PoCRA

महाराष्ट्र शासन

सत्यमेव जयते

कृषि विभाग

The World Bank

Project Implementation Status Report

As on 31st March 2020

Maharashtra Project on Climate Resilient Agriculture

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

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Abbreviations

CRA	Climate Resilient Agriculture
CRIDA	Central Research Institute for Dryland Agriculture
DBT	Direct Benefit Transfer
DPA	Drought Prone Area
DPR	Detailed Project Report
FFS	Farmer Field School
FPC	Farmer Producer Company
FPO	Farmer Producer Organization
ICAR	Indian Council of Agricultural Research
INM	Integrated Nutrient Management
IPM	Integrated Pest Management
KVK	Krishi Vigyan Kendra
NICRA	National Initiative on Climate Resilient Agriculture
PDO	Project Development Objective
PoCRA	Project on Climate Resilient Agriculture
SC	Scheduled Caste
SHG	Self Help Groups
ST	Scheduled Tribes
VCRMC	Village Climate Resilient Agriculture Management Committee

Executive Summary

The Project on Climate Resilient Agriculture (PoCRA) has been initiated by Government of Maharashtra in Partnership with the World Bank. The date of effectiveness of loan is 18th May 2018 from when the project commenced its activities. 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. This Project Implementation Status Report presents the current implementation status of the project. This report presents the project components and activity wise detailed status as on 31st March 2020. The report juxtaposes the implementation progress during the period as on 31st March 2020 with the previous implementation status report time period i.e. as on 30th June 2019.

The project development objective (PDO) of PoCRA is '**to enhance climate resilience and profitability of smallholder farming systems in selected districts in Maharashtra'**. This is envisaged to 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; and Component D: Project Management. The total cost of the project is INR 4,000 crores, out of which the share of the Government of Maharashtra INR 1,200 Crore (30%) and the share of the World Bank is INR 2,800 crore (70 %).

Component A: Promoting Climate Resilient Agriculture Systems

The Component A, Promoting Climate Resilient Agriculture Systems has three sub-components viz. Participatory development of Mini Watershed plans, Climate Smart Agriculture and resilient farming systems, Promotion and Sustainable use of water for agriculture.

A1. Participatory development of mini-watershed plans

Under the sub-component of participatory development of Mini-watershed plans, project planning is carried out at the village level and cluster plans are prepared for each selected cluster 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. As of 31st Match 2020, micro planning has been completed in all the 138 clusters in Phase 1. Out of the 1245 villages in Phase 1, micro planning has been completed in 1220 villages. Village development plans have been approved by the District Coordination committee. VCRMC is responsible for the planning implementation and monitoring of the project activities at the

village/Gram panchayat level. As of 31st March 2020, out of the 3919 Gram Panchayats, VCRMCs have been formulated in 3830 GPs. In order to support the process of institutional strengthening, Krushi Tais (Female Mobilizers) have been appointed and trained. Krushi Tais work in close coordination with the project's cluster assistant and provide an interface between project, Agriculture Department, Krishi Vigyan Kendra (KVK), Gram Panchayat and most importantly marginal and small landowners. A total of 3145 Tai's has been appointed till March 2020.

A.2 Climate-smart agriculture and resilient farming systems

Under the second sub-component of Climate resilient agriculture and resilient farming systems, Farmer Field Schools (FFS) are set up, with a focus on promoting transfer of climate smart agriculture technologies at the farm level. FFS are the schools without classrooms. The farmers learn to assess the real time situation of his/ her farm during the FFS class which is facilitated by dedicated extension worker. In 2019, total of 9742 Farmer Field Schools were conducted, out of which 6732 were conducted in Kharif and 3010 in Rabi. The number of host farmers in Kharif 2019 season were 6732 out of which 8% (540) were female. This is a 1% increase in participation of women as host farmers when compared to the previous time period of Kharif 2018. Total guest farmers who attended FFS in Kharif season of 2019 is 1,61,621, from which 7% were female farmers. Here, too, we see a 2% increase in participation of women guest farmers from Kharif 2018. There was a total of 3010 host farmers and 64,359 guest farmers in Rabi. The FFS helped to enhance adoption of climate resilient technologies among the farmers. The adoption of technologies lead to absorb the weather shocks as well as to minimize the reduction in yield. Most importantly farmers could find the ways to reduce cost of cultivation due to FFS interventions. The average percentage change in yield in FFS plot versus control plot in Kharif and Rabi during 2019-20 was 18 % for Green Gram (58%), Followed by Black gram (38%), and Turmeric (34%) in Kharif season. Also increase in yield of Rabi crops i.e. Gram (16%) and Rabi Jowar (17%).

