



GOVERNMENT OF RAJASTHAN
GROUND WATER DEPARTMENT



Borrower's Completion Report
of
Ground Water Department

OFFICE OF THE SUPERINTENDING HYDROGEOLOGIST
Ground Water Department

Jaipur

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1. Background

The Rajasthan Agricultural Competitiveness Project Management & Implementation Society (RACP-MIS) of 832.50 Crores has received credit from World Bank towards the cost of the Rajasthan Agricultural Competitiveness Project and intends to apply part of the proceeds for consultancy services. After restructuring of the project in 2016-17, RACP is under implementation in 17 clusters. Out of 17 clusters only **3 clusters namely Pisangan, Bonli & Sangod are the Groundwater based water theme the clusters** selected for sustainable management of groundwater resources. These clusters are categorized as “Over-Exploited” as per the Assessment Report 2013 and 2017.

2. Objective of the Scheme

The aims of Ground Water clusters are to achieve sustainability of ground water resources (i.e. aquifers) selected over a time and supported under the project. Achieving sustainability of groundwater sources are envisaged to take place through community-based approaches with public support striving to reach a situation over a meaningful period of time in which the annual water extraction from the aquifer is limited to the annual ground water recharge. This requires changes in ground water extraction rates as well as efficient on farm water usages including among others i.e., as follows:

- i. An accurate measurement of ground water extraction in the aquifer
- ii. Bringing a balance between water recharge and extraction over time
- iii. Efficient use of ground water through demonstration of water efficient technologies for irrigation, Drip & Sprinklers etc. and promotion of high value agriculture as well as Promotion of crops introduced and/or supported as part of improved crops rotation and management practices with lower water requirements.

The department is taking care of all the project related activities after November 2018; after the termination of Consultancy agency, with the help of PIAs, as per the demand of CACP.

3. Ground Water Cluster and Jurisdiction

S. No	Name of Cluster	Area in Ha.	Project Implementation Agency	Nodal Officer	Head of the Deptt.
1.	Bonli	31825	Senior Hydrogeologist, Jaipur	Superintending Hydrogeologist, Jaipur	Chief Engineer, Jodhpur
2.	Pisangan	24689	Senior Hydrogeologist, Ajmer		
3.	Sangod	20979	Senior Hydrogeologist, Kota		

4. Planning and Implementation Agency:

Under re-structuring, the planning and implementation of Sub Plan related to Ground Water will be carried out by the Ground Water Department (GoR). All the procurement to implement activities under Ground Water Sub Plan has to be done by PMU, RACP as per Procurement Management Manual of RACP & World Bank Procurement Guidelines & Procedures.

At the State Level Project Implementation Agency (PIU) is already established headed by Nodal Officer along with other supporting staff. A Project Implementation Agency (PIA) at clusters level are already established headed by the Senior Hydrogeologist of GWD, who has to be responsible for planning and implementation of activities under Ground Water sub plan.

Detail of Clusters and allocation of Budget Provision for GW Clusters.

S. No.	DISTRICT	CLUSTER	AREA (Ha.)	No. of Gram Panchayat	No. of Village	Earlier Cost of Project (in Lakhs)	Revised Cost of Project after MTR (in Lakhs)
1	AJMER	PISANGAN	31825	23	44	1409.20	1340.66
2	KOTA	SANGOD	24689	14	64	1591.76	1307.28
3	SWAI-MADHOPUR	BONLI	20979	17	47	1407.82	1304.86
	TOTAL		77493	54	155	4408.78	3952.80
4	PIU Level Cost					65.12	28.35
	Grand Total (3 CLUSTER + PIU, Ground Water)					4473.90	3981.15
	Transfer to Agriculture & Horticulture Departments as per decision of Steering committee, RACPMIS for Farm Pond & MIS activities						1702.50
	Net Outlay for GWD						2278.65
	Rs. 1305 Lakhs saving from Installation of water meter & Rs. 294 Lakhs saving from termination of consultancy agencies (Total Rs. 1599.00 Lakhs) has been Transferred to Agriculture department vide letter no. 17881-96 dated 22.03.2018						1599.00

	Revised Net Outlay for GWD as per CACP		679.65
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5. Facilitating Agencies:

For the preparation of sub plan and implementation for all three GW Clusters Consultancy agency have to be hired & deployed in the respective clusters by the RACP-PMU. The task has to be performed by the Agencies are elaborated in detail as per ToR, prepared for the GW purpose. NGOs are also engaged in the cluster area to implement, supervise the field activities effectively & ensure coordination social mobilisation, community organization, support in planning and implementation, a Non-Government Organization (NGO) has to be hired & deployed in the cluster by the RACP-PMU. The NGO has work in cluster under the supervision of all the line departments & overall supervision has to be done DPMU established under RACP.

