PoCRA

महाराष्ट्र शासन

सत्यमेव जयते

कृषि विभाग

THE WORLD BANK

ANNUAL PROGRESS REPORT

As on 30th June 2019

Maharashtra Project on Climate Resilient Agriculture

(Project of Government of Maharashtra in Partnership with the World Bank)

SEPTEMBER- 2019

Project Management Unit

30 A/b, Arcade, World Trade Center, Cuff Parade,
Phone: 022-22163351
Email: pmu@mahapocra.gov.in Website www.mahapocra.gov.in

Maharashtra Project on Climate Resilient Agriculture

(Project of Government of Maharashtra in Partnership with the World Bank)

ANNUAL PROGRESS REPORT

As on 30th June 2019

Contents

ABBREVIATIONS

CDP- Cluster Development Plan

DBT- Direct Benefit Transfer

DPR- Detailed Project Report

FFS- Farmer Field School

MLP – Micro Level Planning

MoU – Memorandum of Understanding

TCM –Thousand Cubic Meter

VCRMC - Village Climate Resilient Agriculture Management Committee

PROJECT OVERVIEW

Project Overview

The Project on Climate Resilient Agriculture in Maharashtra (PoCRA) is a project of Government of Maharashtra in Partnership with the World Bank. The project commenced its activities in from 18th May 2018, the date of effectiveness of loan. The project is expected to contribute in increasing climate resilience in the agriculture sector in Maharashtra by enhancing the adaptive capacity of smallholder farmers, developing the absorptive capacity of stakeholders in the selected value chains and enhancing the transformative capacity of institutions and stakeholders. The project focuses on enhancing water security at the farm level, improving soil health and increasing farm productivity and crop diversification, to achieve climate resilience both at village and farm level.

The project covers 5142 villages in 15 droughts prone and salinity affected districts in Marathwada and Vidarbha region in the state. The project villages include 932 sodic and saline affected villages in the basin of Purna river spread across 4 districts, i.e. Akola, Amravati, Buldhana and Jalgoan. The project is being implemented in three phases viz Phase-I (1245 villages), Phase II (2889 villages) and Phase- III (1008 villages). Currently, the project is being implemented in phase I and Phase II villages.

The project development objective (PDO) of PoCRA is *'to enhance climate resilience and profitability of smallholder farming system in selected directs in Maharashtra'*. This would be achieved by promoting climate-resilient agriculture systems, Post-harvest management, value chain promotion and institutional development.

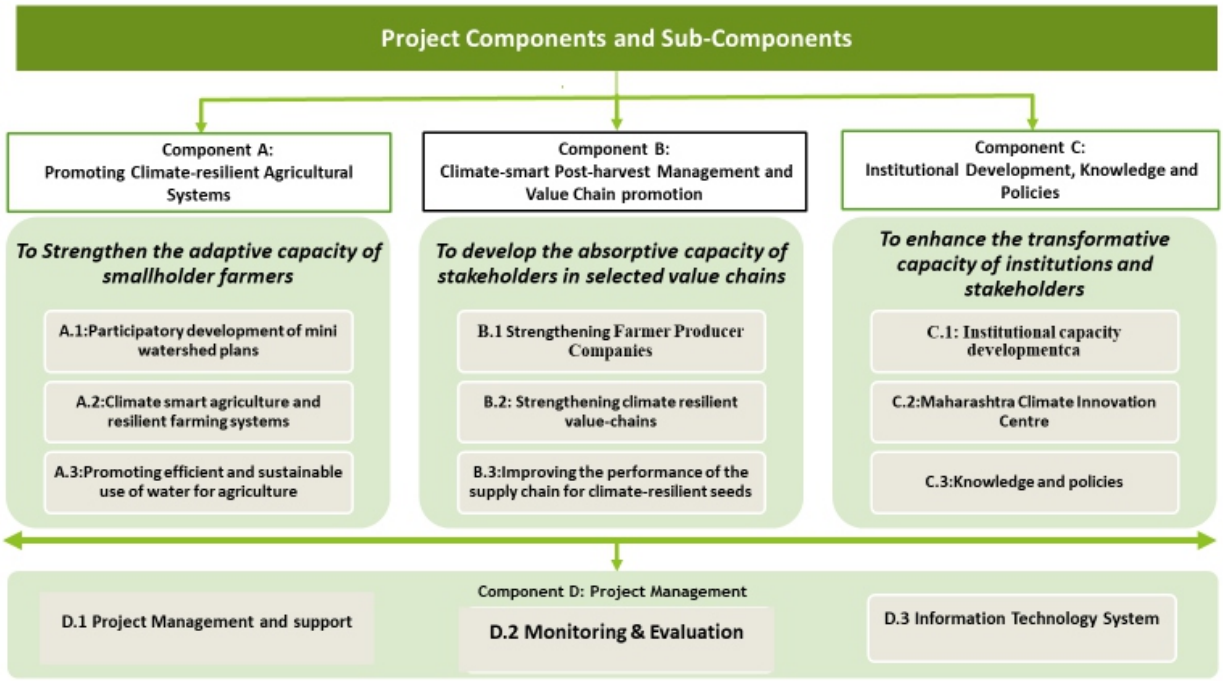
The project has four components, namely-

Component A: **Promoting Climate Resilient Agriculture Systems**

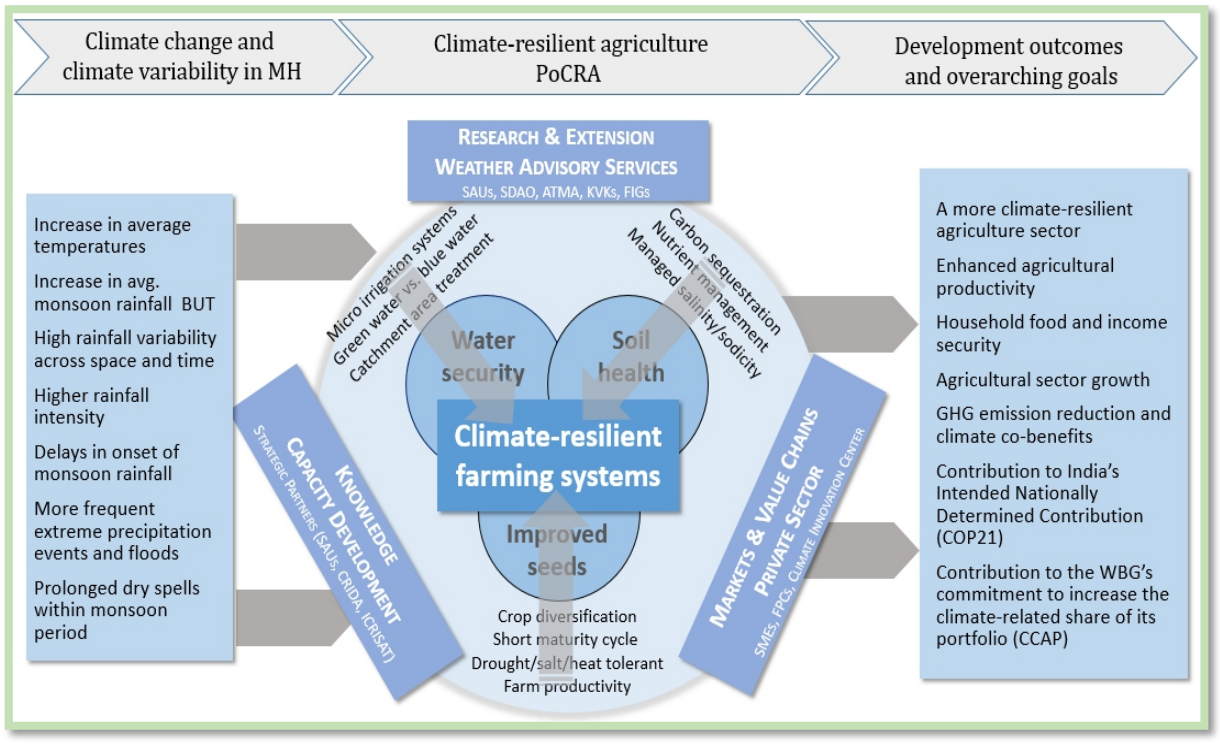
Component B: **Post-harvest management and value chain promotion**

Component C: **Institutional Development, Knowledge and policies for a Climate-resilient Agriculture**

Component D: **Project Management**



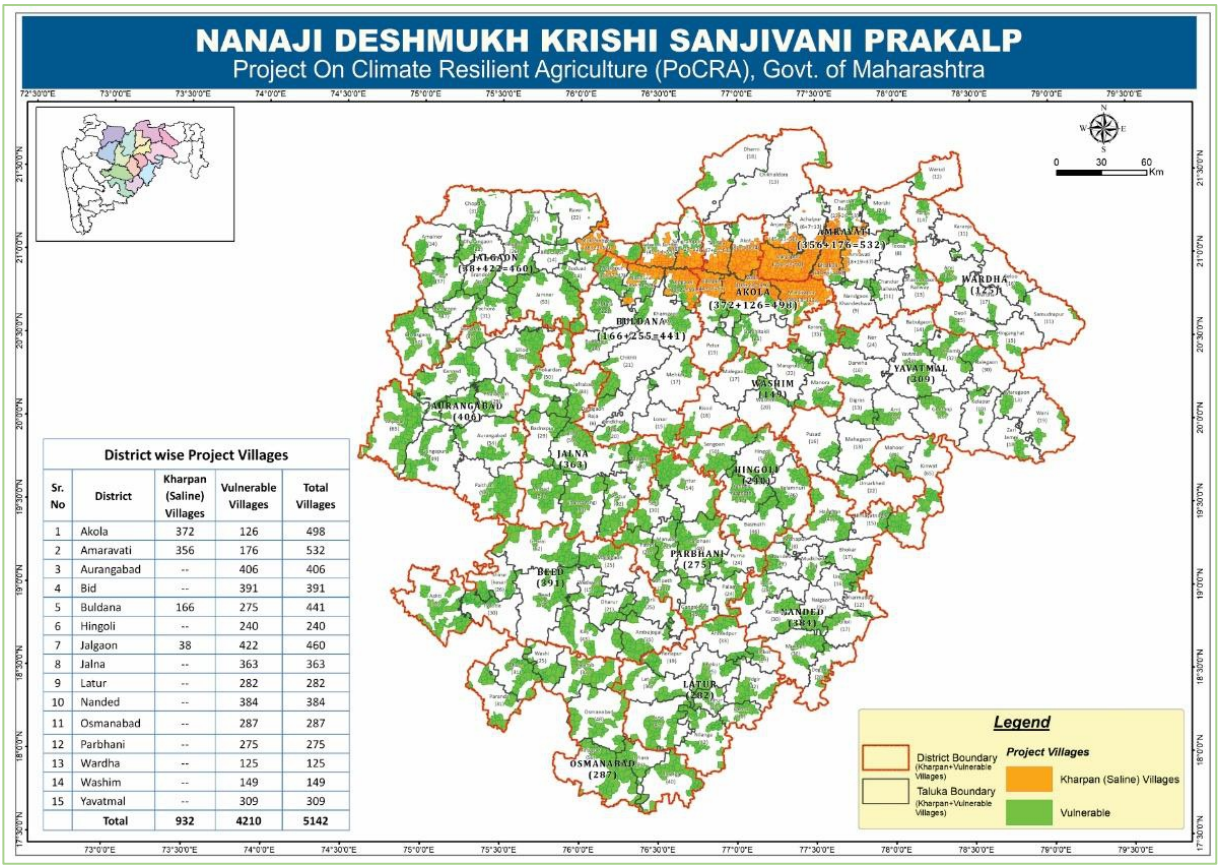
Strategic Overview, Thematic Linkages and Expected Achievements



Vulnerability Assessment and selection of Project Villages

Identification of villages for the project was done on the basis of climate vulnerability. The climate vulnerability of the villages was assessed on the basis of the methodology developed by Central Dryland Research Institute (ICAR-CRIDA) under National Innovations in Climate Resilient Agriculture (NICRA) project. The assessment indicators viz, Climate Exposure, Sensitivity and Adaptive Capacity were applied to the mini-watershed in the project districts and most vulnerable mini-watersheds in each project Taluka were selected for implementation. These mini-watersheds are termed as 'Village Clusters.' Following weight was given to various parameters to calculate the Cluster Vulnerability Index.

Vulnerability Indicator	Weight	Vulnerability Indicator	Weight
Climate Exposure (13 parameters**)**	**25%**	**Adaptive Capacity**	**35%**
Sensitivity	**40%**	Farmers Suicides	9%
% of Net sown area to total geographic area	2%	% of SC /ST population to total population	5%
% of Degraded and wasteland to total geographic area	6%	% of Agri. labour to Total Labour	3%
Frequency of occurrence of Drought (Drought proneness)	12%	% Population having income below INR 5000	7%
Ground water prospects	12%	Female Literacy gap	3%
% of small and marginal farmers to total no. of farmers	8%	Village livestock index	8%



District wise Project Villages

Sr. No	District	Kharpan (Saline) Villages	Vulnerable Villages	Total Villages
1	Akola	372	126	498
2	Amaravati	356	176	532
3	Aurangabad	--	406	406
4	Bid	--	391	391
5	Buldana	166	275	441
6	Hingoli	--	240	240
7	Jalgaon	38	422	460
8	Jalna	--	363	363
9	Latur	--	282	282
10	Nanded	--	384	384
11	Osmanabad	--	287	287
12	Parbhani	--	275	275
13	Wardha	--	125	125
14	Washim	--	149	149
15	Yavatmal	--	309	309
	Total	**932**	**4210**	**5142**

Project Cost:

The total cost of the project is Rs. 4000 crores, out of which the share of the Government of Maharashtra Rs. 1200 Crore (30%) and the share of the World Bank is Rs. 2800 crore (70 %). The details of the project expenditure as on 30th June 2019 is shown in the following table.

Component wise Project Expenditure (as on 30th June 2019)

Components	Expenditure till 30th June 2019 (INR Crore)
A. Promoting Climate resilient agriculture systems	18.07
B. Post-harvest management and value chain promotion	0.21
C. Institutional Development, Knowledge and policies	3.84
D. Project Management	21.61
Total	**43.72**

Component Implementation Status

Component A- Promoting Climate Resilient Agricultural Systems

The objective of this component is to strengthen the adaptive capacity of smallholder farmers to adjust and modify their production system to moderate potential future impacts from climate events'.

This component focuses on: (i) scaling up the adoption by farmers of climate resilient technologies, and (ii) drainage line and catchment area treatment for water security. This component includes the demonstration of agricultural technologies and good agricultural practices through Farm Field Schools (FFS), improving soil health, enhancing water availability through drainage line and catchment area treatment, enhancing water use efficiency through and micro-irrigation systems. These interventions are aimed to sustain crop productivity under different climate variabilities.. The progress of project activities under this component are provided below.

2.1 Participatory Development of Mini Watershed Plans

The participatory micro-planning process is a key feature of this project. This activity supports the village community both to understand the risk and vulnerability due to climate change and to plan an adoption strategy at the local level. The project cluster is a group of villages aligned to the hydrological boundaries (Mini-watershed) and planning is carried out at the village level and Cluster plans are prepared for each selected clusters to provide a roadmap for the implementation of project activities and investment priorities in the field. The project has procured services of three micro-planning agencies to mobilize the village communities and prepare the village and cluster development plans for phase I villages. The project has prepared 138 cluster development plans comprising of 1226 villages in phase I. Few villages which fall in the catchment of municipalities, medium dams etc. are excluded from micro planning activity. The long-term sustainability of the interventions is being ensured through the participation and involvement of the community institutions in the planning process. This is achieved through the formation of a village-level institution at each Grampanchayat and named as Village Climate-Resilient Agriculture Management Committee (VCRMC).

Status of preparation of Mini Watershed Plans and DPR in phase I villages

Dist.	Phase-I Villages	Phase I Clusters	Micro-Planning Completed villages	Micro-planning completed clusters	Village Development Plans Approved	Soil & Water Conservation Works Cost as per DPR (INR Crore)
Akola	112	13	106	13	106	18.12
Amaravati	205	12	202	2	38	4.37
Aurangabad	77	12	77	12	77	158.09
Beed	58	5	58	5	58	105
Buldhana	121	17	120	2	26	15.04
Hingoli	39	5	39	5	39	77.23
Jalgaon	126	13	123	13	123	117.15
Jalna	67	10	67	10	67	105.22
Latur	94	10	91	10	91	107.52
Nanded	70	7	70	7	70	112.38
Osmanabad	48	12	48	12	48	91.79
Parbhani	84	9	84	9	84	239.12
Wardha	39	3	39	3	39	42.04
Washim	29	5	29	5	29	48.37
Yavatmal	74	5	73	5	73	14.46
Total	**1245**	**138**	**1226**	**113**	**968**	**1255.90**

These plans are prepared to tap the excess runoff available in any year. Excess runoff is calculated on the basis of the village water balance which takes into account the factors like soil type, land use, cropping pattern, existing water harvesting structures, human and animal population, groundwater recharge, and rainfall pattern.

Participatory Micro Planning Process

Village Climate Resilient Agriculture Management Committee (VCRMC)

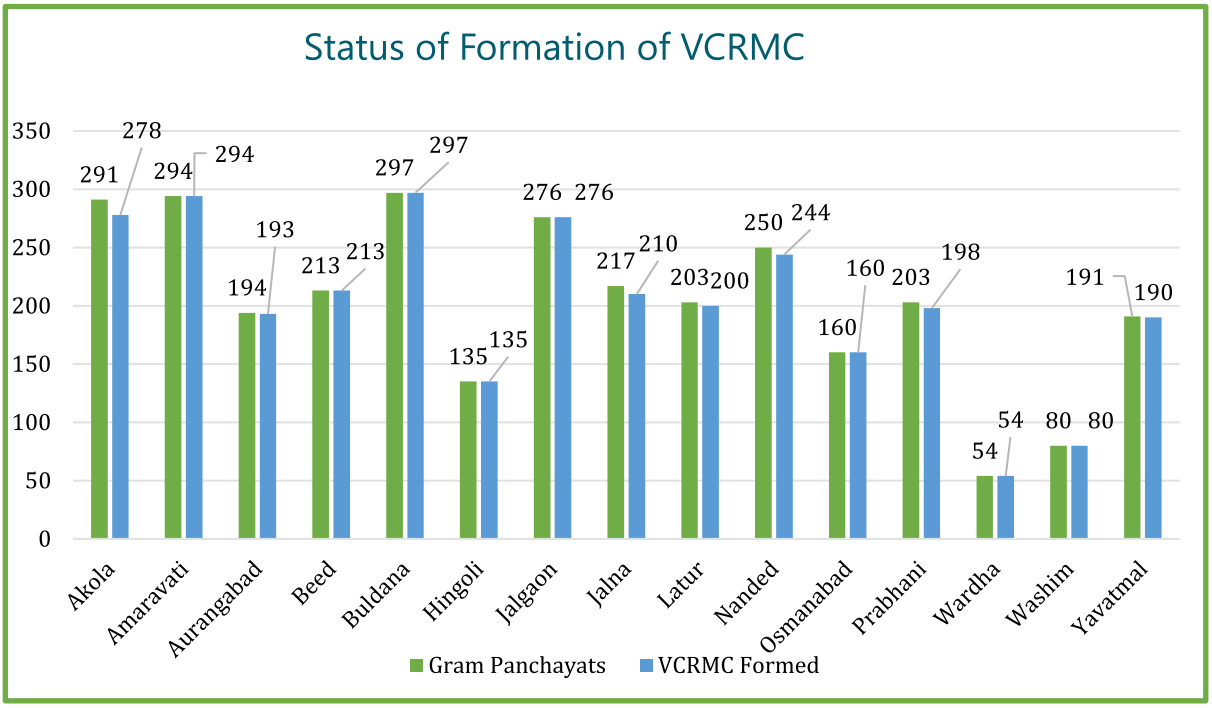
The project has designed a three-tier implementation structure at the district, subdivision, and village level. VCRMC is responsible for the planning implementation and monitoring of the project activities at the village / Gram panchayat level. This statutory committee is formed under the provisions of section 49 of the Maharashtra Gram Panchayat Act, 1959. This committee acts as a development committee of the Gram Panchayat. The strength of the VCRMC is 13. There are 4 non-executive members to support the committee Two-third of the members of the committee are small landholders, and one-third are members of the Gram Panchayat. At least half of the committee members have to be women.

Composition of VCRMC

Sr. No	Committee Members and Social Category	No of Members	Position
Executive Members			
1	Sarpanch	1	Chairman
2	Deputy Sarpanch	1	Member
3	Gram panchayat Members (Male-1, Female -1)	2	Member
4	Progressive Farmers Male (General 1. SC/ST/VJNT/-1)	2	Member
5	Women Farmers (General 1, SC/ST 1/, VJNT/-1)	3	Member
6	FPC/FPOs representative	1	Member
7	Women SHG representative	1	Member
8	Agri.& Allied Activity Entrepreneurs	2	Member
	Total Executive Members	13	
B. Non-Executive Members			
1	Agriculture Assistant	1	Technical Member
2	Gramsevak / Village Development officer	1	Member Secretory
3	Cluster Assistant	1	Joint Secretory
4	Farmer Friend	1	Mobilizer
	Total Non-Executive Members	4	

The status of VCRMC formed at project Gram panchayats in phase I & II is provided below.

District	Status of VCRMC formed								
	Phase-I			Phase-II			Total		
	Villages	Gram Panchayats	VCRM C Forme d	Villages	Gram Panchayats	VCRMC Formed	Villages	Gram Panchayats	VCRMC Formed
Akola	112	71	71	341	220	207	453	291	278
Amaravati	205	127	127	327	167	167	532	294	294
Aurangabad	77	59	59	194	135	134	271	194	193
Beed	58	51	51	218	162	162	276	213	213
Buldana	121	97	97	275	200	200	396	297	297
Hingoli	39	33	33	129	102	102	168	135	135
Jalgaon	126	93	93	229	183	183	355	276	276
Jalna	67	55	55	188	162	155	255	217	210
Latur	94	79	76	144	124	124	238	203	200
Nanded	70	61	57	215	189	187	285	250	244
Osmanabad	48	43	43	137	117	117	185	160	160
Prabhani	84	76	76	145	127	122	229	203	198
Wardha	39	19	19	71	35	35	110	54	54
Washim	29	23	23	81	57	57	110	80	80
Yavatmal	76	50	50	195	141	140	271	191	190
Grand Total	**1245**	**937**	**930**	**2889**	**2121**	**2092**	**4134**	**3058**	**3022**



Mobilization of farmers through Farmer Friend (Krishi Mitra & Krishi Tai)

The objective of the mobilization process is to encourage and enable the participation of the key stakeholders to fulfil the project objectives. The mobilization and technical support will help the farming community to enhance adaptation, build resilience, increase environmental awareness, the adoption of the latest technologies for improving productive potential and profitability in the farming system without deteriorating the prevailing ecosystem.

At the village level, Krushi Mitra (farmer friend) and Krushi Tai (Women Farmer Friend) act as an interface between project officials and the village community and help in mobilization efforts. They work in close coordination with the project's district mobilization official and cluster assistant and provide an interface between project, agriculture department, Krishi Vigyan Kendra (KVK), Gram Panchayat and marginal and small landowners. Krushi Tai is also responsible to ensure participation of women farmers in project activities and their representation in various meetings. The project is building her capacity through exposure visits and training.

Following table indicates district wise numbers of Krishi Mitras and Krishi Tai in Phase I and II villages.

