Watershed Development and Soil Conservation

Presented by: Sushila Yadav, Additional Director , Watershed Development and Soil Conservation

Soil & Water conservation Works on Watershed Approach

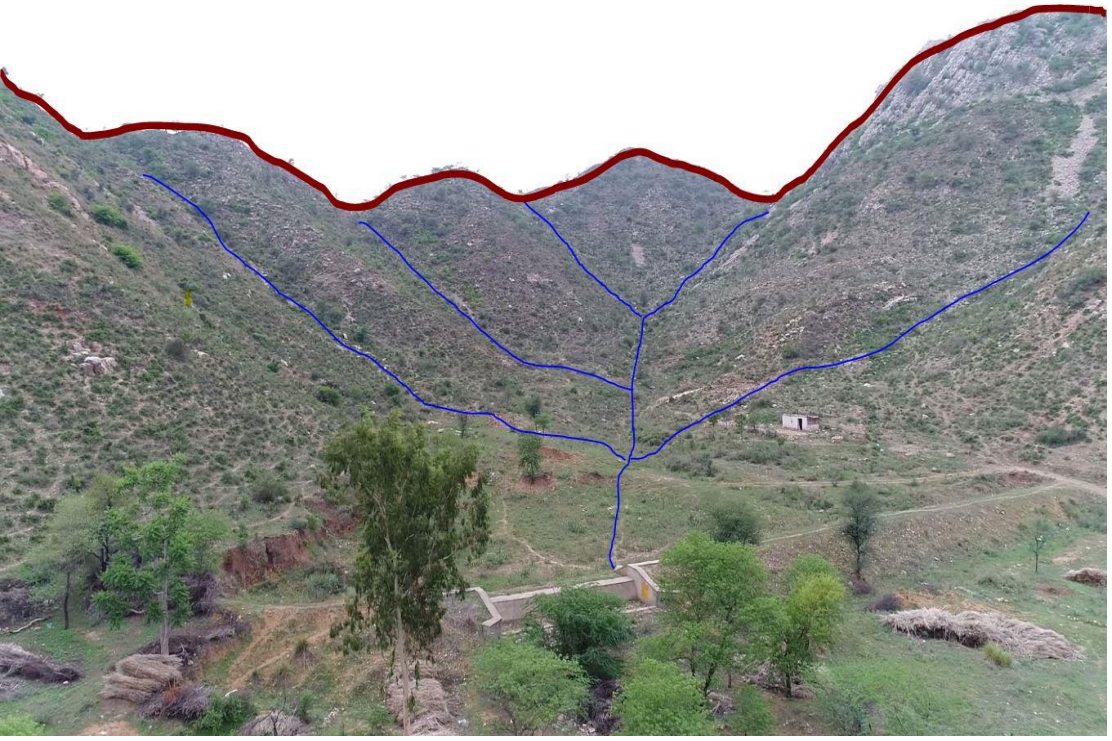
To promote the socio-economic development of village community through optimum utilisation of natural resources

- To harvest runoff to create surface water sources and to recharge ground water for increasing availability of water for drinking and irrigation
- To cover the non-arable areas through afforestation and pasture land development to increase vegetation
- To conserve soil for sustainable farming and stabilize crop yields Thus increasing the production and yield per ha.
- To increase productivity of livestock by improving feed
- To create employment opportunities for resource poor by adopting alternate enterprises through self help groups and individual assistance

Development Unit

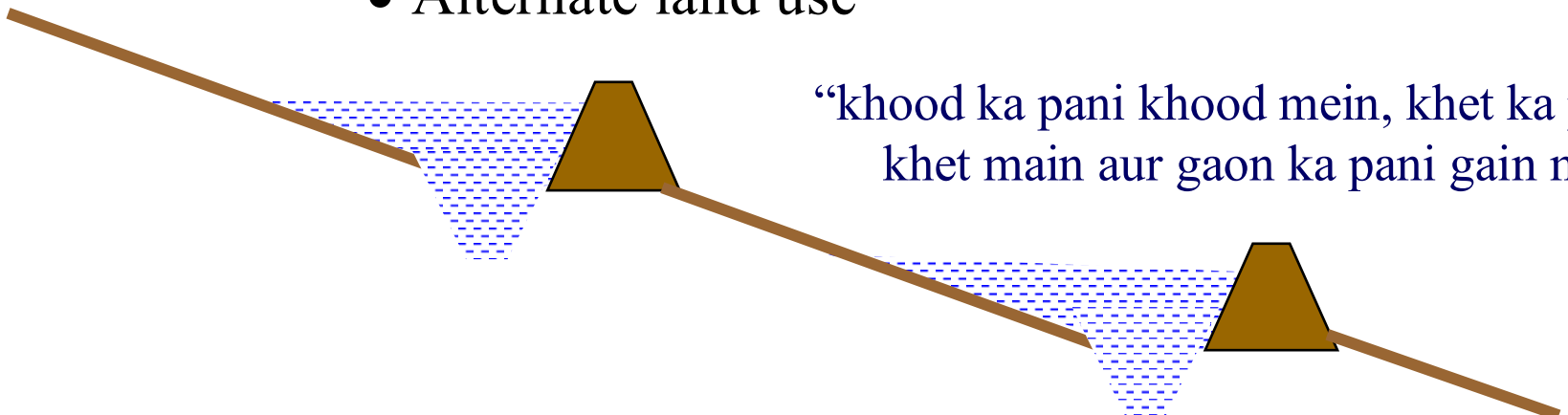
- Watershed
- Clusters- In the flat areas where distinguishable drainage lines do not exist

Scientific Approach

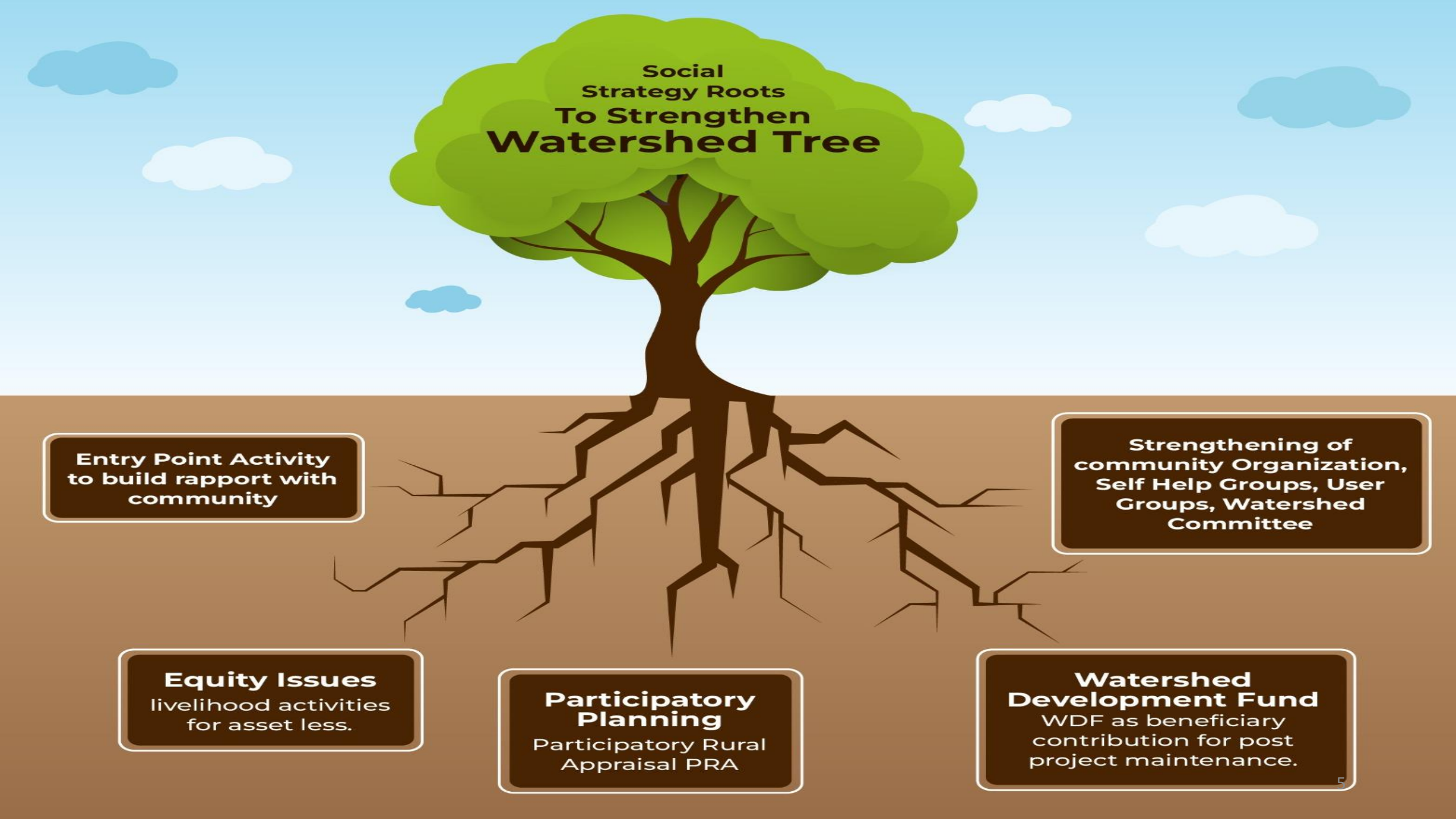


WATERSHED DEVELOPMENT - TECHNICAL STRATEGY

- Ridge to Valley approach
- In-situ moisture conservation
- Reduce Runoff velocity
- Water harvesting structures with the approach of ‘Water Budgeting’
- Fortification with vegetation
- Alternate land use



“khood ka pani khood mein, khet ka pani khet main aur gaon ka pani gain mein”


Social
Strategy Roots
To Strengthen
Watershed Tree
Entry Point Activity to build rapport with community
Strengthening of community Organization, Self Help Groups, User Groups, Watershed Committee
Equity Issues
livelihood activities for asset less.
Participatory Planning
Participatory Rural Appraisal PRA
Watershed Development Fund
WDF as beneficiary contribution for post project maintenance.

Activities

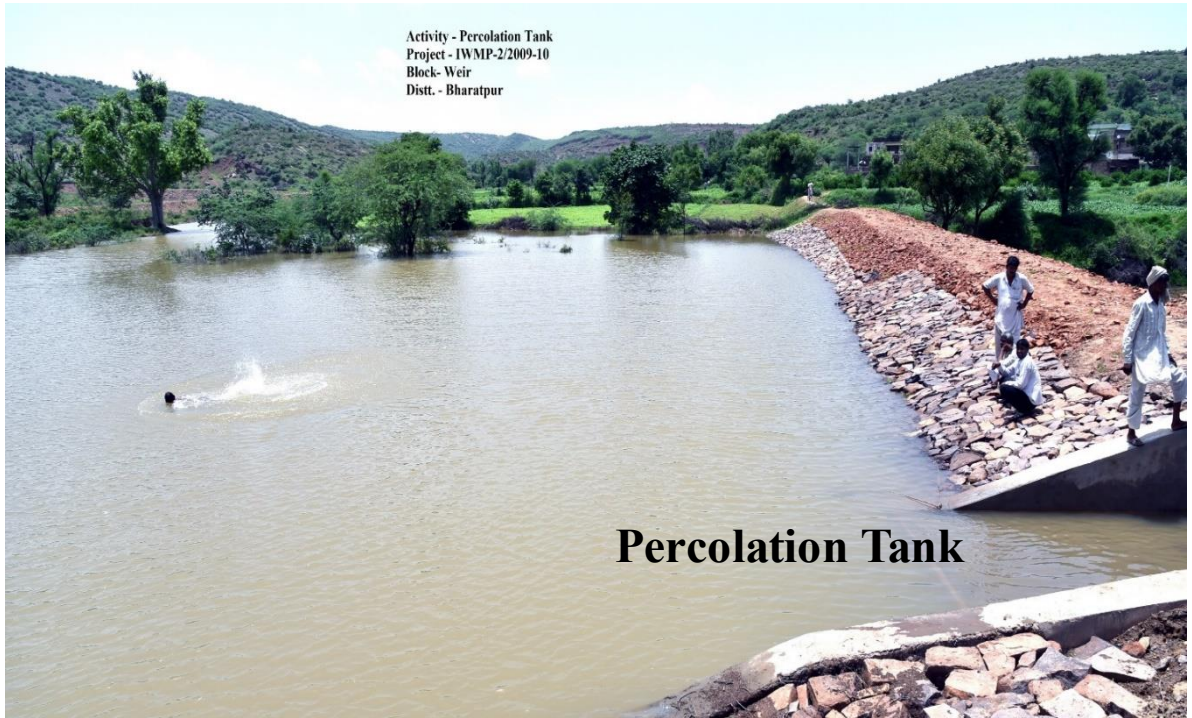
Water Harvesting Structures

Production Activities

Livelihood Activities


Staggered trench
जल संग्रहण से पूर्व
MPT


Activity - Farm Pond
Project - IWMP-11/2010-11
Block- Sahada
Distt. - Bhilwara
Farm ponds


Activity - Percolation Tank
Project - IWMP-2/2009-10
Block- Weir
Distt. - Bharatpur
Percolation Tank


अनार के बगीचे
कास्तकार का नाम :–श्री खुशालाराम / तारासम
गांव:–बुडीवाड़ा (जागसा)पं.स. बालोतरा (बाड़मेर)

Tanka lifeline of desert

Schemes of Department

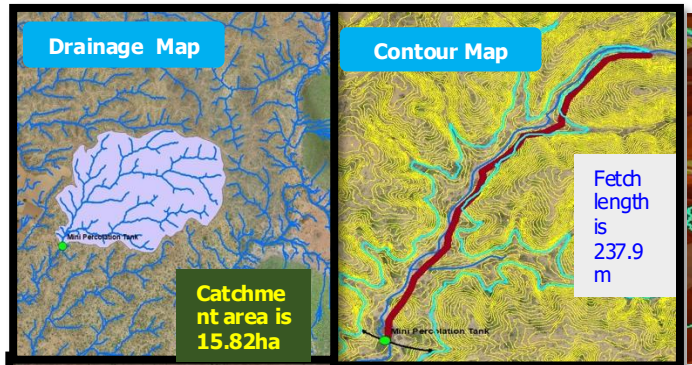
- Pradhan Mantri Krishi Sinchai Yojana watershed Component
- Mukhya Mantri Jal Swawlamban Abhiyan

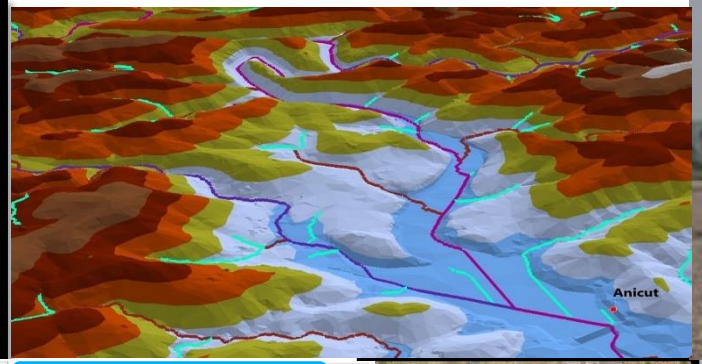
Salient Features of Watershed Programs in State

