_RJ2902_AL	1	5	5
69.	Jastana	76.367	26.384	Banas_Morel_067_RJ2902_AL	1	5	5
70.	Bhedoli	76.273	26.387	Banas_Morel_067_RJ2902_AL	1	5	5
71.	Bhedoli	76.267	26.390	Banas_Morel_067_RJ2902_AL	1	5	5
72.	Bhedoli	76.272	26.396	Banas_Morel_067_RJ2902_AL	1	5	5
73.	Bhedoli	76.266	26.385	Banas_Morel_067_RJ2902_AL	1	5	5
74.	Bhedoli	76.273	26.385	Banas_Morel_067_RJ2902_AL	1	5	5
75.	Bhedoli	76.280	26.379	Banas_Morel_067_RJ2902_AL	1	5	5
76.	Bhedoli	76.272	26.380	Banas_Morel_067_RJ2902_AL	1	5	5

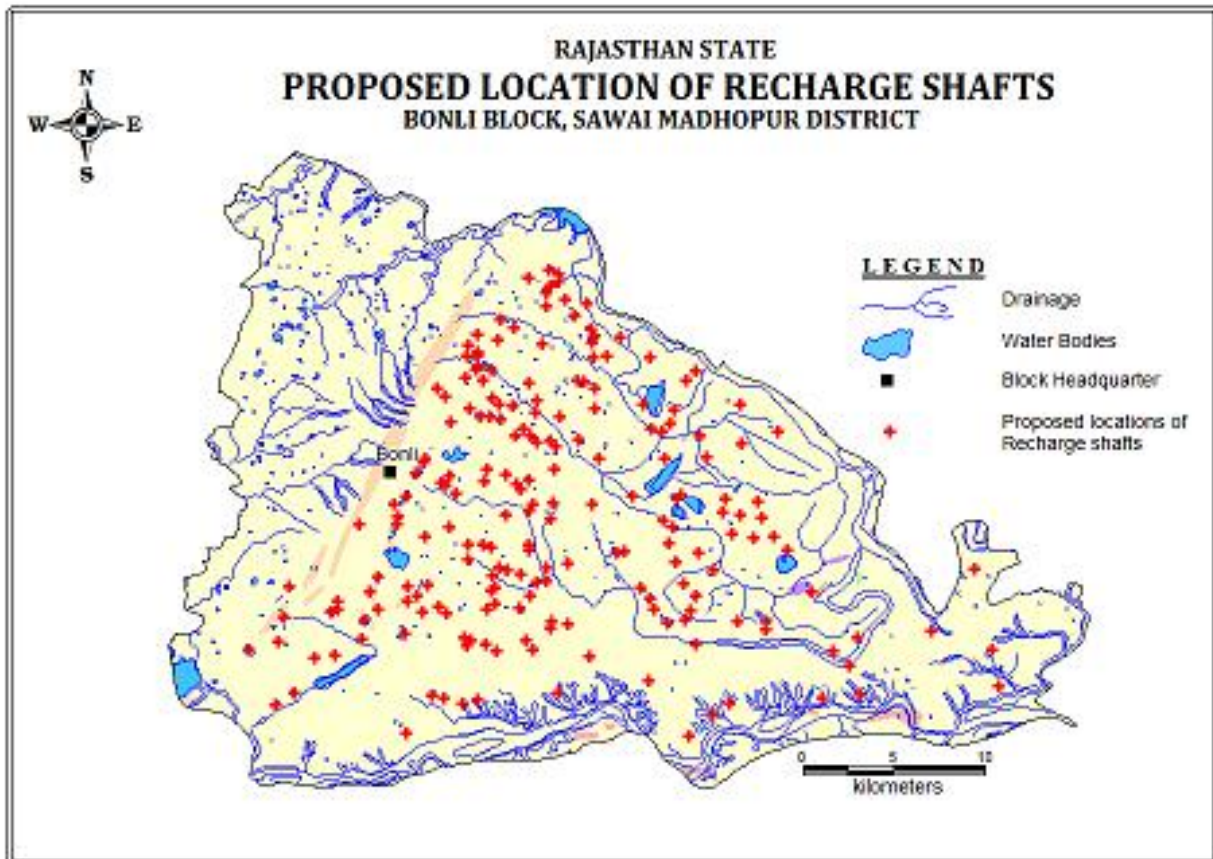
77.	Bhedoli	76.271	26.379	Banas_Morel_067_RJ2902_AL	1	5	5
78.	Jhanoon	76.266	26.374	Banas_Morel_067_RJ2902_AL	1	5	5
79.	Thari	76.255	26.365	Banas_Morel_067_RJ2902_AL	1	5	5
80.	Pattya	76.251	26.369	Banas_Morel_067_RJ2902_AL	1	5	5
81.	Thari	76.257	26.352	Banas_Morel_067_RJ2902_AL	1	5	5
82.	Thari	76.274	26.356	Banas_Morel_067_RJ2902_AL	1	5	5
83.	Thari	76.268	26.359	Banas_Morel_067_RJ2902_AL	1	5	5
84.	Jhanoon	76.281	26.364	Banas_Morel_067_RJ2902_AL	1	5	5
85.	Jhanoon	76.276	26.373	Banas_Morel_067_RJ2902_AL	1	5	5
86.	Jhanoon	76.284	26.361	Banas_Morel_067_RJ2902_AL	1	5	5
87.	Thari	76.285	26.354	Banas_Morel_067_RJ2902_AL	1	5	5
88.	Thari	76.279	26.355	Banas_Morel_067_RJ2902_AL	1	5	5
89.	Dhanesra	76.292	26.360	Banas_Morel_067_RJ2902_AL	1	5	5
90.	Kodyai	76.293	26.346	Banas_Morel_067_RJ2902_AL	1	5	5
91.	Kodyai	76.305	26.343	Banas_Morel_067_RJ2902_AL	1	5	5
92.	Kodyai	76.301	26.346	Banas_Morel_067_RJ2902_AL	1	5	5
93.	Kodyai	76.298	26.349	Banas_Morel_067_RJ2902_AL	1	5	5
94.	Kodyai	76.304	26.357	Banas_Morel_067_RJ2902_AL	1	5	5