Status of mobilization of Krishi Mitras and Krishi Tai

District	Krishi Mitra	Krishi Tai
Akola	243	107
Amravati	283	29
Aurangabad	188	64
Beed	200	24
Buldhana	274	10
Hingoli	126	109
Jalgaon	284	69
Jalna	159	117
Latur	188	17
Nanded	216	1
Osmanabad	138	45
Parbhani	159	124
Wardha	96	51
Washim	66	18
Yavatmal	171	109
Total	2791	894

2.2 Climate-Smart Agriculture and Resilient Farming Systems

The key objective of this component is to maximize crop productivity by promoting the transfer of climate-smart agricultural technologies at the farm level. This component is focused on transfer of climate-resilient technologies, demonstration of carbon sequestration through various carbon enhancement measures and soil water conservations measures.

Demonstration of climate-resilient agronomic (CRA) practices through Farmers Field School (FFS)

To support the adoption of climate-smart agricultural technologies/practices by small and marginal farmers through on-farm demonstration is being done through farmer field school. The drought and salinity tolerant crop varieties of Cotton, Pigeon pea, chickpea, soybean, and sorghum are being promoted through FFS to enhance farm productivity, Integrated Pest Management(IPM), and Integrated Nutrient Management (INM) related practices are also being promoted through FFS. The details of technologies demonstrated through FFS activity is provided below.

List of Technology demonstrated through FFS

Technologies demonstrated
Climate Resilient Varieties of seeds
Sowing across the slope
Sowing on Broad Bed Furrow
Intercrop Cultivation
Zero tillage
Contour cultivation
Mulching
Green Manuring
Soil Amendments
Integrated Pest Management (IPM)
Integrated Nutrient Management (INM)
Micro-irrigation
Protected Irrigation
Canopy Management
Seed treatment
Furrow opening

The project has conducted farmer field school to transfer climate-resilient technology to build climate resilience among the farmers to minimize the negative impact of climatic events in the project villages. FFS provides a link between the farmers and technical institutions through an extension worker (facilitator). The districts wise status of Farmers Field School conducted during Kharif and Rabi season in 2018-19 are shown in the following table.

Farmers Field School conducted – Kharif & Rabi Season (2018-19)

District	FFS - 2018		
	Kharif	Rabi	Total
Akola	205	83	288
Amravati	380	96	476
Aurangabad	154	16	170
Beed	116	0	116
Buldhana	204	25	229
Hingoli	78	39	117
Jalgaon	136	6	142
Jalna	134	67	201
Latur	178	79	257
Nanded	140	63	203
Osmanabad	94	47	141
Parbhani	164	65	229
Wardha	66	19	85
Washim	55	8	63
Yavatmal	148	53	201
Total	2252	666	2918

District wise participation of Host and Guest farmers is shown in the following table.

District wise farmers participation in FFS

District	Host farmers - Kharif +Rabi			Guest Farmers - Kharif + Rabi		
	Male	Female	Total	Male	Female	Total
Akola	284	4	288	1605	47	1652
Amravati	462	14	476	2636	128	2764
Aurangabad	169	1	170	1313	54	1367
Beed	112	4	116	400	12	412
Buldhana	219	10	229	1575	55	1630
Hingoli	108	9	117	943	21	964
Jalgaon	141	1	142	0	0	0
Jalna	187	14	201	3876	28	3904
Latur	255	2	257	1910	47	1957
Nanded	198	5	203	1965	34	1999
Osmanabad	135	6	141	497	9	506
Parbhani	218	11	229	1238	27	1265
Wardha	81	4	85	855	42	897
Washim	52	11	63	452	28	480
Yavatmal	175	26	201	2167	120	2287
Total	**2782**	**136**	**2918**	**21432**	**652**	**22084**

The participation of farmers in the current Kharif season is shown in the following table.

Participation of farmers in FFS in Kharif 2019 season

District	Number of FFS	Host Farmers			Guest Farmers		
		Male	Female	Total	Male	Female	Total
Akola	694	654	40	694	9004	357	9361
Amravati	787	713	74	787	13932	887	14819
Aurangabad	465	424	41	465	8407	451	8858
Beed	485	447	38	485	8489	278	8767
Buldhana	574	550	24	574	7140	358	7498
Hingoli	315	286	29	315	5794	112	5906
Jalgaon	458	429	29	458	6899	260	7159
Jalna	489	454	35	489	10066	293	10359
Latur	328	315	13	328	4533	409	4942
Nanded	529	492	37	529	9386	255	9641
Osmanabad	356	337	19	356	5105	326	5431
Parbhani	441	416	25	441	6030	186	6216
Wardha	164	147	17	164	2657	297	2954
Washim	179	164	15	179	3710	156	3866
Yavatmal	456	412	44	456	8823	861	9684
Total	**6720**	**6240**	**480**	**6720**	**109975**	**5486**	**115461**

Effects of FFS Demonstrations on Crop Productivity

One of the objectives of technology demonstration through FFS is to increase crop productivity. The crop-wise average yield of FFS plots and control plots operationalized during Kharif and Rabi season in 2018-19 is shown in the following table.

Impact of FFS demonstrations on the yield

Crop	Number of FFS Plots	Average yield of FFS plots (kg/ha)	Average yield of Control Plots (kg/ha)	% change FFS vs control plots
Kharif Season -2018				
Cotton	871	556	459	21
Soybean	671	1033	854	21
Gram	215	916	794	15
Green gram	79	357	327	9
Turmeric	28	3827	3398	13
Pigeon pea	19	503	427	18
Black gram	16	689	620	11
Mandarin	2	2700	2450	10
Rabi Season – 2018-19				
Gram	666	916	794	15

FFS- Intercropping

FFS- Women Farmers

IPM technology Demonstration in FFS

Adoption and Effect IPM technology demonstrated

Enhancement in Carbon Sequestration:

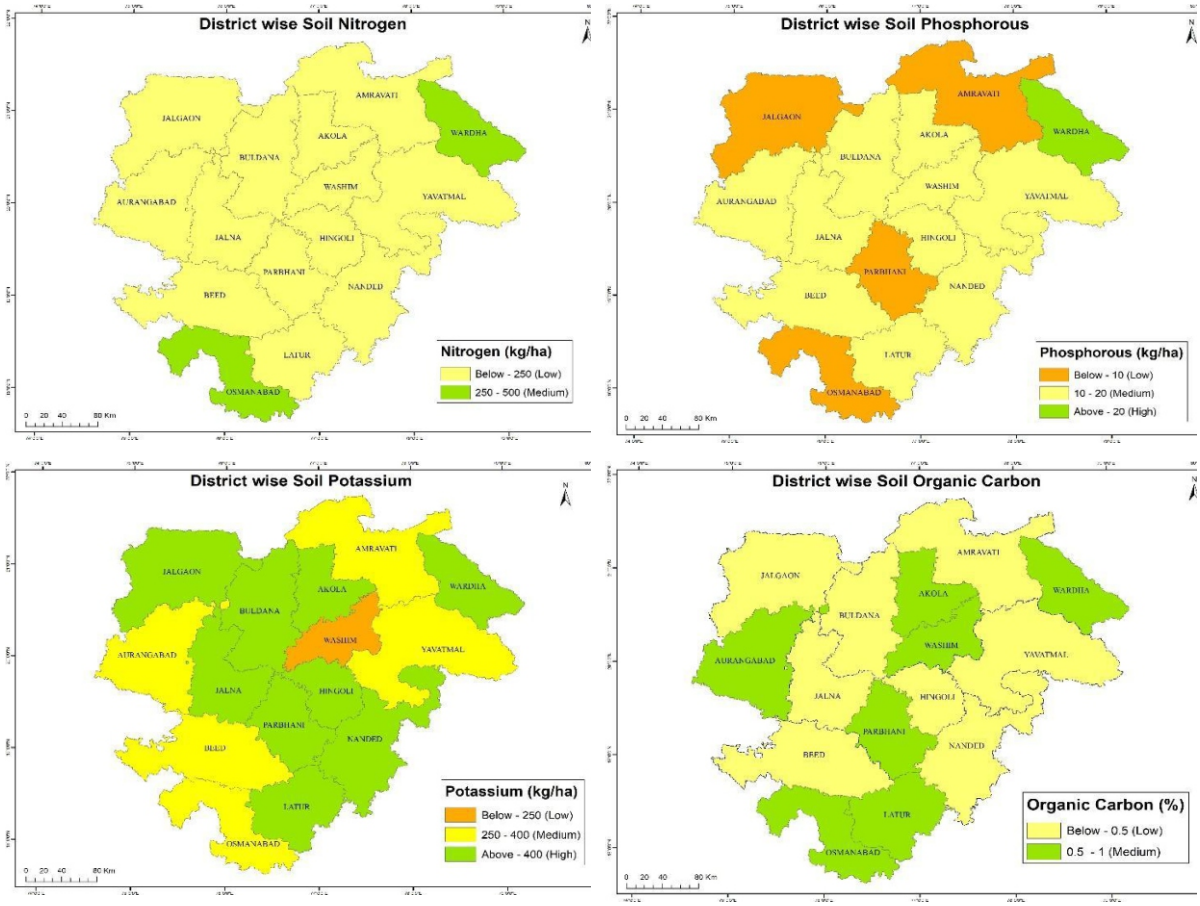
To improve soil health through carbon sequestration, the project is promoting afforestation and horticulture plantation on a large scale. The afforestation is being promoted both on community and private lands. Horticulture crops such as Mango, Guava, Custard apple, citrus (Orange, Sweet lime & Kagzi lime) which are economically viable and suitable to the agro-climatic conditions of the project area are also being promoted. The status of horticulture plantation is shown in the following table.

Status of Horticulture plantation

Horticulture	Number of farmers	Area (Ha)	Matching Grant (INR lakh)
Citrus (Orange, Sweet lime & Kagzi lime)	47	20.25	11.58
Custard Apple	25	8.99	5.94
Guava	14	4.45	7.26
Mango	6	3.12	2.77
Pomegranate	14	3.65	3.39
Total	**106**	**40.44**	**30.94**

Soil Health Management

Building climate resilience at farm level needs proper management of soil health. Soil health in the first year of FFS would be taken as the baseline for the respective plot. The samples from the FFS plots were taken and analysed during Kharif and Rabi 2018 and district wise nutrition status is shown in the maps.



Soil Health Improvement

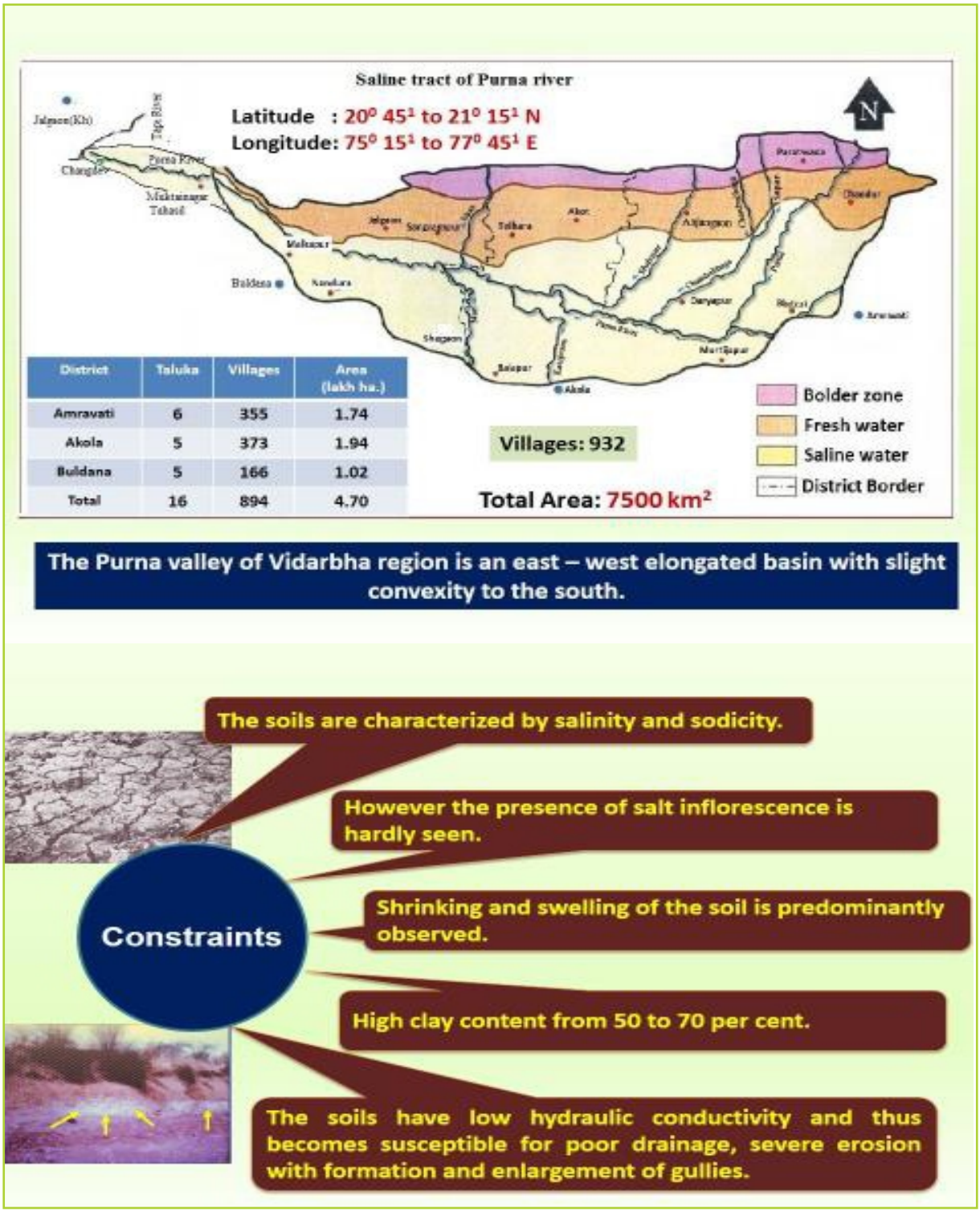
Improving soil health use of organic inputs and vermicompost promoted under the project.

Activities	Number of beneficiaries	Matching Grant (INR lakh)
Organic Input production unit	1	0.03
Vermicompost unit (10X3X2.5 Ft)	1	0.05
Total	2	0.08

Pimplalkhuti, Yevatmal

Improvement of saline and sodic lands

The project is being implemented in 932 villages which have sodic and saline soils. Extent and problems of sodic and saline soil in Purna river basin are shown below.



District	Taluka	Villages	Area (lakh ha.)
Amravati	6	355	1.74
Akola	5	373	1.94
Buldana	5	166	1.02
Total	16	894	4.70

The Purna valley of Vidarbha region is an east – west elongated basin with slight convexity to the south.

Interventions for Improving soil health in Purna river basin

- Assessment of soil health status, particularly Soil Organic Carbon
- Promotion of recommended agronomic practices through FFS
- Support to the development of suitable cultivars of Cotton, Soybean, Red Gram, Chickpea, Sorghum and Wheat
- Support farmers for individual farm investment aimed at adaption to saline/sodic soils
- Promotion of integrated farming systems
- Promotion of climate resilient value chains for major commodities in the saline tract.

Status of Interventions

The progress of the FFS conducted in Kharif & Rabi season during 2018-19 and current Kharif 2019 in the sodic and saline villages is shown in the following table.

FFS conducted in Sodic and Saline villages

District	Kharif 2018	Rabi 2018	Kharif 2019
Akola	169	76	500
Buldhana	48	14	201
Jalgoan	4	0	34
Amravati	134	39	507
Total	**355**	**129**	**1242**

Support to individual farmers in the sodic and saline soil affected villages

The project is supporting the farmers to enhance water use efficiency through micro-irrigation systems, water pumps for application of water for protective irrigation, and farm ponds for increased water availability in the saline and sodic soil affected villages. The status of the number of farmers benefited, area covered under protected irrigation through these activities is shown in the following table.

Individual beneficiaries of Farm pond, Sprinkler, and Water Pump

Activities	Number of farmers	Matching Grant (INR lakh)	Area (Ha.)
Farm Pond	3	1.50	3
Sprinkler irrigation	223	29.43	275.81
Water pumps	18	1.75	22.61
Water pumps & sprinkler	15	1.64	16.55
Water pumps (Diesel Engine)-5 HP	2	0.17	3.35
Total	261	34.49	321.32

Protected Cultivation

This subcomponent intends to demonstrate the benefit of high-value crops under controlled environment and address the microclimate variability. This include support to poly houses, polytunnels and shade nets along with the planting material. The number of farmers benefited and financial assistance are shown in the following table.

Activities	Number of farmers	Matching Grant (INR lakh)
Planting material for Rose & Lilium	2	15.94
Planting material for vegetable production	2	4.03
Shade net house (GI Pipes)- 1088 sq.mt (FTSNH4M-1000: Round T.- 4mt height)- Size 32 x 34 mt	1	2.93
Total	5	22.89

shade net house

Success story- Shed net Activity –PoCRA, published by Times of India, on dt.1st July 2019.

World Bank project tries to help farmers cope with climate change

Vaishnavi Chandrashekhar

Amid water scarcity in the state since last year, Anil Shirke has been learning to grow roses. To pull off this feat, the farmer near Aurangabad spent Rs 14 lakh to put up a shade net to protect his flowers from the sun and also invest in drip irrigation. But Shirke thinks the expense is worth it. Shade nets help soil retain moisture, reducing water use. And roses fetch a higher price than his previous crop of pomegranates.

Shirke's experiment was made possible by a substantial subsidy from a World Bank loan-funded state initiative to help small farmers cope with climate change. The Rs 3,000-crore Project On Climate Resilient Agriculture (POCRA), which took off last year, is the biggest of its kind in India, covering 5,000 villages, mostly in Marathwada and Vidarbha.

Farmers in these drought-prone areas are among the most vulnerable in India to increased heat—temperatures in the region are projected to rise by up to 3.4°C by 2070—and erratic rainfall. Despite massive investments in irrigation dams, most farms in the state remain rain-fed.

The six-year POCRA is aimed "at increasing water efficiency and crop yield as well as helping people plan so that when the climatic conditions are bad, the impact is less," says project director Vikas Rastogi.

Targeted at farmers with less than two acres of land, the project subsidises water harvesting structures, micro-irrigation, dug wells, as well as shade-nets and polyhouses for high value fruit and vegetable farming. Heat-tolerant seeds are being supplied and plans are afoot to work on post-harvest value chains.

As important, says Rastogi, is the focus on training farmers not only in technologies but in water budgeting, soil health, and crop diversification.

The water budget framework is especially important, adds Milind Sohoni, professor at IIT-B's Centre for Technology Alternatives for Rural Areas, which helped come up with the water balance formula.

"Water budgeting involves using rain gauges, other measurement devices and remote sensing maps to calculate water availability in the ground after the monsoon," he says. "Water budgets allow everyone to see how access and allocation of water happens."

Maharashtra has rolled out farm programmes before, with mixed success. Government projects tend to become focused on targets, contractor-driven, or executed poorly, as many allege has happened with Jalyukta Shivar Yojana. Private efforts like Ralegan Siddhi and Hiware Bazar remain isolated successes.

An effort to learn from past programmes is reflected in POCRA's yearlong planning. There are no targets; interventions are being tailored to each village. In Shirke's village of Kumbhephal, a diverse committee with 50% women and representatives of marginalised communities has been set up and trained. This committee decided the interventions based on needs, said surpanch Kayabai Sudir Mule. For slightly better-off farmers that means subsidies for farm ponds and shade nets. For landless residents like the Tole family in nearby Tongaon village, aid helped them purchase 11 goats.

Villages in the programme are supposed to pass a groundwater management plan based on the carrying capacity of the watershed, not just their village. The project supports farm ponds based on capacity, not demand. Water-guzzling crops like grapes are also not being promoted. But officials said they don't refuse to help farmers who grow these crops in other ways by reducing water use.

This farmer-centred approach is critical, says Sohoni. "A lot of earlier watershed programmes were beneficiary-oriented, they didn't understand the farmer is also an economic agent," he says, adding, "What we have here is a scientific and empirical approach, and with the World Bank loan, we also have accountability."

Also important: Involving scientific institutions like IIT Bombay which continues to help with monitoring, and NGOs like the Watershed Organisation Trust, which helped in planning. Says Sohoni, "Community science and state all need to come together to overcome the farming crisis." It remains to be seen over the next few years if POCRA succeeds.

SHIELDING THOSE IN VULNERABLE AREAS

PROJECT ON CLIMATE RESILIENT AGRICULTURE

Money involved | ₹3,886.8cr

Duration | 2018-2024

Funder | World Bank

Aim | To boost farmer livelihoods and ability to face climate change

Who benefits | 5,000 villages across Marathwada and Vidarbha

Criteria for selection | Most vulnerable villages based on rainfall, income, community etc. Farmers with less than two hectares eligible for subsidies

Why | Climate change likely to bring more droughts and erratic weather to state. Small farmers to be most affected

Anil Shirke at his rose farm

Link to know more-

https://timesofindia.indiatimes.com/city/mumbai/maharashtra-world-bank-project-tries-to-help-farmers-cope-with-climate-change/articleshow/70017951.cms

Integrated Farming Systems

Under this sub-component, activities such as Small ruminants, Backyard Poultry, Fishery, Sericulture, and Apiculture has promoted. The common interest group of landless, landless farmers, Women, Scheduled Castes and Tribes have been supported to meet the inclusion criteria.The status of activities covering under integrated farming system is as follows.

Activities	Number of farmers	Matching Grant (INR lakh)
Backyard poultry	6	0.15
Small ruminants – (Osmanabadi /Sangamneri breeds)	34	12.45
Small ruminants – (Other Local Breed)	396	125.43
Total	436	138.02

Kitti Aadgaon, Beed | Village – Wakod, Aurangabad

Back yard Poultry, Wadi, Tal. Buldhana Dist . Buldhana

2.3. Promoting an Efficient and Sustainable Use of Water for Agriculture

The objective of this component is to support activities aimed at achieving on-farm water security by maximizing the use of surface water for agriculture, managing groundwater resources in a sustainable manner, retaining and enhancing soil moisture and enhancing water use efficiency and water productivity. To achieve these objectives, this component deals with activities such as in situ water conservation, catchment area treatment, drainage treatment, construction of new water harvesting structures, rejuvenation of existing water harvesting structures, recharging groundwater, micro irrigation systems, and protective irrigation.

For in situ soil conservation, compartment and graded bunding is being promoted. Till now, 618 structures have been constructed benefitting 7514 Ha of farmland. 131 existing water storage structures have been rejuvenated and 13 open dug wells have been constructed. The district-wise progress of soil and water conservations works is shown in the following table.