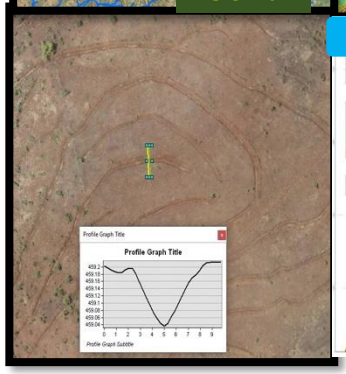
- Scientific & Participatory planning
- Geo tagging of **all works** since 2015 , all works with location and details available on state GIS portal “Rajdhara” and **in public domain**
- An integrated geo tagged near real time monitoring System
- Convergence with MGNREGS is mandatory \ On an average 15% of the total cost (works like field bunds, desilting, plantation through MGNREGS)

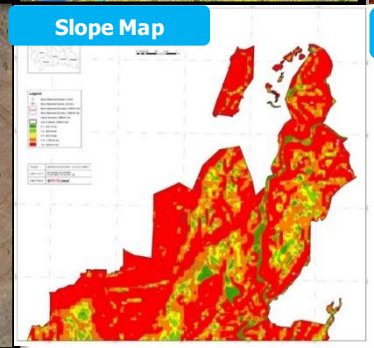
Salient Features :GIS and Remote Sensing in planning monitoring

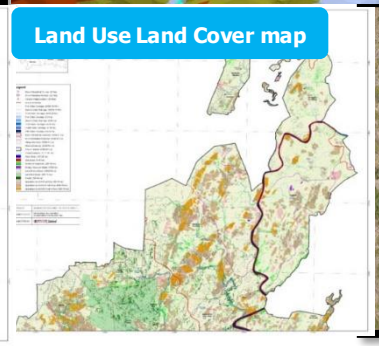
- GIS and Remote Sensing in Planning
- Geo Tagged analysis
- Near real time geo tagged monitoring
- Pre survey

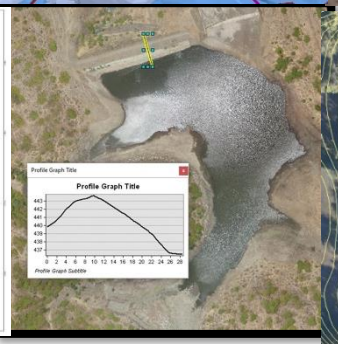




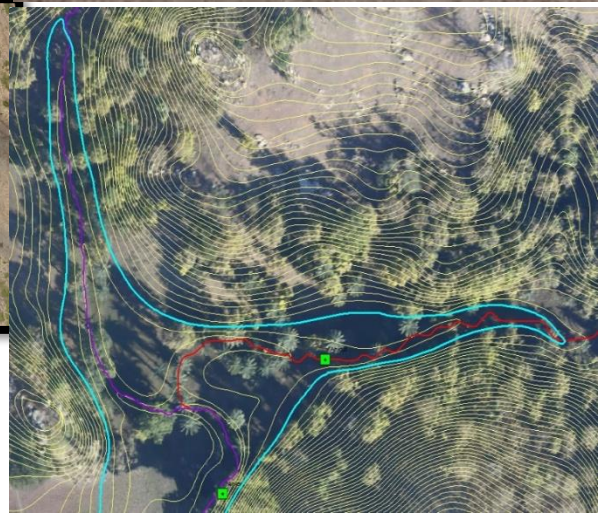






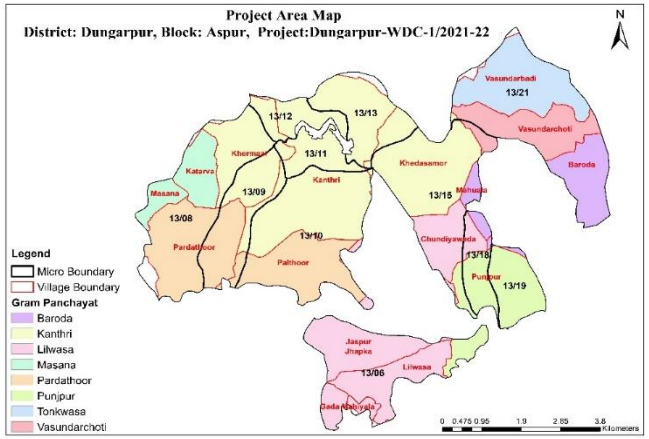


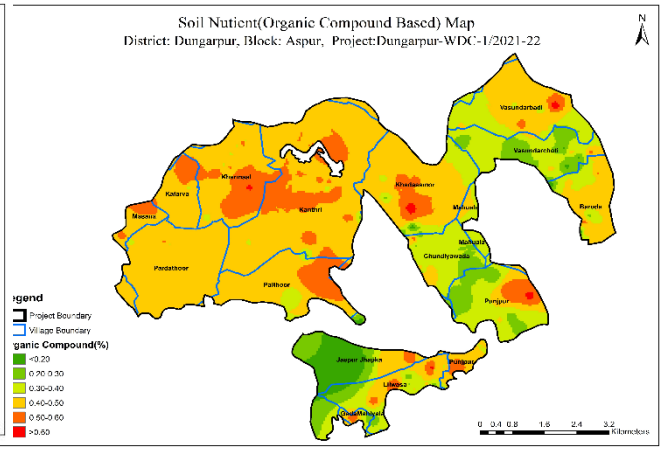
Using high resolution data for identifying most economical water harvesting structure and all parameters for designing

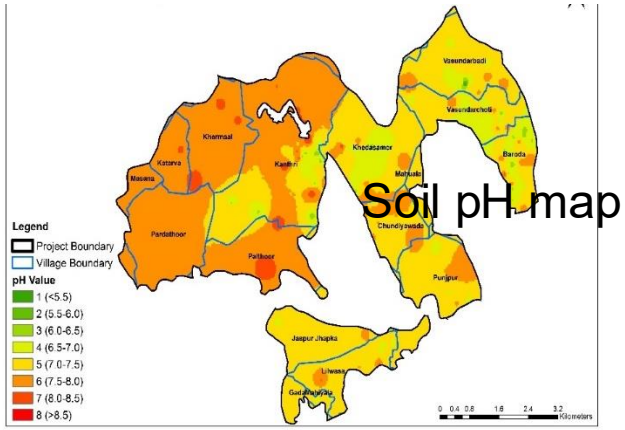


At This location cost is structure is Rs 25 lacs length is 34 meter height 1.5 m and volume of water stored per lacs spend is 233 cubic meter

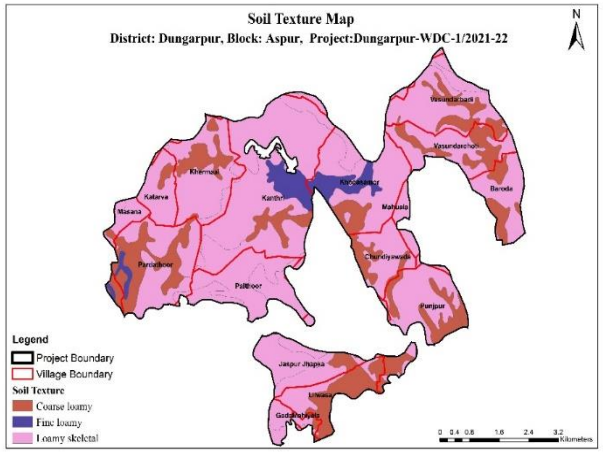
At This location cost is structure is Rs 17 lacs length is 23 meter height 1.5 m and volume of water stored per lacs spend is 169 cubic meter

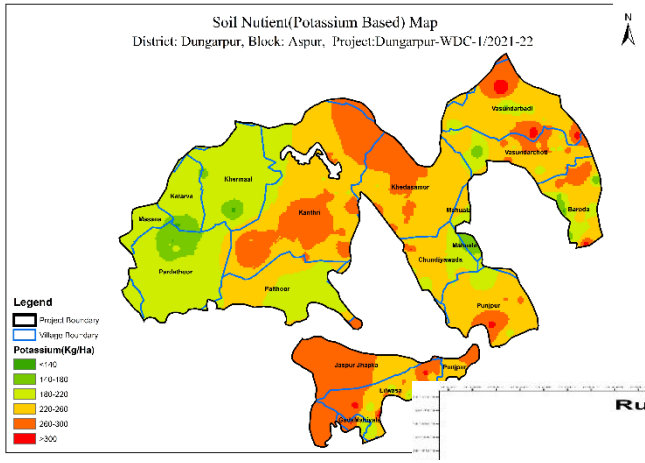

Project Area Map
District: Dungarpur, Block: Aspur, Project:Dungarpur-WDC-1/2021-22
Legend
Micro Boundary
Village Boundary
Gram Panchayat
Baroda
Kanthri
Lilwasa
Masana
Pardalthoor
Punjpur
Tonkwasa
Vasundarchoti

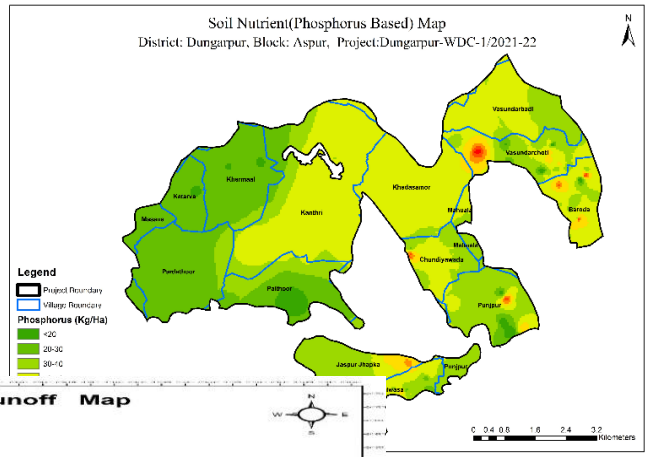

Soil Nutient(Organic Compound Based) Map
District: Dungarpur, Block: Aspur, Project:Dungarpur-WDC-1/2021-22


Legend
Project Boundary
Village Boundary
pH Value
1 (<5.5)
2 (5.5-6.0)
3 (6.0-6.5)
4 (6.5-7.0)
5 (7.0-7.5)
6 (7.5-8.0)
7 (8.0-8.5)
8 (>8.5)

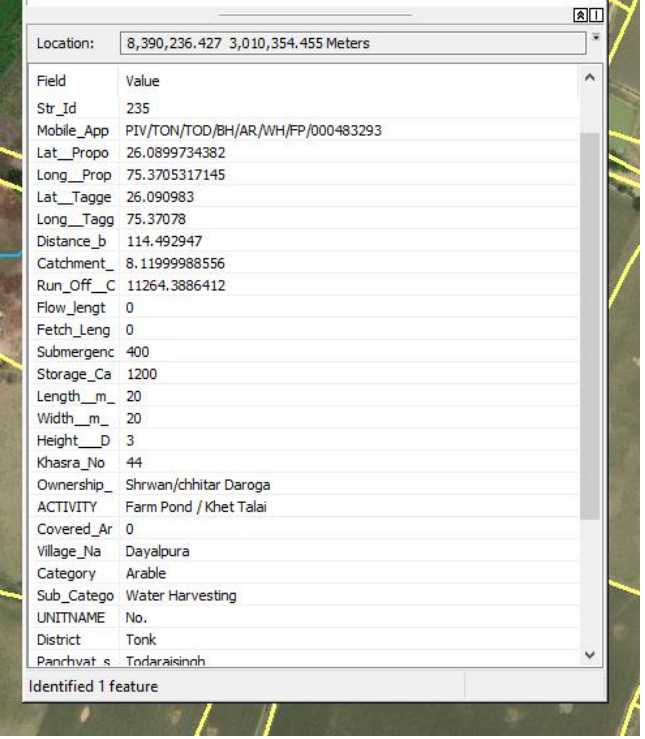
Soil pH map

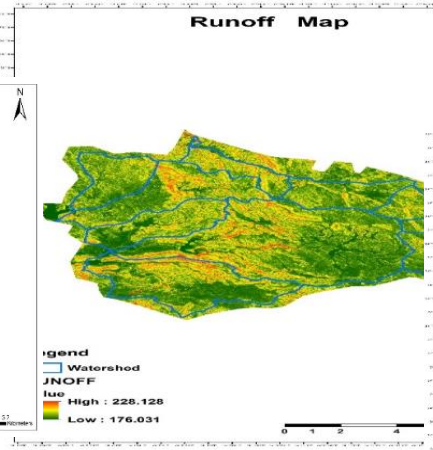

Soil Texture Map
District: Dungarpur, Block: Aspur, Project:Dungarpur-WDC-1/2021-22
Legend
Project Boundary
Village Boundary
Soil Texture
Coarse loamy
Fine loamy
Loamy skeletal

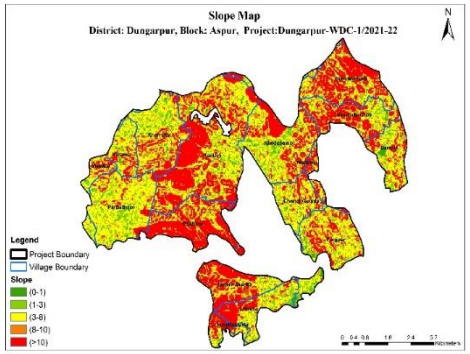

Soil Nutient(Potassium Based) Map
District: Dungarpur, Block: Aspur, Project:Dungarpur-WDC-1/2021-22
Legend
Potassium(Kg/Ha)

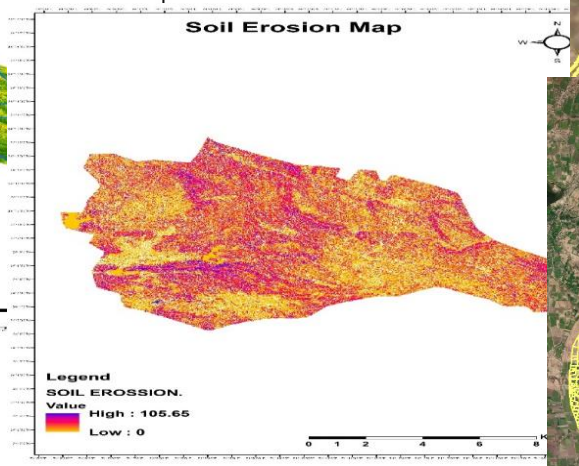

Soil Nutrient(Phosphorus Based) Map
District: Dungarpur, Block: Aspur, Project:Dungarpur-WDC-1/2021-22
Legend
Phosphorus (Kg/Ha)