95.	Dhanesra	76.305	26.363	Banas_Morel_067_RJ2902_AL	1	5	5
96.	Dhanesra	76.301	26.372	Banas_Morel_067_RJ2902_AL	1	5	5
97.	Pura Panesingh	76.328	26.373	Banas_Morel_067_RJ2902_AL	1	5	5
98.	Miskinpura	76.331	26.372	Banas_Morel_067_RJ2902_AL	1	5	5
99.	Miskinpura	76.337	26.369	Banas_Morel_067_RJ2902_AL	1	5	5
100.	Miskinpura	76.336	26.359	Banas_Morel_067_RJ2902_AL	1	5	5
101.	Kodyai	76.318	26.355	Banas_Morel_067_RJ2902_AL	1	5	5
102.	Kodyai	76.312	26.343	Banas_Morel_067_RJ2902_AL	1	5	5
103.	Kodyai	76.316	26.340	Banas_Morel_067_RJ2902_AL	1	5	5
104.	Kodyai	76.328	26.344	Banas_Morel_067_RJ2902_AL	1	5	5
105.	Jastana	76.363	26.361	Banas_Morel_067_RJ2902_AL	1	5	5
106.	Jastana	76.368	26.349	Banas_Morel_067_RJ2902_AL	1	5	5
107.	Kasba Bonli	76.238	26.327	Banas_Morel_067_RJ2902_AL	1	5	5
108.	Kasba Bonli	76.243	26.333	Banas_Morel_067_RJ2902_AL	1	5	5
109.	Kasba Bonli	76.243	26.335	Banas_Morel_067_RJ2902_AL	1	5	5
110.	Kasba Bonli	76.233	26.316	Banas_Morel_067_RJ2902_AL	1	5	5
111.	Qila Bonli	76.226	26.312	Banas_Morel_067_RJ2902_AL	1	5	5
112.	Kasba Bonli	76.257	26.301	Banas_Morel_067_RJ2902_AL	1	5	5
113.	Kasba Bonli	76.260	26.317	Banas_Morel_067_RJ2902_AL	1	5	5
114.	Kasba Bonli	76.255	26.321	Banas_Morel_067_RJ2902_AL	1	5	5
115.	Kasba Bonli	76.252	26.323	Banas_Morel_067_RJ2902_AL	1	5	5
116.	Kasba Bonli	76.257	26.326	Banas_Morel_067_RJ2902_AL	1	5	5
117.	Alooda	76.276	26.323	Banas_Morel_067_RJ2902_AL	1	5	5
118.	Kasba Bonli	76.278	26.329	Banas_Morel_067_RJ2902_AL	1	5	5
119.	Alooda	76.288	26.327	Banas_Morel_067_RJ2902_AL	1	5	5
120.	Mamdoli	76.294	26.322	Banas_Morel_067_RJ2902_AL	1	5	5