Progress of Soil & Water Conservation Works

Sr.No	District	Proposed Works		Works Completed	
		Physical	Financial (INR Lakh)	Physical	Financial (INR Lakh)
1	Akola	1374	2490.96	10	4.94
2	Amaravati	328	287.95	1	0.00
3	Aurangabad	1199	5293.13	36	54.19
4	Bid	2098	5478.96	9	0.00
5	Buldana	568	1146.46	6	2.05
6	Hingoli	6118	7076.00	261	24.71
7	Jalgaon	1363	3626.52	16	3.94
8	Jalna	1672	4773.20	3	10.96
9	Latur	4818	11397.96	10	24.55
10	Nanded	13001	44231.10	60	3.95
11	Osmanabad	1535	5314.50	40	76.87
12	Parbhani	543	2274.60	2	1.94
13	Wardha	626	2278.12	16	84.42
14	Washim	1473	2796.96	8	13.65
15	Yavatmal	1822	2775.71	14	24.21
	Total	38538	101242.13	492	330.38

Activity wise status of soil and water Conservation Works

Activities	Physical		Financial (Rs. in Lakh)
	Area in ha.	Number of Beneficiaries	
Compartment Bunding	2998.73	88	155.38
Graded Bund	598.50	196	52.36
CCT (0.30M)	44.00	–	8.31
Deep CCT	86.41	–	1.94
Cement Nala Bandh	50.00	–	62.36
Rejuvenation of Old Structure	56.00	–	50.03
Total	**3833.64**	**284**	**330.38**

Soil and Water conservation structures

Deepening Of Nala, Ranjni, Tal- Jamner

Compartment Bunding, Shelgi, Dist. Latur

Khamgaon, Tal-Kannad, SDAO -Sillod,Dist - Aurangabad

Construction of new water harvesting structures

Farm ponds help to provide protective irrigation. The project has constructed, 31 community farm ponds, 210 new individual farm ponds, 4 farm ponds without lining, 14 farm ponds with inlet and outlet (black soil) structures. The farm pond lining provided to 81 farmers. The water storage capacity increased at 652 TCM in the field upto June 2019.

Farm pond type	Number of farm ponds	Created water Storages capacity (1000 m^3)
Community farm ponds	31	97.91
Individual Farm pond with lining	210	398.43
Individual farm pond without lining	4	5.18
Farm Pond lining	81	126.53
Construction of farm pond with inlet & outlet	14	23.95
Total	340	652.00

Inlet Outlet Farm Pond, Buldhana District

Farm Pond - Information Board, Osmanabad

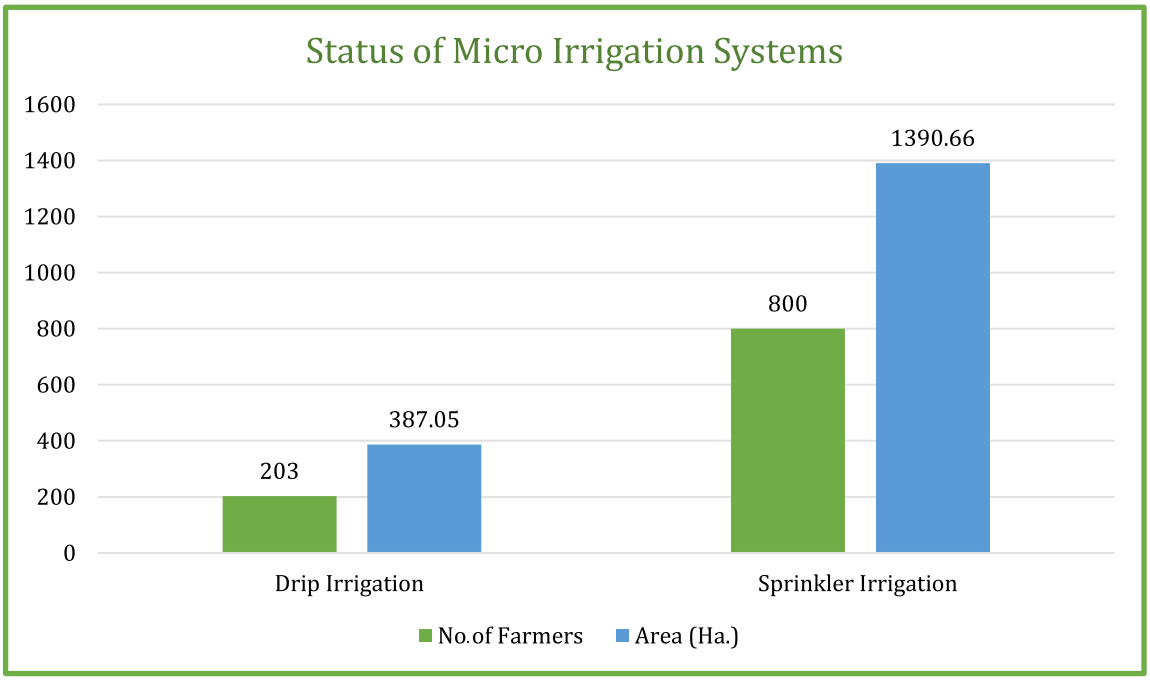
Farm pond- Nadar, Aurangabad

Lining of Farm Pond, Hanumant Gaon, Aurangabad

Micro Irrigation Systems

The project is supporting to increase the water use efficiency at the farm level. 1003 farmers have been benefited so far through micro-irrigation systems. The area covered under micro-irrigation activities is 1777.69 Ha. The progress of drip and sprinkler irrigation systems is as follows.

Micro-irrigation Systems	Number of Farmers	Area (Ha.)	Matching grants (INR lakh)
Drip Irrigation	203	387.05	72.64
Sprinkler Irrigation	800	1390.66	106.72
Total	1003	1777.69	179.36



Protective Irrigation

The project is supporting protective irrigation and effective use of water through the use of water pumps and pipes. The status of progress of these activities is as below.

Activities	Number of farmers benefited
Water pumps	1049
Pipes	2250
Water pumps & sprinkler	205
Water pumps (Diesel Engine)-5 HP	9
Total	3513

Spot Verification, Wazharkhede, Tal. Bhusaval, Dist. Jalgoan

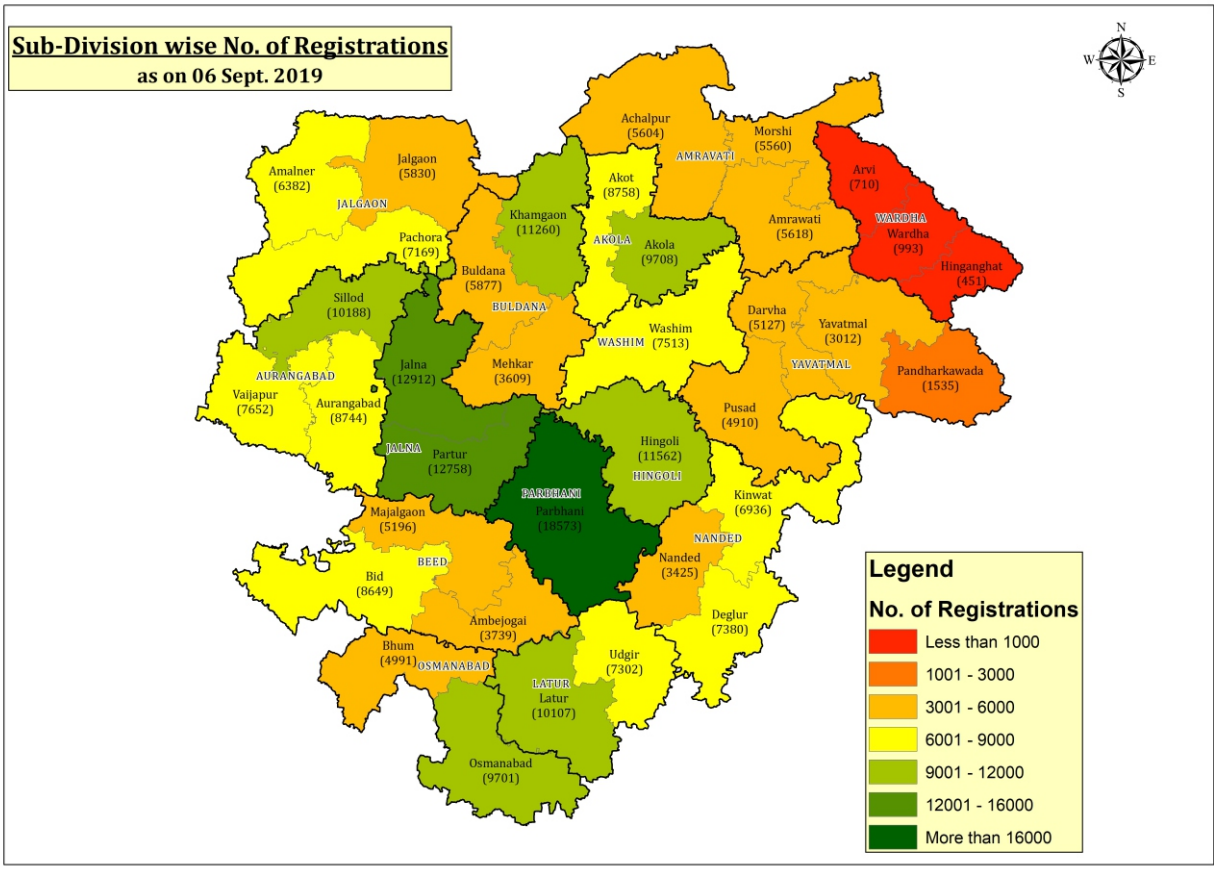
Marking on Pipes Bohardi, (Bk) Tal. Bhusaval, Dist. Jalgoan

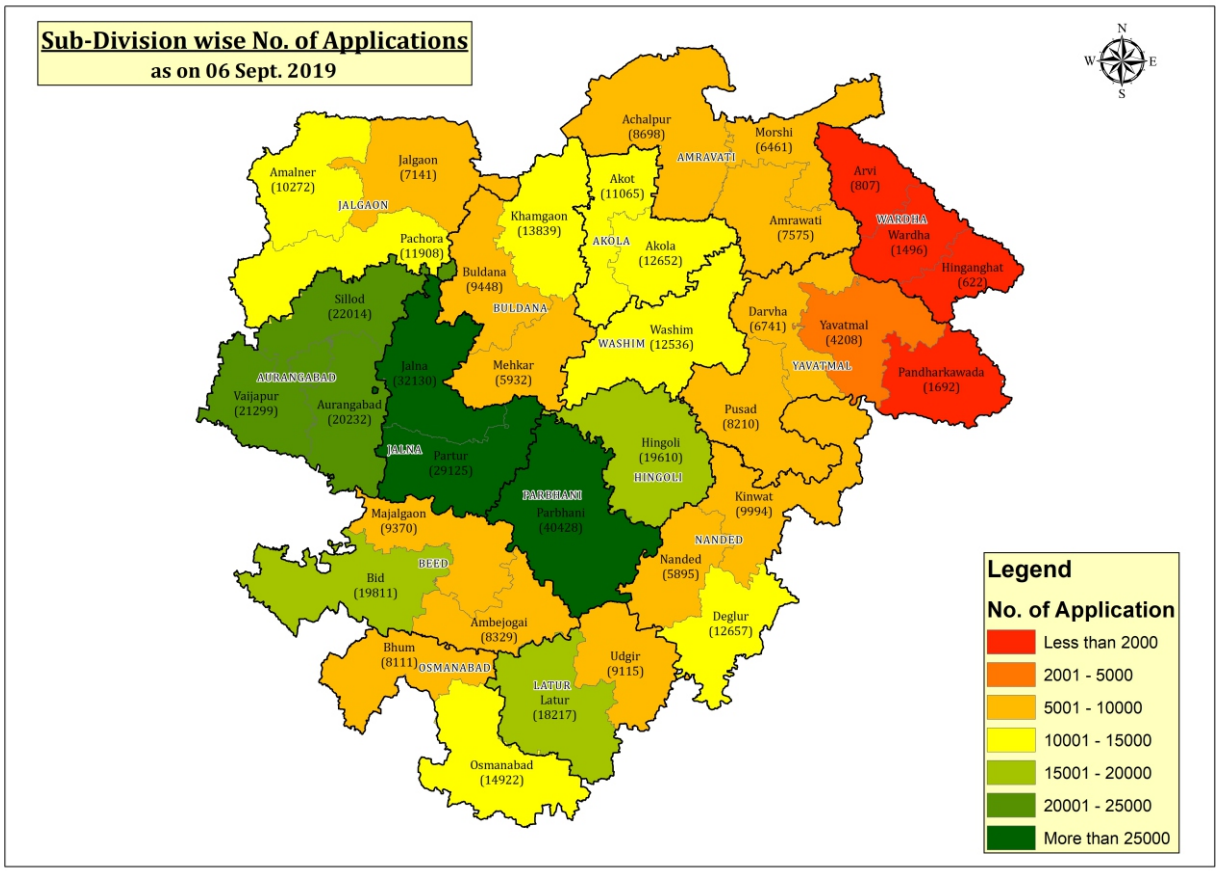
Water Pump, Dhalegaon , Tal. Udgir, Latur

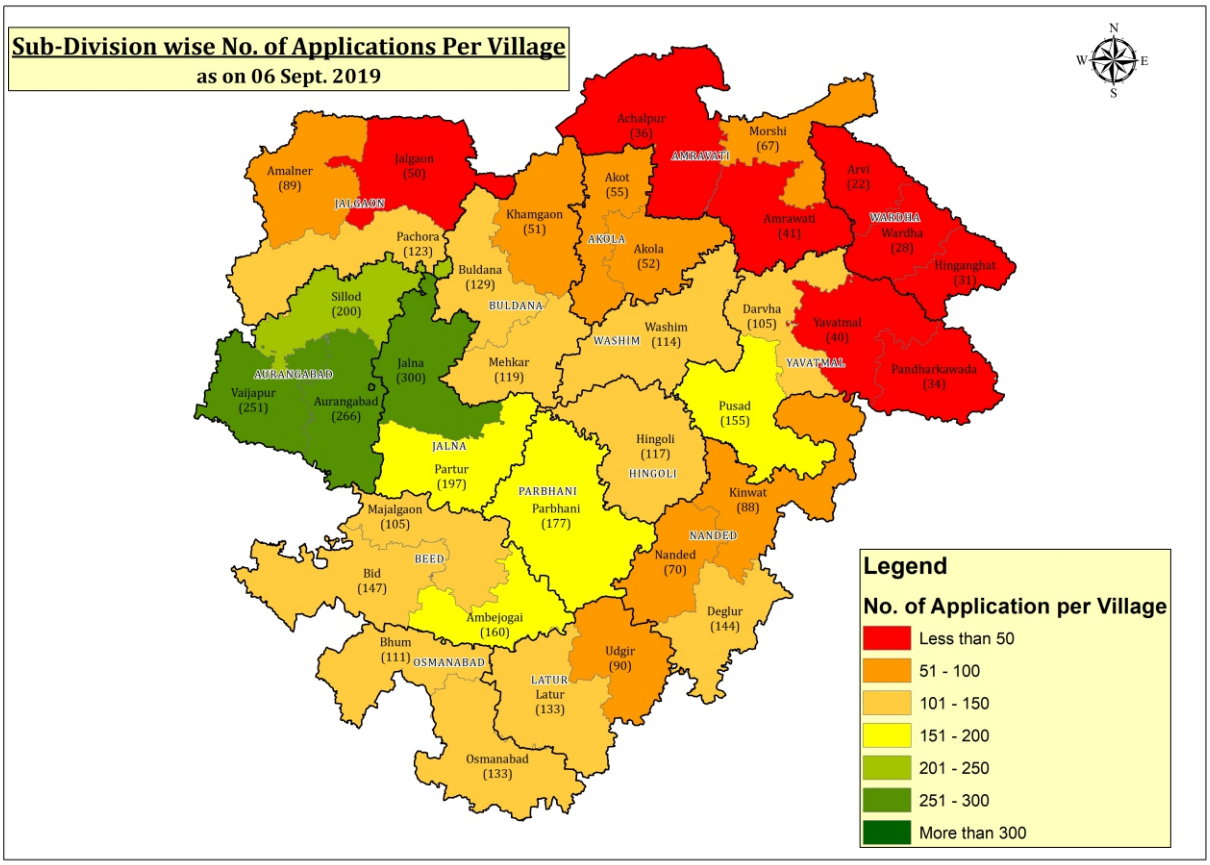
Sprinkler- Chorwaghalgaon Village

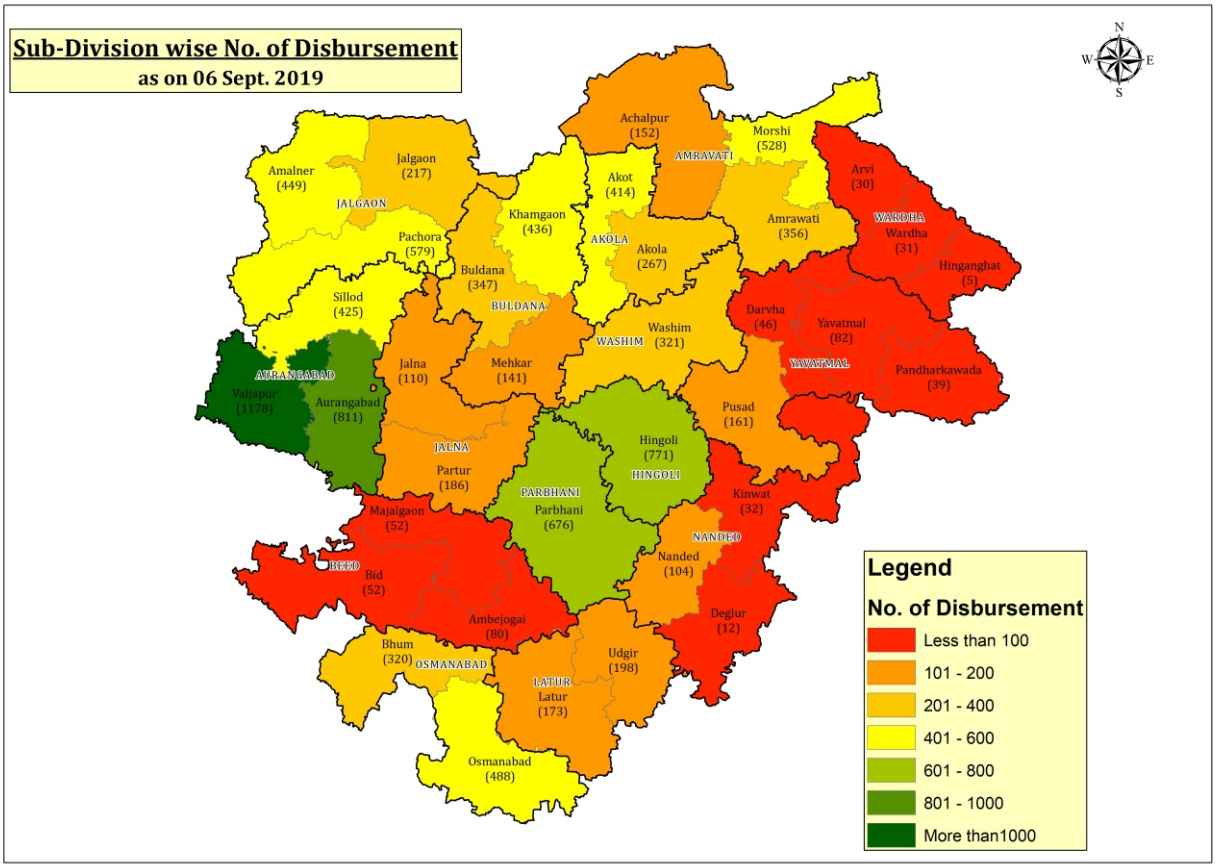
2.4 Response of farmers to farm level investments through the Direct Benefit Transfer (DBT) mode

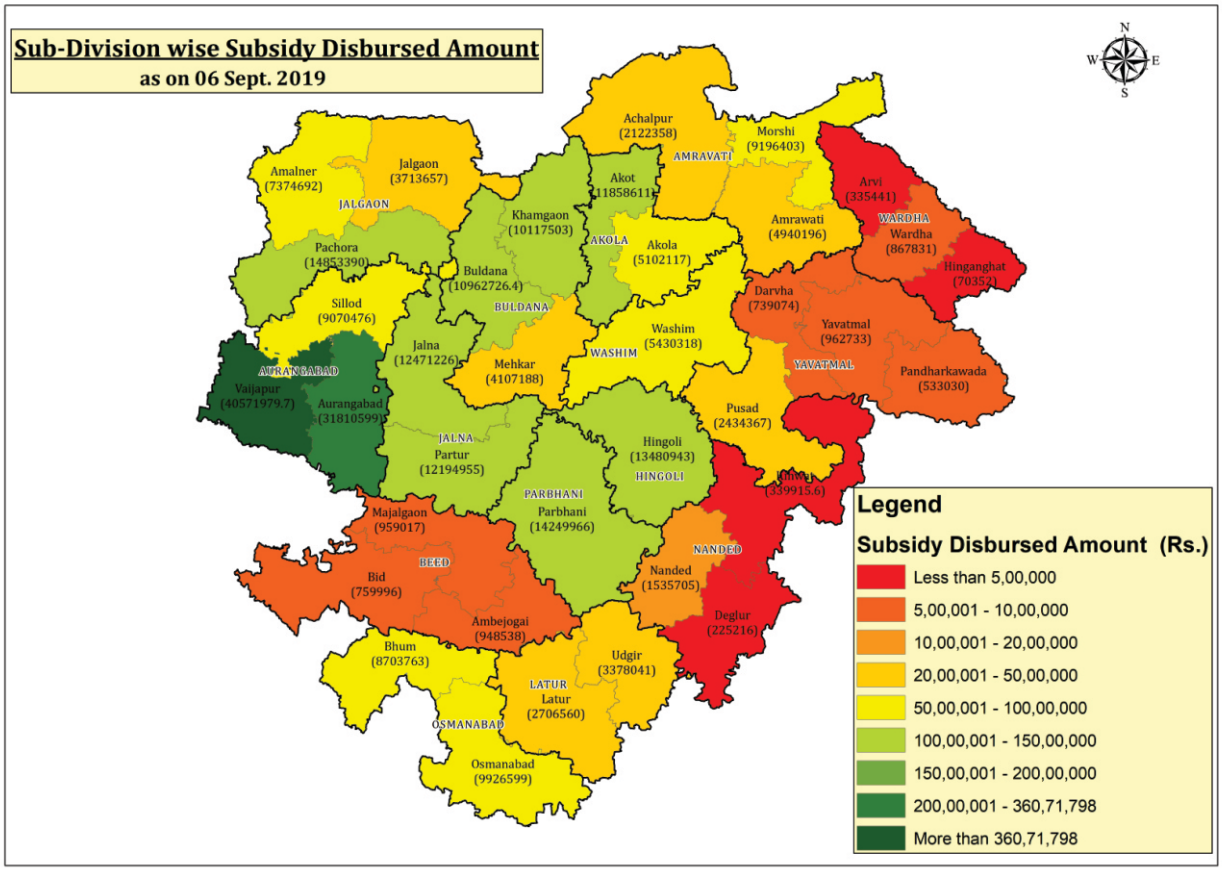
The project facilitates small landholders (1-2 Ha), marginal landholders (0-1 Ha) and landless families to adopt climate-resilient technologies, practices, and livelihood systems and make necessary investments on their farms. Such investments are supported by the project both technically as well as financially. The matching grants are provided to the stakeholders through Direct Benefit Transfer (DBT) system. The project has developed a portal and mobile application facilitating easy registration and application by the farmers and a seamless, end-to-end automation of the decision making process. The status of applications and disbursement on the DBT system across the project administrative units is shown in the following maps.

