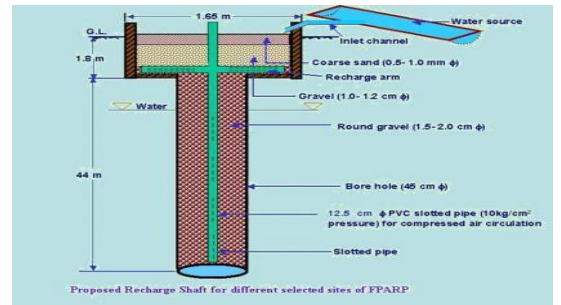
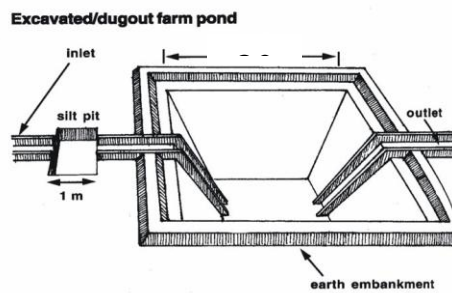




**CENTRAL GROUND WATER BOARD**  
MINISTRY OF WATER RESOURCES,  
RIVER DEVELOPMENT & GANGA REJUVENATION  
GOVERNMENT OF INDIA



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

Western Region, Jaipur  
February 2017

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

## Plan at a Glance

1.	<b>Area of the Sawai Madhopur Block</b>	<b>1195.74 Sq. km.</b>
2.	<b>Area identified for Artificial Recharge</b>	<b>1008.29 sq km</b>
3.	<b>Dynamic Ground Water Resources (as on 31.03.2011)</b>	
	Net Ground Water Availability	<b>89.77 MCM</b>
	Annual Ground Water Draft	<b>121.57 MCM</b>
	Stage of Ground Water Development	<b>135.43 %</b>
4.	<b>Volume of water to be harnessed</b>	<b>85.76 MCM</b>
	<b>Volume of water available for recharge through RS</b>	<b>5.15 MCM</b>
	<b>Volume of water available for recharge through PT</b>	<b>8.40 MCM</b>
5.	<b>Volume of unsaturated aquifer zone available for recharge</b>	<b>1142.519 MCM</b>
6.	<b>Total number of structures to be proposed</b>	
	<b>Recharge structures</b>	<b>147 shafts in 132</b>
	Existing village pond with recharge shaft/ well	<b>Nos. of existing</b>
		<b>village ponds</b>
	Percolation Tanks	<b>42 Nos</b>
	Sprinkler Irrigation	<b>300 ha</b>
	<b>Expected Annual GW recharge</b>	<b>10.84 MCM</b>
	<b>Provision for supplemental irrigation, thus reducing GW withdrawal for irrigation</b>	<b>0.24 MCM</b>
	<b>Total recharge/ saving of ground water</b>	<b>11.08 MCM</b>
7.	<b>Estimated Cost</b>	<b>25.95 crore</b>
	Artificial Recharge Plan	22.854 crore
	Sprinkler Irrigation	1.50 crore
	Piezometer construction	0.36 crore
	Operation and maintenance	1.236 crore

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

## Introduction

The **Sawai Madhopur 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 **135.43%**. 1008.29 sq. km. area is potential zone area and thus feasible for artificial recharge.

## Location of the block

The Sawai Madhopur Block covers an area of 1195.74 Sq. km. and falls in Sawai Madhopur district. It is located between North latitudes 25°54' & 26°15' and East longitudes 75°59' & 76°33'.

## 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 85.76 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	Sawai Madhopur	1195.7	1008.29	SR	420.51	0.080	32.9	29.9	1005.860
				HR	587.78	0.015	18.5	15.5	136.659