121.	Mamdoli	76.296	26.320	Banas_Morel_067_RJ2902_AL	1	5	5
122.	Mamdoli	76.300	26.324	Banas_Morel_067_RJ2902_AL	1	5	5
123.	Mamdoli	76.303	26.312	Banas_Morel_067_RJ2902_AL	1	5	5
124.	Mamdoli	76.301	26.309	Banas_Morel_067_RJ2902_AL	1	5	5
125.	Alooda	76.288	26.307	Banas_Morel_067_RJ2902_AL	1	5	5
126.	Mamdoli	76.313	26.305	Banas_Morel_067_RJ2902_AL	1	5	5
127.	Mamdoli	76.314	26.313	Banas_Morel_067_RJ2902_AL	1	5	5
128.	Kodyai	76.315	26.330	Banas_Morel_067_RJ2902_AL	1	5	5
129.	Galad Khurd	76.339	26.334	Banas_Morel_067_RJ2902_AL	1	5	5
130.	Galad Kalan	76.335	26.312	Banas_Morel_067_RJ2902_AL	1	5	5
131.	Tond	76.392	26.378	Banas_Morel_067_RJ2902_AL	1	5	5
132.	Jastana	76.387	26.373	Banas_Morel_067_RJ2902_AL	1	5	5
133.	Jastana	76.380	26.359	Banas_Morel_067_RJ2902_AL	1	5	5
134.	Chak Shahpura	76.378	26.352	Banas_Morel_067_RJ2902_AL	1	5	5
135.	Shahpura	76.374	26.348	Banas_Morel_067_RJ2902_AL	1	5	5
136.	Chainpura	76.375	26.335	Banas_Morel_067_RJ2902_AL	1	5	5
137.	Malarna Chaur	76.398	26.335	Banas_Morel_067_RJ2902_AL	1	5	5
138.	Malarna Chaur	76.395	26.346	Banas_Morel_067_RJ2902_AL	1	5	5
139.	Chak Samrathpura	76.418	26.342	Banas_Morel_067_RJ2902_AL	1	5	5
140.	Neemod	76.417	26.361	Banas_Morel_067_RJ2902_AL	1	5	5
141.	Karel	76.438	26.348	Banas_Morel_067_RJ2902_AL	1	5	5
142.	Kasba Bonli	76.267	26.292	Banas_Morel_067_RJ2902_AL	1	5	5
143.	Pooneta	76.276	26.292	Banas_Morel_067_RJ2902_AL	1	5	5
144.	Pooneta	76.280	26.291	Banas_Morel_067_RJ2902_AL	1	5	5
145.	Sotoli	76.267	26.285	Banas_Morel_067_RJ2902_AL	1	5	5
146.	Harsota	76.282	26.263	Banas_Morel_067_RJ2902_AL	1	5	5
147.	Harsota	76.282	26.271	Banas_Morel_067_RJ2902_AL	1	5	5
148.	Harsota	76.280	26.270	Banas_Morel_067_RJ2902_AL	1	5	5
149.	Harsota	76.281	26.277	Banas_Morel_067_RJ2902_AL	1	5	5
150.	Deota	76.305	26.274	Banas_Morel_067_RJ2902_AL	1	5	5
151.	Harsoti	76.301	26.267	Banas_Morel_067_RJ2902_AL	1	5	5
152.	Harsota	76.296	26.261	Banas_Morel_067_RJ2902_AL	1	5	5
153.	Khirni	76.299	26.245	Banas_Morel_067_RJ2902_AL	1	5	5
154.	Khirni	76.313	26.255	Banas_Morel_067_RJ2902_AL	1	5	5
155.	Khirni	76.312	26.251	Banas_Morel_067_RJ2902_AL	1	5	5
156.	Khirni	76.322	26.253	Banas_Morel_067_RJ2902_AL	1	5	5
157.	Harsoti	76.285	26.281	Banas_Morel_067_RJ2902_AL	1	5	5
158.	Harsoti	76.289	26.280	Banas_Morel_067_RJ2902_AL	1	5	5
159.	Harsoti	76.296	26.278	Banas_Morel_067_RJ2902_AL	1	5	5
160.	Deota	76.310	26.274	Banas_Morel_067_RJ2902_AL	1	5	5
161.	Deota	76.310	26.281	Banas_Morel_067_RJ2902_AL	1	5	5
162.	Gadota	76.301	26.290	Banas_Morel_067_RJ2902_AL	1	5	5
163.	Pooneta	76.301	26.292	Banas_Morel_067_RJ2902_AL	1	5	5