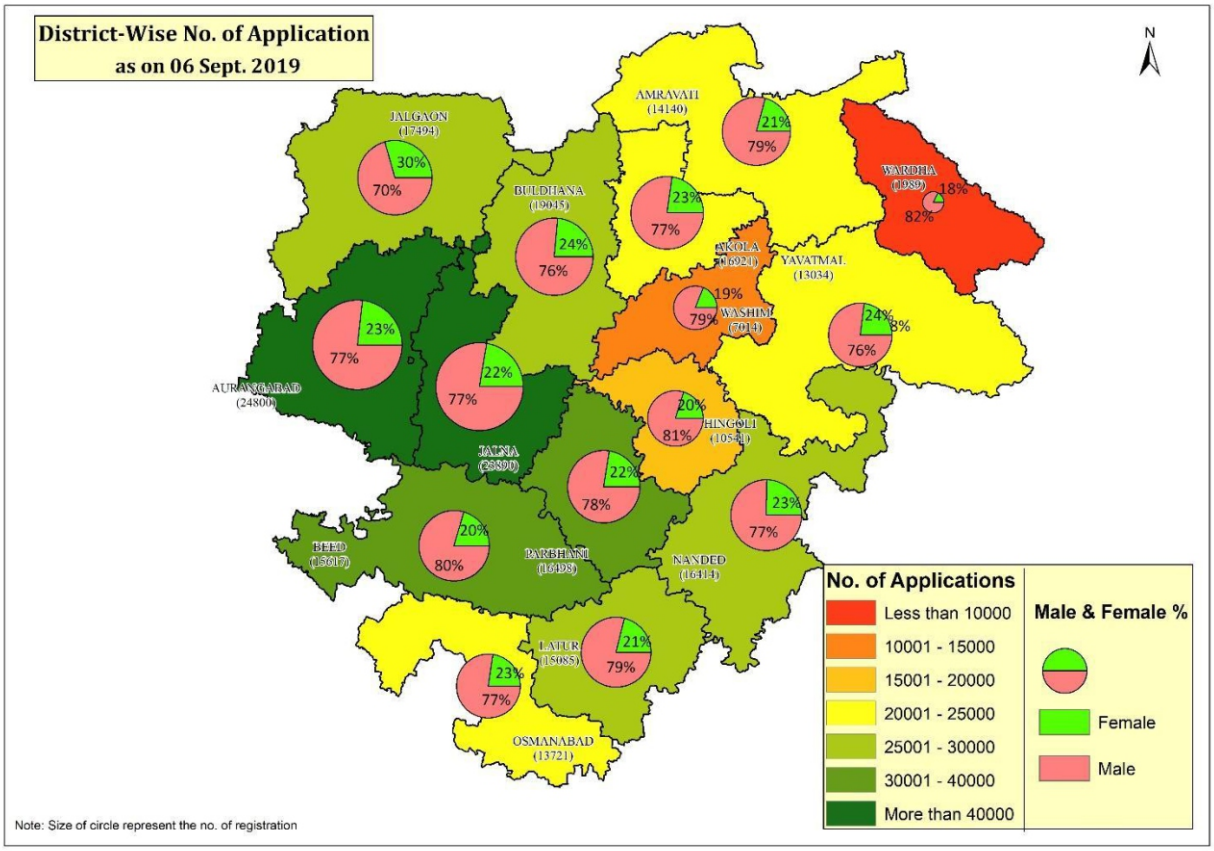

Sub-Division wise No. of Registrations
as on 06 Sept. 2019
N
W
E
S
Achalpur (5604)
Morshi (5560)
AMRAVATI
Arvi (710)
Amalner (6382)
Jalgaon (5830)
JALGAON
Akot (8758)
Khamgaon (11260)
Amrawati (5618)
WARDHA
Wardha (993)
Pachora (7169)
AKOLA
Akola (9708)
Hinganghat (451)
Buldana (5877)
Sillod (10188)
BULDANA
Darvha (5127)
Yavatmal (3012)
Washim (7513)
WASHIM
Jalna (12912)
Mehkar (3609)
YAVATMAL
Pandharkawada (1535)
AURANGABAD
Vaijapur (7652)
Aurangabad (8744)
Pusad (4910)
JALNA
Partur (12758)
Hingoli (11562)
HINGOLI
PARBHANI
Parbhani (18573)
Kinwat (6936)
Majalgaon (5196)
NANDED
Nanded (3425)
BEED
Bid (8649)
Deglur (7380)
Ambejogai (3739)
Bhum (4991)
OSMANABAD
Udgir (7302)
LATUR
Latur (10107)
Osmanabad (9701)
Legend
No. of Registrations
Less than 1000
1001 - 3000
3001 - 6000
6001 - 9000
9001 - 12000
12001 - 16000
More than 16000

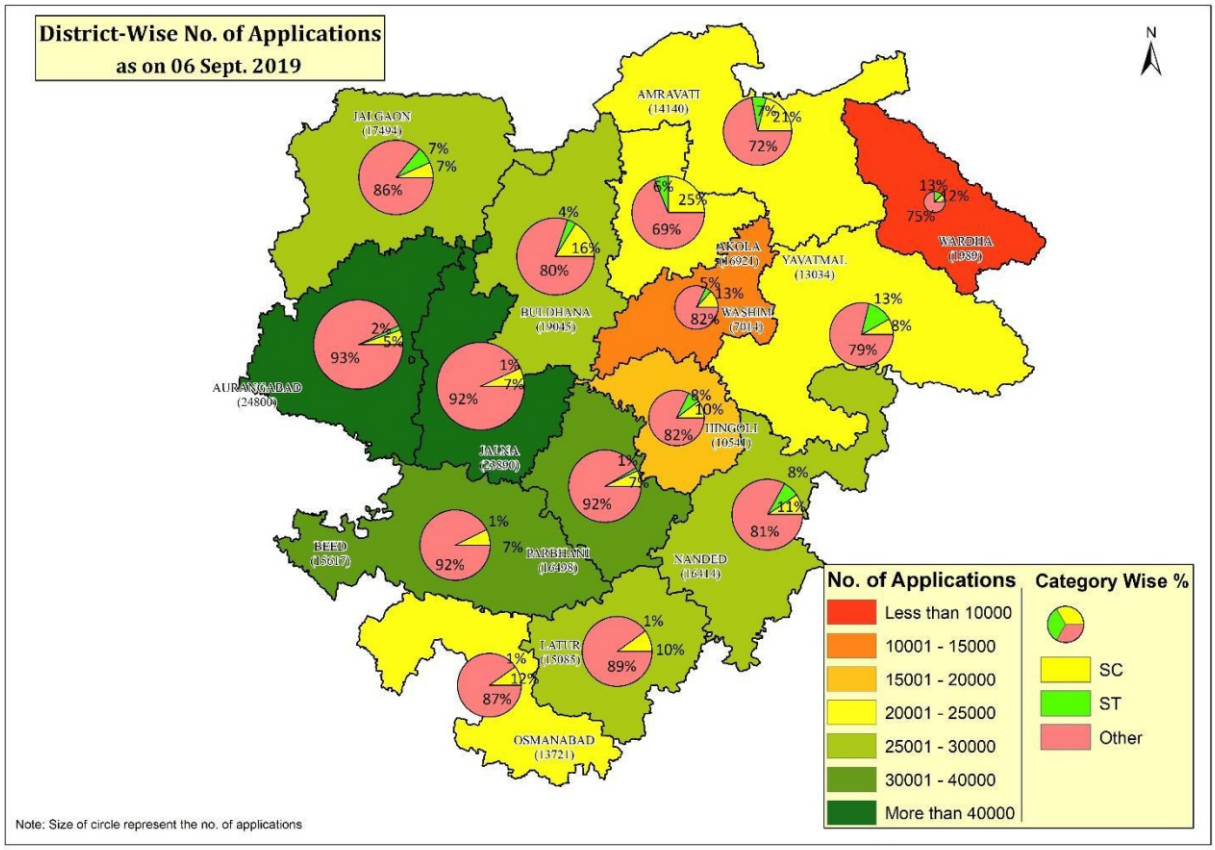

Sub-Division wise No. of Applications
as on 06 Sept. 2019
N
W
E
S
Achalpur (8698)
Morshi (6461)
AMRAVATI
Arvi (807)
Amalner (10272)
Jalgaon (7141)
JALGAON
Akot (11065)
Khamgaon (13839)
Amrawati (7575)
WARDHA
Wardha (1496)
Pachora (11908)
AKOLA
Akola (12652)
Hinganghat (622)
Buldana (9448)
Sillod (22014)
BULDANA
Darvha (6741)
Yavatmal (4208)
Washim (12536)
WASHIM
Jalna (32130)
Mehkar (5932)
YAVATMAL
Pandharkawada (1692)
AURANGABAD
Vaijapur (21299)
Aurangabad (20232)
Pusad (8210)
JALNA
Partur (29125)
Hingoli (19610)
HINGOLI
PARBHANI
Parbhani (40428)
Kinwat (9994)
Majalgaon (9370)
NANDED
Nanded (5895)
BEED
Bid (19811)
Deglur (12657)
Ambejogai (8329)
Bhum (8111)
OSMANABAD
Udgir (9115)
LATUR
Latur (18217)
Osmanabad (14922)
Legend
No. of Application
Less than 2000
2001 - 5000
5001 - 10000
10001 - 15000
15001 - 20000
20001 - 25000
More than 25000


Sub-Division wise No. of Applications Per Village
as on 06 Sept. 2019
N
W
E
S
Achalpur (36)
Morshi (67)
AMRAVATI
Amalner (89)
Jalgaon (50)
JALGAON
Akot (55)
Arvi (22)
Khamgaon (51)
Amrawati (41)
WARDHA
Pachora (123)
AKOLA
Wardha (28)
Akola (52)
Hinganghat (31)
Buldana (129)
Sillod (200)
BULDANA
Darvha (105)
Yavatmal (40)
WASHIM (114)
Jalna (300)
Mehkar (119)
YAVATMAL
Pandharkawada (34)
AURANGABAD
Vaijapur (251)
Aurangabad (266)
Pusad (155)
Hingoli (117)
JALNA
Partur (197)
HINGOLI
Kinwat (88)
PARBHANI
Majalgaon (105)
Parbhani (177)
NANDED
BEED
Nanded (70)
Bid (147)
Deglur (144)
Ambejogai (160)
Bhum (111)
OSMANABAD
Udgir (90)
LATUR
Latur (133)
Osmanabad (133)
Legend
No. of Application per Village
Less than 50
51 - 100
101 - 150
151 - 200
201 - 250
251 - 300
More than 300


Sub-Division wise No. of Disbursement
as on 06 Sept. 2019
N
W
E
S
Achalpur (152)
Morshi (528)
AMRAVATI
Amalner (449)
Jalgaon (217)
JALGAON
Akot (414)
Arvi (30)
Khamgaon (436)
Amrawati (356)
WARDHA
Pachora (579)
AKOLA
Wardha (31)
Akola (267)
Hinganghat (5)
Buldana (347)
Sillod (425)
BULDANA
Darvha (46)
Yavatmal (82)
WASHIM (321)
Jalna (110)
Mehkar (141)
YAVATMAL
Pandharkawada (39)
AURANGABAD
Vaijapur (1178)
Aurangabad (811)
Pusad (161)
Hingoli (771)
JALNA
Partur (186)
HINGOLI
Kinwat (32)
PARBHANI
Majalgaon (52)
Parbhani (676)
NANDED
BEED
Nanded (104)
Bid (52)
Deglur (12)
Ambejogai (80)
Bhum (320)
OSMANABAD
Udgir (198)
LATUR
Latur (173)
Osmanabad (488)
Legend
No. of Disbursement
Less than 100
101 - 200
201 - 400
401 - 600
601 - 800
801 - 1000
More than1000


Sub-Division wise Subsidy Disbursed Amount
as on 06 Sept. 2019
N
W
E
S
Achalpur (2122358)
Morshi (9196403)
AMRAVATI
Amalner (7374692)
Jalgaon (3713657)
JALGAON
Akot (11858611)
Arvi (335441)
WARDHA
Khamgaon (10117503)
Amrawati (4940196)
Wardha (867831)
AKOLA
Akola (5102117)
Pachora (14853390)
Buldana (10962726.4)
Hinganghat (70352)
Darvha (739074)
Sillod (9070476)
BULDANA
Yavatmal (962733)
Washim (5430318)
Jalna (12471226)
WASHIM
Mehkar (4107188)
YAVATMAL
Pandharkawada (533030)
AURANGABAD
Vaijapur (40571979.7)
Aurangabad (318105991)
Pusad (2434367)
JALNA
Partur (12194955)
Hingoli (13480943)
HINGOLI
(359915.6)
PARBHANI
Majalgaon (959017)
Parbhani (14249966)
NANDED
BEED
Bid (759996)
Nanded (1535705)
Ambejogai (948538)
Deglur (225216)
Bhum (8703763)
Udgir (3378041)
LATUR
Latur (2706560)
OSMANABAD
Osmanabad (9926599)
Legend
Subsidy Disbursed Amount (Rs.)
Less than 5,00,000
5,00,001 - 10,00,000
10,00,001 - 20,00,000
20,00,001 - 50,00,000
50,00,001 - 100,00,000
100,00,001 - 150,00,000
150,00,001 - 200,00,000
200,00,001 - 360,71,798
More than 360,71,798


District-Wise No. of Application
as on 06 Sept. 2019
N
AMRAVATI (14140)
21%
79%
JALGAON (17494)
30%
70%
WARDHA (1989)
18%
82%
BULDHANA (19045)
23%
77%
24%
76%
AKOLA (16921)
YAVATMAL (13034)
19%
79%
WASHIM (7014)
24%
76%
23%
77%
AURANGABAD (24800)
22%
77%
20%
81%
HINGOLI (10541)
JALNA (23800)
22%
78%
23%
77%
20%
80%
BEED (15617)
PARBHANI (15498)
NANDED (16414)
LATUR (15085)
21%
79%
23%
77%
OSMANABAD (13721)
No. of Applications
Less than 10000
10001 - 15000
15001 - 20000
20001 - 25000
25001 - 30000
30001 - 40000
More than 40000
Male & Female %
Female
Male
Note: Size of circle represent the no. of registration



Average Disbursement Period in Days

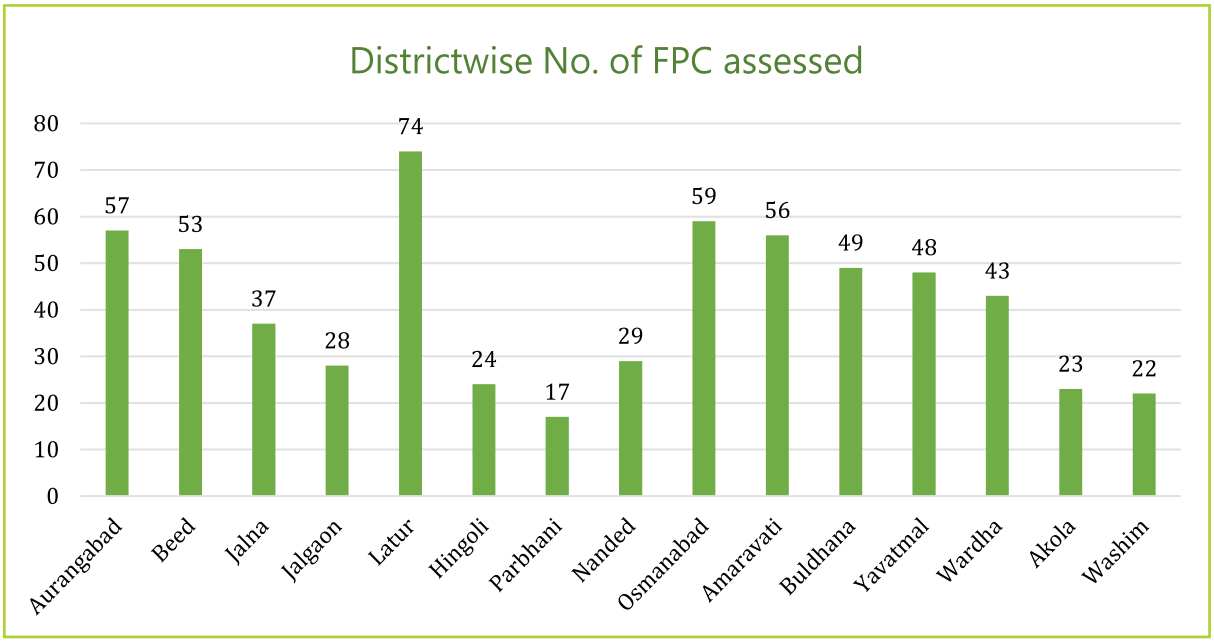
(From payment of request by farmers)

Period (No of Days)	Disbursement to No. of Farmers	Percentage
1-10	1,995	19%
11-30	5,098	48%
31-60	2,484	23%
Above 60	1,105	10%

Component B: Post-harvest Management and Value Chain Promotion

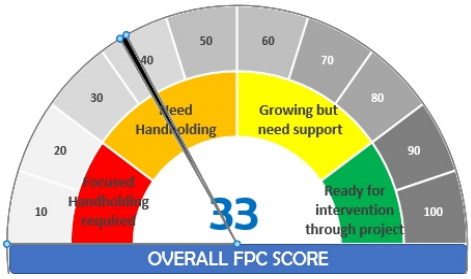
The objective of this component is to support the participation of smallholders in Farmers Producer Organization and integration of these FPOs in the value chains of major crops and to strengthen the supply chain for the climate-resilient crop varieties in the project area.

The project districts have more than 700 registered farmer producer companies and thousands of self-help groups with varying capacities and activities. The project is making conscious efforts to support the existing FPOs and farmer/ women groups working in the project area to implement their business plans. A comprehensive database of existing FPOs has been compiled to assess their organizational and financial strength. Number of FPCs assessed in the project districts is shown in the following chart.



Assessment Report of FPC

CUSTOMIZED FPC EVALUATION REPORT



Sant Gorakumbhar Farmer Producer Company Ltd. Address - Main Road, Ter, Ta. District Osmanabad- 413509

Score Report Summary		
Criteria	**Max. Score**	**Score Obtained**
Establishment (Core Foundation Strength)	15	9.18
Governance (Control Systems in Place)	12	5.74
Management (Decision making processes)	10	3.44
Infrastructure (Assets and resources)	10	1.15
Finance (Financial base and health)	12	3.44
Business (Core business strength)	18	5.74
Capacity Building (Resource quality)	17	2.30
Climate Resilience (Adaptability to climate risk)	6	2.30
Final Score	**100.00**	33.28 **33 (rounded off)**

What could improve your FPC?

Infrastructure

According to the business plan storage facility should be built

According to business plan processing facilities should be built

Training is required on crop production practices for adopting new technologies

Awareness on climate change is required so that the FPC can adapt Climate Resilient practices

Finance

Auditing of report should be done to understand the financial situation and understand the gaps

FPCs should submit a compliance report regularly to the registrar of companies under the company act

FPC should make bankable business plan and financial statements so that borrowing is feasible

FPC should approach APMC to fetch market value of their produce

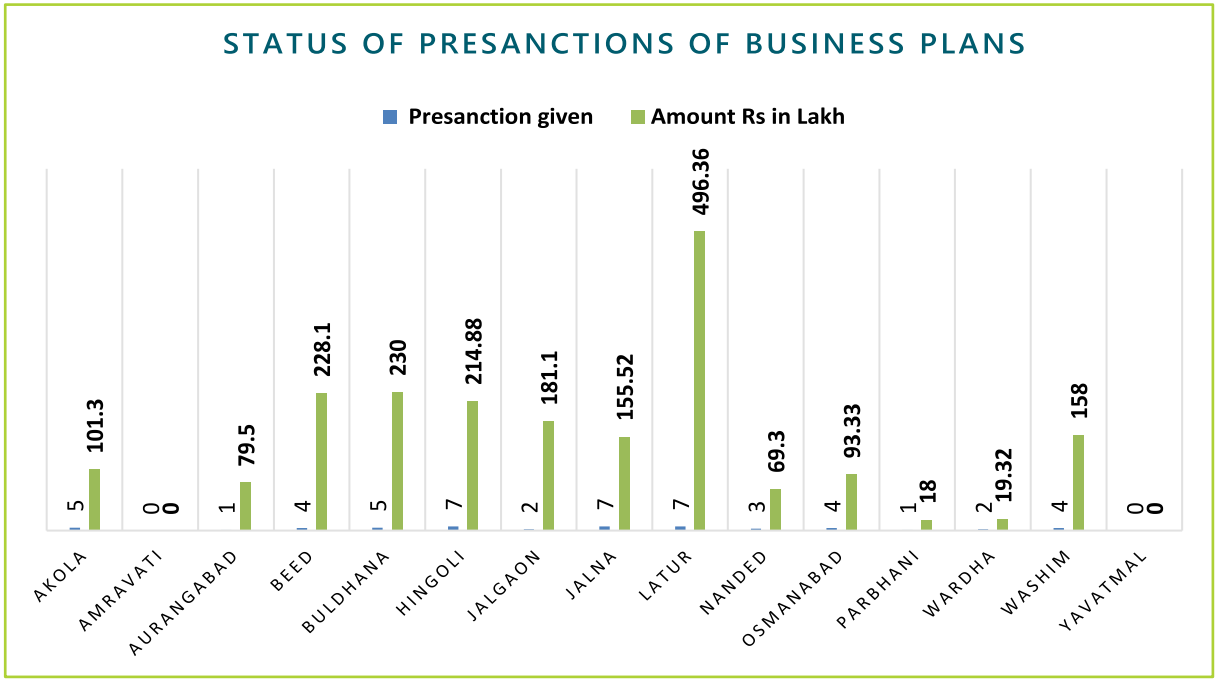
For more Information contact us at Project Director, ATMA, Osmanabad

3.1 Promoting Farmer Producer companies

To build climate resilience beyond the farm gate and provide end-to-end solutions, the project has given pre-sanctions to business plans under the activity of promotion and strengthening the existing farmer's producer companies. The district wise status of a number of pre-sanctions to the business plans and amount of business plans is shown in the following table.

Status of pre-sanction of Business Plans of FPOs

District	PMU		PD ATMA		SDAO		Total	
	No. of FPOs		No. of FPOs	Amount (INRlakh)	No. of FPOs	Amount (INRlakh)	Total	Amount (INRlakh)
Akola	0	0.00	3	76.00	2	25.30	5	101.30
Aurangabad	1	79.50	0	0.00	0	0.00	1	79.50
Beed	2	173.50	0	0.00	2	54.60	4	228.10
Buldhana	1	100.00	2	100.00	2	30.00	5	230.00
Hingoli	1	52.53	3	117.35	3	45.00	7	214.88
Jalgaon	2	181.10	0	0.00	0	0.00	2	181.10
Jalna	0	0.00	4	115.07	3	40.45	7	155.52
Latur	6	475.02	1	21.34	0	0.00	7	496.36
Nanded	0	0.00	1	32.01	2	37.29	3	69.30
Osmanabad	1	62.04	0	0.00	3	31.29	4	93.33
Parbhani	0	0.00	0	0.00	1	18.00	1	18.00
Wardha	0	0.00	0	0.00	2	19.32	2	19.32
Washim	1	70.08	2	67.99	1	19.93	4	158.00
Total	15	1193.77	16	529.76	21	321.18	52	2044.71



An abstract of the type of proposed business activities supported under this component is shown in the following table. The project has given pre-sanction to 31 business plans of FPCs till today.

Type of Business activity	Number of FPOs	Amount (INR Lakh)
Agricultural processing centre	1	15.00
Cleaning & Grading, Grain Process Construction & Solar Power unit	4	242.56
Color Sortex Machine- Pluses	1	50.00
Custard apple Processing with reefer van	1	70.08
Custom Hiring Centre	6	93.22
Flour mill	2	123.00
Godown	6	282.83
Maize Dryer Machinery & Godown,	2	121.5
Seed processing and Storage centre	5	343.77
Soybean oil mill	1	85.50
Turmeric Powder Manufacturing	1	50.00
Wooden Oil extraction	1	27.70
Total	31	1505.16

Status of pre-sanctions given to the SHGs according to proposed business activities

Type of Business activity	Number of SHG	Amount (INR Lakh)
Milk collection and processing	1	50.00
Custom Hiring Centre	11	158.31
Godown	8	192.54
Seed processing and storage centre	1	93.86
Total	21	494.71

MoU with Financial Institutions (FI) for support to FPC -

The project has signed an MoU with the Bank of Maharashtra on 14th March 2019. A tripartite MoU has been signed with the State bank of India(SBI) and Small Farmers' Agribusiness Consortium (SFAC) on 19th July 2019 for FPC financing. The objectives of the tripartite MoU is to leverage the assistance available from SFAC viz Equity grant and partial credit guarantee.