**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_RJ2905_AL	Banas	SR	122.004	2.182	Y	19	4
Banas_Banas_003_RJ2905_HR	Banas	HR	258.295	13.656	Y	44	14
Banas_Banas_012_RJ2905_AL	Banas	SR	198.210	1.055	Y	30	0
Banas_Banas_014_RJ2905_AL	Banas	SR	175.866	0.000	Y	0	0
Banas_Banas_015_RJ2905_AL	Banas	SR	284.194	28.937	Y	35	18
Banas_Banas_015_RJ2905_HR	Banas	HR	284.194	28.937	Y	10	5
Banas_Gudia_040_RJ2905_AL	Gudia	SR	73.701	0.000	Y	0	0
Banas_Gudia_041_RJ2905_AL	Gudia	SR	35.133	0.679	Y	4	0
Chambal_Chakan_002_RJ2905_AL	Chakan	SR	67.892	7.807	Y	5	1
Chambal_Chambal Downstream_006_RJ2905_HR	Chambal Downstream	HR	32.595	0.000	Y	0	0
Chambal_Chambal Downstream_007_RJ2905_HR	Chambal Downstream	HR	20.196	2.504	N	0	0
				<b>85.758</b>		<b>147</b>	<b>42</b>

### 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**

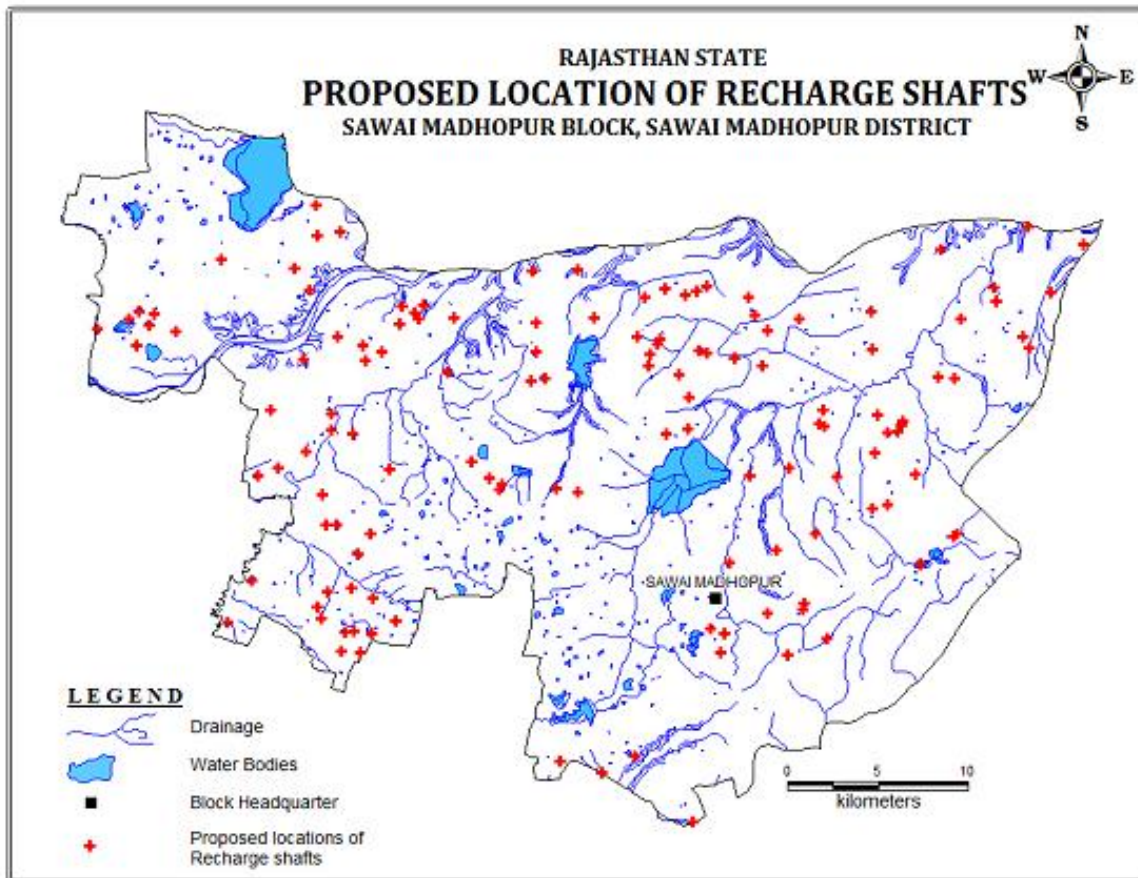
S.No.	Village	Long	Lat	Watershed	No of Shafts	Unit cost (Rs in lac)	Total cost (Rs in lac)
1.	Isarda	76.000	26.144	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
2.	Isarda	76.018	26.149	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
3.	Isarda	76.023	26.153	Banas_Banas_002_RJ2905_AL	2	5.0	10.0
4.	Isarda	76.032	26.152	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
5.	Isarda	76.029	26.146	Banas_Banas_002_RJ2905_AL	2	5.0	10.0
6.	Isarda	76.044	26.143	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
7.	Isarda	76.022	26.136	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
8.	Encher	76.110	26.175	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
9.	Encher	76.118	26.164	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
10.	Banderiya	76.114	26.129	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
11.	Bageena	76.133	26.141	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
12.	Jhonpra	76.148	26.136	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
13.	Jhonpra	76.169	26.156	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
14.	Jhonpra	76.176	26.153	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
15.	Jhonpra	76.181	26.156	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
16.	Jhonpra	76.178	26.149	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
17.	Jhonpra	76.168	26.147	Banas_Banas_002_RJ2905_AL	1	5.0	5.0
18.	Girdharpura	76.207	26.078	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
19.	Adalwara Kalan	76.218	26.070	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
20.	Adalwara Kalan	76.225	26.067	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
21.	Adalwara Kalan	76.223	26.064	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
22.	Bhagwatgarh	76.240	26.119	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
23.	Bhagwatgarh	76.248	26.120	Banas_Banas_003_RJ2905_HR	3	2.6	7.8
24.	Bhagwatgarh	76.243	26.133	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
25.	Bhagwatgarh	76.243	26.148	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
26.	Trilokpura	76.241	26.174	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
27.	Ghata Jharnya	76.266	26.174	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
28.	Bandha	76.276	26.150	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
29.	Kawad	76.254	26.065	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
30.	Kawad	76.266	26.063	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
31.	Lorwara	76.303	26.160	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
32.	Jatwara Kalan	76.315	26.165	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
33.	Jatwara Kalan	76.326	26.161	Banas_Banas_003_RJ2905_HR	1	2.6	2.6