164.	Deota	76.322	26.283	Banas_Morel_067_RJ2902_AL	1	5	5
165.	Malarna Chaur	76.357	26.316	Banas_Morel_067_RJ2902_AL	1	5	5
166.	Malarna Chaur	76.382	26.315	Banas_Morel_067_RJ2902_AL	1	5	5
167.	Malarna Chaur	76.384	26.316	Banas_Morel_067_RJ2902_AL	1	5	5
168.	Malarna Chaur	76.380	26.301	Banas_Morel_067_RJ2902_AL	1	5	5
169.	Malarna Chaur	76.375	26.304	Banas_Morel_067_RJ2902_AL	1	5	5
170.	Larota	76.348	26.289	Banas_Morel_067_RJ2902_AL	1	5	5
171.	Larota	76.353	26.289	Banas_Morel_067_RJ2902_AL	1	5	5
172.	Baragaon @ Kahar	76.382	26.284	Banas_Morel_067_RJ2902_AL	1	5	5
173.	Malarna Chaur	76.377	26.293	Banas_Morel_067_RJ2902_AL	1	5	5
174.	Malarna Chaur	76.394	26.288	Banas_Morel_067_RJ2902_AL	1	5	5
175.	Taranpur	76.402	26.279	Banas_Morel_067_RJ2902_AL	1	5	5
176.	Shripura	76.412	26.297	Banas_Morel_067_RJ2902_AL	1	5	5
177.	Aniyala	76.407	26.308	Banas_Morel_067_RJ2902_AL	1	5	5
178.	Malarna Chaur	76.409	26.315	Banas_Morel_067_RJ2902_AL	1	5	5
179.	Aniyala	76.417	26.307	Banas_Morel_067_RJ2902_AL	1	5	5
180.	Didwara	76.427	26.314	Banas_Morel_067_RJ2902_AL	1	5	5
181.	Ramri	76.429	26.306	Banas_Morel_067_RJ2902_AL	1	5	5
182.	Shripura	76.424	26.295	Banas_Morel_067_RJ2902_AL	1	5	5
183.	Mohammadpura	76.435	26.296	Banas_Morel_067_RJ2902_AL	1	5	5
184.	Manoli	76.442	26.290	Banas_Morel_067_RJ2902_AL	1	5	5
185.	Bhadkoli	76.362	26.271	Banas_Morel_067_RJ2902_AL	1	5	5
186.	Baragaon @ Kahar	76.367	26.266	Banas_Morel_067_RJ2902_AL	1	5	5
187.	Baragaon @ Kahar	76.369	26.260	Banas_Morel_067_RJ2902_AL	1	5	5
188.	Bharoti	76.377	26.254	Banas_Morel_067_RJ2902_AL	1	5	5
189.	Rasoolpura	76.387	26.255	Banas_Morel_067_RJ2902_AL	1	5	5
190.	Rasoolpura	76.390	26.260	Banas_Morel_067_RJ2902_AL	1	5	5
191.	Shri Kishanpura Chak No.1	76.392	26.267	Banas_Morel_067_RJ2902_AL	1	5	5
192.	Chak Bharoti	76.386	26.273	Banas_Morel_067_RJ2902_AL	1	5	5
193.	Sesa	76.415	26.255	Banas_Morel_067_RJ2902_AL	1	5	5
194.	Gambheera	76.392	26.243	Banas_Morel_067_RJ2902_AL	1	5	5
195.	Diwara	76.431	26.250	Banas_Morel_067_RJ2902_AL	1	5	5
196.	Diwara	76.431	26.255	Banas_Morel_067_RJ2902_AL	2	5	10
197.	Malarna Doongar	76.456	26.269	Banas_Morel_067_RJ2902_AL	1	5	5
198.	Barh Bhookha	76.468	26.240	Banas_Morel_067_RJ2902_AL	1	5	5
199.	Baloli	76.481	26.246	Banas_Morel_067_RJ2902_AL	1	5	5
200.	Peepalwara Nadi	76.477	26.233	Banas_Morel_067_RJ2902_AL	1	5	5
201.	Paniyala	76.545	26.281	Banas_Morel_067_RJ2902_AL	1	5	5
202.	Kothali	76.522	26.250	Banas_Morel_067_RJ2902_AL	1	5	5
203.	Raghuwanti	76.555	26.240	Banas_Morel_067_RJ2902_AL	1	5	5