MoU signing with SBI and SFAC.
Date 19th July 2019

MoU signing with Bank of Maharashtra.
Date 14th March 2019

SBI signs MoU with NDKSP and SFAC for FPC financing

Country's largest lender State Bank of India (SBI), towards its commitment to support farmers for increasing their income, has entered in to an MoU with Nanaji Deshmukh Krushi Sanjivani Prakalp (A World Bank added project on climate resilience implemented by Govt. of Maharashtra) and Small Farmer Agri Business Consortium (SFAC) for financing the Farmer Producer Companies (FPCs) in Maharashtra State. Under this tie-up, the Maharashtra State Government will provide 50% subsidy on project cost with maximum capping of Rs. 50 Lakh. The aim of the tie-up with NDKSP and SFAC is to promote and strengthen the smallholder farming systems and make easy access to organized finance facility at competitive interest rates to the FPCs. The MoU was signed at the State Bank of India Local Head Office, Maharashtra. On this occasion three Sanction Letters were given to FPCs. The objective of FPCs is to organize farmers into a collective unit to improve their bargaining strength in the market. Farmer producer companies are engaged in agri and allied actives such as dairy/poultry/fishing/bee keeping/sericulture activities, seed production, agri produce aggregation and primary processing centers and all other agri related activities.

3.2: Improving the performance of the seed supply chain

The project is promoting the creation of a supply chain of seeds with climate resilience features like short duration, drought-resistance, and salinity tolerance. The project is leveraging the network of seed grower farmers connected with Maharashtra State Seed Corporation (Mahabeej) and FPCs for production of foundation and certified seeds with such characteristics. The project plans to develop seed hub in project clusters covering a range of operations, including seed production, seed processing, storage, and certification.

The list of climate-resilient varieties of seeds being promoted is provided below.

Crop	Variety	Main Characteristics
Tur (Pigeon Pea)	Bdn-716	Tolerant to wilting & mosaic diseases
	PKV-TAT-9629 (PKV TARA)	Tolerant to wilting & mosaic diseases
	BDN-711 (White)	Tolerant to wilting & mosaic diseases
	ICP 8863	Medium duration, Dal recovery high, moderately susceptible to Sterility Mosaic
	ICPL-87119 (Aasha)	Suitable for black cotton soil
Moong (GreenGram)	Utkarsha	Long pod, bold seeded, 72% *dal* recovery
	BM-2003-2	Long pod, shiny grain, resist to powdery mildew
	PKV-AKM-4	Tolerant to shattering
	BM-2002-1	High yielding
Udid (Black Gram)	AKU-10-1	7-8 grain/pod, resistance to pm, 76% *dal* recovery
	TAU-1	Moisture stress tolerant, bold seeded
Soybean	Phule-Sangam	Bold seeded with good yield
	MAUS-612	Good yield potential and moisture-stress tolerance
	JS- 335	Moisture stress tolerant
	JS- 9305	Early duration
	JS-20-98	Early Duration, with high yield potential
	JS-20-69	Long duration variety
	MACS-1281	Better yield potential
	NRC-86 (AHILYA-6)	Bold seeded with better yield
	DS- 228	Drought tolerant
	JS-20-29	Moisture stress tolerant
	JS-20-34	Early duration
	MAUS-162	High yield potential & recommended for mechanical harvesting
	MAUS -71	High yield, Non-shattering
	MACS-1188	White flower, long duration variety
	MAUS-158	Bold seeded with good yield

Hybrid Bt. Cotton	Pkv-Hy-2 Bt (475 Gm)	Resist to sucking pest
	NHH-44 Bt (475 GM)	Resist to sucking pest with rejuvenation
Hybrid Cotton Non-Bt	Deshi Hy. Res. Dh- 904 N. Bt (450 Gm)	Big boll, easy for picking, good staple length
Improved Cotton	Nh-615	
	SURAJ Bt. (CICR Bt-	Recommended for high-density management
	JLA-794	Suitable for the rainfed area in north ms
	Rajat (AKH 84635) CICR Bt -2)	Tolerant to sucking pest, rejuvenation ability
	AKH 081(CICR Bt-12)	High-density plantation
	AKA-7	Tolerant to major diseases
Rabi Jowar (Sorghum)	Phule-Suchitra	Dual purpose improved variety
	PHULE-REVATI	Tolerant to stem borer
	Vasudha	Pearly white, suitable for fodder, responsive to irrigation
	PHULE- ANURADHA (RSV-458)	Tolerant to shoot fly & stem borer
	SPV-1595 (PBN-JYOTI) (CSV-18)	Pearly white grain with high yield potential, good response to irrigation
Gram	Phule-Vikrant	Good yield potential resist to wilt
	PHULE VIKARM	Recommend for mechanical harvesting
	BDNGK-798	Kabuli bold seeded variety
	JAKI 9218	Medium Bold , responsive to irrigation, high marketability
	RAJ VIJAY-202	Better yield under irrigation
	RAJ VIJAY-203	Better yield in rainfed 2 - 3 seeded pod
	Vijay	Drought tolerant, good yield
	K-4-1	Kabuli bold seeded variety
	KRIPA	Kabuli bold seeded variety
Safflower	Pbns-86 (Purna)	Tolerant to aphids, wilting & recommended for rainfed & irrigated condition
	PKV PINK	Tolerant to wilting, high oil percentage (33%)
	PHULE SSF-733	Recommended for rainfed cultivation
	SSF-708	Semi spreading variety, moderately tolerate to aphids

Status of seed production of climate resilience varieties of Moong, Soybean, Pigeon pea and Udid crops, during kharif season 2018 is shown in the following table.

Seed Production of Climate Resilience Varieties- Kharif -2018

Crop	Variety	Area under seed production (Ha)	Number of Growers
Moong	BM-2002-1	6.8	5
	BM-2003-2	20.4	8
	UTKARSHA	152.8	58
Soybean	DS-228	16	5
	JS-2029	2	1
	JS-335	2457.6	875
	JS-9305	433.2	131
	MACS-1188	11.6	6
	MAUS-158	431.2	169
	MAUS-162	57.6	28
	MAUS-71	282.8	107
Pigeon Pea	BDN-711	19.6	11
	BSMR-736	21.6	12
	ICP-8863	44.8	13
	ICPL-87119	7.6	3
	PKV TARA	35.2	13
	VIPULA	3.2	2
Udid	AKU-10-1	28.8	9
	AKU-15	9.2	8
	TAU-1	90.4	56
	Total	**4136**	**1522**

The status of seed production of climate resilience varieties of Gram, Sorghum, Safflower and Wheat during Rabi season 2018-19 is shown in the following table.

Seed Production of Climate Resilience Varieties- Rabi-2018-19

Crop	Variety	Area under seed production (Ha)	Number of Growers
Gram	DIGVIJAY	48.8	32
	JAKI 9218	588.4	268
	PHULE VIKHRAM	9.2	3
	PHULE VIKRAM	4.8	4
	RAJ VIJAY	1.6	1
	RAJVIJAY-202	56.4	29
	RAJVIJAY-203	582	218
	VIJAY	120.8	41
	VIRAT	6.4	2
	VISHAL	23.2	14
Improved Rabi Sorghum	M 35-1	1.2	2
	M-35-1	10.4	7
	PKV-KRANTI	20	3
	REVATI	14	7
	SPV 1411	2.4	4
	SPV 1595	2	1
	SPV-1411	7.6	7
	SPV-1595	10	5
Safflower	PBNS-12	18	15
Wheat	GW-496	26.4	14
	HI-8663	8	1
	LOK-1	33.2	16
	LOK-I	48.8	26
	MACS-6222	4	3
	PDKV-SARDAR	6	4
	RAJ-4037	2	2
	Total	1655.6	729

The matching grant assistance for the production of climate resilience seeds is INR 16.59 lakh. The number of farmers supported under this activity is 168. 9500 tonnes of climate resient variety seeds were produced through this intervention which can be used to sow about 95000 Ha area.

The current status of farmers registered on DBT portal for seed production in Kharif season 2019 is shown in the following table.

Registration of farmers for seed production - Kharif – 2019

Crop	No. of Growers	Area under seed production (Ha)
Moong (Green Gram)	107	3071.95
Soybean	2375	2027.77
Tur (Pigeon Pea)	48	85.91
Udid (Black Gram)	66	135.67
Total	2596	5321.3

Seed production plot-

Soybean Seed production plot,

Turk Pimpri, Tal. Dist. Hingoli

Component C: Institutional Development, Knowledge and Policies for a Climate-resilient Agriculture

The objective of this component is to enhance the transformative capacity of institutions and stakeholders to promote and pursue more climate-resilient agriculture, with sector strategies and policies. This helps to ensure adoption of the approach proposed for building climate resilience through longer-term adaptive management of agriculture, soil and water resources. The project has focused on capacity development programs for small farmers and other stakeholders in the project area.

4.1 Capacity Enhancement & Need Assessment (CENA)

A CENA (Capacity Enhancement & Need Assessment) study was initiated by PMU in collaboration with Tata Institute of Social Sciences (TISS) to identify the training and capacity enhancement needs of the stakeholders, including farmers, members of the FPOs, VCRMC members, and project officials.

CENA Report Highlights –

- The study was conducted in three regions of PoCRA project area, namely Osmanabad, Jalgaon and Yavatmal. In these districts, seven agriculture subdivisions were covered by using purposive sampling method.
- 240 respondents participated in the CENA exercise. Out of these, 180 respondents were either VCRMC members or officers working under at the Cluster, subdivision or district level, and 60 respondents were either male and female farmers including youth.
- 168 participants expected capacity enhancement inputs.
- Based on this, a detailed training module has been designed for various stakeholders including, district-level officials, non-executive VCRMC members, VCRMC members, farmers, women, and youth. A list of training institutions with their expertise has also been suggested.

Recommendations

- The Sub-division and district level stakeholders are expected to guide, direct, and monitor project activities under their jurisdiction.

- VCRMC is a very important community institution and is largely responsible for the overall implementation of project interventions while resolving conflicts and competing interests at the village level. The training needs of the VCRMC members have been assessed accordingly.
- At a broad level, the training proposed for VCRMC members is o improve its functioning. These training needs to be catered to all VCRMC in cascading mode.
- Specialized training modules have been proposed for farmers, women, and youth. Training institutions like KVK, MAVIM, MCED, which have their presence in all the project districts, have been identified.
- Some more institutions need to be identified for delivering certain specialized training.

4.2 Capacity Enhancement of Project Stakeholders

Capacity Development is a precursor for the success and sustainability of any development project, community groups and institutions. The capacity building understanding goes beyond 'training' programs and involves a holistic approach that includes human resource development, organization development, system / institutional development and cooperation, and network development. All these processes are seen as a continuous process enabling stakeholders, functionaries, implementers, and policymakers to enhance their knowledge and skills and to develop the required orientation and perspectives thereby becoming more effective in performing their roles and responsibilities.

The project acknowledges the need to support and train farmers and village communities responsible for project implementation and execution at the field level so that they can reach their potential capacity.

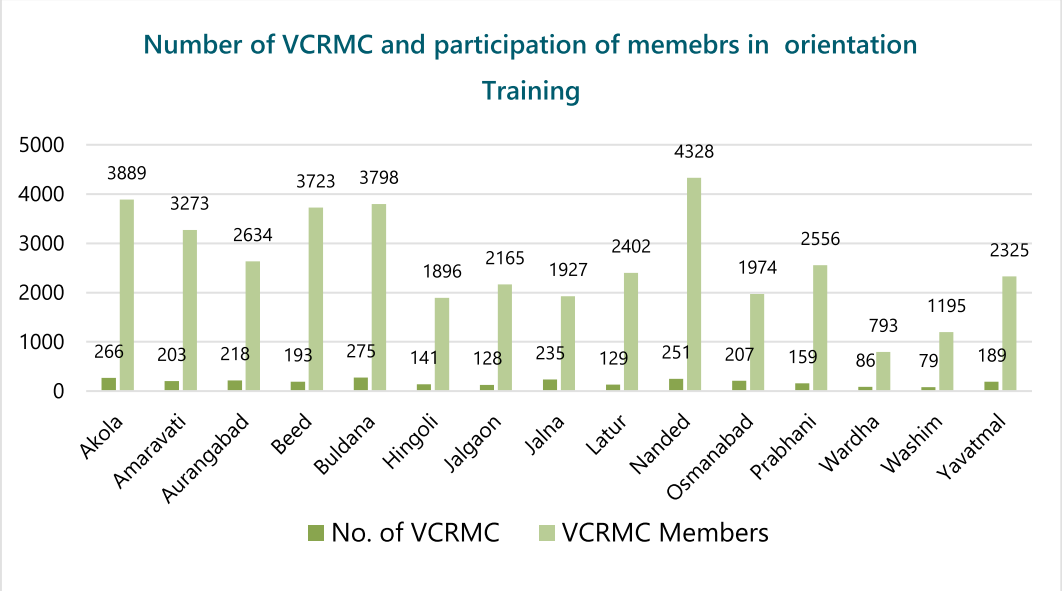
50

a. Training of VCRMCs members

The project has conducted project orientation training for the VCRMC members. The district-wise participation of VCRMC members in training programme is shown in the following table.

Status of VCRMC Orientation Training Conducted

District	VCRMC Orientation Training Conducted					
	Phase I		Phase II		Total	
	Number of VCRMCs	Members	Number of VCRMCs	Members	Number of VCRMCs	Members
Akola	59	637	207	3252	266	3889
Amaravati	51	1250	152	2023	203	3273
Aurangabad	84	584	134	2050	218	2634
Beed	31	675	162	3048	193	3723
Buldana	82	1058	193	2740	275	3798
Hingoli	39	490	102	1406	141	1896
Jalgaon	43	978	85	1187	128	2165
Jalna	75	369	160	1558	235	1927
Latur	19	668	110	1734	129	2402
Nanded	64	1317	187	3011	251	4328
Osmanabad	124	418	83	1556	207	1974
Parbhani	41	904	118	1652	159	2556
Wardha	51	253	35	540	86	793
Washim	22	304	57	891	79	1195
Yavatmal	50	518	139	1807	189	2325
Total	835	10423	1924	28455	2759	38878



b. Training of Project functionaries

Project is building capacities of the implementing officials working at various levels. New entrants in the project undergo induction training of one week at Vasantrao Naik Agriculture Extension Management Training Institute (VANAMATI), the apex training institute of Department of Agriculture at Nagpur. Regional training institutes (RAMETI) are engaged in the training programmes on technology dissemination, use of IT, project management etc. The Cluster Assistants, who are important link between project, VCRMC, and farmers, are exposed to useful IT tools and techniques for the effective functioning of project activities. The FFS Facilitators, who are responsible for disseminating the Climate Resilient Technologies through FFS, are trained on various extension methods and technical aspects of the cropping systems prevailing in the project area.

The supervisory officers and nodal officers at District Project Implementation Unit (DPIU) and Subdivisional Project Implementation Unit (SPIU) are also introduced to various monitoring techniques using IT application developed by the PMU. Their feedback is also taken while preparing guidelines to carry out project activities and in grievance redressal so as to make the project more accountable to the community as well as to create a sense of ownership among the project officials.

The project functionaries are being oriented and updated regarding 'Use of Environmental and Social Safeguards' during regular and special training programmes and workshops.

c. Training of Project beneficiaries

The PDO itself creates an urgent need to build capacities of the farming community to build resilience in the farming systems with enhanced profitability. The project promotes the small farmers and the landless families in the project villages to make investments in the adoption of climate resilient technologies and integrated farming systems as a systematic resilience-building measure. The success of any technology depends more upon its application in the regular farming systems. The project, therefore, intends to orient the beneficiary farmers for effective technology adoption. Also, their skills are being enhanced to practice new technologies and to ensure that the investments are utilized properly.

Farmers Training

District	Male	Female	Total
Jalgaon	6	1	7
Washim	32		32
Parbhani	8	1	9
Aurangabad	8	1	9
Buldhana	5		5
Nanded	5		5
Washim	5		5
Jalgaon	5		5
Buldhana	27	2	29
Total	**101**	**5**	**106**

d. Training of FPOs

The farmers' federations in the form of FPOs/ FPCs/ SHGs are major stakeholders under component B and are being oriented to explore feasible enterprises in agriculture and allied sectors. The decision-makers in these federations are exposed to good and robust business plans and environment-friendly business processes. The project has organized training programmes for all the stakeholders for 353 training days and trained 5182 trainees, so far.

Mini-watershed Development Implementation – Hingoli

Mini-watershed Development Plan Implementation –KVK Jalgaon

Induction Training for Cluster Assistants

VCRMV Members Training- Shegaon

4.3 Exposure Visits

The purpose of the exposure visits is to expose the trainees to the best practices in climate resilient agriculture. Under this activity, the project organises the exposure visits for the farmers and project implementation staff within the district, within the state and outside the state. The progress of exposure visits arranged and the number of farmers participated in exposure visits is shown in the following table.

Status of Exposure Visit

District	Number of VCRMC visited	Visit Days	Male	% to total	Female	% to total	Total
Amaravati	6	4	45	56	36	44	81
Aurangabad	8	3	68	61	43	39	111
Buldana	34	12	203	58	149	42	352
Hingoli	17	4	124	55	100	45	224
Total	**65**		**440**	**57**	**328**	**43**	**768**

Exposure visit of VCRMC members to KVK

4.4 Strategic Partnerships

This subcomponent seeks to develop long-term strategic partnerships at the state, national and international level for collaborative, evidence-based work to provide the analytical underpinnings in support of the design of policies on climate-resilient agriculture. For effective planning, execution and monitoring of the project, strategic partnerships are being established through Memorandum of Understanding (MoU) with Indian Council of Agriculture Research (ICAR), New Delhi; Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad; Central Soil Salinity Research Institute (CSSRI), Karnal; National Bureau of Soil Survey & Land Use Planning (NBSS & LUP), Nagpur; Indian Institute of Technology (IIT), Mumbai; State Agriculture Universities (PDKV, VNMAU & MPKV); Groundwater Survey and Development Agency (GSDA), Pune; Tata Institute of Social Science (TISS), Mumbai; YASHADA, Pune; and Gokhale Institute of Politics & Economics (GIPE), Pune.

1. Indian Council of Agriculture Research (ICAR)

Memorandum of Understanding between PoCRA & ICAR has been signed on 20/2/2017.

The major objectives of the assignment are:

1. Identification of most-drought prone villages and current farming systems based on vulnerability atlas developed by NICRA,
2. Identification of suitable climate-resilient agricultural technologies developed through NICRA & AICRPDA,
3. On-farm demonstration of climate-resilient modules, and
4. Capacity building of all stakeholders including farmers

2. National Bureau of Soil Survey and Land Utilisation Planning (NBSS &LUP)

Memorandum of Understanding between PoCRA and NBSS&LUP, Nagpur has been signed on 24th May 2019 for "High-Resolution Land Resource Inventory and Land Use Planning for Climate Resilient Agriculture". The duration of the contract is 12 months from the date of signing MoU. The total cost of the contract is INR 49.92 Lakh. The MoU aims at inventory mapping of land resources of 500 villages in 15 project districts to facilitate optimum utilization of soil and water resources.

Objectives of the Assignment -

1. Characterization and Mapping of soil Resource on 1:10000 scale for their optimum utilization and conservation,
2. Development of abiotic stress management plan to enhance the resilience of farming communities, and
3. Soil database for 500 villages (physical and chemical properties). The database would include soil depth, texture, bulk density, field capacity, permanent wilting point, organic carbon, pH, EC, major and micronutrients contents, thematic maps like nutrients status, inputs for developing an android app for crop advisory based on soil and weather data, etc.

Inception Report has been received on 20th July 2019. The report briefs about the Base map of Akola district villages. Currently, base maps of all project district have been prepared and the information is being collected through a detailed field survey.

3. Ground Water Surveys and Development Agency (GSDA)

Memorandum of Understanding between PoCRA & GSDA has been signed on 14th June 2019. This assignment aims at the Preparation of Cluster Wise Ground Water Recharge Plan for 70 Clusters spread over 15 project districts. The duration of the contract is 12 months from the date of signing MoU. The total cost of the contract is INR 1.91 Crore.

Objectives of the Assignment:

1) To prepare cluster wise groundwater recharge plan for 70 clusters along with plans and estimates
2) To provide technical backstopping including protocol development for the supervision of groundwater recharge works and related training to field staff.

Inception Report has been received on 11th July 2019. The report briefs about the key areas of this assignment like Hydrogeological Survey, Geophysical survey, preparation of maps and sections, collection and interpretation of cropping and Rainfall data.

Currently, cluster wise groundwater recharge plan of cluster no. 514_GP-17_02, Badnapur Taluka, Jalna District has been carried out. The following information has been collected through a detailed field survey by the organization.

a) Baseline information like Demographic information, Status of domestic water supply, Agricultural crops and micro-irrigation information, Water conservation structures (Existing) information
b) Hydrology and Hydrogeology information like Rainfall analysis, Groundwater Occurrence information, Irrigation status - Surface water, Groundwater use for agriculture

c) Groundwater estimation of Cluster for Monsoon Recharge and Non-Monsoon Recharge
d) Groundwater Management Action Plan for Runoff estimation, Proposed plan for supply-side interventions, Total estimated cost of Groundwater management plan
e) Anticipated Benefits.

4. Indian Institute of Technology (IIT), Bombay

Memorandum of Understanding between PoCRA & IIT Bombay has been signed on 16th August 2017, for a period of one year which was subsequently extended for another year with the next set of deliverables.

MOU I

Objectives of the Assignment

To build a generic framework i.e series of tools and analysis designed to help core questions of water availability assessment and water balance using supply-side analysis of both surface and groundwater resources and demand analysis of current water use.

Delivery

A document describing process and evolution of the hydrological framework, plugin and an easy to use single, multi-crop plugin integrated with the micro-planning app for generation of Village level water budget, technical and handholding support in integration with microplanning process and training of PMU functionaries, and preparation of Zones for Phase I villages in the Project area.

MOU- II

Objectives

- Refinement of Water Balance framework through improvement in input data in collaboration with State Agricultural Universities, Skymet, GSDA, Settlement Commissioner, IMD and NBSS&LUP etc and its integration into the framework.
- Village level outcome measurement framework for water productivity measurement and its operationalization, beneficiary prioritization with respect to water security plans. Incorporation of various indices on the dashboard and MLP app.
- Incorporation of weather parameters in water balance computation.
- Dashboard for monitoring of rainfall, soil moisture, crop stress and other parameters. Demonstration of Concept of suitable datasets on dashboard and query on it.

Objectives

- Refinement of Water Balance framework through improvement in input data in collaboration with State Agricultural Universities, Skymet, GSDA, Settlement Commissioner, IMD and NBSS&LUP etc and its integration into the framework.
- Village level outcome measurement framework for water productivity measurement and its operationalization, beneficiary prioritization with respect to water security plans. Incorporation of various indices on the dashboard and MLP app.
- Incorporation of weather parameters in water balance computation.
- Dashboard for monitoring of rainfall, soil moisture, crop stress and other parameters. Demonstration of Concept of suitable datasets on dashboard and query on it.