As enhancement of carbon sequestration is a key objective of the project for which 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 number of farmers undertaking horticulture activity is increasing day by day (1928 beneficiaries till March 2020). The preference is observed for plantation of guava, custard apple and mango orchards.

The project supports protected cultivation by promoting poly houses, polytunnels and shade nets along with the planting material. During the current reporting period, 94 farmers have taken benefits for protected cultivation worth INR 486.69 lakhs. The maximum farmers had taken benefit for Shade net house (GI Pipes) followed by benefit for planting material for vegetable production. Though during the concurrent monitoring surveys too, it has been found that farmers are not able to uptake protected cultivation in high numbers due to the high amount of upfront investment required. Activities such as rearing small ruminants, backyard poultry, fishery,

sericulture, and apiculture have been promoted under integrated farming systems. A total of 3186 beneficiaries have received benefits under the integrated farming systems subcomponent. Seventy-two people had also taken benefit under sericulture activity during the current reporting period.

A3 Promoting efficient and sustainable use of water for agriculture

Under the third sub-component of promoting efficient and sustainable use of water for agriculture, focus is given to support activities which are 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 encompasses 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.

As on 31st March 2020, *803* soil and water conservation works with a budget of 917 lakhs have been completed and works of values INR 2003 Lakh are in progress. Maximum works have been completed in Hingoli (301), followed by Osmanabad (86).

Project is making conscious efforts to enhance surface water storage by promoting climate resilient structure such as Farm ponds and Open dug wells. The farmers in the project villages are supported to construct the individual and community farm ponds. The support is given to 2396 farm ponds which has resulted in enhancing water storage by about 7507.73 TCM. Also, to enhance storage capacity of farm ponds farmers are supported for linings of farm ponds (693). Also, a total of 87 wells were constructed or recharged during the current reporting period. With an aim to use the available water judiciously, project is promoting adoption of Micro irrigation systems for all crops with the objectives to save water, to fulfill crop water requirement optimally and to reduce cost of production with an increase in yield. This intervention will help the farmers to achieve more crop per drop. During the current reporting period, 5212 farmers have installed drip irrigation and 8599 farmers have installed sprinkler irrigation systems, which has helped to save water on around 20,000 ha area under various crops. PoCRA also supports farmers to procure protective irrigation systems which would help to increase their access to irrigation especially during dry spell in the monsoon, leading to save the crop at critical growth stages. A total of 26159 beneficiaries have benefitted by procuring protective irrigation systems procured with project support.

Support to farmers for farm level investments through the Direct Benefit Transfer (DBT) mode

PoCRA supports farmers to adopt climate-resilient technologies, practices, and livelihood systems by ensuring that farmers can make necessary investment in their farm. The project provides matching grant to farmers through Direct Benefit Transfer (DBT) system. For this the project has developed a portal and mobile application to facilitate easy registration and application by the farmers and a seamless, end-to-end automation of the benefit transaction process. On analyzing the sub-division wise registrations on DBT portal, the response of the

farmers for farm level investment is observed in good numbers from districts like Aurangabad and Jalna. Highest number of applications are received from the districts of Aurangabad (1,97,827), Jalna (2,12,475) and Beed (98,409) . Wardha (8005) district on the other hand saw the lowest number of applications. Maximum amount has been disbursed in the sub-divisions of Pachora (INR 8,79,28,434), Sillod (INR 22,40,22,851), Jalna (INR 22,32,83,381), Vaijapur (INR 17,07,83,499), Aurangabad (INR 14,33,48,844), Partur (INR 13,63,64,537) and Hingoli (INR 9,45,19,465). On the other side, sub-division of Arvi (INR 29,37,756), Hinganghat (INR 24,95,749), Pandharkawada (3196197) and Ambejogai (INR 46,02,077) witnessed total subsidy disbursed amount of less than INR 50 lakhs. The number of farmers receiving matching grant since the project launching is 43967 and the amount is Rs. 171 Cr.