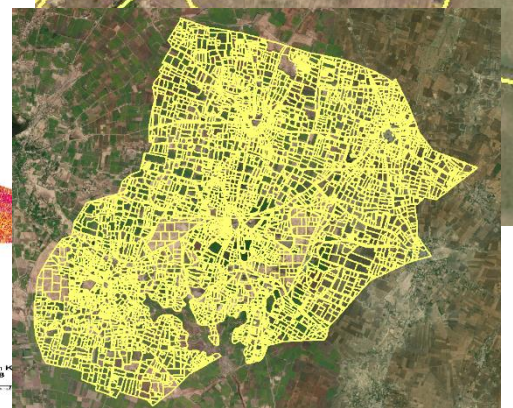

Sprinkler
Farm Pond / Khet Talai


Location: 8,390,236.427 3,010,354.455 Meters
Field
Value
Str_Id 235
Mobile_App PIV/TON/TOD/BH/AR/WH/FP/000483293
Lat__Propo 26.0899734382
Long__Prop 75.3705317145
Lat__Tagge 26.090983
Long__Tagg 75.37078
Distance_b 114.492947
Catchment_ 8.11999988556
Run_Off__C 11264.3886412
Flow_lengt 0
Fetch_Leng 0
Submergenc 400
Storage_Ca 1200
Length__m_ 20
Width__m_ 20
Height___D 3
Khasra_No 44
Ownership_ Shrwan/chhitar Daroga
ACTIVITY Farm Pond / Khet Talai
Covered_Ar 0
Village_Na Dayalpura
Category Arable
Sub_Catego Water Harvesting
UNITNAME No.
District Tonk
Identified 1 feature


Runoff Map
Watershed
High : 228.128
Low : 176.031


Slope Map
District: Dungarpur, Block: Aspur, Project:Dungarpur-WDC-1/2021-22
Legend
Project Boundary
Village Boundary
Slope


Soil Erosion Map
Legend
SOIL EROSSION.
Value
High : 105.65
Low : 0



Field Verification and Discussions with Community for Participation

- Table exercises verified in field (contour map superimposed on Khasra and drainage and existing structures captured taken at site).
- Measurements are taken and cost and other details filled

Name of Work:- PRA (Village Daspan)
Total Cost:- 7500/-
Name of Watershed:- Jalore-16 (IWMP)

Work Category :- IEC & Capicity Building
Name of Block :- Bhinmal
Date of Completion :- 24.01.2013

Convergence of activities of all water management departments

Departments Planning for Water Harvesting

Forest Department

Watershed Department

Water Resources Department

MGNREGS as funding source

Technical Support

Ground Water Department

Departments Planning for Water Utilisation

Public Health Engineering Department (P.H.E.D.)

Agriculture Department

Horticulture Department

The activities in complete DPR include both demand and supply side interventions

- Mini percolation tanks
- Percolation tanks
- Minor irrigation tanks,
- Anicuts
- Earthen Check dams
- Talaab, Johad
- Farm ponds
- Sunken Ponds
- Catchment area treatment works like CCT, Staggered trenches
- Afforestation on wastelands, plantation and pasture development
- Micro irrigation (drip sprinklers)
- Pipelines for drinking water

Integrated GIS based near real time monitoring of System

Web Portal

Web Application

Mobile Application

GIS Based Application

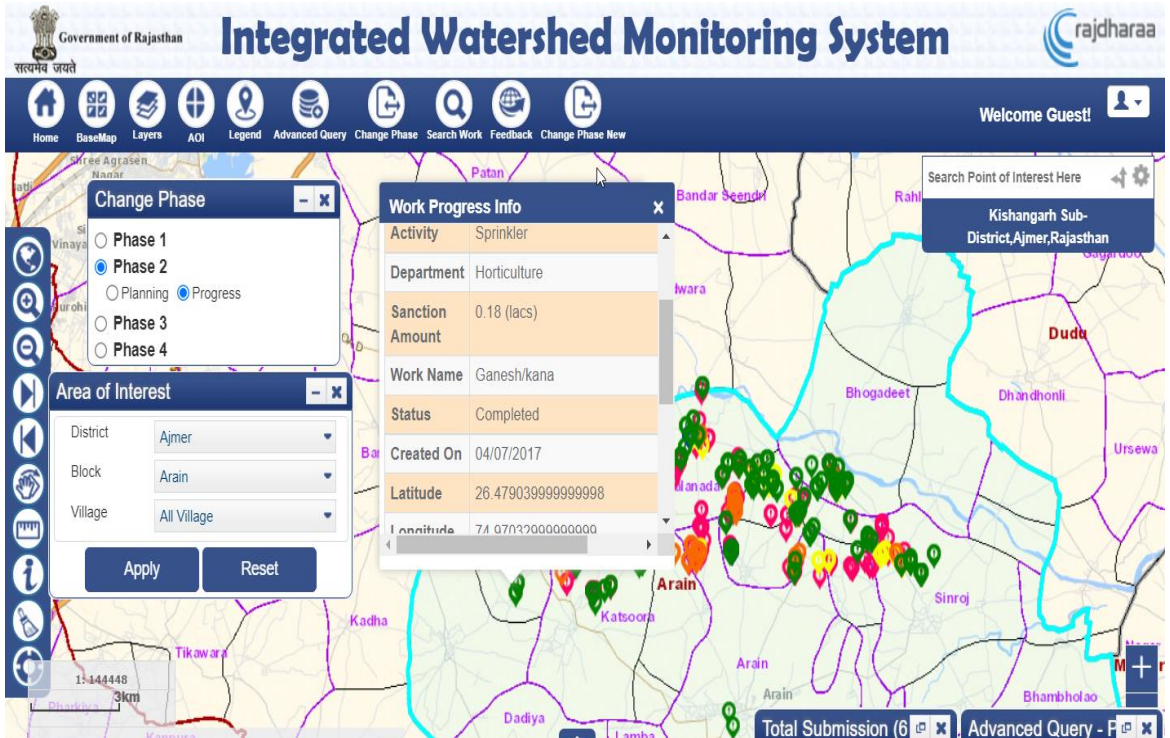
This system has resulted in

Transparency : All works with status ,location and details available in public domain

Mobile Application for Geo-tagged Planning, Real Time Monitoring & Tracking Survey Teams resulted in scientific planning and saturation of watershed

Strong Data base

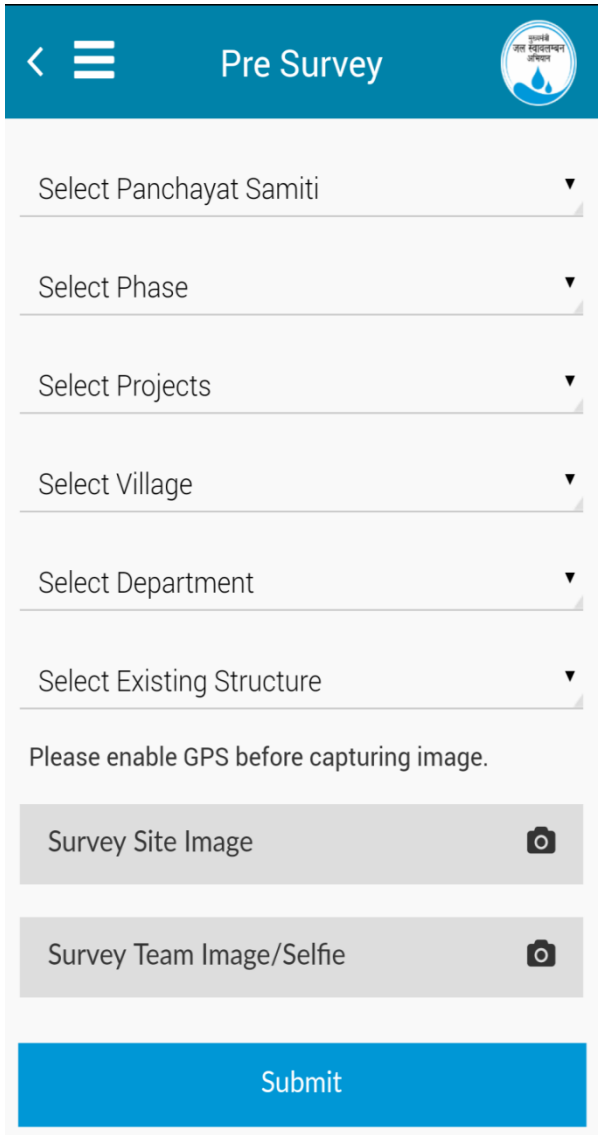
Monitoring of Convergence

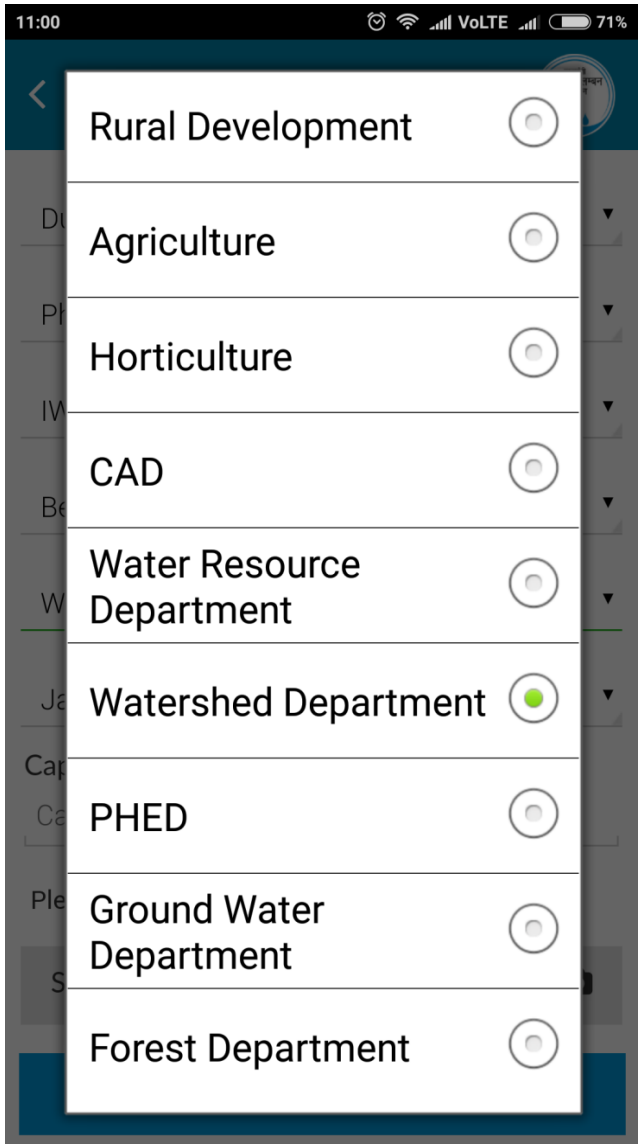


Mobile Application : Pre Survey

- **Methodology adopted was**

Geo-tagging of existing structures, tube wells was done to know their functional and to project the demand and supply side using a mobile app.

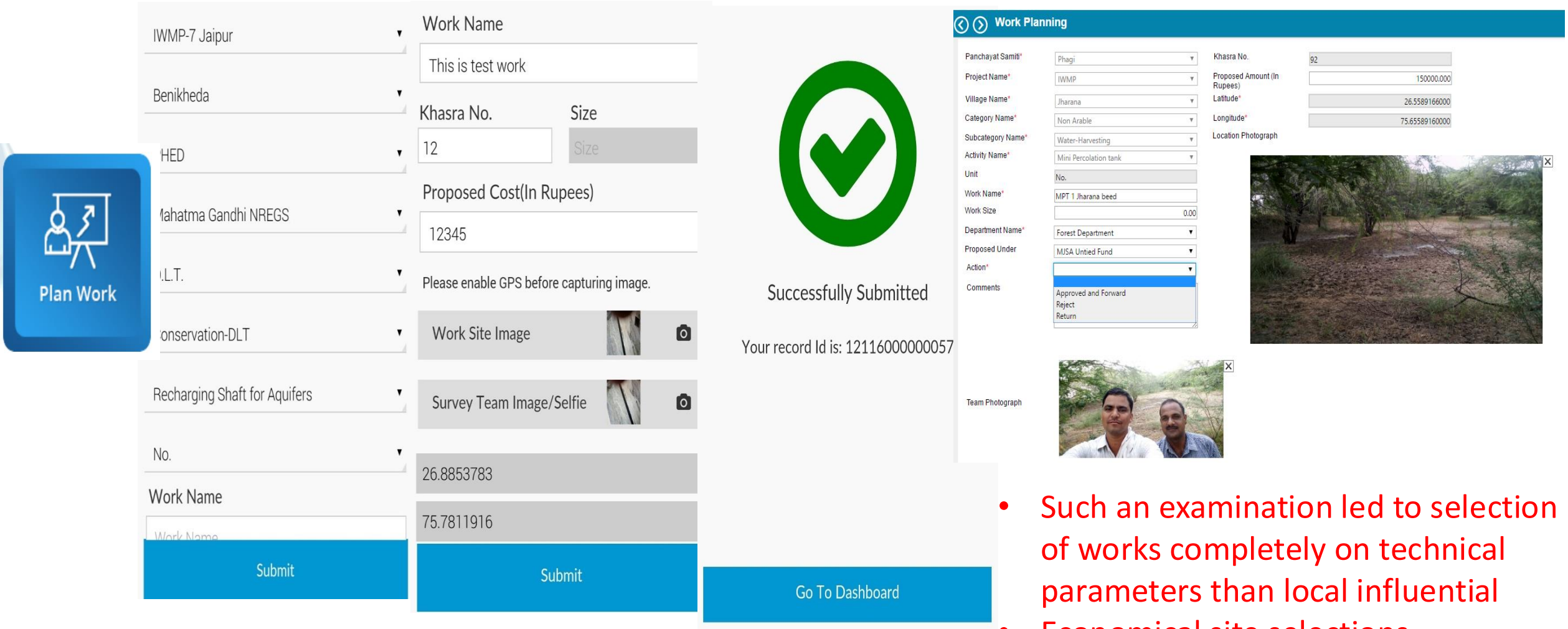




PHED Department

Sr. No	District Name	Block Name	Village Name	Project Name	Type of Structure	Status of source	Drinking Water Availability up to the Month	Quality of Water (PPM)			Present Water Level
1					Hand Pump	Defunct/ 0perational /Abandoned		TDS	Chemical	Biological	
2					Open well	Defunct/ 0perational /Abandoned					
3					Tube Well	Defunct/ 0perational /Abandoned					
4					Surface Water Storage Structure	NA					

Mobile Application ... Work Planning



- Such an examination led to selection of works completely on technical parameters than local influential
- Economical site selections