6. Activities to be taken under Ground Water Management

- Demarcation of Aquifer Boundary with help of detail Hydrogeological Survey & Geophysical Survey.
- Construction of Piezometers and observation wells to measure water level in the cluster area and aquifer parameters
- Installation of Telemetric Digital Water Level Recorder (TDWLR) for retrieve real time water level data.
- Installation of Water Meters for the purpose of measure the actual agricultural Draft of farmers field.
- IEC activity for sensitizing and mobilization of community participation of the cluster area.

7. Procurement done by GWD

The following Procurement has been done by GWD:

S.No	Name of Activity	Activity Reference No.	Goods/Works/ Consultancy	Name of Firm	Contract Value in Lakh Rs.	Contract Date	Contract Completion Date
1.	Supply, Installation, Testing and Commissioning of Water Meter	IN-PMU-RACP-76952-GO-RFQ	Goods	M/s Toshniwal Industries Pvt. Ltd.	33.60	05.10.2018	31.05.2019
2.	Procurement of DWLR Telemetric	IN-PMU-RACP-1700-GO-RFB	Goods	M/s Encardio-Rite Electronics Pvt Ltd	91.91	06.04.2018	31.12.2019
3.	Construction of Piezometers and	IN-PMU-RACP-22606-CW-FCA	Works	Chief Engineer, Ground Water	119.36	19.12.2017	31.03.2019

	Obsevation Wells			Department, Jodhpur			
4.	Consultancy agency for planning and implementation of ground water sub plan in three clusters	IN-PMU-RACP-1678-CS-QCBS	Consultant Services	M/s Satya An NGO, Bonli	175.4	07.11.2016	23.01.2018
				M/s Satya An NGO, Sangod	176.63	07.11.2016	23.01.2019
				M/s Arpan Seva Sansthan, Pisangan	170.42	10.10.2016	23.01.2020
5.	Supply of Two Executive Office Chairs.	IN-GWD - RACP-60813-GO-RFQ	Goods	M/s JyothiRaj Enterprises, Jaipur	0.12	10/10/2018	21/10/2018
6.	Supply and Installation of Distilled Water Plant.	IN-GWD - RACP-60817-GO-RFQ	Goods	M/s Vedant Sales Corporation, Jaipur	0.63	05/10/2018	20/10/2018
7.	Supply and Installation of LED display 32'	IN-GWD - RACP-52707-GO-RFQ	Goods	M/s Agoan Electronics, Jaipur	0.26	11/10/2018	21/10/2018
8.	Supply of Electronic Water Level Sounder in Bonli cluster, District Sawai Madhopur.	IN-GWD - RACP-5285-GO-RFQ	Goods	M/s Encardio-rite Electronics, Lucknow	0.55	23/03/2017	02/04/2017
9.	Supply of Electronic Water Level Sounder in Pisangan cluster, District Ajmer.	IN-GWD - RACP-5289-GO-RFQ	Goods	M/s Kaizen Imperial Sciential leaders, New Delhi	0.29	14/03/2017	31/03/2017
10.	Supply & Installation of Digital Electrical Conductivity Meter	IN-GWD - RACP-22655-GO-RFQ	Goods	M/s Metro Trading Corporation, Jaipur	0.05	14/09/2017	29/09/2017
11.	Supply & Installation of Nephloimeter	IN-GWD - RACP-22662-GO-RFQ	Goods	M/s Metro Trading Corporation, Jaipur	0.11	14/09/2017	29/09/2017
12.	Supply, Installation and Commissioning of LCD Projector for Conference Hall at SHG & Nodal Officer, PIU-RACP, GWD, Jaipur	IN-GWD - RACP-22641-GO-RFQ	Goods	M/s Gupta Computers, Jaipur	0.45	17/10/2017	01/11/2017