34.	Jatwara Kalan	76.332	26.163	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
35.	Dubbi Bidarkha	76.338	26.166	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
36.	Banota	76.306	26.132	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
37.	Banota	76.311	26.137	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
38.	Lorwara	76.312	26.139	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
39.	Lorwara	76.299	26.141	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
40.	Banota	76.306	26.126	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
41.	Needarda	76.323	26.121	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
42.	Shyamota	76.333	26.134	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
43.	Shyamota	76.338	26.132	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
44.	Jarawata	76.361	26.160	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
45.	Jarawata	76.365	26.151	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
46.	Koshali	76.371	26.144	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
47.	Bhains Khera	76.389	26.149	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
48.	Gongor	76.368	26.126	Banas_Banas_003_RJ2905_HR	2	2.6	5.2
49.	Menpura	76.353	26.130	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
50.	Badolas	76.467	26.184	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
51.	Olwara	76.516	26.195	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
52.	Niwadi	76.547	26.186	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
53.	Niwadi	76.529	26.163	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
54.	Chakeri	76.429	26.153	Banas_Banas_003_RJ2905_HR	2	2.6	5.2
55.	Dubbi Khurd	76.429	26.134	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
56.	Qila Ranthambor	76.474	26.041	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
57.	Qila Ranthambor	76.476	26.042	Banas_Banas_003_RJ2905_HR	1	2.6	2.6
58.	Gardwas	76.122	26.006	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
59.	Gardwas	76.124	26.000	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
60.	Balriya	76.128	26.013	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
61.	Balriya	76.141	26.015	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
62.	Balriya	76.153	26.010	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
63.	Balriya	76.165	25.999	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
64.	Balriya	76.152	25.993	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
65.	Ramsinghpura	76.143	25.994	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
66.	Ramsinghpura	76.137	25.993	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
67.	Ramsinghpura	76.136	25.984	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
68.	Ramsinghpura	76.146	25.983	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
69.	Kumhariya	76.086	26.019	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
70.	Jajera	76.073	25.998	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
71.	Dholi	76.096	26.104	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
72.	Paondera	76.089	26.071	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
73.	Gunseela	76.116	26.083	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
74.	Nayagaon	76.130	26.094	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
75.	Bansla	76.130	26.102	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
76.	Nayagaon	76.142	26.092	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
77.	Paondera	76.100	26.075	Banas_Banas_012_RJ2905_AL	1	5.0	5.0