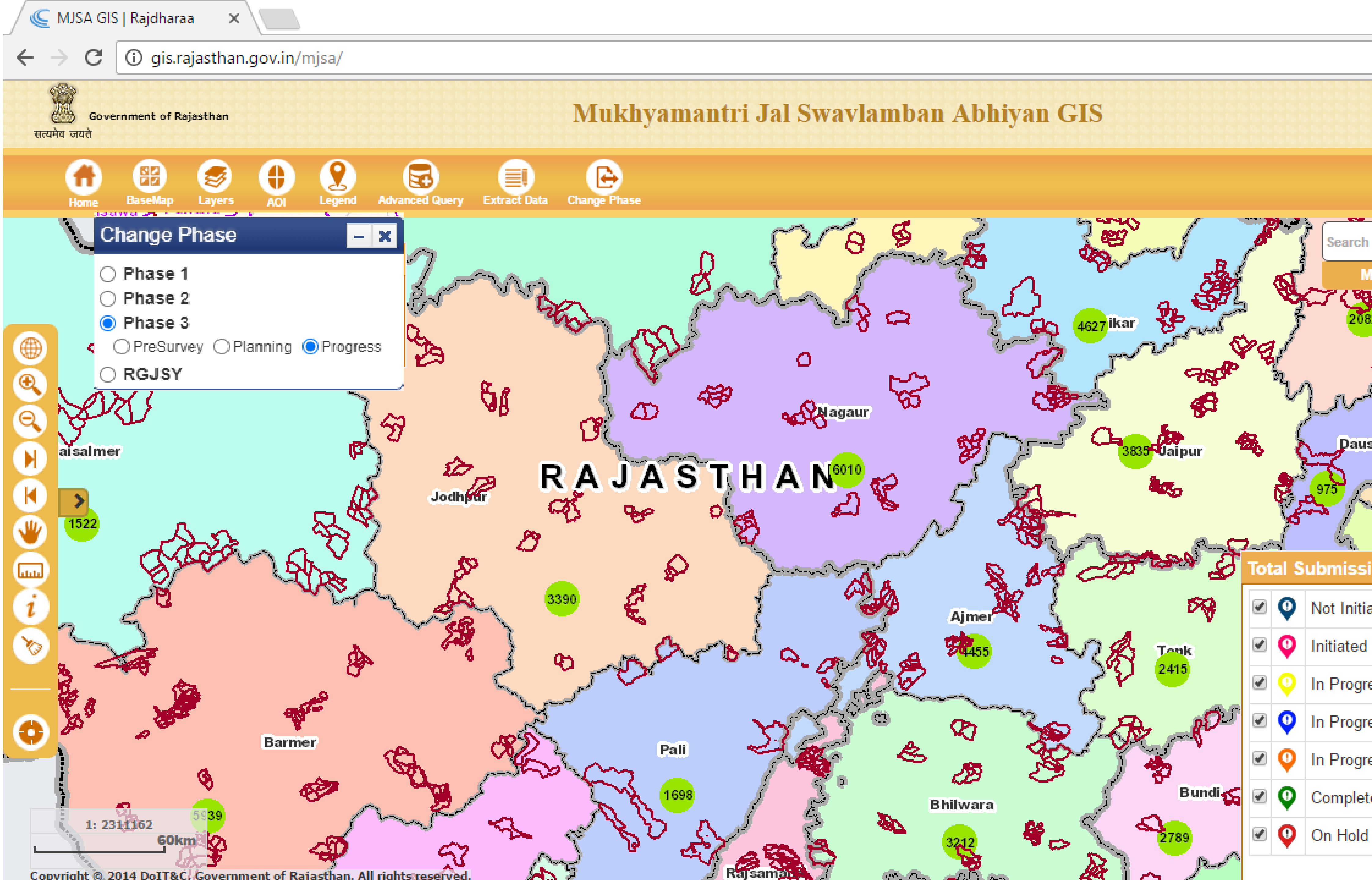
Work Planning

Panchayat Samiti*	Phagi	Khasra No.	92
Project Name*	IWMP	Proposed Amount (In Rupees)	150000.000
Village Name*	Jharana	Latitude*	26.5589166000
Category Name*	Non Arable	Longitude*	75.65589160000
Subcategory Name*	Water-Harvesting	Location Photograph	
Activity Name*	Mini Percolation tank		
Unit	No.		
Work Name*	MPT 1 Jharana beed		
Work Size	0.00		
Department Name*	Forest Department		
Proposed Under	MJSA Untied Fund		
Action*			
Comments			

Approved and Forward
Reject
Return

Team Photograph

- Such an examination led to selection of works completely on technical parameters than local influential
- Economical site selections


MJSA GIS | Rajdharaa
gis.rajasthan.gov.in/mjsa/
Government of Rajasthan
सत्यमेव जयते
Mukhyamantri Jal Swavlamban Abhiyan GIS
Home
BaseMap
Layers
AOI
Legend
Advanced Query
Extract Data
Change Phase
Change Phase
Phase 1
Phase 2
Phase 3
PreSurvey
Planning
Progress
RGJSY
RAJASTHAN
Jaisalmer
Jodhpur
Nagaur
Jaipur
Ajmer
Tonk
Barmer
Pali
Bhilwara
Bundi
4627
3835
6010
3390
1522
975
1455
2415
1698
3212
2789
Total Submissi
Not Initia
Initiated
In Progre
In Progre
In Progre
Complete
On Hold
1: 2311162
60km
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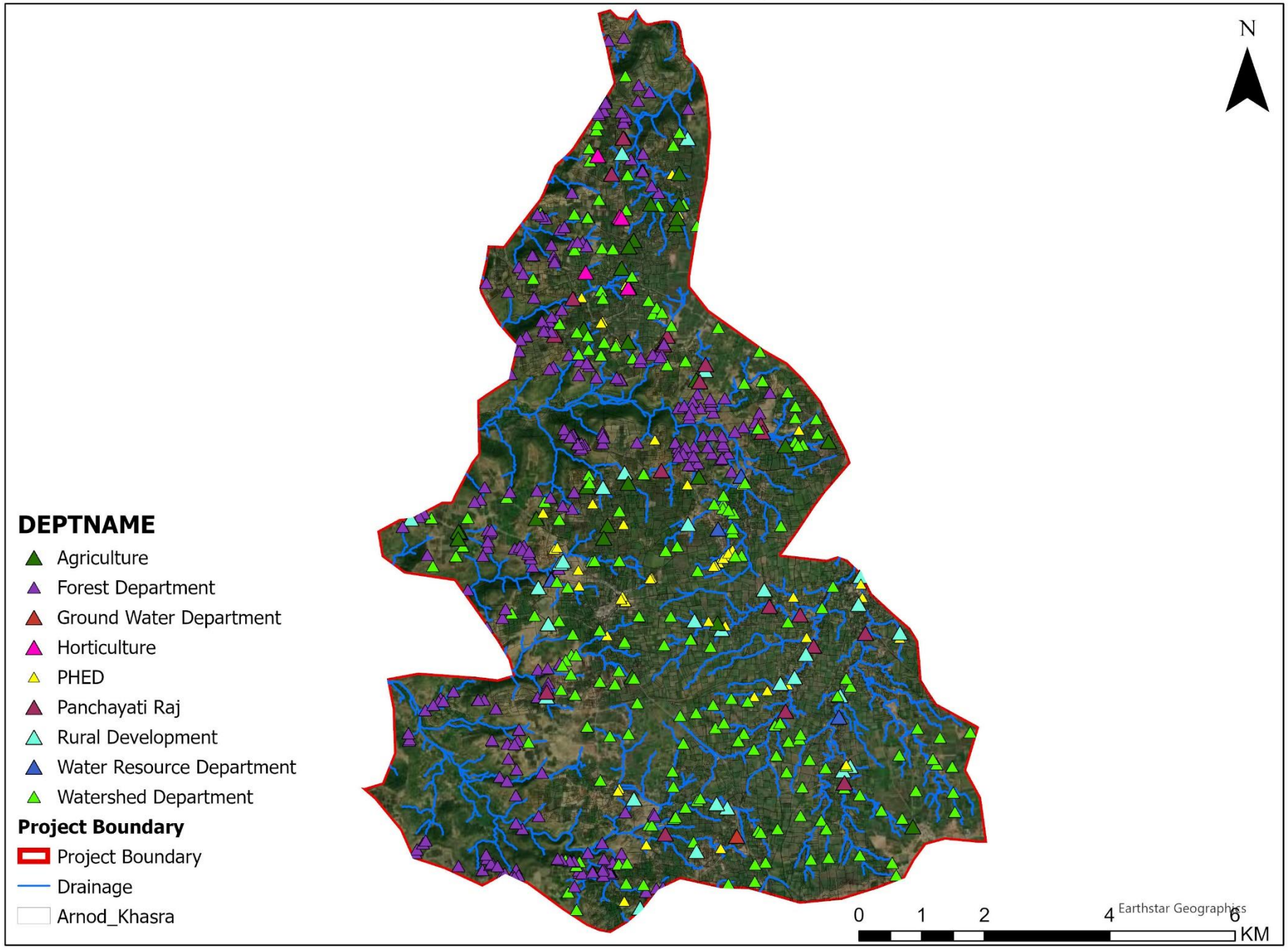
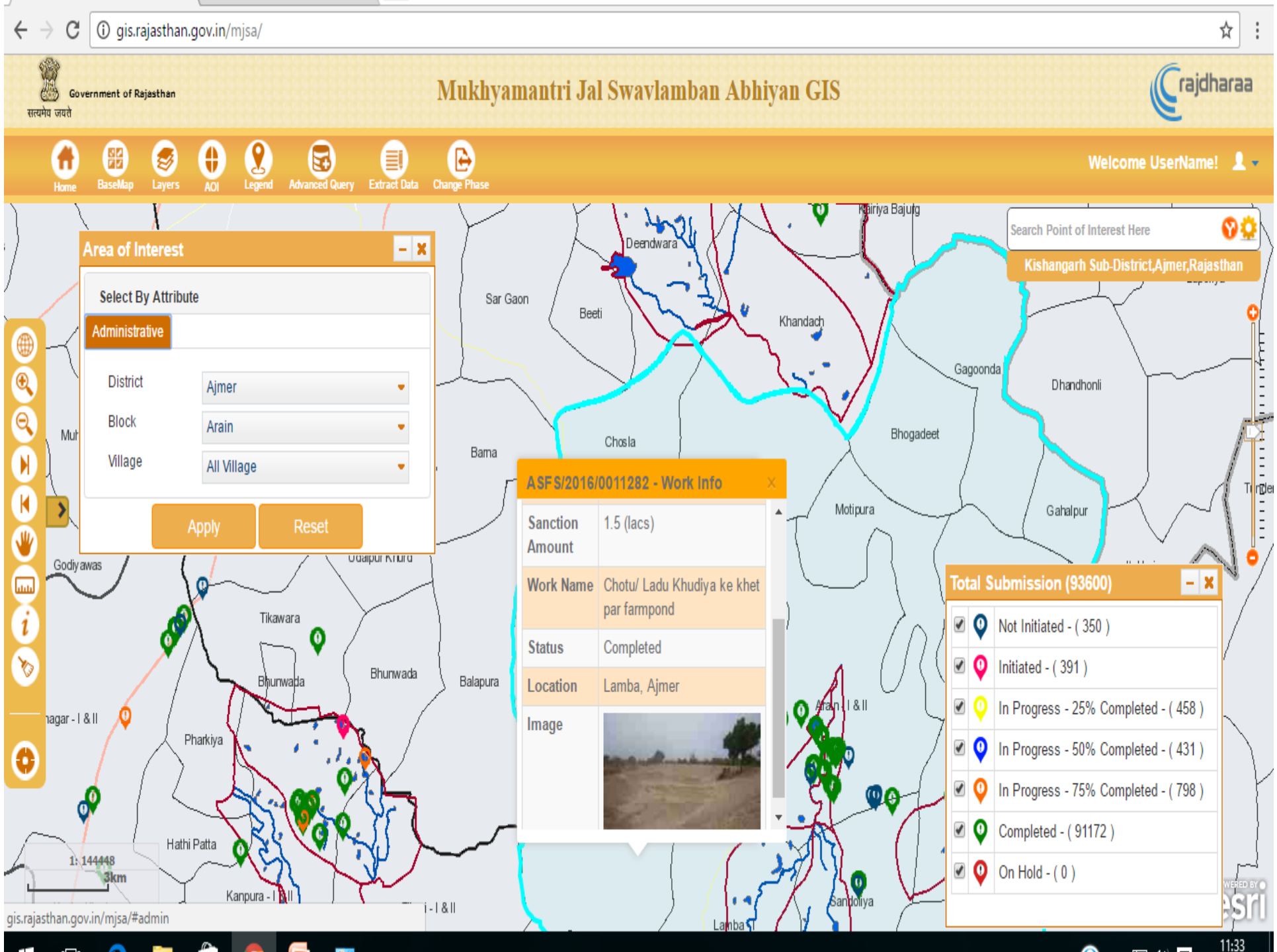
Line Dept. Works-Arnod, Pratapgarh



Scientific Convergence

Once a watershed saturating works are identified fund matrix is prepared and works allotted to different schemes and departments for convergence


gis.rajasthan.gov.in/mjsa/
Government of Rajasthan
सत्यमेव जयते
Mukhyamantri Jal Swavlamban Abhiyan GIS
rajdharaa
Home
BaseMap
Layers
AOI
Legend
Advanced Query
Extract Data
Change Phase
Welcome UserName!
Area of Interest
Select By Attribute
Administrative
District
Ajmer
Block
Arain
Village
All Village
Apply
Reset
Search Point of Interest Here
Kishangarh Sub-District,Ajmer,Rajasthan
ASFS/2016/0011282 - Work Info
Sanction Amount
1.5 (lacs)
Work Name
Chotu/ Ladu Khudiya ke khet par farmpond
Status
Completed
Location
Lamba, Ajmer
Image
Total Submission (93600)
Not Initiated - (350)
Initiated - (391)
In Progress - 25% Completed - (458)
In Progress - 50% Completed - (431)
In Progress - 75% Completed - (798)
Completed - (91172)
On Hold - (0)
Deendwara
Sar Gaon
Beeti
Khandach
Gagoonda
Dhandhonli
Bhogadeet
Motipura
Gahalpur
Chosla
Bama
Balapura
Bhunwada
Tikawara
Pharkiya
Hathi Patta
Godiyawas
Sandoliya
Lamba
1: 144448
3km
gis.rajasthan.gov.in/mjsa/#admin

Water Harvesting Structures (WHS)	**2.5 lac**
Farm Ponds	14207
Tankas	75866
Wasteland lands treated with Trenches	26876 sites 1.3 lac hectare
Afforestation	5640 sites 28000 hectare
Pasture sites	2700 13000 hectare
Bunding	81557 sites 4 lac hectare arable land
Farmers benefited Through Horticulture	11792
Farmers benefited Through activities, Crop and fodder demonstrations, Vermicomposting, manger	25691
Individual enterprisers benefitted by seed money	5899 (Rs. 13.21 crore)
SHG's were benefitted by seed money	9396 (Rs. 22.56 crore)

Impact Assessment -Third party (NABCONS, WAPCOS, Arpan Seva Sansthan) Evaluation of 820 projects Covering 46 lac hectare area of 7673 villages of PMKSY 1.0 (2019-2020 & 2021-22) Reveal:

Parameter	Impact
Ground water level	Average increase of 4.66 ft in project areas of 16 districts
Rejuvenation of Tube well & Open Wells Functioning	22%
Area under cultivation	20.7% Increase
Area under Irrigation	24.9 % Increase
Total Cropped Area	20.2% Increase
Defunct Hand Pumps Revival	63.64 %
Reduction in Tanker Trips	56.13 %.
Drinking water availability due to tankas	Ensured to more than 1 lac families
Reduction in wasteland	20%
Farmer's income due to farm ponds	Average increase Rs. 2 lacs per annum
Increase in household income	7%