13.	Supply & Installation of Refrigerator	IN-GWD - RACP-22667-GO-RFQ	Goods	M/s Agoan Electronics, Jaipur	0.43	17/11/2017	27/11/2017
14.	Supply & Installation of Flame Photometer	IN-GWD - RACP-22650-GO-RFQ	Goods	M/s Metro Trading Corporation , Jaipur	0.4	14/09/2017	29/09/2017
15.	Supply of Handled GPS in Pisangan cluster, District Ajmer	IN-GWD - RACP-5437-GO-RFQ	Goods	M/s Asim Navigation, Delhi	0.88	24/03/2017	31/03/2017
16.	Supply & Installation of Digital pH Meter	IN-GWD - RACP-22659-GO-RFQ	Goods	M/s Metro Trading Corporation , Jaipur	0.1	15/09/2017	29/09/2017

8. Outcome:

1. By construction of 83 Piezometers, 13 Observation wells, installation of 81 TDWLR and 200 Water Meter installation (to measure the draft of wells in the farmers field) etc. for regular monitoring of water level in all three Ground Water cluster by which ground water department has successfully completed pilot study and reached to a certain goal.
2. On the basis of water level monitoring ground water assessment report was prepared. It shows improvement in the stage of ground water extraction in the cluster area.
3. The comparison of ground water contour map of Pre-monsoon 2018 and Pre-monsoon 2020 is showing the improvement in water level particularly the rising trend. Similarly some of the Hydrograph prepared with the average rain fall also show the rising trend of water level in the cluster area. Therefore objective of the project to arrest the declining trend of ground water have been achieved.
4. On the basis of Geophysical Report, the demarcation of aquifer boundaries have been done and freeze for future activity.
5. The result of Ground water analysis obtained from ground water department laboratory shows improvement in quality of Bonli ground water cluster area. Particularly in EC and other important parameters like F, NO₃, TDS, SAR, RSC, etc. during entire project period of five years i.e. from 2015-19. The quality of ground water seems to be improved due to Infiltration of rain water and artificial recharge structure like Farm Pond and other Rain water Harvesting Structures constructed during entire project period.
6. The objective of the project that is **“to arrest the decline trend of ground water”** in the cluster area is also achieved by the water conservation activities of the department

and community participation for better use of ground water for domestic purpose as well as for agriculture

7. A dedicated team and provision for some budget allocation to the department for further follow up studies.
8. In second phase of the project village wise ground water security plan should be prepared and for the impact of interventions on the water level of the project area required almost 5-7 years detailed work in the cluster area.
9. Exposer vist to stack holders were also carried out to sensitized and motivate different

9. Financial Progress

Component wise Projected Cost and actual expenditure of the project are summarised below:

Component	Target as per CACP	Achievement upto December 2020
Climate Resilient Agriculture	556.13	354.43
Farmers Organization & Capacity Building	73.10	38.58
M & E and Project Management	50.42	41.10
Total	679.65	434.11

Component Wise & Year Wise Financial Progress:-

S.No.	Activities	Target as Per CACP	Achievement					Remarks	
			2015-16	2016-17	2017-18	2018-19	2019-20		2020-21
1	2	3	4	5	6	7	8	9	10
I	Climate Resilient Agriculture								
1	Preparation of Ground Water Management Sub Plan and Data Management on GIS platform as per ToR including Detailed Hydrogeological Survey, DGPS survey on 100% Ground Water Extraction Structure, Procurement of thematic Layers for three clusters approximate area 75000 ha and Land Cover and Land use thematic layers for year 2016 to 2018 after on board of Consultancy Agency and Implementation of Ground Water Management Sub Plan and Data Management on GIS platform as per ToR	244.57	0.00	34.89	84.30	15.08	0.00	23.21	
2	Monthly monitoring of water levels from the representative Ground Water Monitoring Stations throughout the project period and prepare monthly hydrographs, monthly (preferably first to seventh day of the every month) water table elevation maps including Pre, Post- Monsoon & Post Irrigation period and analyse the data & prepare database on GIS environment and assessment of annual Ground water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	Collection of one water samples from each Ground Water monitoring station selected for monthly water level monitoring during pre-monsoon survey i.e. May every year and Post monsoon survey i.e. October every year and submit to the Senior Chemist, GWD, Jaipur for analysis, prepare data base and various chemical quality maps and submit chemical reports for each Cluster.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	Construction of Piezometers for monitoring purpose either Departmental Rigs or Out Source Agency including Civil Works	84.00	0.00	0.00	0.00	0.00	78.94	0.00	
5	Construction of Observation wells for impact assessment purpose either Departmental Rigs or Out Source Agency including Civil Works	16.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	Procurement of DWLR & its Installation on piezometers & observation wells	150.00	0.00	0.00	0.00	0.00	85.31	2.17	