Delivery

- Analysis of Mahabhulkeh data and feasibility of its incorporation into the current process.
- Weather parameters incorporated in the computation of evapotranspiration in water balance.
- Village level outcome measurement framework for water productivity measurement and its operationalization, beneficiary prioritization with respect to water security plans and DPR assessment guidelines.
- Ongoing collaboration with GSDA, NBSS&LUP for preparation of groundwater recharge plan and high-resolution soil data sets.
- The version I of dashboard Is given to visualize project area with parameters like rainfall, soil moisture, runoff, crop stress, dry spells, MLP and FFS datasets on the dashboard
- Pilot work on training and capacity building of RAWE students of 5 colleges in Project villages.
- Technical support and handholding.

Status

Version II of the dashboard with suitable indices and datasets.

Incorporation of monitoring indices in the MLP app.

Testing and validation after changes and incorporation of new datasets

5. Tata Institute of Social Science (TISS)

Memorandum of understanding between PoCRA and TISS for providing services for capacity enhancement needs assessment, training plan and support for implementation thereof has been signed on 17 May 2018.

Objectives of the Assignment

1. To help develop designs and methodologies along with tools and techniques to conduct capacity enhancement needs assessment (CENA) exercises of identified project stakeholders including individual farmers and farmer groups etc.

2. To develop capacity development plans and designs in accordance with CENA for identified stakeholders.
3. To help facilitate the implementation of capacity development plans by deploying or outsourcing appropriate Human Resource Development personnel & Communication Specialist.

a. Capacity Enhancement Need Assessment (CENA)

CENA is an integrated and participatory capacity needs (concerned stakeholders and key participants of the project) enhancement and assessment designed to evaluate the existing capacity, identify capacity gaps and weaknesses, and recommend possible remedies.

b. Selection and deployment of Project Specialists (HRD)

TISS has administered and supervised the selection process of Project Specialist (Human Resource Development (PS-HRD). The selected candidates have been deployed at the district headquarters.

The contract has been completed as per the agreed terms of reference.

6. Gokhale Institute of Politics and Economics (GIPE)

Memorandum of Understanding between PoCRA & GIPE has been signed on 16th August 2017, for the study of FPCs in Osmanabad district, Case Study of select water interventions, and M&E support for PoCRA. The cost of the contract is Rs. 54 lakhs.

The objectives of the assignment are as follows-

1. GIPE will undertake a study of FPCs, including those which are successful and also which are not-so-successful. The study will assess the current role played by FPCs, rate at which the income of the farmer-members has grown since the inception of the same, the bouquet of services offered through the model, time that an FPC takes to scale up its offerings, whether it has successfully created higher market access, quantitatively and qualitatively etc.
2. GIPE will construct a Case Study of Select Water Interventions
3. GIPE will engage in creating the M&E framework for PoCRA, bringing out the scope of work to be carried out by the M&E agency. In this regard, GIPE shall specifically deliver the following four components to the PMU at PoCRA
4. Draft of expression of interest (EoI), Terms of Reference (ToR) for the M&E agency, outlining the scope of work, qualifications of the bidders, bidding criteria, and technical and financial evaluation criteria.

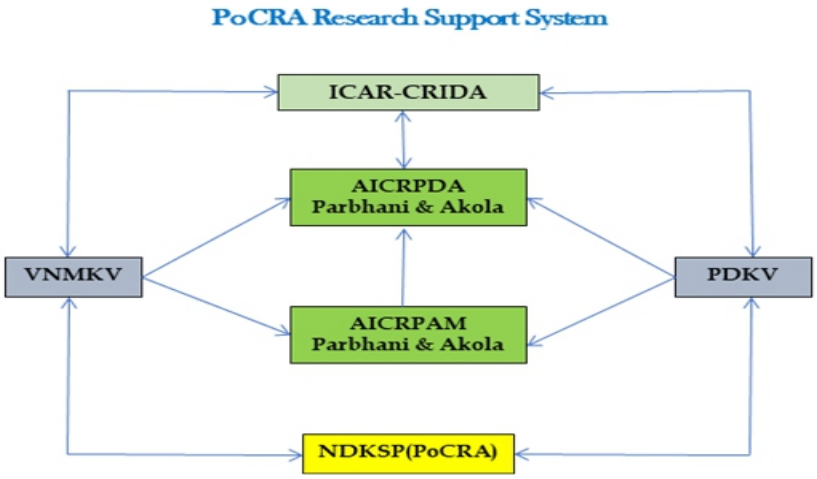
5. Result Framework Proposal (RFP) detailing the activities, sampling plan, methodologies and time frames for delivery
6. Technical scrutiny of the proposals received in response to the aforementioned ToR
7. Definitions and proposed targets for the Result Framework Indicators in consultation with PMU
8. GIPE shall also agree to participate in the pre-bid meetings and handle queries related to the ToR and/or RFP document

The GIPE has submitted the study on FPCs and Case Study of select water interventions. GIPE has prepared ToR for hiring M&E agency and participated in the pre-bid meeting and handling queries from M&E agencies. GIPE has submitted the technical evaluation of proposals submitted by M&E agencies.

The proposed agreement with CRIDA – SAUs

The objective of the proposed MoU between PMU PoCRAand CRIDA – SAUs

1. Cluster level contingency plans preparation and operationalization
2. Bi-weekly agromet advisories at cluster level and impacts assessment
3. Capacity building of different stakeholders in the field of Climate Resilient



Proposed MoU with SAU Rahuri, Parbhani, and Akola

The objective of the proposed MoU between PMU PoCRA and SAU is as follows

1. To estimate the values of crop coefficients of important field crops over their growth period by using lysimetric study
2. To estimate the water requirement of different field crops for efficient irrigation water management.

Crops covered

1. Soybean, Sorghum: VNMKV, Parbhani:
2. Cotton, Pigeon Pea: Dr.PDKV, Akola:
3. Gram: MPKV, Rahuri

Safeguards

Environmental Management Framework (EMF)

To ensure that all the relevant environmental safeguards are addressed in the project, an Environmental Management Framework (EMF) has been prepared. This framework has been bifurcated into two parts. Volume 1 focusses on background aspects such as village micro-level planning, post-harvest, and agri-business. Volume II focusses on integrated pest and nutrient management. Various aspects of the EMF have been implemented, as detailed below.

1. **Integration of EMF checklist into the Micro-Level Planning Mobile Application:**

The EMF has designed a detailed checklist that needs to be integrated into the Micro-Level Planning (MLP) process of the project. The project has now developed a mobile application for MLP activity. The Environmental Checklist for MLP has been translated into the Marathi language and integrated into the MLP app. Designing of the app has been done in such a way that the facilitator will need to mandatorily complete the Environmental Checklist while submitting the MLP forms.

2. **Incorporation of IPNM into the Farmer Field School activity:**

The FFS activity has been structured to ensure that the pest and nutrient-related concerns are incorporated into the FFS schedules. Similar to the MLP app, a mobile application has been developed for FFS activity wherein the facilitators will input information during the FFS visits. This application captures all the information pertaining to nutrient and pest management of the FFS plots. The FFS guidelines give detailed technical instructions to the facilitators and host farmers regarding the tools for measurements, seed varieties and types of fertilizers and pesticides to be used, technologies to be used for conserving soil carbon and nutrients and so on. Data generated from this application is being used to analyze the level of nutrients in the project villages, which will help in the next phases of the project to take corrective measures.

3. **Environmental Checklist incorporated into the Agri-Business proposals for DBT**

The EMF provides a list of impacts to be evaluated and mitigation measures to be taken during post-harvest management and value chain promotion activities. Based on this, a checklist has been prepared for the FPOs that they will need to submit as

part of their matching grants application. The project scrutinizes the applications on the basis of these guidelines before making a decision on the proposed activity.

4. Training and capacity building:

As part of the ongoing and proposed project training, a module on environmental safeguards has been developed. This training module outlines the schedule, materials, and topics to be covered during the training. In addition, audio-video materials are being developed for a better understanding of the field level functionaries and target group farmers.

Social Management Framework (SMF) and Tribal People Planning Framework (TPPF)

Objectives of the SMF and TPPF

The overall objective of social assessment study is "to better understand and address social development issues and ensure accomplishing the outcomes – inclusion, cohesion, equity, security, decentralization and accountability. The objectives of the TPPF are to ensure that (1) The tribal people are adequately consulted and take part in the process of preparation, implementation and monitoring of project activities, (2) Project benefits are equally accessible and they are provided with special assistance as per prevailing laws and policies because of their cultural identities and to minimize further social and economic imbalances within communities, (3) Institutional arrangements specially disclosure mechanisms and grievances redressal mechanism, and (4) Monitoring and reporting arrangements.

Approach to ensure the social and tribal safeguards

The project is focussed towards the needs of the small and marginal farmers in the project area. In the benefit distribution, inclusiveness and equity are being ensured. The vulnerable sections of the village are given priority while availing benefits under the project. The order of the priority is SC, ST, women, and disabled farmers. Till June 2019, 233640 applications have been received for various activities. The gender-wise segregation is 77.25% male, 22.36% female and 0.39% others. The social group-wise

break up of the applications received is Scheduled Caste (SC)- 20538 (8.79%), Scheduled Tribe (ST)- 7976 (3.41%), General category - 205126 (87.80%).

Participation and Ownership

The Village Climate Resilient Agriculture Committee (VCRMC) which has been established under the Maharashtra Gram Panchayat Act, 1959, acts as the development committee of the Gram Panchayat. VCRMC consists of 17 members of which 13 members are executive and 4 members are non-executive. Two-thirds of the committee members are small or marginal landholders, one-third of the members are from the respective Gram Panchayat. The representation of women members in the committee is at least 50%.

Tribal Peoples' Safeguards

The project is focusing to reach the title owners having individual rights under the Forest Rights Act. Gram Sabhas finalize the village level micro plans.

Transparency, Accountability and Grievance Redressal

The project is committed to ensuring transparency accountability, openness and disclosure of information to the community.

1. **Transparency:** The project is committed to ensuring transparency in the planning and implementation of all the activities of the project. For this the project has developed a website www.mahapocra.gov.in. The website displays project rationale, approach, manuals, implementation strategy, available fund and expenditure, activities undertaken etc. This website is updated periodically. The Project Management Unit (PMU) at Mumbai has an administrative unit to ensure proper documentation of all the decisions taken by various branches. All the guidelines and instructions issued to field officials are issued in written form and communicated in digital as well as physical form. At the district level, the office of the District Superintendent Agriculture Office (DSAO) has a dedicated unit for the implementation of the project activities. This unit coordinates the efforts of the subdivision and village level officials. Various registers, including the Inward-outward, are kept to document the decision taken and instructions issued. At the subdivisional level, the office of the Sub-divisional

Agriculture Office (SDAO) also has a similar dedicated unit for the implementation of the project activities. At the village level, VCRMC ensures disclosure of information about project activities, selection of beneficiaries, village water balance, and composition of VCRMC through banners and wall paintings. The awareness generation campaigns are conducted through microplanning process and distribution of project brochures and booklets. Periodic capacity building programs are carried out through training and workshops which are conducted at the district/taluka/village level.

RTI Act is applicable at all levels of implementation structure.

2. **Accountability:** The task charts have been issued to all the project officials. All the project officials are accountable for carrying out their responsibilities as per their job chart. The governance structure ensures action against erring officials.

3. **Grievance Redressal:**

1. The stakeholders can send their grievance through e-mail to mahapocra@gmail.com. The PMU ensures enquiry and appropriate action on all the grievances received.
2. The stakeholders can send their complaints or suggestions through postal correspondence to Office of the Project Director, NanajiDeshmukhKrishiSanjeevaniPrakalp, 30 A/B Arcade, Cuffe Parade, Mumbai Pin: 400005.
3. The CM Helpline with toll-free number 1800 120 8040 has been operational since 1st April 2019. This is centralized call centre initiative to provide information/Support services to citizen on call at 24/7.
4. The PMU telephone lines no. +91 22 2216 3351, +91 22 2216 3352 are available and open during working days and hours.
5. At the district level, the grievances can be presented through email or phone to the office of District Superintendent Agriculture Officer (DSAO). Similarly, at the subdivision level, the grievances can be presented through email or phone to the office of the Subdivisional Agricultural Officer (SDAO).

6. Grievance Redressal at VCRMC level:

(i) For all the conflicts at the village level, every attempt shall be made to resolve all conflicts at that level itself through the VCRMC, failing which,

through the Gram Sabha. The social mobiliser, KrishiMitra/ Krishi Tai and cluster assistant will facilitate the villagers in this regard.

(ii) If Gram Sabha feels that a formal arbitration is required, a five-member committee will be set up for this purpose. It shall comprise the SDAO, a relevant technical member (preferably from the location and familiar with the dispute) a nominee each from the Gram Sabha concerned.

(iii) In case more than one Gram Panchayat is involved in a dispute, the SDAO will try to resolve the conflict among them.

(iv) If either party is dissatisfied with the decision of the SDAO, it can appeal to the DSAO. The decision of the DSAO shall be final and binding on all parties.

(v) Written grievances at the village level, if any, will be collected in a sealed box kept in a public place in each VCRMC/ Gram Panchayat. This complaint box would be opened once every month on a fixed date in the presence of VCRMC members, cluster assistant and other project functionaries who are present. The specific complaints/ grievances would be discussed and steps will be taken to resolve them within 15 days. In case the VCRMC members are unable to resolve them, the Gram sabha will resolve the complaint.

(vi) The grievances can be sent to VCRMC through mail/post. The complainant can also choose to submit his/her grievance or complaint or suggestions in person during the VCRMC or Gram Sabha meetings.

7. Other statutory mechanisms at village level for grievance redressal:

(i) The Provisions the Maharashtra Village Panchayat Act (Bombay Act No. III of 1959) and rules made thereunder would be applicable for redressal of grievances.

(ii) All complaints regarding project shall be acknowledged by the VCRMC & final reply shall be delivered within 30 days.

(iii) All Gram Sewaks have been designated as the 'Public Information Officers' and The Block Development Officer have been designated as the 'Appellant Authority' under RTI act at Gram Panchayat level.

Information Technology systems

Digital Innovation lab

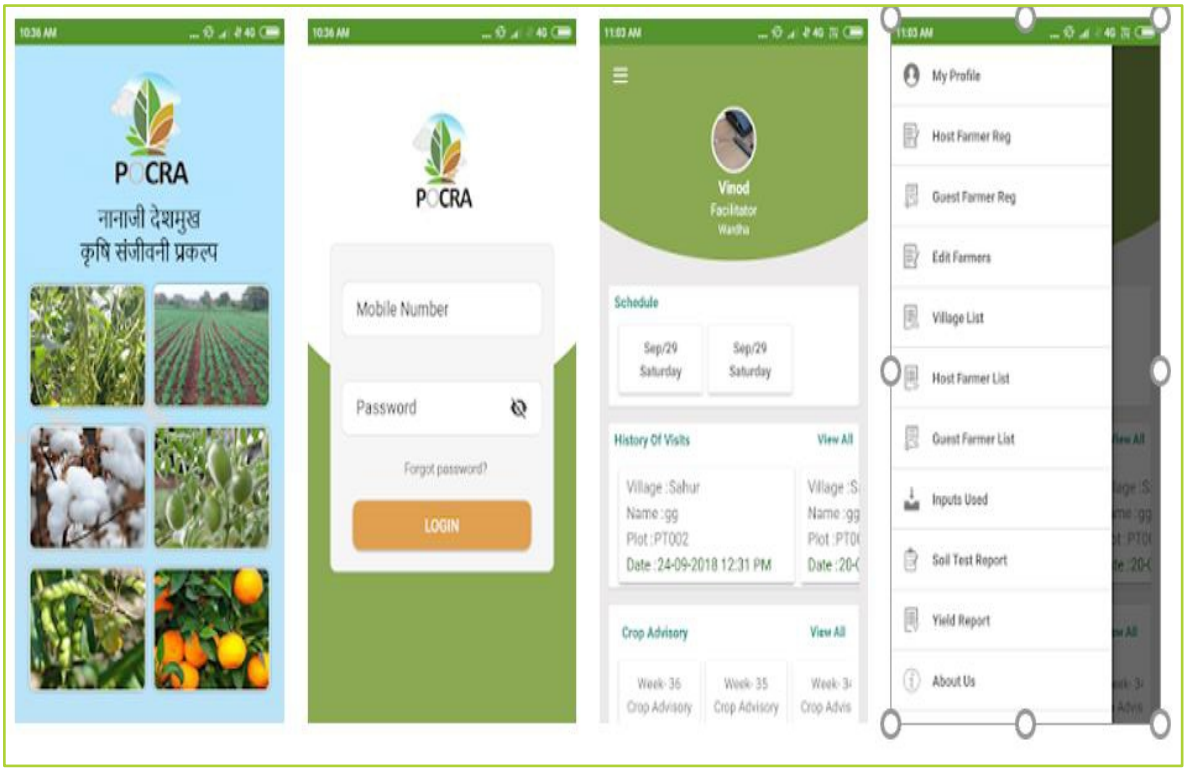
The project has established a Digital Innovation Lab to develop applications to help in the process of planning, implementation, and monitoring of the project activities. Following are the objectives of the Lab

1. Design, Develop and Manage Mobile applications (Bi-Lingual English and Marathi)
2. Hire, Manage and Maintain a dedicated cloud to host applications
3. Host, Maintain and Manage the applications on the Cloud
4. Develop Innovative use cases around climate-resilient agriculture and innovative farming
5. Run 'Community of Practice' of Agriculture digital solutions as per the requirements of the Project Management Unit, PoCRA
6. Manage and Support training and training manuals on the applications built

Digital Innovation Lab has developed and deployed a host of applications including, Financial Management System, Farm Field School, Staff Monitoring, and Training. These applications are helping the Field staff and PMU in Managing and monitoring the project work.

Farm Field School (FFS) App

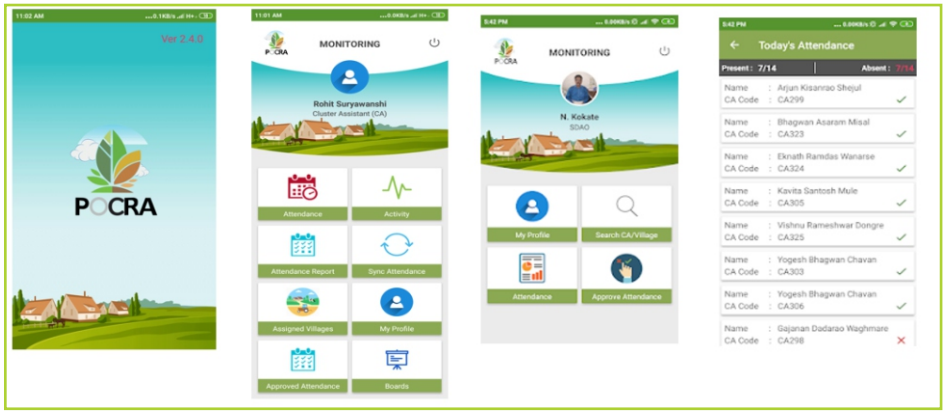
- The FFS is a participatory approach that uses non-formal adult education methods based on experimental learning techniques and participatory training methods.
- FFS emphasize learning by doing. The learning process takes place in the field and is normally designed to last for a full growing/cropping cycle. This enables farmers to participate fully in the implementation of all components of the technology from planting to harvesting.
- Farmers Field School (FFS) is a season-long on-field interactive learning process recommended by the Food and Agriculture Organization (FAO).
- These FFS are being implemented by Facilitators under the technical guidance of Krishi Vigyan Kendra (KVKs).
- As FFS is a time-bound program based on field observations, they are to be recorded along with photographs. The activities performed in the FSS are to be noted. Hence to record all these activities in real-time and on-field, a tool in the form of smartphone application has been developed.



Staff Monitoring Application (SMA)

Staff Monitoring App (SMA)

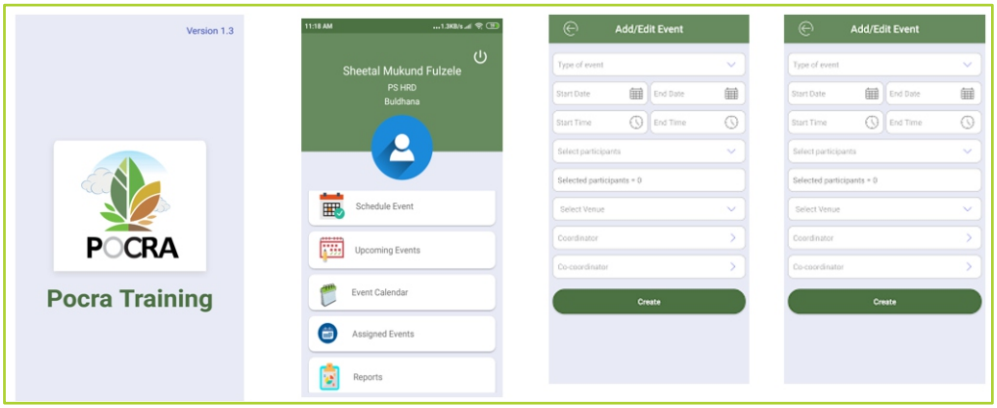
- The staff monitoring app is designed to track day-to-day activities of the PoCRA officials working at different levels such as Districts/Subdivisions/Clusters/Villages.
- This app covers DPR Community Activities, Training & Exposure Visit, Micro-Planning, Post-Harvest Management.
- PMU/SDAO can monitor the performance of the Cluster Assistants.
- Agri-Business Specialists are able to add/update Post-Harvest activities of FPC/FPO, FIG, and SHG.