State has been awarded with second position, in the best state category of National water awards-(29th March 2022)

Key findings of Impact Assessment : Land Resources

Increase in under cultivation crop area in Ha.	ha	%
Kharif	4,18,799	21.13
Rabi	1,67,729	18.21
Ziad	10,202	22.37
Area under Irrigation (Ha)		
Kharif	94,975	23.93
Rabi	1,32,295	24.48
Ziad	10,699	22.21
Total Cropped Area (Ha)		
Single Crop	3,33,341	19.17
Double Crop	1,44,612	19.22
Multiple Crop	10,569	20.00
Productivity of Crop (Ton/Ha)		
Kharif		15.67
Rabi		14.66
Ziad		13.30

- **Reduction in wasteland- 20%**

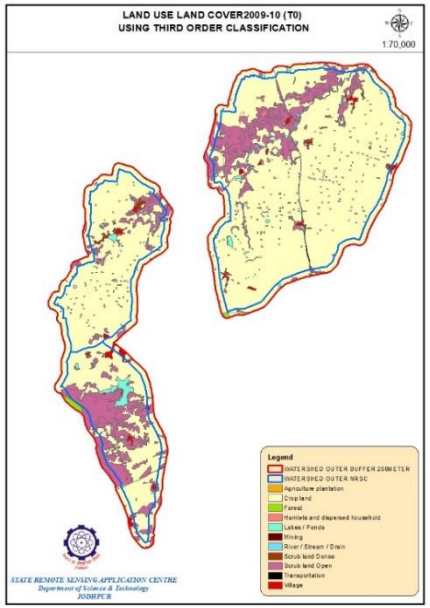
Key findings of Impact Assessment : Water Resources

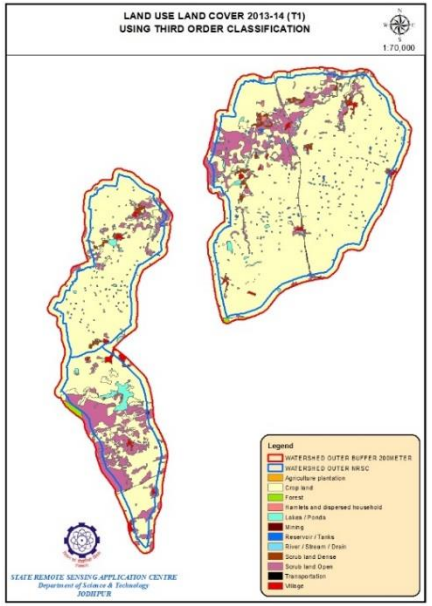
Parameter	absolute change	% change
Improvement in groundwater level in mtrs.	0.66 (2.16 ft)	
Increase in surface water Storage in TCM	596050.91	528.22
Increase Drinking Water Facilities (% HHs)		
Government supply		19.15
Private supply		6.60
Hand pumps		6.46
Tanker Supply		-14.57
Water availability:		6.72
Availability of Drinking Water (Month)		12.00
No. of dead hand pumps (Hand Pump Rejuvenated)	4090.00	59.96

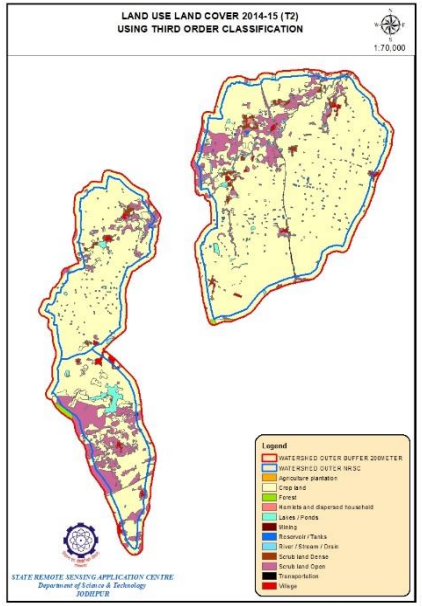
- Due to 14207 Farm Ponds, average increase in income of farmers is Rs 2 lacs per annum (from Rs. 12 lacs to Rs 1 lac) and crop diversification

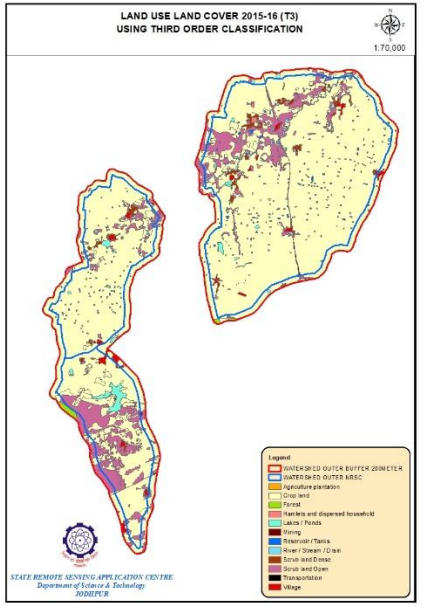
MONITORING OF IWMP WATERSHED PROJECTS USING GEO-INFORMATION

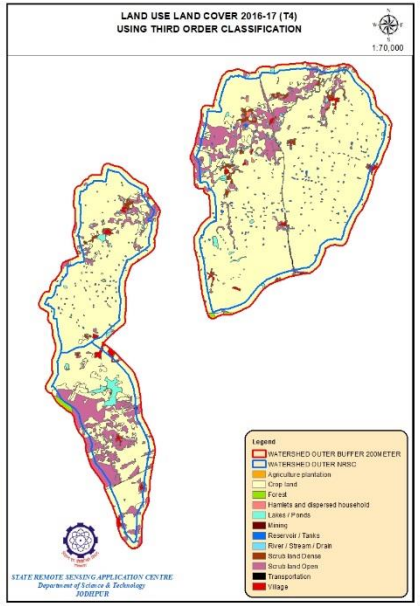
678 projects out of 820 available on Bhuvan (83% Projects)

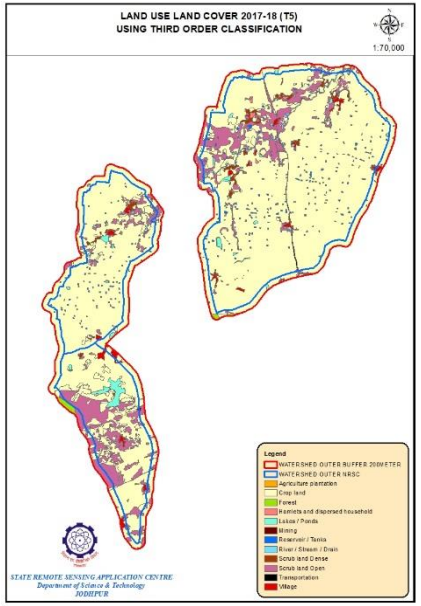












State Remote Sensing Applications Centre (SRSAC)
Department of Science & Technology,
Government of Rajasthan
Jodhpur

Department of Land Resources,
Ministry of Rural Development,
Government of India
New Delhi

Rural Development and Watersheds Monitoring
Division, LRUMG - RSA
National Remote Sensing Centre – ISRO
Hyderabad

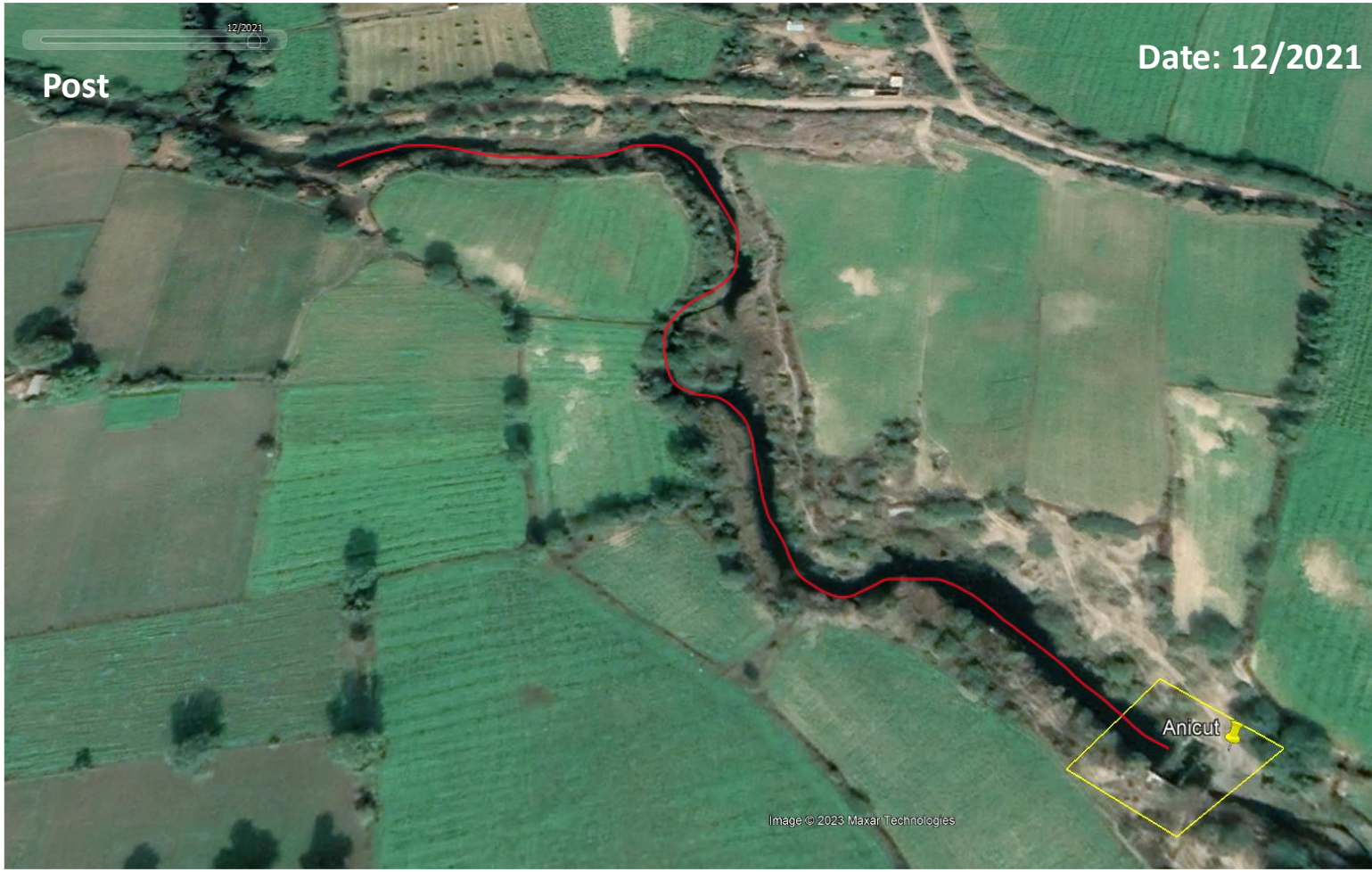
What analysis has been done-A case of one project (LULC THIRD ORDER)

CATEGORY	AREA_2009-10 (T0)	AREA_2013-14 (T1)	AREA_2014-15 (T2)	AREA_2015-16 (T3)	AREA_2016-17 (T4)	AREA_2017-18 (T5)
Agriculture plantation	0.68	0.68	0.68	0.68	0.68	0.68
Crop land	**5885.07**	6083.50	6139.31	6160.07	6154.47	**6180.90**
Forest	19.06	19.06	19.06	19.06	19.06	19.06
Hamlets and dispersed household	13.68	13.68	13.68	13.89	14.17	14.17
Lakes / Ponds	73.25	90.59	90.59	91.39	91.39	92.60
Mining	1.22	1.22	1.22	1.22	1.22	1.22
Reservoir / Tanks	0.00	67.88	68.58	69.28	75.19	76.16
River / Stream / Drain	29.17	29.17	29.17	29.17	29.17	29.17
Scrub land Dense	25.61	77.28	73.64	73.17	73.17	71.97
Scrub land Open	1212.06	876.74	823.86	801.85	801.27	773.87
Transportation	13.51	13.51	13.51	13.51	13.51	13.51
Village	74.20	74.20	74.20	74.20	74.20	74.20
Grand Total	**7347.50**	**7347.50**	**7347.50**	**7347.50**	**7347.50**	**7347.50**

MONITORING IN THE PROJECT AREA-MATRIX TABLE AREA BASED (T0 & T1)

2009-10 (T0)	Column Labels											
2013-14(T1)	Agriculture plantation	Crop land	Forest	Hamlets and dispersed household	Lakes / Ponds	Mining	River / Stream / Drain	Scrub land Dense	Scrub land Open	Transportation	Village	Grand Total
Agriculture plantation	0.68											0.68
Crop land		5821.11						**2.26**	**260.12**			6083.50
Forest			19.06									19.06
Hamlets and dispersed household				13.68								13.68
Lakes / Ponds		8.23			73.25				9.12			90.59
Mining						1.22						1.22
Reservoir / Tanks		55.73							12.15			67.88
River / Stream / Drain							29.17					29.17
Scrub land Dense								23.35	53.94			77.28
Scrub land Open									876.74			876.74
Transportation										13.51		13.51

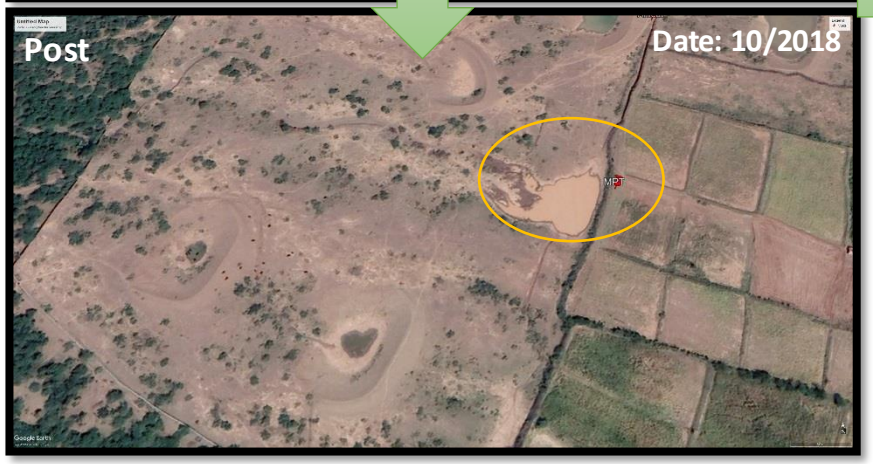
Phase- IWMP 12-13 **District-** Bundi **Block-** Nainwa **Village-** Dei **Activity-** Anicut **Department-** Watershed Department **Cost-** 9.00 L **Lat long-** 25.6707 75.95665 **Impact-** There was no water in this stream before, but after anicut construction water is available throughout the year to a fetch length of 421 m.