78.	Vijaipura	76.125	26.062	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
79.	Chainpura	76.127	26.047	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
80.	Chainpura	76.132	26.047	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
81.	Chauth Ka Barwara	76.151	26.043	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
82.	Chauth Ka Barwara	76.144	26.033	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
83.	Jhonpra	76.158	26.133	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
84.	Jagmoda	76.148	26.128	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
85.	Sirohi	76.197	26.150	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
86.	Bhedoli	76.162	26.075	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
87.	Bhagwatgarh	76.194	26.123	Banas_Banas_012_RJ2905_AL	1	5.0	5.0
88.	Soorwal	76.328	26.110	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
89.	Mahu	76.327	26.095	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
90.	Sunari	76.316	26.092	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
91.	Hingoni	76.496	26.165	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
92.	Rahitha Kalan	76.479	26.149	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
93.	Shyampura	76.498	26.158	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
94.	Shyampura	76.513	26.140	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
95.	Shyampura	76.516	26.135	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
96.	Kundera	76.466	26.121	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
97.	Kundera	76.475	26.120	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
98.	Sawai Madhopur (M+OG)	76.371	26.003	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
99.	Qila Ranthambor	76.346	25.983	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
100.	Sawai Madhopur (M+OG)	76.347	25.993	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
101.	Alanpur (Rural)	76.340	25.995	Banas_Banas_015_RJ2905_AL	2	5.0	10.0
102.	Sawai Madhopur (M+OG)	76.350	26.028	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
103.	Khatupura	76.376	26.034	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
104.	Qila Ranthambor	76.398	26.042	Banas_Banas_015_RJ2905_AL	2	5.0	10.0
105.	Karmoda	76.362	26.072	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
106.	Dondri	76.383	26.075	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
107.	Khilchipur	76.410	26.070	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
108.	Khandoj	76.453	26.072	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
109.	Qila Ranthambor	76.438	26.057	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
110.	Qila Ranthambor	76.430	26.055	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
111.	Chharoda	76.400	26.097	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
112.	Chharoda	76.403	26.096	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
113.	Chharoda	76.402	26.104	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
114.	Ranwal	76.433	26.101	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
115.	Uliyana	76.443	26.093	Banas_Banas_015_RJ2905_AL	2	5.0	10.0
116.	Uliyana	76.446	26.097	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
117.	Ranwal	76.446	26.099	Banas_Banas_015_RJ2905_AL	1	5.0	5.0

118.	Uliyana	76.438	26.093	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
119.	Khawa	76.431	26.083	Banas_Banas_015_RJ2905_AL	1	5.0	5.0
120.	Qila Ranthambor	76.391	26.005	Banas_Banas_015_RJ2905_HR	1	2.6	2.6
121.	Qila Ranthambor	76.392	26.008	Banas_Banas_015_RJ2905_HR	2	2.6	5.2
122.	Qila Ranthambor	76.405	25.990	Banas_Banas_015_RJ2905_HR	2	2.6	5.2
123.	Qila Ranthambor	76.382	25.982	Banas_Banas_015_RJ2905_HR	1	2.6	2.6
124.	Qila Ranthambor	76.456	26.027	Banas_Banas_015_RJ2905_HR	4	2.6	10.4
125.	Sarsop	76.069	26.179	Banas_Gudia_041_RJ2905_AL	1	5.0	5.0
126.	Jharoda	76.122	26.191	Banas_Gudia_041_RJ2905_AL	1	5.0	5.0
127.	Jharoda	76.135	26.193	Banas_Gudia_041_RJ2905_AL	1	5.0	5.0
128.	Jharoda	76.121	26.206	Banas_Gudia_041_RJ2905_AL	1	5.0	5.0
129.	Juwar	76.298	25.932	Chambal_Chakan_002_RJ2905_AL	2	5.0	10.0
130.	Rawanjna Doongar	76.330	25.899	Chambal_Chakan_002_RJ2905_AL	1	5.0	5.0
131.	Juwar	76.279	25.923	Chambal_Chakan_002_RJ2905_AL	1	5.0	5.0
132.	Mui	76.257	25.929	Chambal_Chakan_002_RJ2905_AL	1	5.0	5.0
					<b>147</b>		<b>605.4</b>