Component B: Post Harvest Management & Value Chain Promotion

The objective of **'**Component B: Post Harvest Management & Value Chain Promotion' 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.

Under this component, 619 Farmer Producer Companies have been assessed. As of 31st March 2020, total 119 business proposals have been given pre-sanctions and of the tune of Rs. 3587.26 lakhs.

Several types of business activities, establishment of Cleaning, Grading and processing Center & Solar Power Unit, custom hiring centre, flour mill, oil mill/ wooden oil extraction, Seed Processing / Storage Centre, turmeric processing centre, agriculture processing centre, color sortex machine, Custard apple Processing with reefer van, Godowns, Maize Dryer Machinery & Godown, Soybean oil mill and others have been given pre-sanctions.

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 a seed hub in project clusters covering a range of operations, including seed production, seed processing, storage, and certification.

The total number of farmers participated under this activity is 8839 in 2019-20. out of the total 8839 growers, 6460 were kharif and 2379 were Rabi. 140 tons of climate resilient variety seed was produced, which is sufficient to cultivate about 292282 ha. area.

Component C: Institution Development, Knowledge & Policies

As part of Component C: Institution Development, Knowledge & Policies**,** Training, and enhancement of the transformative capacity of institutions and stakeholders is an important aspect of the project. This aims to build capacities of the stakeholders to promote and pursue more climate-resilient agriculture, with sector strategies and policies. Based on the Capacity Enhancement & Need Assessment (CENA) study conducted, different training programmes were organized during the period. These include training and capacity building of VCRMC members through classroom training, workshops, and exposure visits. The events saw significant participation with 53% female members and 43% male members attending. This shows the active response and participation from female members. In addition, training programme for project functionaries and beneficiaries was also organized on a large scale.

In the period, MoUs were signed with esteemed institutions including IIT Mumbai, CRIDA, SAUs. These strategic partnerships will be effective for collaborative, evidence-based work to provide the analytical underpinnings in support of the design of policies on climate-resilient agriculture. In total, MoUs with 8 institutions have been established at state, national and international level.

Component D: Project Management

The project management support of PoCRA is operational in the form of a Project Management Unit (PMU). The project management support and function include key staff members at PMU, district, sub-division, cluster level. PMU also support the project monitoring and evaluation functions as well as grievance redress apparatus of VCRMC, project communications and outreach including social media-YouTube, Facebook, Instagram, and Twitter. The PMU support is also extended to VCRMC for meetings and discussion. The project seeks to deploy innovative ICT-based solutions as a means of demonstrating the potential benefits of ICT solutions. ICT solutions are expected to emerge as robust mechanism for completing all project components. The project has established a Digital Innovation Lab to develop application to help in the process of planning, implementation, and monitoring of the project activities.

1. Project Overview

1. Project Overview

Project Background and geographical context

The Project on Climate Resilient Agriculture (PoCRA) has been initiated by Government of Maharashtra in Partnership with the World Bank. The project commenced its activities 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.

About one-sixth of the total topographical region in India falls under the Drought Prone Area (DPA) and about 40% of the Maharashtra State falls under DPA, with less than 750 mm of the annual average rainfall[1]. PoCRA aims to cover 5142 villages across 15 droughts prone and salinity affected districts in Marathwada and Vidarbha region of the state. The project villages also include 932 sodic and saline affected villages in the basin of Purna river spread across 4 districts, i.e. Akola, Amravati, Buldhana and Jalgaon. The project is being implemented in three phases viz Phase-I (1245 villages), Phase II (2889 villages) and Phase- III (1008 villages).

The Marathwada and Vidarbha region has a population of about 4.17 Crores and a geographical area of 161.5 thousand sq. kms[2]. Agriculture is the major source of income generation for over 64% of the state's population. However, given harsh weather conditions, the region's agricultural system has been depleting significantly. Jowar and Bajra, along with other kharif crops, were completely wiped out in 2012 when monsoon failed (Kumar, Mail Online India, 2013). Jalna district, famous for being the biggest producer of sweet lime, was worst hit in the drought. The anticipated impact of climatic change as well as climate variability presumably lead to an increased pressure on already scarce water resources.