IMPACTS

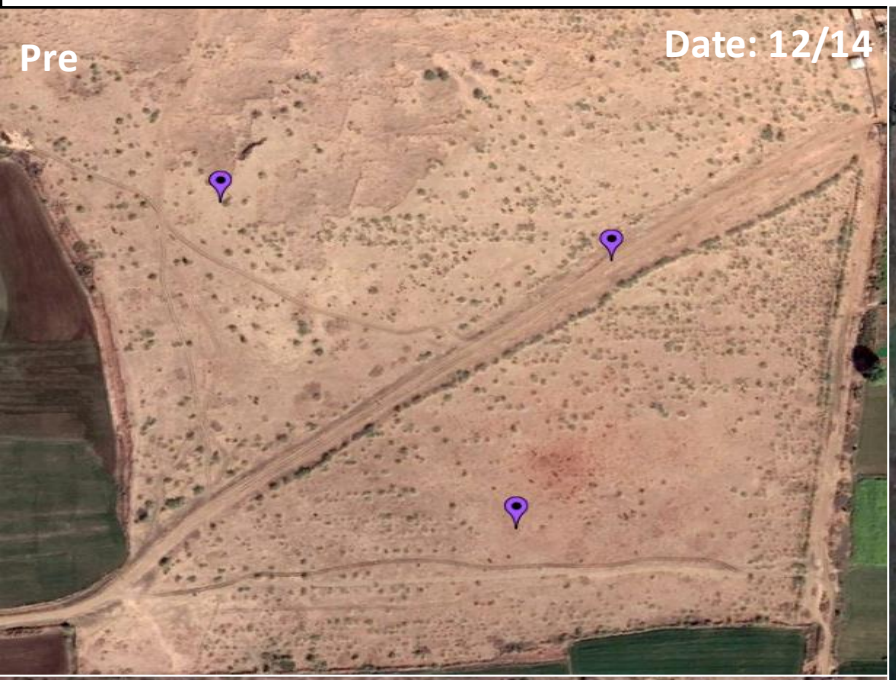
The Key findings are as follows:

82% of the studied projects (550 out of 674) have resulted in an increase of **1,19,430 ha** area under crop land

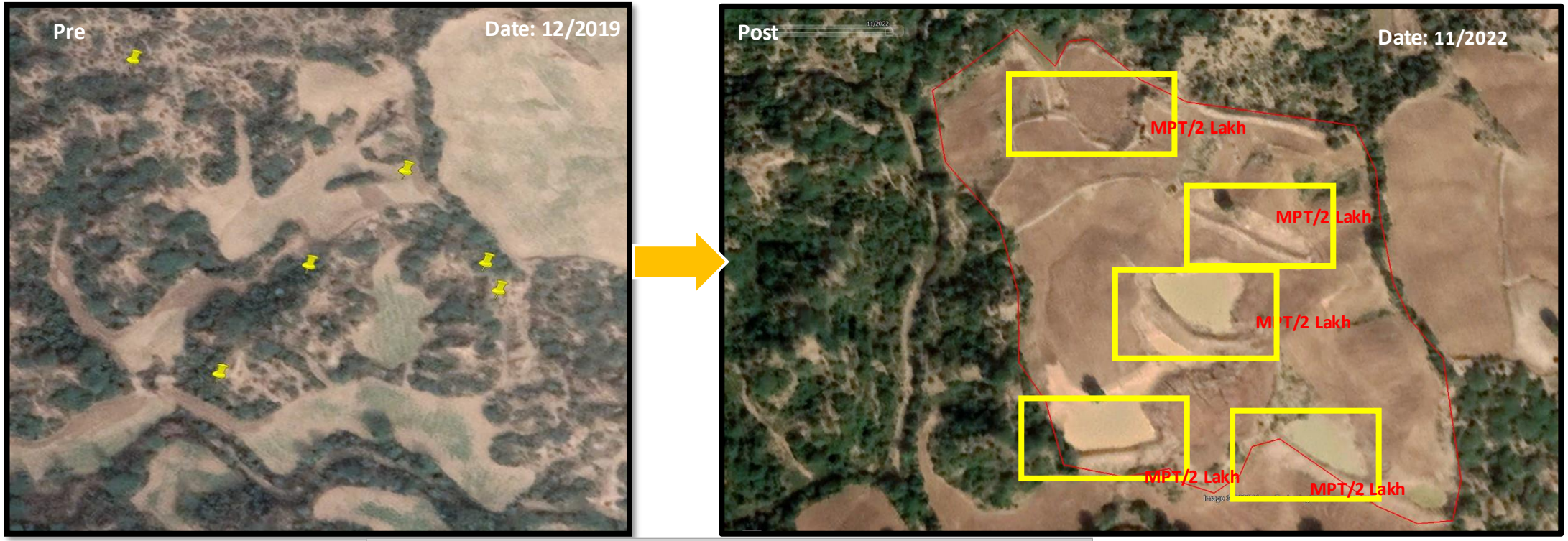


Phase- Phase II
Project Name- S. Madhopur (IWMP)4/10-11
Block- Khandar
Village- Mai khurd
Activity- MPT
Department-Watershed Dept
Cost- 0.01991 Cr
Lat long- 25.9735, 76.5759
Impact- 11.2 hectare wasteland converted into agricultural land

Phase-IWMP-7 (2011-12) **District-** Kota **Block-** Sultanpur **Village-** Rel Gaon **Activity-** MPT **Department-** Watershed Department **Cost-** Per MPT 1.09 lakh **Lat long-** 25.1309 76.15 **Impact-** 9.48 ha. wasteland converted to agricultural land

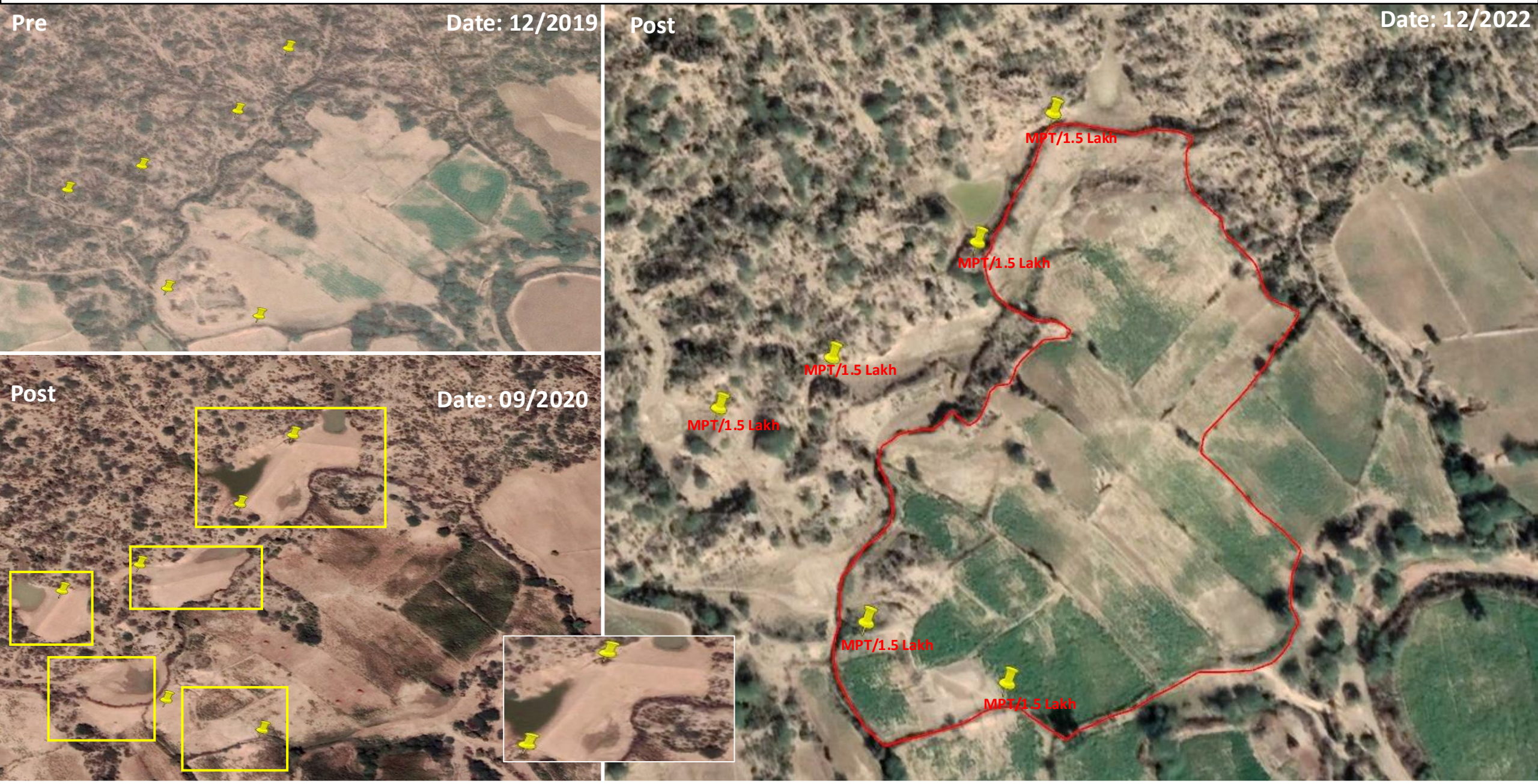


75%of the studied projects (156 out of 207) have reported a decrease of **8223 ha** in ravine land



Phase- IWMP 12-13
District- Dhaulpur
Block- Dhaulpur
Village- Bichiya
Activity- MPT
Department-Watershed Dept.
Cost- 10 L (5 MPTs)
Lat long- 26.6472 77.8481
Impact- 2.27 ha. ravine area converted into agriculture land

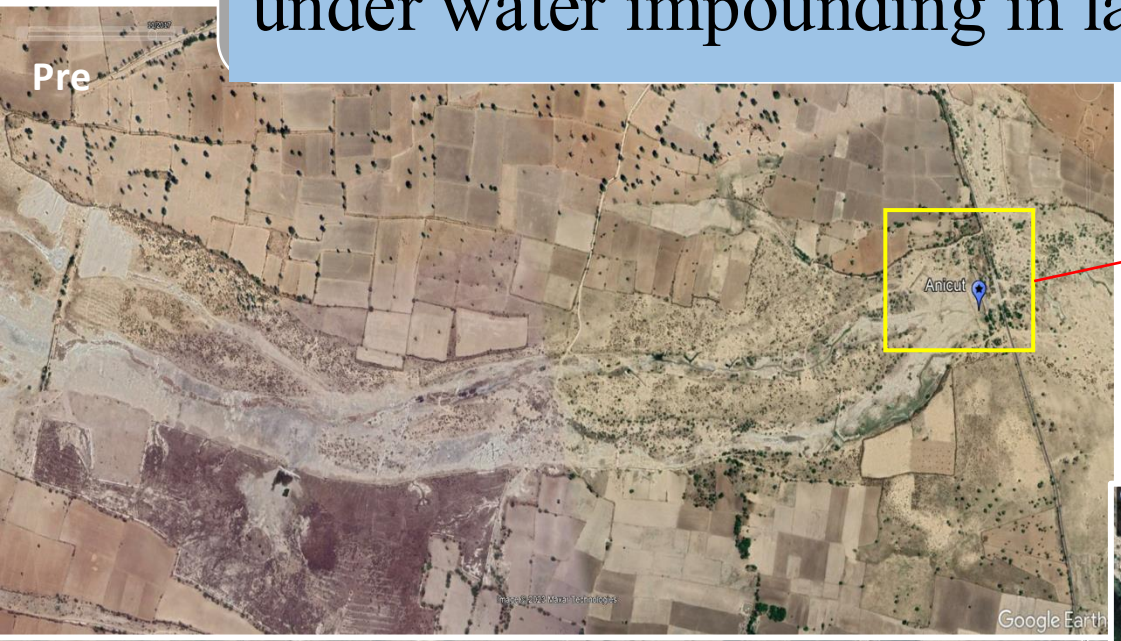
Phase- IWMP 12-13 **District-** Dhaulpur **Block-** Dhaulpur **Village-** Bichiya **Activity-** Mini Percolation Tank **Department-** Watershed Department
Cost- 9 L (6 MPTs) **Lat long-** 26.6526 77.8546 **Impact-** 2.73 ha. ravines area converted into agriculture land

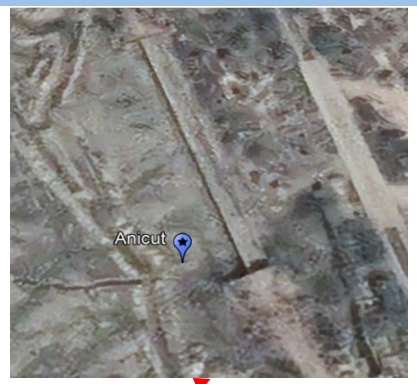


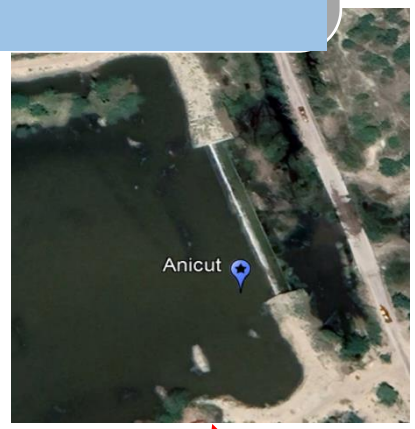
An increase of **1757 ha** area in horticulture

Phase- IWMP 12-13	**District-** Jhunjhunu	**Block-** Udaipurwati
Village- Bajawa	**Activity-** Pasture Development	**Department-** Watershed Department
Cost- 30 L	**Lat long-** 27.988755 75.4846042	**Impact-** 7.00 Ha. Wasteland brought under horticulture plantation

86% projects (570 out of 664) shows an increase of **21664 ha** area under water impounding in lakes/ponds/reservoirs