Training Management App

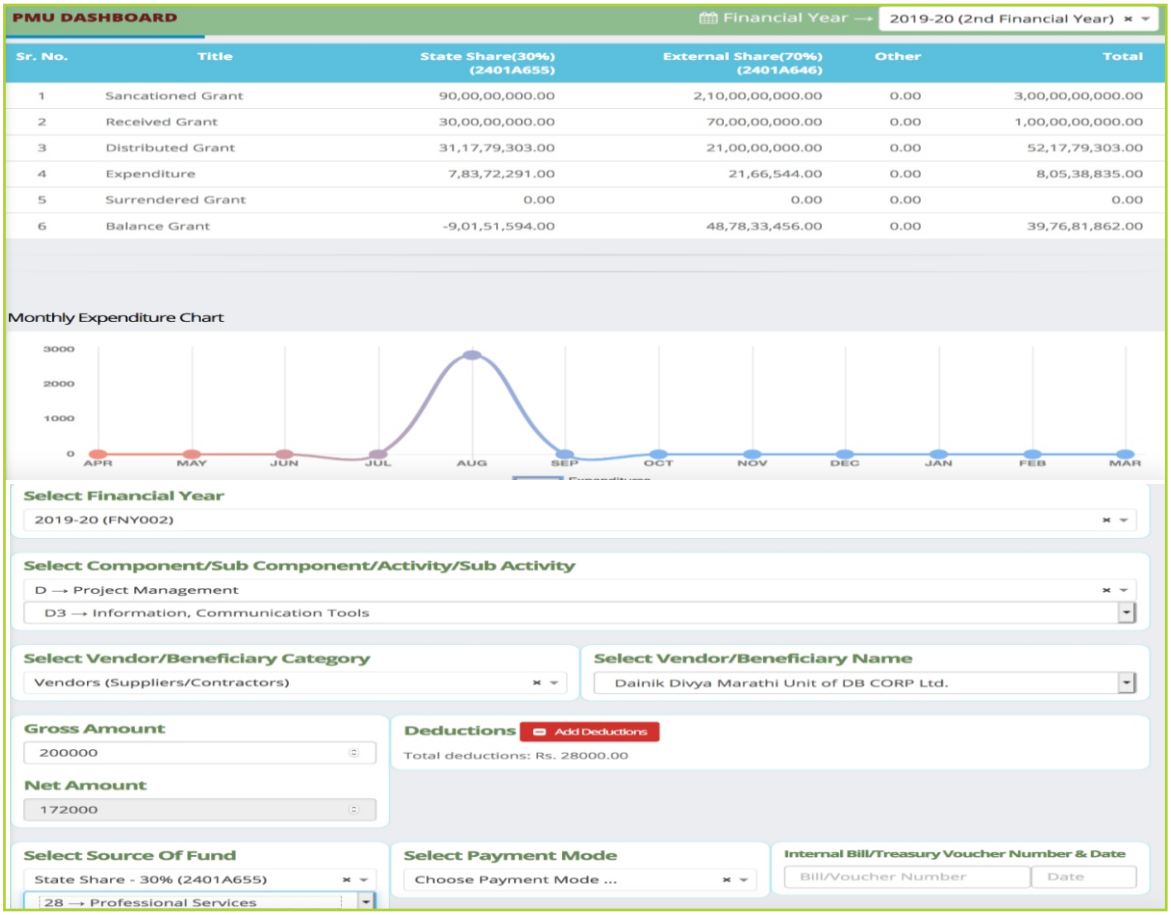
- The Training management app has been developed specifically for trainers to manage his/her schedule and at the same time keep the end-user updated
- In addition to managing schedule, a trainer can capture the details of attendees at VCRMC level and other PoCRA officers who attended training in this app and report to PMU through the app
- PMU can monitor the performance of the trainers, their training content and can send the reminder to all users
- Currently PMU, district-level PS HRD, PS -Agri, and Coordinator can utilize this app
- Based on the schedule, reports are generated

Training Application



Financial Management application
The purpose of the Financial Management System is to monitor and manage the financial activities across all the financial centres to ensure: • Adequate fiduciary controls are in place for the management of funds at the PMU, district, subdivision and VCRMC level • A minimum set of reliable financial information is available on a timely basis regarding the implementation of grants.

Financial Management application (FMS)



Geographical Information System (GIS)

Role of GIS

GIS acts as an essential tool for the management of the agricultural sector by acquiring and implementing accurate information into a mapping environment. GIS application in agriculture also helps in management and control of agricultural resources.

In the process of selection of project villages, the climate vulnerability index was calculated for the hydrological units (mini-watershed) using a GIS platform. Various layers including the administrative boundaries and groundwater prospects map were used for the computation of the vulnerability index.

An important component of the project is village-level participatory planning for natural resource development and management as well as farm-level interventions to enhance resilience and productivity. This is being done using satellite data and GIS data of land use-land cover, groundwater assessment, soil properties, historical weather data, and current water storage structures etc. Following maps help in the village level planning.

1. Village Base Map – This map gives information about Drainage pattern, topography, Hydrological units with cadastral boundary and road networks. Till date, 4010 village maps have been generated for the use of field functionaries.
2. Village land use- land cover Map - This map gives information about agriculture land and season wise cropland. Till date, 2000 such maps have been generated for the use of field functionaries.
3. Village Watershed Potential Treatment Maps - This map gives information about existing structures and suitable location for new structures of soil and water conservation structures. Till date, 1600 such maps have been generated for the use of field functionaries.

The project has developed different mobile and web applications through Digital Innovation Lab. These applications capture and generate Geo-spatial data. This data is being used for monitoring, analysis, and evaluation.

Project is planning to develop a GIS-based decision support system (Web-GIS) for visualization, planning, monitoring, and decision making. A part of this information will be shared in the public domain.

Use of Remote Sensing and GIS Technology

With the help of Maharashtra State Innovation Society, startups like SatSure and Earth Analytics have taken pilots in the project area to demonstrate their capabilities and improve their understanding of crop monitoring and agricultural advisories. These startups propose to deliver the following services:

- Sowing Intelligence including sowing period estimation and sowing progress
- Crop Acreage
- Crop Health monitoring
- The productivity of water using ET, NDVI, and CCE data
- Harvest Intelligence including harvest window estimation and harvest progress
- Crop Performance
- Yield Estimation
- Drought trigger

Component D
Project Management

This component covers the activities of the Project Management Unit (PMU), Project Monitoring and Evaluation and Information and Communication tools.

7.1 Project Management and Support

The status of project manpower deployed at different levels is shown in the following table.

Project Manpower Status (September- 2019)

Level	Sanctioned Posts			Filled Posts		
	Regular	Contractual	Total	Regular	Contractual	Total
PMU	45	26	71	17	21	38
District	15	75	90	12	72	84
Sub Division	72	72	144	58	72	130
Cluster	-	500	500		491	491
FFS Facilitators *					65	65
FFS – coordinators*					489	489
Total	**132**	**673**	**805**	**84**	**1210**	**1297**

*These persons are working on Honorarium basis.

7.2 Monitoring and Evaluation (M&E)

The project has signed a contract with M/s. Sambodhi Research and Communication Pvt. Ltd, Noida in association with TERI, New Delhi, for consultancy services for M & E assignment of the project in Marathwada Region on 6th March 2019.

The objectives of M&E are:

1) To help the PMU in measuring and assessing the outputs, outcomes, and impacts generated by the project activity qualitatively and quantitatively over the duration of the project.

2) To assess input delivery mechanisms addressing quality, quantity and appropriate timings of such supply
3) To assess whether the activities are reaching to the intended beneficiaries and providing recommendation (information) for improving targets as well as the service delivery mechanism.
4) To promote accountability in the allocation and utilization of resources across the project area and activities so as to keep the activities and project implementation in the decided mode of participatory and transparent mechanisms
5) To bring out the gaps, if any, in the implementation of activities and components, so that PMU can create strategies and design tools for effective implementation of the same.
6) To encapsulate the experiences and contribute to learning, document best practices, practices and promote policy dialogue.

Sr. No	Deliverables
1	Inception Report
2	Baseline Survey and Submission and acceptance of Data and Baseline Report
3	Mid-Term Survey and Submission of Data and Mid-term Report
4	Concurrent Progress Monitoring Across All Project Components and Submission of Data and 12 Concurrent Monitoring Reports
5	Final Impact Assessment for the whole project and Submission and acceptance of Survey Data, Fully-merged Datasets, and the End-term Assessment Report
6	Final audit to assess the implementation of the Environment and Social Management Framework (ESMF) of the project and submission of the ESMF Report

The agency has submitted an inception report and draft of 1st Concurrent monitoring report for the project in the Marathwada region.

Currently, the agency is working on Baseline survey for the Marathwada region in 8 districts. The field survey is in process in the selected district. The final baseline survey report will be submitted in the month of October 2019.

The status of hiring of consultancy for monitoring and evaluation assignment of the project in Rest of Project Area is in process. The technical and financial evaluation of the proposal submitted by the bidder firms has been done. The agency will be on board in the month of September 2019.

7.3 Information, Education & Communication

Project Implementation Information Material -

The project has prepared information materials, such as Project Information Booklet on Individual benefit activities in Marathi. 35,802 booklets have been distributed to VCRMC members. 2000 copies of individual activity guidelines have been distributed to the field functionaries.

Use of advanced technology for effective communication

The project has used the live steaming system for orientation training of VCRMC members on 6thFeb 2019 and 9th August 2019. 44256 VCRMC members and project functionaries participated in the program. The participants had an opportunity to get information directly from PMU and were able to get clarification on issues being faced by them.

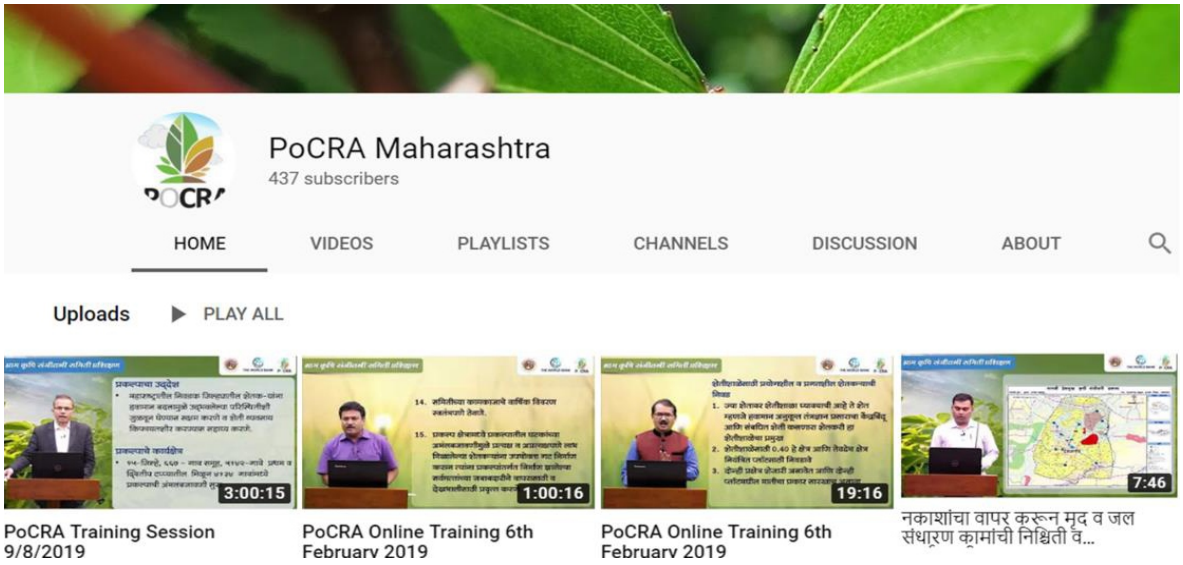
Participation in the live streaming program

VCRMC

Apart from training and strengthening activities, the project supports to VCRMCs for the subscription of Magazine and Newspapers related to agriculture.

Digital Content (reach and teach)

The live streaming sessions were recorded and uploaded on the Youtube channel of the project for easy access to contents. (https://www.youtube.com/channel/UCIHg3L7eo4yby5fUM9Gk2rQ). PMU has created audiovisual content on project activities and uploaded the same on the project's official Youtube channel.



Use of Social Media

The content on social media has been designed for awareness generation and information dissemination.

Hon. CM Addressing press about the project Training of trainers for Farmer's friend

Hon. Minister for Agriculture addressing project trainers

मातृभूमि

FACEBOOK.AMRAVATIDAINIKMATRUBHUMI

राज्याचे कृषि मंत्री डॉ.अनिल बोंडे यांचे उपस्थितीत

ऑर्ट ऑफ लिव्हींग तर्फे कृषि प्रशिक्षण

वरुड - प.पू. श्री रविशंकरजी यांच्या कृपा आशीर्वादाने अमरावती जिल्ह्यामध्ये प्रथमच नानाजी देशमुख कृषी संजीवनी प्रकल्प व आर्ट ऑफ लिव्हिंग यांच्या संयुक्त विद्यमाने बदलत्या हवामानासोबत शेतकऱ्यांना सक्षम करण्यासाठी कृषी मित्र व कृषी ताई प्रशिक्षक प्रशिक्षण कार्यक्रम नुकताच अमरावती येथे उत्साहात साजरा झाला.

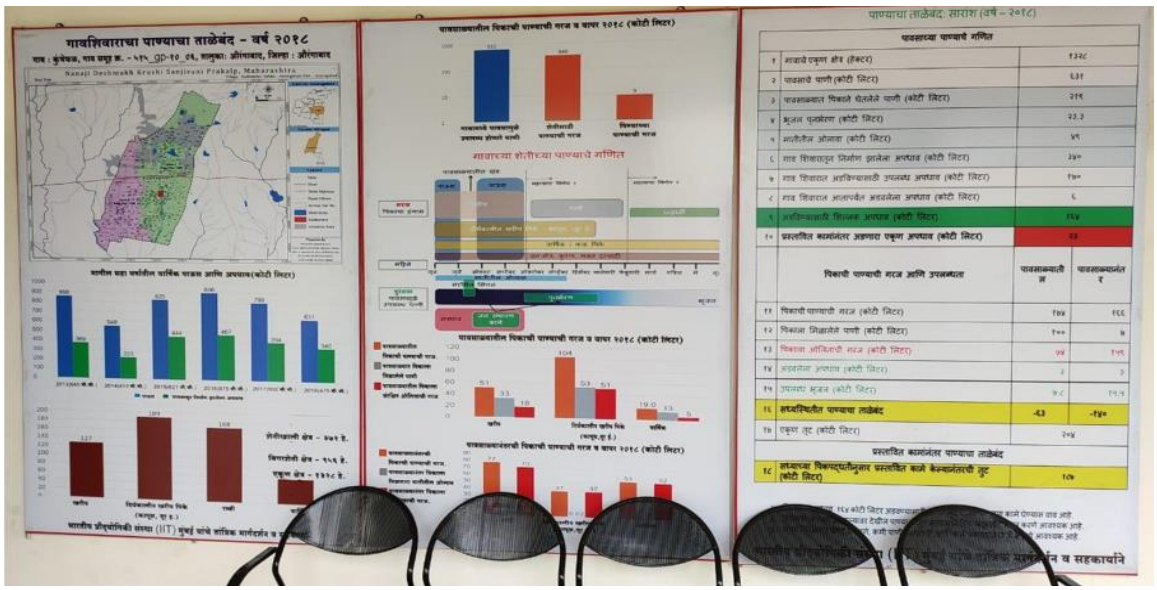
याप्रसंगी बोलताना राज्याचे कृषीमंत्री तथा जिल्ह्याचे पालकमंत्री डॉ.अनिल बोंडे म्हणाले की, बदलत्या हवामानासोबत शेतकऱ्यांना सक्षम करण्यासाठी नैसर्गिक शेती है प्रभावशाली तंत्र ठरु शकते, त्याकारीता कृषी मित्र व कृषी ताई यांची भुमिका मुख्य आहे, म्हणुन ह्या प्रशिक्षणा दरम्यान ट्रेनर बनविण्यात आले.

यावेळी राज्याचे कृषीमंत्री तथा जिल्ह्याचे पालकमंत्री डॉ.अनिल बोंडे व कृषी विध्यवेर्ता विजयजी कोळेकर,आर्ट ऑफ लिव्हिंग महाराष्ट्र राज्याचे शिखर परिषद सदस्य श्रीकृष्ण टोंगसे, प्रकल्प प्रमुख विजय हाके, महाराष्ट्रातील जेष्ठ प्रशिक्षक अंकुश भालेराव, प्रकल्प योगी दिग्विजय खरोटे, अमरावती जिल्हा काऊंसिल सदस्य अशोक नानोटकर, सोमनाथ सोनवने, शरद डोल्हारकर जिल्हातील सर्व शिक्षक गण, प्रकल्पाचे प्रमुख प्रशासकीय अधिकारी, जयशिव जगदने आणि महाराष्ट्रातील १५ जिल्ह्यातील नियुक्त झालेले प्रशिक्षक मित्र व महाराष्ट्र युवाचार्य उपस्थित होते.

Project Information Boards displayed in the project villages

अ.क्र.	समिती सदस्य	नांव	पदनाम	प्रवर्ग
अ)	कार्यकारी सदस्य			
१.	सरपंच	सौ.जुबेदा महमद दर्गेवाले	पदसिद्ध अध्यक्ष	सर्वसाधारण
२.	उपसरपंच	रघुनाथ वसंतराव देशमुख	पदसिद्ध सदस्य	सर्वसाधारण
३.	ग्रा.पं.सदस्य (महिला)	सौ.प्रयागबाई सिताराम तांबेकर	सदस्य	सर्वसाधारण
४.	ग्रा.पं.सदस्य (पुरुष)	महम्मद कासम चौधरी	सदस्य	सर्वसाधारण
५.	प्रगतशील शेतकरी–१	यशवंत अंबादास तांबेकर	सदस्य	सर्वसाधारण
६.	प्रगतशील शेतकरी–२	सौ.कांताबाई अंबादास कुटे	सदस्य	अ.जा.
७.	महिला शेतकरी–१	सौ.सुमन रमेश येवले	सदस्य	सर्वसाधारण
८.	महिला शेतकरी–२	सौ.शब्बो बद्दु दर्गेवाले	सदस्य	सर्वसाधारण
९.	महिला शेतकरी–३	सौ.भारताबाई भास्कर ससाने	सदस्य	अ.जा.
१०.	शेतकरी उत्पादक गट/ कंपनी प्रतिनिधी	अशोक बबन पाबळे	सदस्य	सर्वसाधारण
११.	महिला बचत गट प्रति.	सौ.कासाबाई दामोदर कुटे	सदस्य	अ.जा.
१२.	कृषि पूरक व्यवसायिक शेतकरी –१	साळुबा धनाजी झोरे	सदस्य	सर्वसाधारण
१३.	कृषि पूरक व्यवसायिक शेतकरी –२	सौ.सुनिता संजय तांबेकर	सदस्य	सर्वसाधारण
ब)	अकार्यकारी सदस्य			
१४.	कृषि सहाय्यक	सौ.डी. नवले	पदसिद्ध तां.सदस्य	
१५.	ग्रामसेवक/ग्राम विस्तार अधिकारी	एस.के. चौधरी	सदस्य सचिव	
१६.	समूह सहाय्यक	सचिन बाबुराव सानप	सह सचिव	
१७.	कृषि मित्र	राधेशाम बचन पाबळे	विस्तार कार्य प्रेरक	
१८.	कृषि ताई	सौ. उज्वला सुभाष तांबेकर	विस्तार कार्य प्रेरक	

Display Board showing details of VCRMC members at Grampanchayat

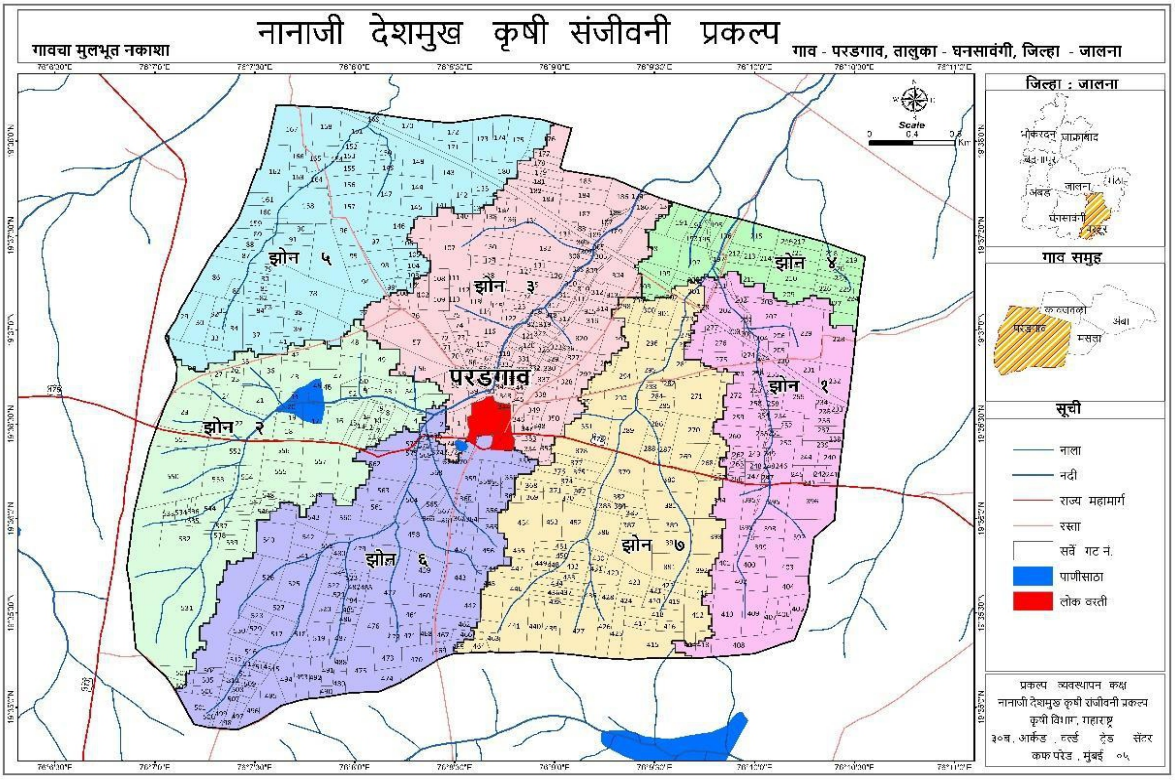


ANNEXURE

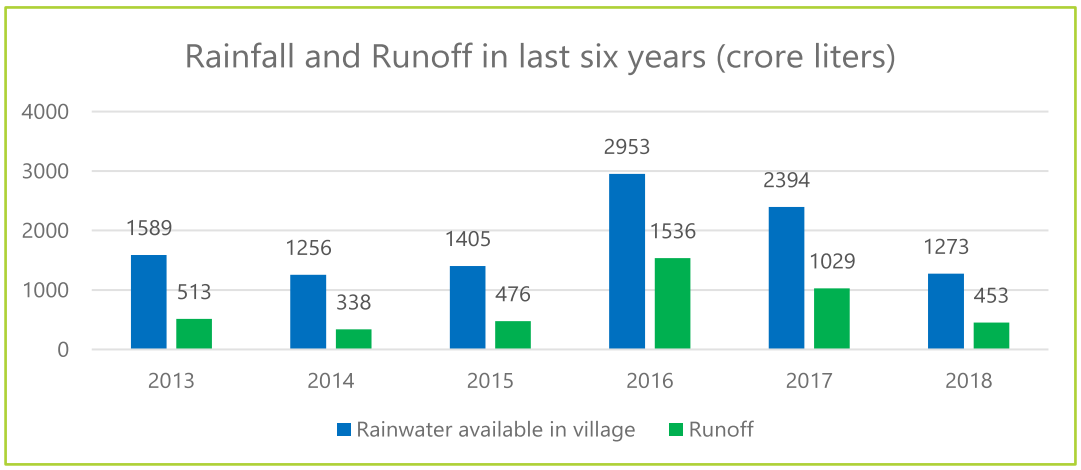
Annexure 1

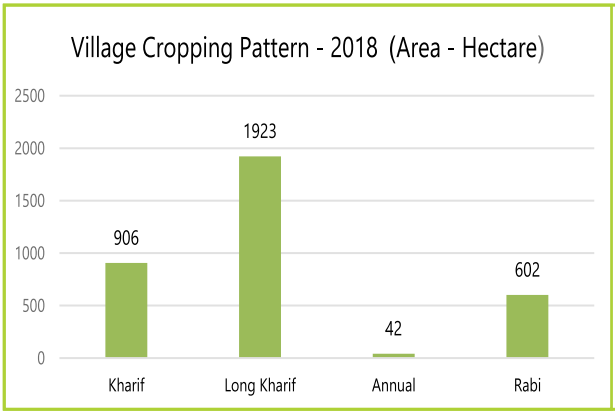
Village Water Balance – Year 2018

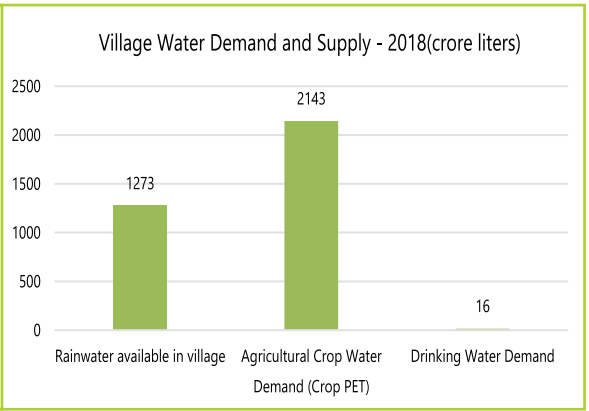
Village: Paradgaon, Cluster Code: 514_gp-35_03, Taluka: Ghansavangi, District: Jalna