204.	Raghuwanti	76.559	26.222	Banas_Morel_067_RJ2902_AL	1	5	5
					227		1135

Fig: 1: Tentative location of Recharge Shaft



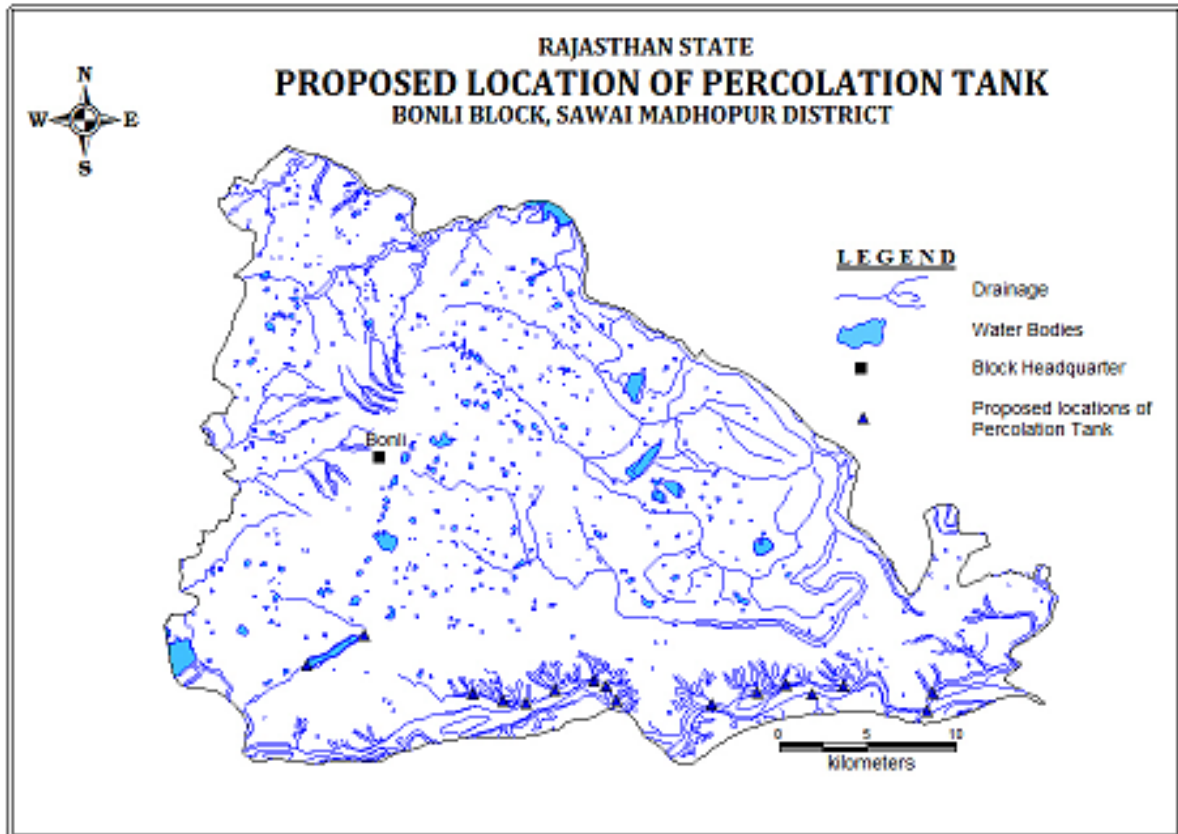
Percolation Tank

The tentative location of villages for construction of percolation tank and their cost estimates are shown in Fig 2 and Table 4