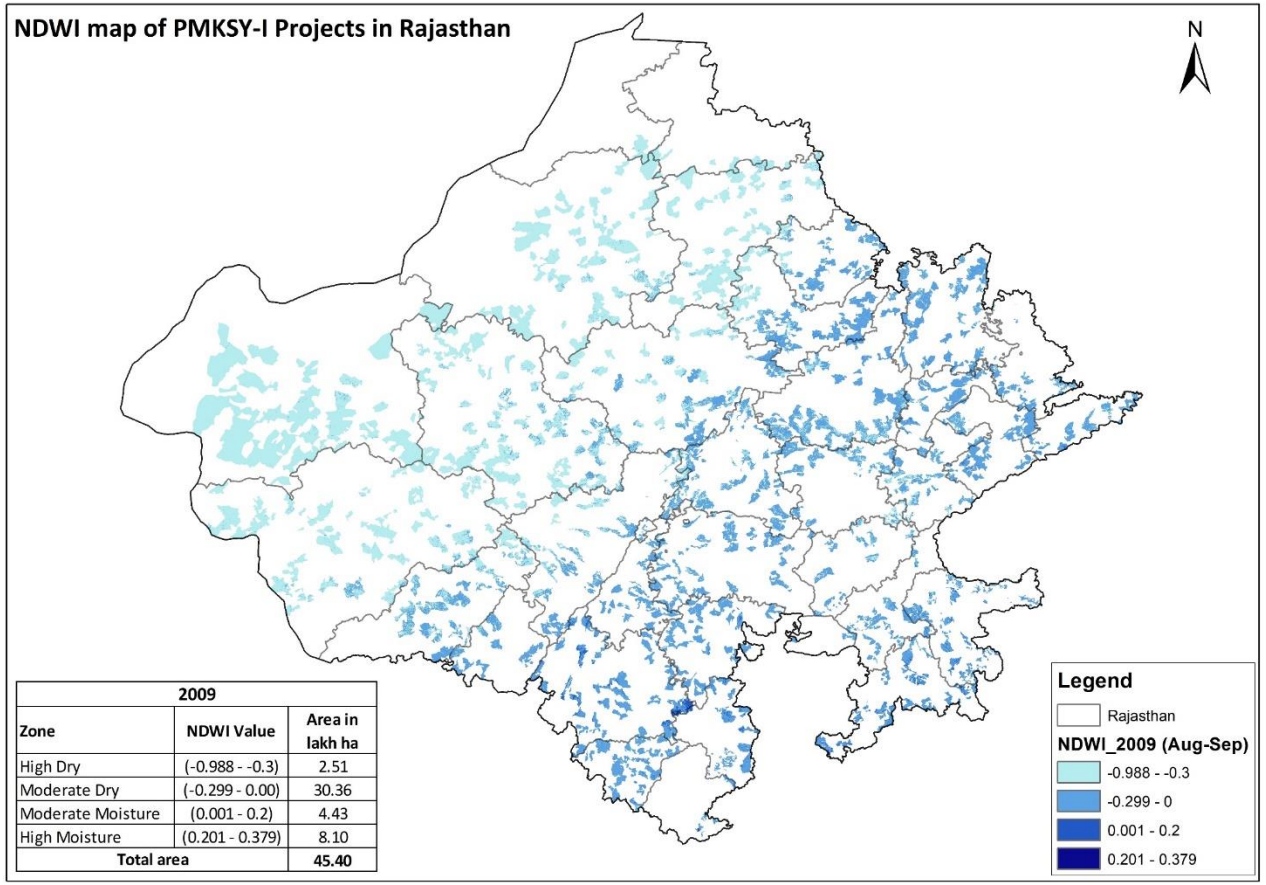


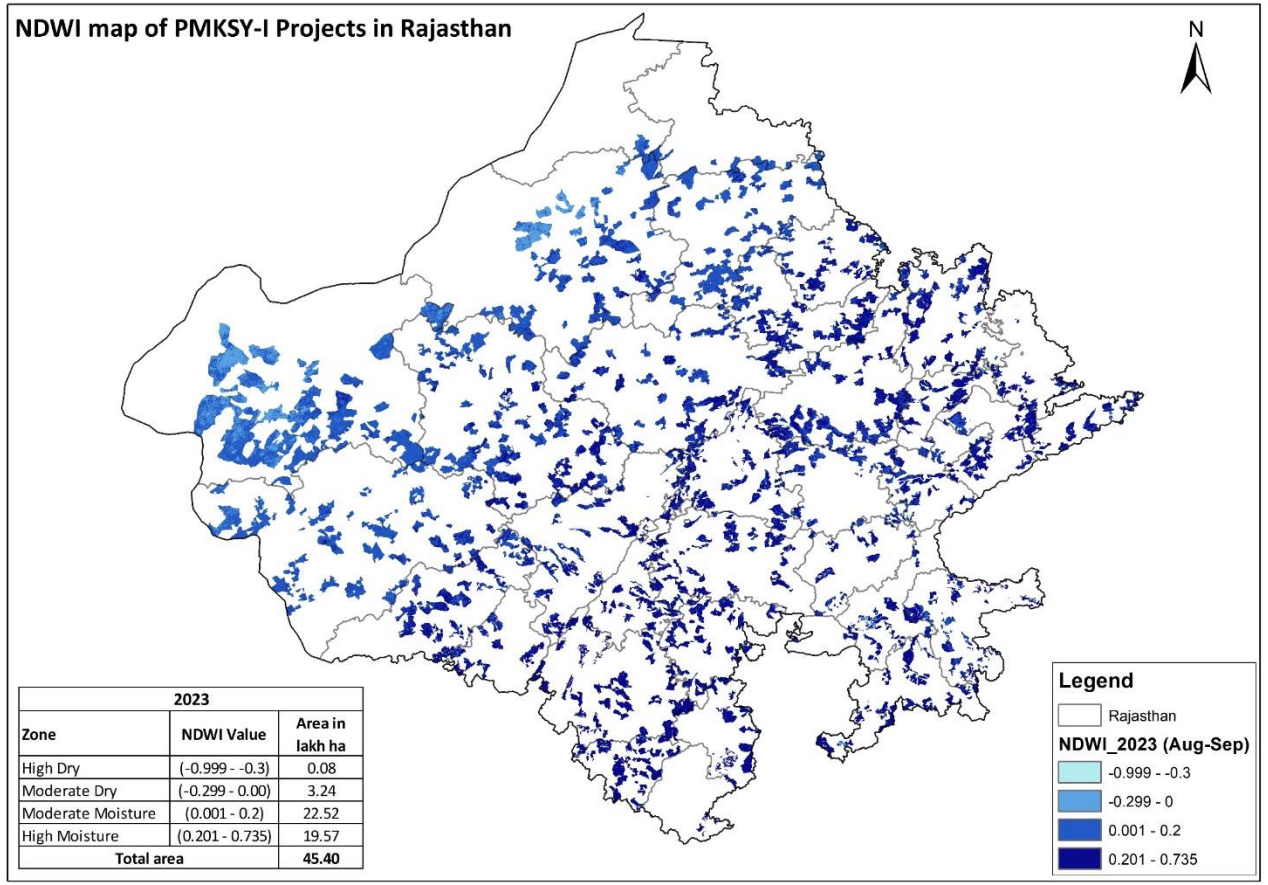




Phase- IWMP 12-13 **District-** Jaipur **Block-** Phagi **Village-** Kansel **Activity-** Anicut Renovation **Department-** Watershed Department **Cost-** 11.96L **Lat long-** 26.7207, 75.4981 **Impact-** There was no water in this stream before, but after anicut renovation water is available throughout the year to a fetch length of 2.00 kms has been increased. soil moisture content and vegetation near the structure has also increased

Phase- IWMP 12-13 **District-** Jaipur **Block-** Phagi **Village-** Teekelnarukan **Activity-** Talab Renovation **Department-** Watershed Department **Cost-** 8.84L **Lat long-** 26.709, 75.5 **Impact-** Water storage capacity of the talab increased from almost nothing in 1/2018 to an area of 13.3 ha in 12/2022. The Soil moisture of the region around the talab has also greatly increased



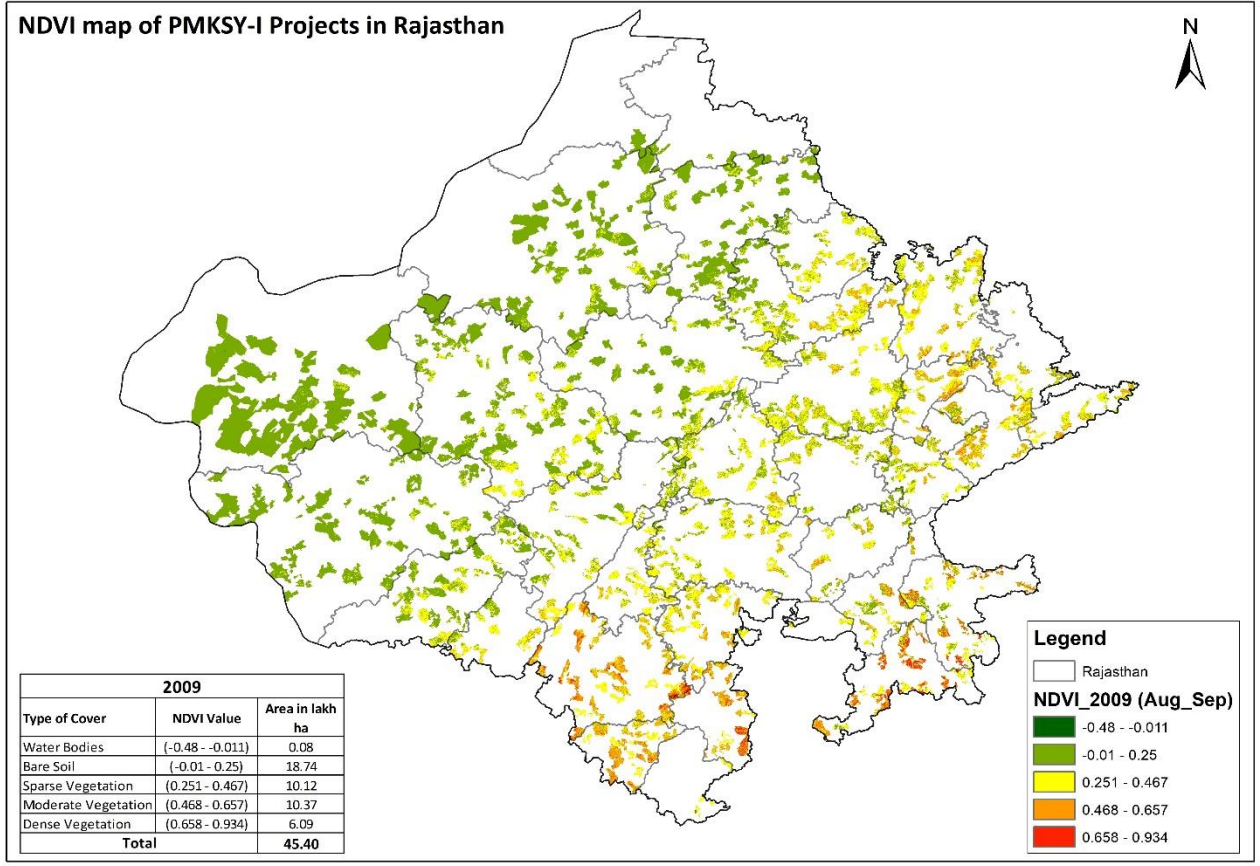


Change in NDWI in 820 PMKSY 1.0 Projects from 2009 to 2023

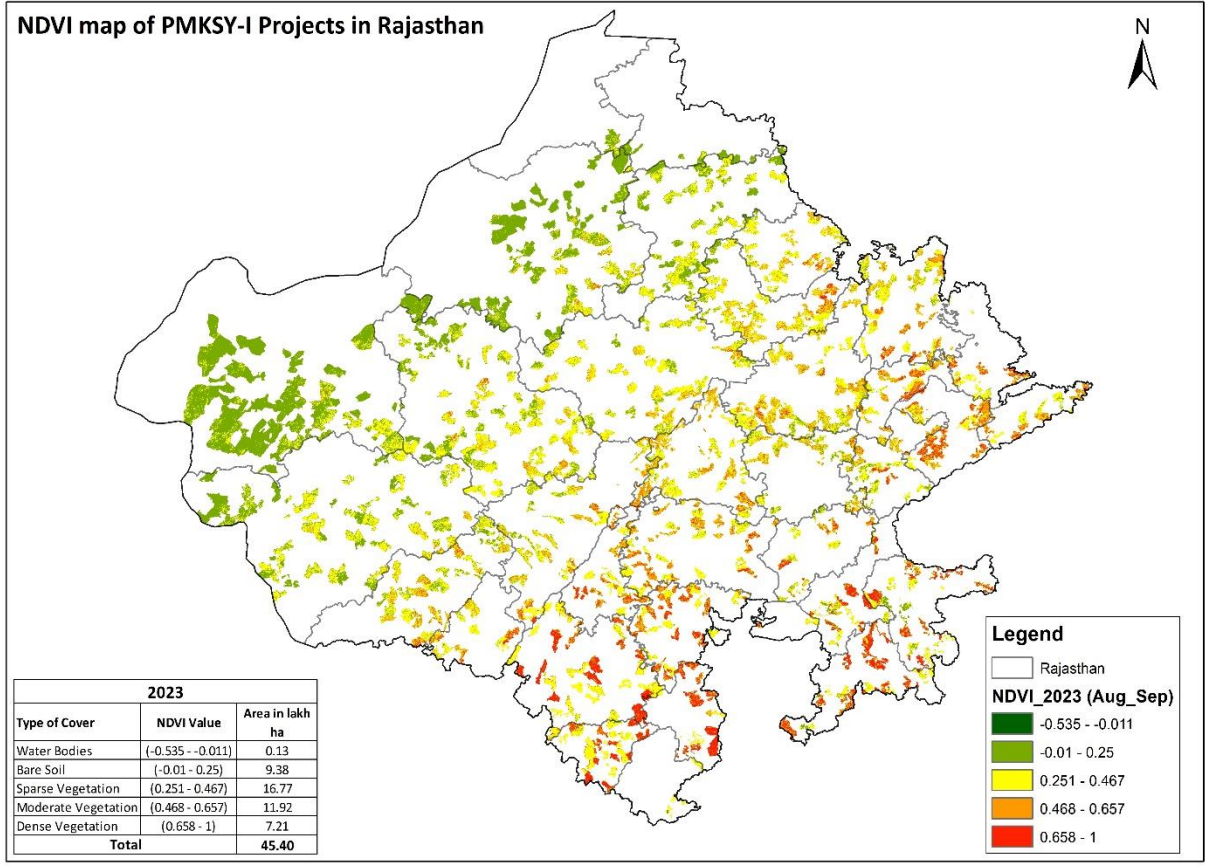
Type of Cover	NDWI Value		Area in lakh ha		Difference in lakh ha	Change in %
	2009	2023	2009	2023		
High Dry	(-0.988 - -0.3)	(-0.999 - -0.3)	2.51	0.08	-2.43	-97
Moderate Dry	(-0.299 - 0.00)	(-0.299 - 0.00)	30.36	3.24	-27.12	-89
Moderate Moisture	(0.001 - 0.2)	(0.001 - 0.2)	4.43	22.52	18.09	408
High Moisture	(0.201 - 0.379)	(0.201 - 0.735)	8.10	19.57	11.47	142
Total			**45.40**	**45.40**		

Ref.: https://eos.com/make-an-analysis/ndwi/ and Gulácsi, András & Kovács, Ferenc. (2015). Drought Monitoring With Spectral Indices Calculated From MODIS Satellite Images In Hungary. Journal of Environmental Geography. 8. 11-20. 10.1515/jengeo-2015-0008.