7	Procurement of Digital complete weather station and its installation with civil Works	12.00	0.00	0.00	0.00	0.00	0.00	0.00	
8	Procurement and Installation of Handheld GPS	2.17	0.00	2.14	0.00	0.00	0.00	0.00	
9	Procurement and Installation of Electronic Water Level Sounder	1.35	0.00	1.33	0.00	0.00	0.00	0.00	
10	Procurement of Water sample Bottles, Chemicals, Chain Tong	1.04	0.00	0.76	0.00	0.00	0.00	0.00	
11	Procurement of Water Meter & its Installation at different locations in Bonli cluster area.	45.00	0.00	0.00	0.00	0.00	26.30	0.00	
12	Procurement of Water analysis Equipment for chemical analysis of water samples collected in all the clusters & Augmentation of Ground Water Resources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Sub Total-I	556.13	0.00	39.13	84.30	15.08	190.55	25.37	
II	Markets and Value Chains								
III	Farmer organization & Capacity building								
1	Community Mobilization , Trainings and Exposures Visit to District level officers, PRIs, Community and Community Based Organizations, Progressive farmers, District Coordinators (GW), field staff including exposure visits inside State and outside State through IMTI	73.10	0.00	13.33	19.98	0.10	4.00	1.17	
	Sub Total-III	73.10	0.00	13.33	19.98	0.10	4.00	1.17	
IV	M & E and Project Management								
1	Operating costs including photo state, computer typing & printing, fax, Machine with man (PIU), mobility (hired taxi/POL), TA for PIU (HQ) & District unit (PIAs)	50.42	7.49	9.69	14.16	5.42	2.87	1.46	
	Sub Total-IV	50.42	7.49	9.69	14.16	5.42	2.87	1.16	
	Grand Total	679.65	7.49	62.15	118.44	20.60	197.43	28.00	

10. Physical Progress

Name of Cluster	Target					Revised Target					Target Achieved			
	Piezometers (PZ)	Observation Wells (OW)	T-DWLR		Water Meter	Piezometers (PZ)	Observation Wells (OW)	T-DWLR		Water Meter	Piezometers (PZ)	Observation Wells (OW)	T-DWLR	Water Meter
			PZs	OWs				PZs	OWs					
Bonli	20	04	20	04	100	20	03	20	00	100	20	03	20	100
Pisangan	34	06	34	06	100	33	04	33	00	100	33	04	33	100
Sangod	30	06	30	06	100	30	06	30	00	100	30	06	30	00
Total	84	16	84	16	300	83	13	83	00	300	83	13	83	199

Note:-

- I. Construction of One Piezometer and Three observation well were not carried out due to unapproachable sites.
- II. 13 Telemetric Digital Water Level Recorder were not installed on the Observation Wells due to Installation of TDWLR on Piezometers in the same campus/location.
- III. 1 Water meter at Pisangan didn't installed by the Firm and 100 Water meters at Sangod were not installed due to expire of the Contract.

11. Training and Capacity Building Activities under RACP

During the entire project period PIAs of RACP, Ground Water Clusters with the help of available Technical staff, District Coordinator and GWA of NGO organized Workshops at Panchayat Samiti & Gram Panchayat levels under Information, Education and Communication (IEC) were conducted. Under IEC programmes Lectures, Power Point Presentations were delivered by the PIU, PIA and experts regarding the optimal utilization of available ground water resources and Management related issues to sensitize the stake holders of the cluster area. The Details of the IEC programmes conducted under RACP.

S. No.	Name of Cluster	District Level Work Shops (No.)	Panchayat Samiti Level Work Shops (No.)	Gram Panchayat Level Workshops (No.)	Exposer visit	Number of Beneficiaries
1.	Bonli	02	03	17	02	1565
2.	Pisangan	-	02	44	01	2182
3.	Sangod	-	02	22	02	1436
	Total	02	07	83	05	5183