Table 4: Tentative locations of village for Percolation Tanks

S. No.	Village	Longitude	Latitude	Micro Watershed	Unit Cost (Rs. In lacs)
1	Hathroli	76.278	26.208	Banas_Banas_003_RJ2902_AL	40
2	Maheshra	76.295	26.204	Banas_Banas_003_RJ2902_AL	40
3	Maheshra	76.308	26.203	Banas_Banas_003_RJ2902_AL	40
4	Jolanda	76.324	26.210	Banas_Banas_003_RJ2902_AL	40
5	Jolanda	76.346	26.215	Banas_Banas_003_RJ2902_AL	40
6	Dehlod	76.353	26.212	Banas_Banas_003_RJ2902_AL	40
7	Dehlod	76.359	26.205	Banas_Banas_003_RJ2902_AL	40
8	Bhookha	76.470	26.208	Banas_Banas_003_RJ2902_AL	40
9	Bharja Nadi	76.413	26.203	Banas_Banas_003_RJ2902_AL	40
10	Gojari	76.439	26.208	Banas_Banas_003_RJ2902_AL	40
11	Bhookha	76.455	26.212	Banas_Banas_003_RJ2902_AL	40
12	Barh Peepalwara Chak No.2	76.488	26.212	Banas_Banas_003_RJ2902_AL	40
13	Barh Biloli	76.538	26.208	Banas_Banas_003_RJ2902_AL	40
14	Barh Peelwa	76.535	26.199	Banas_Banas_003_RJ2902_AL	40
15	Peepalwara	76.216	26.238	Banas_Gudia_041_RJ2902_AL	40
16	Bagroli	76.184	26.223	Banas_Gudia_041_RJ2902_AL	40
				Total	640

Fig. 2: Tentative location of Percolation Tank



Demand Side Management

Efficient Irrigation:

In Flood/ furrow irrigation method more than 50% of applied water is wasted through seepage to deeper levels, local inundation causes loss through evaporation and it leaches out the nutrients from the plants. While through drip and sprinkler irrigation method, wastage through irrigation losses could be minimized. Ground water usage can be minimized drastically by using HDPE pipes. Initially the scheme can be proposed to be started in 300 ha area, which is worst affected showing deepest water level and declining trends. The area is to be finalized based on land holdings, willingness of farmers and No Objection certificate from the land owner.

Impact Assessment and Monitoring

Assessment of impact of the artificial recharge schemes implemented is essential to assess the efficacy of structures constructed. It helps in identification of cost-effective recharge mechanisms for optimal recharge into the ground water system. It also helps to make necessary modifications in site selection, design and construction of structures in future.

It is proposed to construct 100 piezometers, at suitable locations for monitoring of water levels, in the vicinity of proposed recharge structure.

Revival, Repair of Water Bodies

The existing ponds and tanks with time loose their storage capacity as well as the natural ground water recharge through these water bodies has also become negligible due to siltation and encroachment by farmers for agriculture purposes. There are several such villages where ponds/ tanks are in dilapidated condition. These existing village tanks, which are normally silted and damaged, can be modified to serve as recharge structure in case these are suitably located to serve as percolation tanks. Through desilting, coupled with providing proper waste weir, the village tanks can be converted into recharge structure.

Financial Outlay of the Plan

The total estimated cost of the Plan is Rs. 20.843 cr. The tentative cost estimates of the various activities of the Plan are shown in Table 5 & 6. The unit rates are as followed by the Govt. of Rajasthan (BSR).

Table 5: Cost of the recharge structures

Cost Recharge Shaft Rs in crs (Unit cost Rs 0.05 cr for alluvium and Rs 0.026 cr for hard rock)	Cost of Percolation Tank in Rs in crs (Unit cost Rs 0.4 cr)	Cost of Sprinkler irrigation in Rs (Unit cost 0.005 cr/ha)
Soft rock – 11.35	6.40	1.50

Table 6: Tentative cost of different activities

Feasible Artificial Recharge & Water Conservation structures/ activities	Tentative Design	Quantity (in nos. or area in ha)	Rainwater harvested (MCM) or No. of sprinklers (/ha)	Tentative unit cost (in Rs lakh)	Total tentative cost (in Rs lakh)	Expected Annual GW recharge/ conservation (MCM) @ 0.8 MCM/structure
Recharge Structures/ Activities						
Recharge shaft within the pond /tanks	Alluvium – Depth 80m, Dia: 10-12” with filter pit	227	7.95	5	1135	6.36
	Hard rock: Depth –60m, Dia 10-12”with filter pit	-	-	-	-	-
Percolation tanks (3 fillings)	200m*200m*1.5 m	16	3.2	40	640	2.56
Water Conservation Measures	Sprinkler Irrigation	300 ha	25	0.5/ha	150	0.24
		Total			1925	9.16
Impact assessment & Monitoring						
Piezometer	50 – 80 m	100		0.6	60	
<i>Impact assessment will be carried out by implementing agency</i>						
O & M - 5% of total cost of the scheme					99.25	
TOTAL					2084.25	9.16

Note: Type, number and cost of structure may vary according to site after ground verification