NDWI = Normalized Difference Water Index



2009		
Type of Cover	NDVI Value	Area in lakh ha
Water Bodies	(-0.48 - -0.011)	0.08
Bare Soil	(-0.01 - 0.25)	18.74
Sparse Vegetation	(0.251 - 0.467)	10.12
Moderate Vegetation	(0.468 - 0.657)	10.37
Dense Vegetation	(0.658 - 0.934)	6.09
Total		45.40



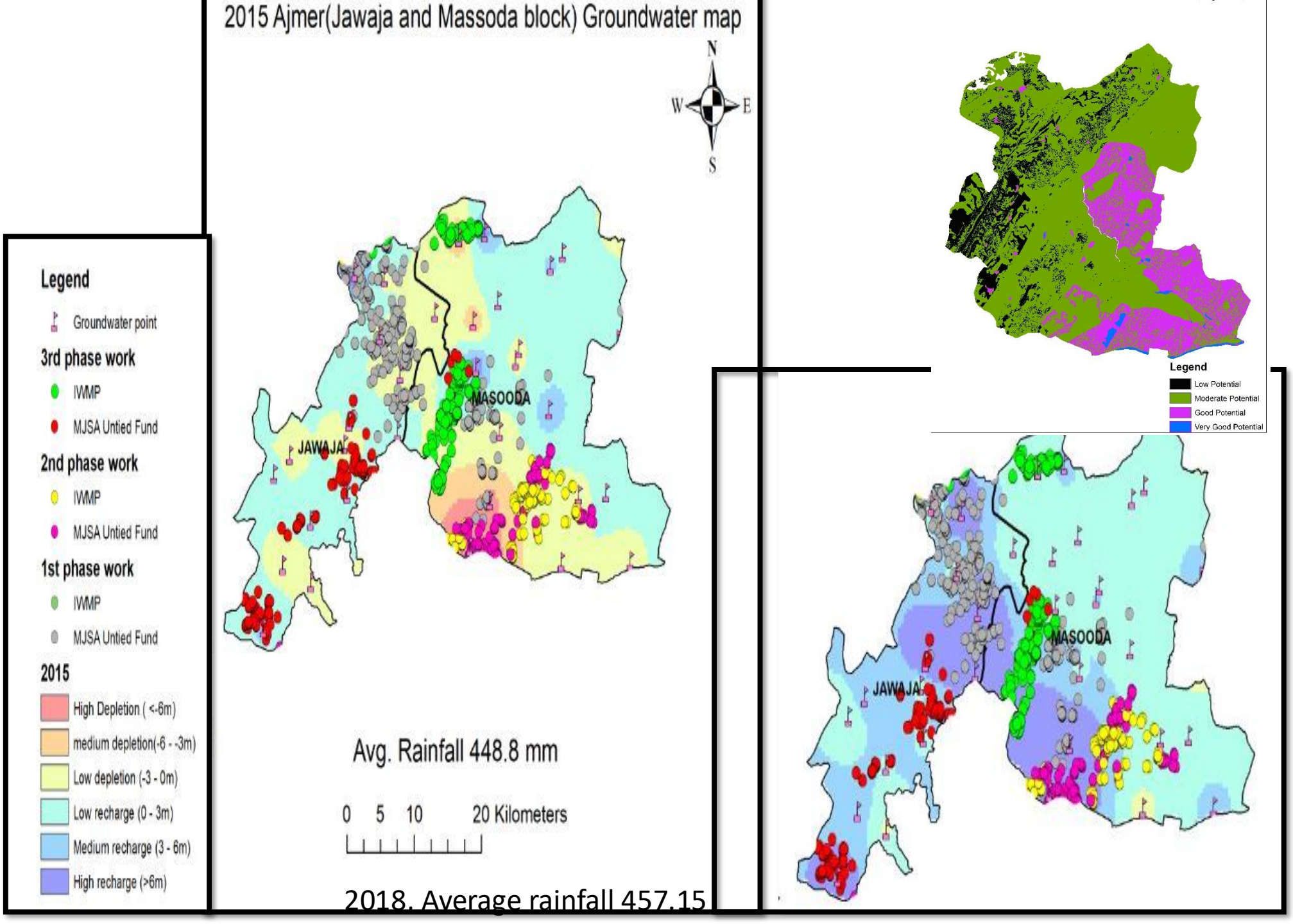
2023		
Type of Cover	NDVI Value	Area in lakh ha
Water Bodies	(-0.535 - -0.011)	0.13
Bare Soil	(-0.01 - 0.25)	9.38
Sparse Vegetation	(0.251 - 0.467)	16.77
Moderate Vegetation	(0.468 - 0.657)	11.92
Dense Vegetation	(0.658 - 1)	7.21
Total		45.40

Change in NDVI in 820 PMKSY 1.0 projects from 2009-2023

Type of Cover	NDVI Value		Area in Ha.		Difference	Change in %
	2009	2023	2009	2023		
Water Bodies	(-0.48 - -0.011)	(-0.535 - -0.011)	0.08	0.13	0.05	55
Bare Soil	(-0.01 - 0.25)	(-0.01 - 0.25)	18.74	9.38	-9.36	-50
Sparse Vegetation	(0.251 - 0.467)	(0.251 - 0.467)	10.12	16.77	6.65	66
Moderate Vegetation	(0.468 - 0.657)	(0.468 - 0.657)	10.37	11.92	1.54	15
Dense Vegetation	(0.658 - 0.934)	(0.658 - 1)	6.09	7.21	1.12	18
Total			**45.40**	**45.40**		

Ref.: Mehta, Abhinav & Shukla, Shital & Rakholia, Shrey. (2021). Vegetation Change Analysis using Normalized Difference Vegetation Index and Land Surface Temperature in Greater Gir Landscape. Journal of Scientific Research. 65. 01-06. 10.37398/JSR.2021.650301.

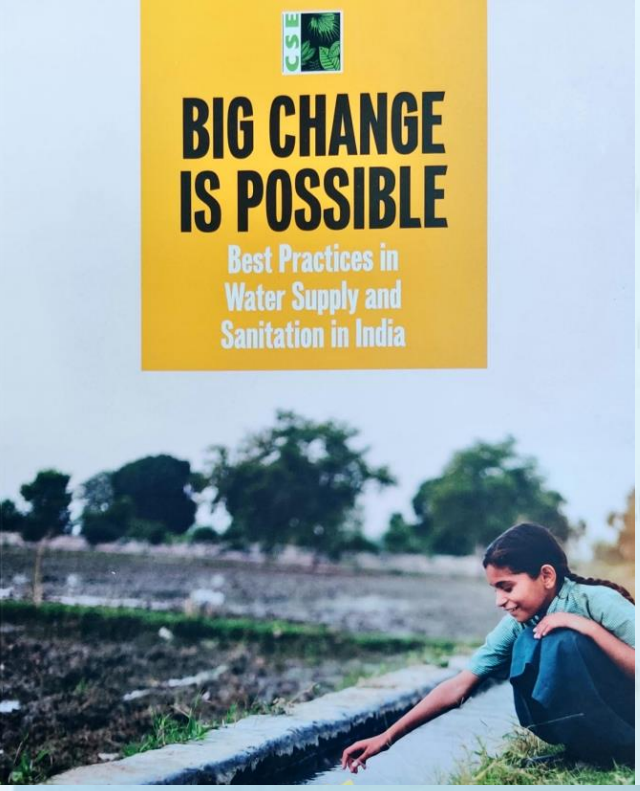
NDVI = Normalized Difference Vegetation Index



2018. Average rainfall 457.15

106 farm ponds by department with lot of convincing

Looking to benefits to the tune of more than 2 lacs farmers themselves dug the farm ponds now almost every farm have a farm pond



CONTENTS

An open well near a stream provides drinking water to Ladana village

Tribune

Water wealth: A few lessons from Rajasthan

Govt officials and farmers have joined hands to conserve water in many villages near Jaipur. The last year's results are already showing: the villages have had better crop yields

YASH GOYAL IN JAIPUR

IF you want to know the preciousness of water in parched areas of Rajasthan, talk to Lalram Jat, a small farmer of Mohanpura Rajavatan village, around 60 km south-east of Jaipur. "Only last year before the rain came, I had almost lost hope for my mustard and moong crops," he recalls, scanning a dry part of his land. "Then, I decided to do something."

Lalram took Rs 8,000 from his savings and invited government officials involved in the Mukhyamantri Jal Swavlamban Abhiyan (MJSA) to do the rest in his eight bighas. The government funded Rs 72,000 as a part of water conservation scheme. A small dry land was carved out in the middle of Lalram's farmland to conserve rainwater in it. "This year, I had 40 quintals more of mustard crop. I earned Rs.1.44 lakh at Rs 3,600 per quintal. I also had a better moong crop. Like last year, this time too, my family is anxiously praying for rains," says Lalram, sitting with village elders under the shade of a tree.

This is one but one real-life story: Eight villages of Kishorpura panchayat samiti in the Phagi sub-division near Jaipur, too, have changed their fate — from thirst in 2016 to a burst of joy in sandy desert.

In village Samelia, farmers and others joined state government's Rs 3.5-lakh plan to build a mini-percolation tank (MPT). The 200 sq-feet 'Naadi' now taps and conserves rainwater. The water level is up in wells. "We have drinking water for villagers as well as our cattle. Nearly 500-700 beeghas have benefited," says Rajendra Singh Rajawat, a sarpanch at Kishorpura.

In yet another milestone, MJSA has also undertaken a project of pasture development in 35 hectares at Ramchandrapura village. "Government officials with the help of villagers have grown sheesham and ardu trees and built small rows of V-ditches to conserve rainwater," says Ishwar Singh, an engineer supervising the well-guarded pasture-block surrounded by a few big revived wells. With an investment of Rs 11.30 lakh, the MJSA expects a good earning after a decade from these trees.

The MJSA has had an impact on socio-economic conditions of farmers: they have had a better yield of wheat and mustard crops. The womenfolk don't have to walk miles to get water. And the cattle too have fresh and dry fodder. The forest department has planted thousands of tree saplings around all Naadis to check soil erosion.

State River Basin and Water Resource Planning Authority chairperson Sriram Vedire says the MJSA with a budget of Rs 1,250 crore (including Rs 55 crore from crowd funding) has reached 3,529 villages.

Vedire says the second phase, which began in November 2016, will not only cover 4,200 villages, but also 66 towns at an estimated cost of Rs 2,100 crore. "The scheme has been made wider with infusion of new techniques and innovation. We will use unmanned drones for surveying selected villages. A control room in Jaipur would keep track of the progress of work," says Vedire.

(Top) A farmer looks at a recharged pond at Bhilon-ki-Dhani village; (below) women gather around a well in the same village, around 60 km off Jaipur. PHOTOS: YASH GOYAL

May 12.2023

Bhajot, Kishangarh, Alwar

Jal Jeevan Mission- Sustaining the source

- **The groundwater source can be sustainable if it is augmented by taking up recharging measures in the catchment *(guidelines 3.4(ii) Development of reliable drinking water sources and /or augmentation of existing sources to provide long term sustainability of water supply system)* .**

Let's Contribute towards
Water for all in Rajasthan

Directorate Watershed Development & Soil Conservation
Government of Rajasthan

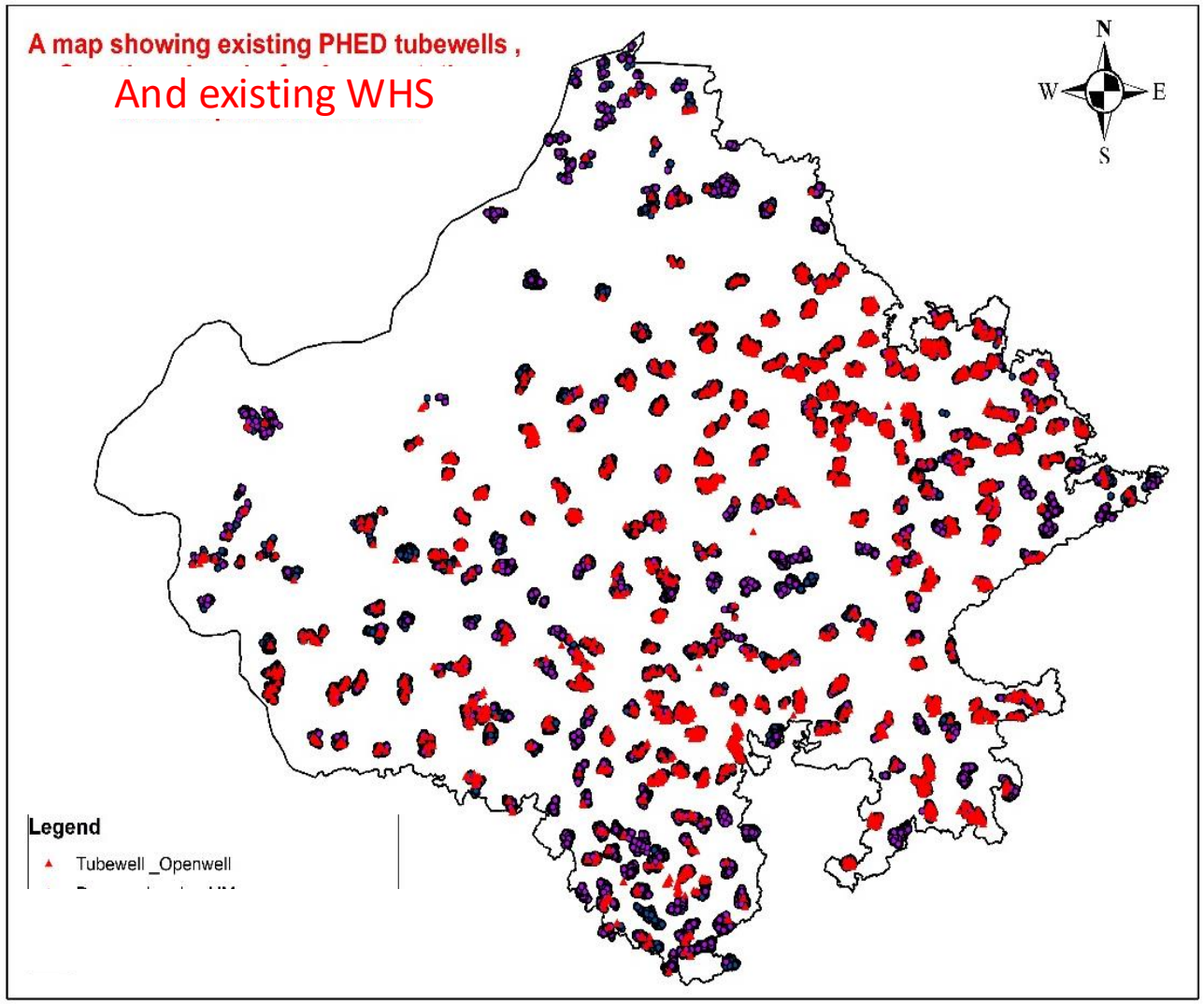
Sustaining The source

Two possible Solutions for sustain the source

- Finding the source in downstream of existing water harvesting structures

Or

- Treating the catchment of source and creating a water harvesting structure near the source looking



Step 1

Geo Tag all the sources
And All the existing water harvesting structures

Step 2: If no existing structure near source

- **Identify location of new water harvesting structures In catchment of source**
- **Prepare fund Matrixt by mapping of proposed structure under on going schemes if proposed structure cannot be funded from any ongoing scheme propose under JJM**