**Fig: 1: Tentative location of Recharge Shaft**





## Percolation Tank

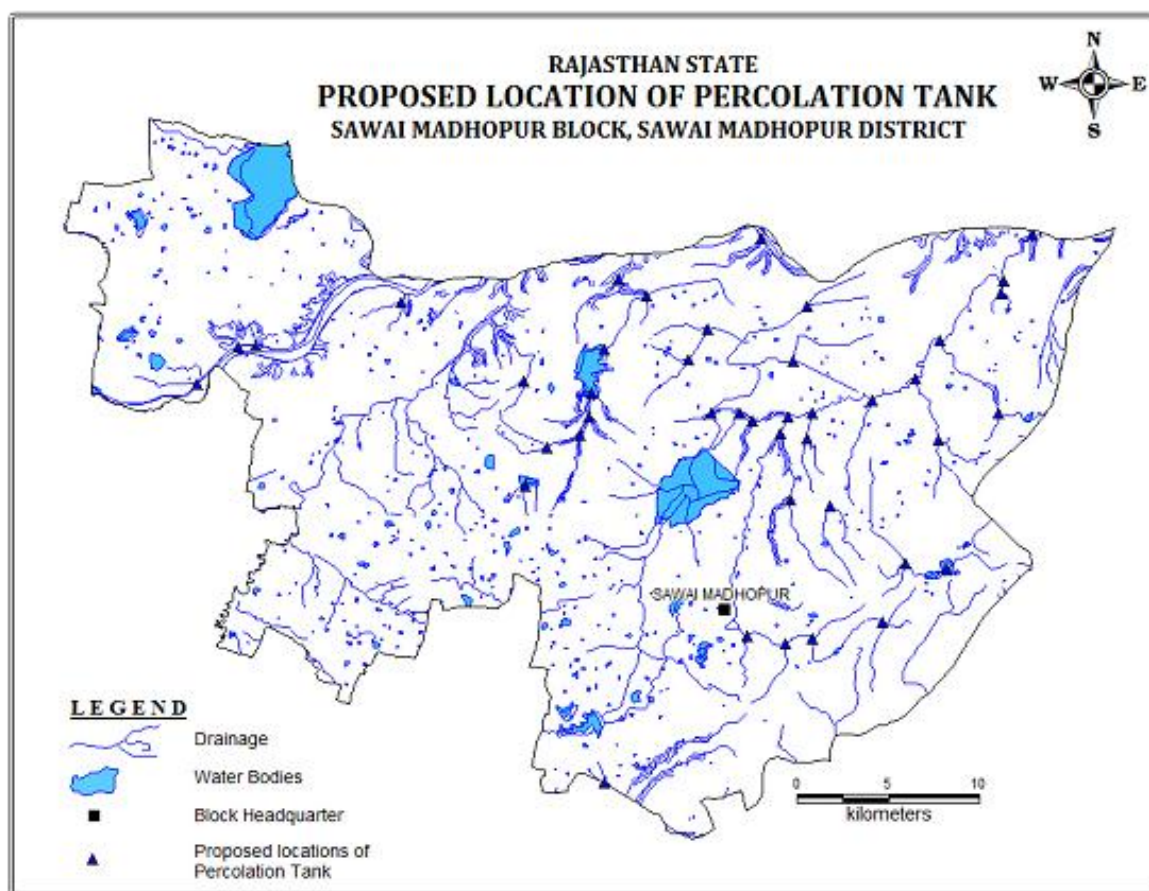
The tentative location of villages for construction of percolation tank and their cost estimates are shown in Fig 2 and Table 4