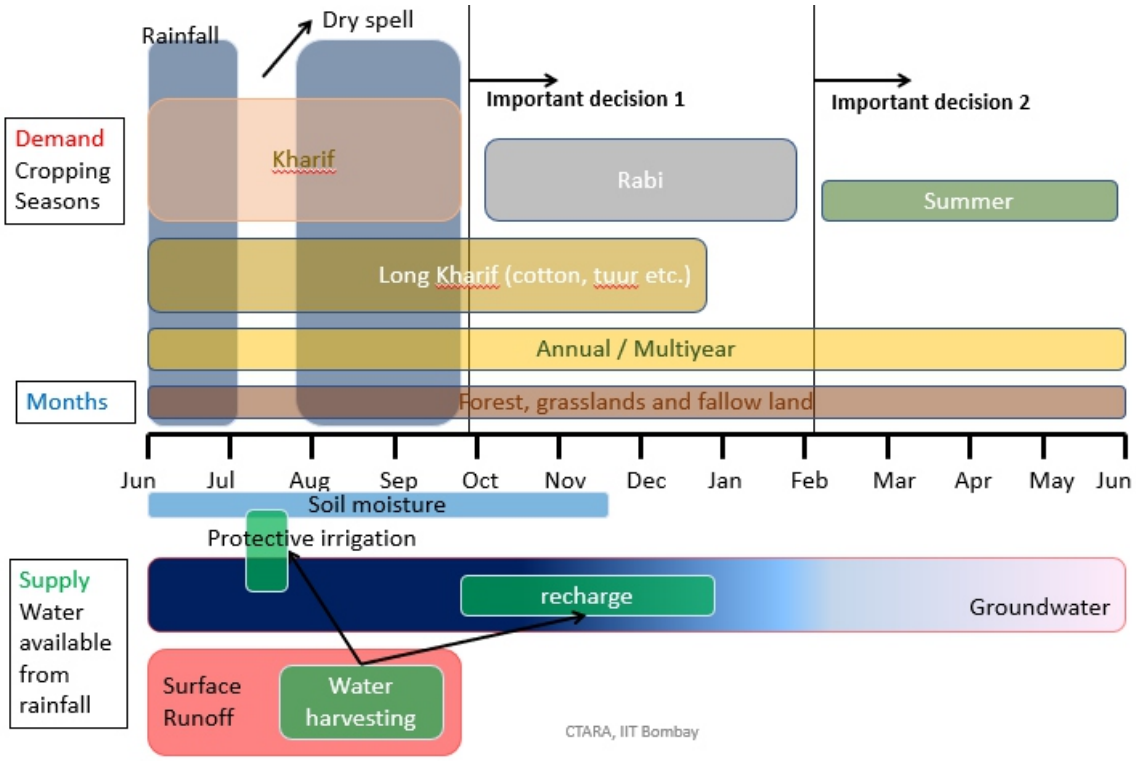
Agricultural Area-2855 hectares, Non-Agricultural Area-72 hectares, Total Area – 2927 hectare



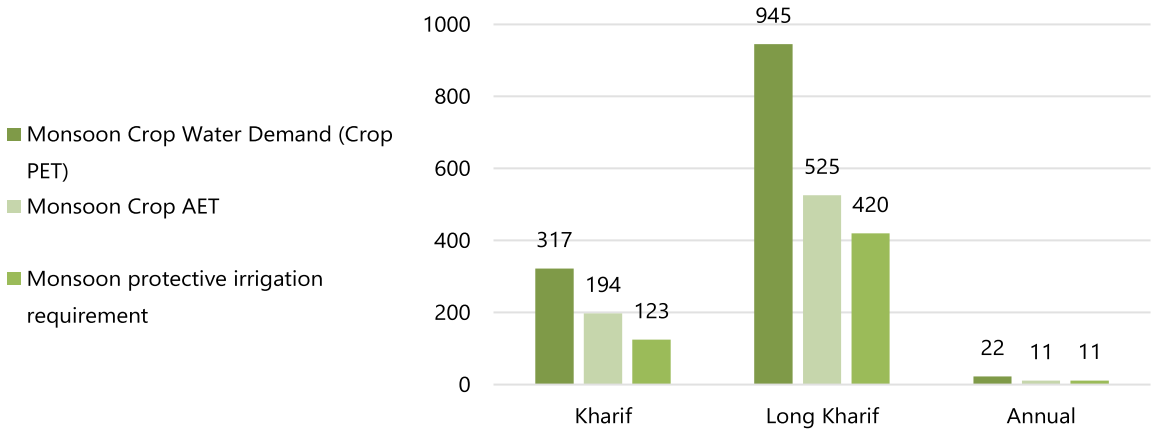




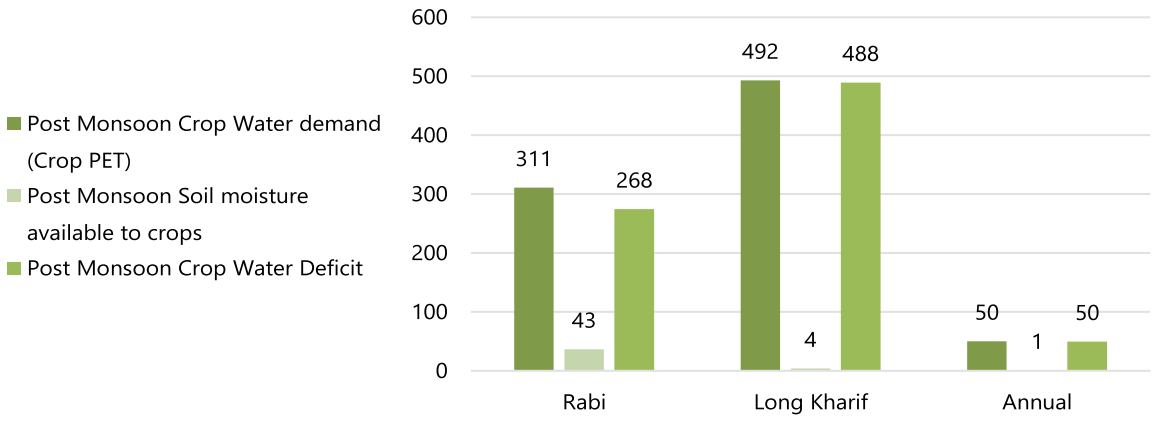
Village Level Agricultural Water Budget



Monsoon Crop Water Demand and Supply - 2018 (crore liters)



Post Monsoon Crop Water Demand and Supply - 2018 (crore liters)



Water Balance: Summary (Year – 2018)

Water Budget			
1	Total Village Area (Hectare)	2927	
2	Rainwater available in Village (Crore litres)	1273 (435 mm)	
3	Monsoon Crop AET (Crore litres)	740	
4	Ground Water Recharge (Crore litres)	12	
5	Soil Moisture (Crore litres)	65	
6	Runoff from village area (Crore litres)	453	
7	Runoff available for arresting (Crore litres)	228	
8	Currently arrested runoff (Crore litres)	85	
9	Runoff remaining to be arrested (Crore litres)	143	
10	Total runoff to be arrested after proposed interventions (Crore litres)	94	
	Crop water Demand and Supply	Monsoon	Post Monsoon
11	Crop Water Demand (Crop PET) (Crore litres)	1282	853
12	Crop AET (Crore litres)	729	47
13	Crop Water Deficit or Irrigation Requirement (Crore litres)	553	806
14	Arrested Runoff (Crore litres)	42.5	42.5
15	Available Groundwater (Crore litres)	4	8
16	Water balance in Current State	-506.5	-755.5
17	Total Deficit (Crore litres)	-1262	
Water Balance after Proposed State			
18	Total deficit with current cropping pattern and proposed interventions (Crore litres)	-1253	

1. There is scope to plan for new interventions to arrest remaining runoff of 143 crore litres.
2. Since water deficit will exist even after arresting remaining runoff, there is need for cropping pattern management at village level.
3. Scope to increase the area under micro-irrigation and that under short duration, less water intensive crops.

Annexure 2
Component and Sub component-wise Expenditure till 30th June 2019

Expenditures by Component	Expenditure (INR in Lakhs) Up to 30 June 2019
A. **Promoting Climate-Resilient Agricultural Systems**	
A.1 Participatory Development of mini Watershed Plans	273.481
A.2 Climate Smart Agriculture and Resilient Farming Systems	598.369
A.3 Promoting efficient and sustainable use of water for agriculture	934.926
Subtotal	1806.777
B. Climate smart post harvest management and value chain promotion	
B.1 Promoting Farmer Producer companies	0
B.2 Strengthening Emerging value chains	0
B.3 Improving the Performance of Seed Supply Chain	20.958
Subtotal	20.958
C. **Institutional Development, Service Delivery and Knowledge**	
C.1 Updation of SREPs aligned to Climate Resilient Agriculture	0
C.2 Agro-met advisory services	0
C.3 Preparation of Contingency Plans	0
C.4 Preparation of Long term Climate Change Models	0
C.5 Risk Analysis Framework	0
C.6 Analytical Studies pertaining to Climate Resilience	0
C.7 Maharashtra Climate Innovation Centre	0
C.8 Agricultural Innovations- Demonstrations	0
C.9 Strategic Partnership with other institutions	0
C.10 Capacity Development	273.657
C.11 IEC	110.304
Subtotal	383.961
D. **Project Management**	
D.1 Project Management and Support	1857.857
D.2 Monitoring and Evaluation	0
D.3 Information, Communication Tools	302.918
Subtotal	2160.776
Total Expenditures (A+B+C+D)	**4372.473**

Annexure 3

Annual Action Plan – 2019-20

PROJECT ON CLIMATE RESILIENT AGRICULTURE					
Annual Action Plan 2019-20					
Component A: Promoting Climate-resilient Agricultural Systems					
Subcomponents and Activities	**Unit**	**Project Assistance (Rs. Lakh)**	**Physical**	**Financial (Rs. Lakh)**	
A. Participatory development of mini watershed plans					
1. Preparation of cluster level plans /b	clusters	4.00	368	1,472	
2. Mobilization of farmer communities				-	
Krishi Mitras/ Krishi Tai (village motivator)	persons	0.06	4,000	240	
Subtotal				1,712	
B. Climate smart agriculture and resilient farming systems					
1. Demo. of climate resilient agronomic (CRA) practices - FFS /d					
a. FFS					
First Year	FFS	0.32	8,097	2,591	
Second Year	FFS	0.30	3,468	1,040	
2. Enhancement in Carbon Sequestration					
Agro-forestry - farm periphery /small block of 100 plant	ha	0.07	10,000	700	
Bamboo plantation	ha	1.00	100	100	
Plantation - Mango	ha	1.18	500	590	
Plantation - Citrus	ha	0.79	1,000	790	
Plantation - Custard Apple/Guava/Amla	ha	0.69	1,200	828	
Plantation - Pomegranate	ha	1.24	200	248	
Subtotal				3,256	
3. Improvement of saline and sodic lands					
a. FFS (saline soil)				-	
First Year	FFS	0.46	2,100	966	
Second Year		0.30	510	153	
b. Farm pond with inlet & outlet and grass cultivation /e	ponds	0.50	4,000	2,000	
c. Water pumps	nos.	0.10	4,000	400	
d. Water sprinkler	nos.	0.24	4,000	960	
Subtotal				4,479	
4. Protected Culivation					
Shadenet house (GI/MS pipes) (1000 sqm)	nos.	4.54	300	1,362	
Shed net house - Bamboo (1000 sqm)	nos.	2.25	50	113	
Polyhouse (open vent) (500 sqm)	nos.	4.65	10	47	
Poly tunnels /i	nos.	0.3	50	15	
Planting material Polyhouse/ shadenet house /j	000'sq mtrs	0.70	360	252	
Planting material in polytunnels /k	000' sqmtrs	0.075	50	4	
Subtotal				1,791.75	
5. Integrated Farming Systems					
Small ruminants	units	0.25	6,000	1,500	
Backyard poultry	units	0.025	3,000	75	
Sericulture	units	1	100	100	
Inland Fishery	units	1	25	25	
Apiculture	units	0.50	5	3	
Other agro based livelihoods	units	0.5	34	17	
Subtotal				1,719.50	
6. Soil Health Improvement					
Vermi compost and NADEP units	units	0.05	4,000	200	
Organic input production unit	units	0.03	1,000	30	
Subtotal				230.00	
Subtotal				**15,107.69**	

C. Efficient and sustainable use of water for agriculture					
1. Catchment treatment					
Continuous Contour trenches Model 5-8 (0.30 m)	ha	0.19	4,000	760
Continuous Contour trenches Model 5-8(0.45 m)	ha	0.25	1,500	375
Deep continuous contour trenches	ha	0.12	7,000	840
Subtotal				1,975
2. Drainage Line Treatment				
Construction of Loose bolder Structures	nos.	0.02	8,000	160
Gabian Structure	nos.	0.60	1,000	600
Construction of Earthen Nala Bunds	nos.	5.00	80	400
Construction of Cement Nala Bunds	nos.	15.00	50	750
Subtotal				1,910
3. Construction of new water harvesting structures				
Construction of community farm ponds (with lining - 100X100X3 mtrs)	no. of ponds	20.00	100	2,000
Construction of community farm ponds (without lining - 100X100X3 mtrs)	no. of ponds	14.00	9	126
Construction of Individual Farm Ponds (without lining)	ponds	0.50	1,500	750
Construction of Individual Farm ponds (with lining)	ponds	1.25	5,000	6,250
Storage strengthening of farm ponds (by polythene lining)	ponds	0.75	2,700	2,025
Open Dug well	no. of wells	2.50	1,900	4,750
Subtotal				15,901
4. Rejuvenation by desilting/repairs of old water harvesting st	nos. of structures	2.00	200	400
5. Construction of groundwater recharge structures	dug wells/bore w	0.14	5,500	770
Recharge shaft		0.5	275	138
6. On-farm water security (Compartment /graded bunding)	ha	0.09	30,000	2,700
7. Micro irrigation systems				-
Drip irrigation systems	ha	0.60	2,000	1,200
Sprinklers	nos.	0.24	4,000	960
Subtotal				2,160
8. Protective Irrigation				
water pumps	nos.	0.10	25,000	2,500
Water carrying pipes	nos.	0.15	20,000	3,000
Subtotal				5,500
Subtotal				**31,454**
TOTAL COMPONENT A				**48,273.19**
Comp. B: Post-harvest Management and Value Chain Promotion				
A. Promoting Farmer Producer companies				
1. Resource Agency Cost for support to existing FIGs/FPOs/FPCs		Lumpsum	1	20.00
2. Establishment of Custom Hiring Centres /c	centres	7.50	100	750.00
Subtotal				770.00
B. Strengthening Emerging Value-chains for Climate-resilient Commodities				
1. Support to FIGs/FPOs/FPCs for product aggregatior	business plans	50	50	2,500.00
C. Improving the Performance of the Seed Supply Chain				
1. Production of foundation & certified seed of climate r	ha	0.15	6,000	900.00
2. Development of seed hub-infrastructure support				
Seed processing equipments for 1000 MT capacity	units	18.90	4	75.60
Seed processing shed/ drying yard for 1000 MT ca	units	16.35	4	65.40
Seed storage/ godown of 700 sqm (Capacity 1000	units	26.25	9	236.25
Skilling of seed producer farmers /e	events	0.50	5	2.50
Subtotal				379.75
Subtotal				1,279.75
TOTAL COMPONENT B				**4,549.75**

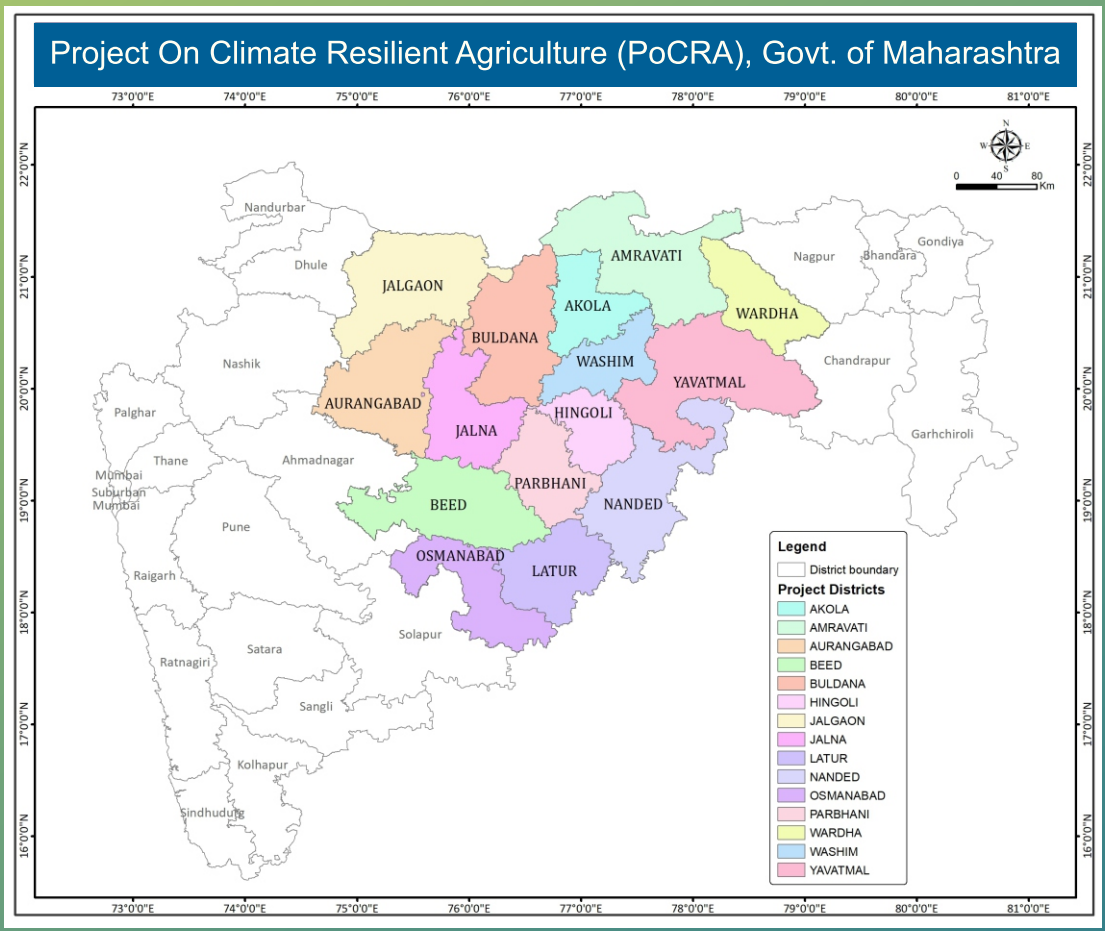
Component C: Institutional Development, Knowledge and Policies for a Climateresilient					
A.Preparation and Updation of contingency plans		clusters	0.50	130	65.00
B.Strategic Partnership with other institutes		proposals	75	8	600.00
C. Capacity Development					
1. Training Need Analysis (TNA), training, designing and mod		Districts	Lumpsum	-	5.00
2. Training					
a. Project Officials					
PMU officials - International training/workshops		days	1.00	12	12.00
PMU officials - training within country		days	0.05	100	5.00
Division/District/sub division/taluka officers training		days	0.02	1,000	20.00
Cluster assistant (induction training)		days	0.02	2,000	40.00
Cluster assistant (technical training)		days	0.05	2,500	125.00
Account office personnel		days	0.02	1,000	20.00
Account officials		days	0.02	150	3.00
Other stakeholders		days	0.05	150	7.50
Subtotal					232.50
b. Farmers' friends & VCRMC					
Within district		days	0.01	50,000	500.00
Within State		days	0.02	3,000	60.00
Subtotal					560.00
c. Farmers Training					
project beneficiaries - Technology dissemination		days	0.01	50,000	500.00
Project beneficiaries - skill development		days	0.02	3,000	60.00
Subtotal					560.00
d. Exposure visits					
PMU - International exposure visits		days	1.00	10	10.00
PMU - Within country		days	0.05	75	3.75
Division/District/Subdiv - within country		days	0.03	100	3.00
Taluk/cluster - within country		days	0.02	200	4.00
Farmers - within district		days	0.01	4,000	40.00
Farmers - within state		days	0.02	4,000	80.00
Subtotal					140.75
Subtotal					1,493.25
Subtotal					1,498.25
D. MIS and ICT		ls			500.00
E. Information, Education and Communication (IEC)		ls			100.00
TOTAL COMPONENT C					**2,763.25**
TOTAL COMPONENT D (PROJECT MANAGAEMENT)					**5,558.62**
TOTAL ACTION PLAN FOR 2019-20					**61,144.81**

Annexure 4

Results Framework Indicators

PDO Level Indicators
1. Climate resilient agriculture: Increased water productivity
Water productivity in $kg.m^{-3}$: ag. production / water consumption (change relative to baseline: %)
2. Climate resilient agriculture: Improved yield uniformity and stability
Spatial and temporal yield variability for oilseeds (soybean) (coefficient of variation CV crop yield)
Spatial and temporal yield variability for pulses (pigeon pea) (coefficient of variation CV in crop yield)
3. GHG Accounting: Carbon sequestration and Greenhouse Gas emissions Reduced
Net GHG emissions (in '000 tCO2eq/year)
4. Annual farm income
Farm income comparator (total; male & fem. landholders) (as a ratio with/without project)
5. Direct project beneficiaries
Number of farmers reached with agricultural assets or services (% of female)
Intermediate Outcome Indicators - Component A: Promoting Climate-resilient Agricultural Systems
6. Climate resilient agriculture: Farmers adopting improved agricultural Technology
Farmers adopting improved agricultural technology promoted (% of female)
7. Climate resilient agriculture: Improved water-use efficiency at farm level
Area provided with new/improved irrigation or drainage services (in ha)
8. Climate resilient agriculture: Improved availability of surface water for Agriculture
Surface water storage capacity from the new farm and community ponds (in 1,000 m3)
9. Climate resilient agriculture: Enhanced soil health at the farm level
Area with GAPs for improved management of saline and sodic soils (in ha)

Intermediate Outcome Indicators - Component B: Climate-smart Post-harvest Management and Value-chain Promotion
10. Seeds supply: Promotion of climate-resilient crop varieties
Oilseeds (soybean), Pulses (pigeon, chickpea) production area under cultivation w/ certified seeds of improved varieties (share in %)
11. Farmer Producer Companies: Strengthened and financially sustainable FPCs
Number of project-supported FPCs with growth in annual profits
Intermediate Outcome Indicators - Component C: Institutional Development, Service Delivery and Knowledge for Climate-resilient Agriculture
12. Research and Extension: Mainstreaming climate-resilience in agricultural research and technical advisory services
Number of updated district SREPs with internalized climate resilience agenda (x out of 15)
13. Climate Innovation Center: Private sector participation
Number of clients (FPOs, SMEs, …) receiving services from the CIC
Cross-cutting Indicators
14. Beneficiary Participation and Civic Engagement
Number of approved participatory mini watershed plans implemented / under Implementation



Project Management Unit

30 A/b, Arcade, World Trade Center, Cuff Parade,
Phone: 022-22163351
Email: pmu@mahapocra.gov.in Website www.mahapocra.gov.in