**Table 4: Tentative locations of village for Percolation Tanks**

S. No.	Village	Longitude	Latitude	Micro Watershed	Unit Cost (Rs. In lacs)
1	Solpur	76.054	26.122	Banas_Banas_002_RJ2905_AL	40
2	Dholi	76.076	26.140	Banas_Banas_002_RJ2905_AL	40
3	Deoli	76.086	26.140	Banas_Banas_002_RJ2905_AL	40
4	Jhonpra	76.166	26.162	Banas_Banas_002_RJ2905_AL	40
5	Bhagwatgarh	76.233	26.123	Banas_Banas_003_RJ2905_HR	40
6	Adalwara Khurd	76.245	26.090	Banas_Banas_003_RJ2905_HR	40
7	Manpur	76.270	26.117	Banas_Banas_003_RJ2905_HR	40
8	Manpur	76.268	26.105	Banas_Banas_003_RJ2905_HR	40
9	Manpur	76.264	26.096	Banas_Banas_003_RJ2905_HR	40
10	Adalwara Kalan	76.233	26.071	Banas_Banas_003_RJ2905_HR	40
11	Jatwara Kalan	76.333	26.149	Banas_Banas_003_RJ2905_HR	40
12	Needarda	76.323	26.134	Banas_Banas_003_RJ2905_HR	40
13	Bandha	76.277	26.139	Banas_Banas_003_RJ2905_HR	40
14	Kherli Khalsa	76.284	26.173	Banas_Banas_003_RJ2905_HR	40
15	Lorwara	76.300	26.165	Banas_Banas_003_RJ2905_HR	40
16	Dubbi Bidarkha	76.363	26.193	Banas_Banas_003_RJ2905_HR	40
17	Khat Khurd	76.389	26.160	Banas_Banas_003_RJ2905_HR	40
18	Bhains Khera	76.380	26.133	Banas_Banas_003_RJ2905_HR	40
19	Sawai Madhopur (M+OG)	76.356	25.997	Banas_Banas_015_RJ2905_AL	40
20	Soorwal	76.351	26.107	Banas_Banas_015_RJ2905_AL	40
21	Soorwal	76.336	26.107	Banas_Banas_015_RJ2905_AL	40
22	Soorwal	76.358	26.103	Banas_Banas_015_RJ2905_AL	40
23	Dhanoli	76.378	26.106	Banas_Banas_015_RJ2905_AL	40
24	Dhanoli	76.391	26.107	Banas_Banas_015_RJ2905_AL	40
25	Phoosoda	76.389	26.094	Banas_Banas_015_RJ2905_AL	40
26	Soorwal	76.374	26.097	Banas_Banas_015_RJ2905_AL	40
27	Ranwal	76.424	26.113	Banas_Banas_015_RJ2905_AL	40
28	Bhadlao	76.448	26.124	Banas_Banas_015_RJ2905_AL	40
29	Uliyana	76.460	26.094	Banas_Banas_015_RJ2905_AL	40
30	Dondri	76.379	26.065	Banas_Banas_015_RJ2905_AL	40
31	Chakeri	76.461	26.143	Banas_Banas_015_RJ2905_AL	40
32	Olwara	76.512	26.195	Banas_Banas_015_RJ2905_AL	40
33	Hingoni	76.496	26.173	Banas_Banas_015_RJ2905_AL	40
34	Hingoni	76.495	26.166	Banas_Banas_015_RJ2905_AL	40
35	Parli	76.493	26.107	Banas_Banas_015_RJ2905_AL	40

S. No.	Village	Longitude	Latitude	Micro Watershed	Unit Cost (Rs. In lacs)
36	Khilchipur	76.401	26.061	Banas_Banas_015_RJ2905_AL	40
37	Sawai Madhopur (M+OG)	76.377	25.993	Banas_Banas_015_RJ2905_HR	40
38	Qila Ranthambor	76.391	25.996	Banas_Banas_015_RJ2905_HR	40
39	Qila Ranthambor	76.429	26.004	Banas_Banas_015_RJ2905_HR	40
40	Qila Ranthambor	76.442	26.033	Banas_Banas_015_RJ2905_HR	40
41	Qila Ranthambor	76.464	26.030	Banas_Banas_015_RJ2905_HR	40
42	Juwar	76.277	25.925	Chambal_Chakan_002_RJ2905_AL	40
					1680

**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 60 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. 25.95 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 – 4.65 Hard rock- 1.404	16.80	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
<b>Recharge Structures/ Activities</b>						
Recharge shaft within the pond /tanks	Alluvium – Depth 80m, Dia: 10-12” with filter pit	93	3.26	5	465	2.60
	Hard rock: Depth –60m, Dia 10-12”with filter pit	54	1.89	2.60	140.40	1.50
Percolation tanks (3 fillings)	200m*200m*1.5 m	42	8.40	40	1680	6.72
Water Conservation Measures	Sprinkler Irrigation	300 ha	25	0.5/ha	150	0.24
		<b>Total</b>			<b>2435.40</b>	<b>11.06</b>
<b>Impact assessment &amp; Monitoring</b>						
Piezometer	50 – 80 m	60		0.6	36	
<i>Impact assessment will be carried out by implementing agency</i>						
O & M - 5% of total cost of the scheme					123.57	
<b>TOTAL</b>					<b>2594.97</b>	<b>11.06</b>

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