Within this context, there is an urgent need for the farmers to enhance their resilience to the threats of climate variability. The fact that most of land holdings in the project region are small and marginal, their adaptive capacity is very limited hence economically viable and culturally acceptable adaptation techniques need to be developed and implemented. The Government of Maharashtra has realized the implications of building climate resilience in the agricultural sector and has developed a drought proofing and climate resilient strategy as a long-term and sustainable measure to address likely impacts of climate change. With this backdrop, the Project on Climate Resilient Agriculture (PoCRA) has been formulated by the Government of

[1] Hydrology and Water Resources Information System for India, National Institute of Hydrology, Roorkee http://nihroorkee.gov.in/rbis/India_Information/draught.htm

[2] Census 2011, http://shodhganga.inflibnet.ac.in/bitstream/10603/152935/11/11_chapter%204.pdf

Maharashtra with support from the World Bank. This is the first large scale climate resilient agriculture project in India which aims to enhance climate-resilience in agricultural production systems through a series of activities at the farm level.

Project Objective and Components

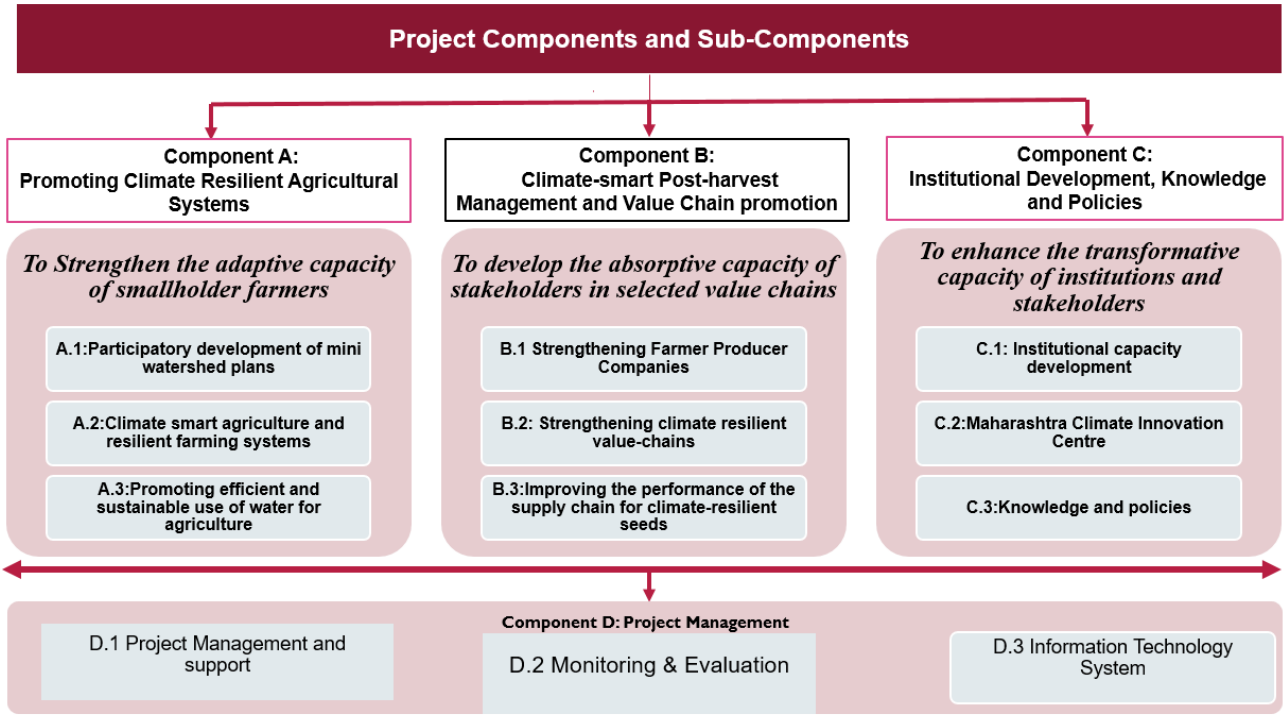
The project development objective (PDO) of PoCRA is '*to enhance climate resilience and profitability of smallholder farming systems in selected districts in Maharashtra'*. This would be achieved by promoting climate-resilient agriculture systems, post-harvest management, value chain promotion and institutional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

The below schematic presents the project components and sub-components.

Figure 1:Project Components and Sub-Components



The strategic overview, thematic linkages and expected achievements of the project are highlighted in the below schematic.

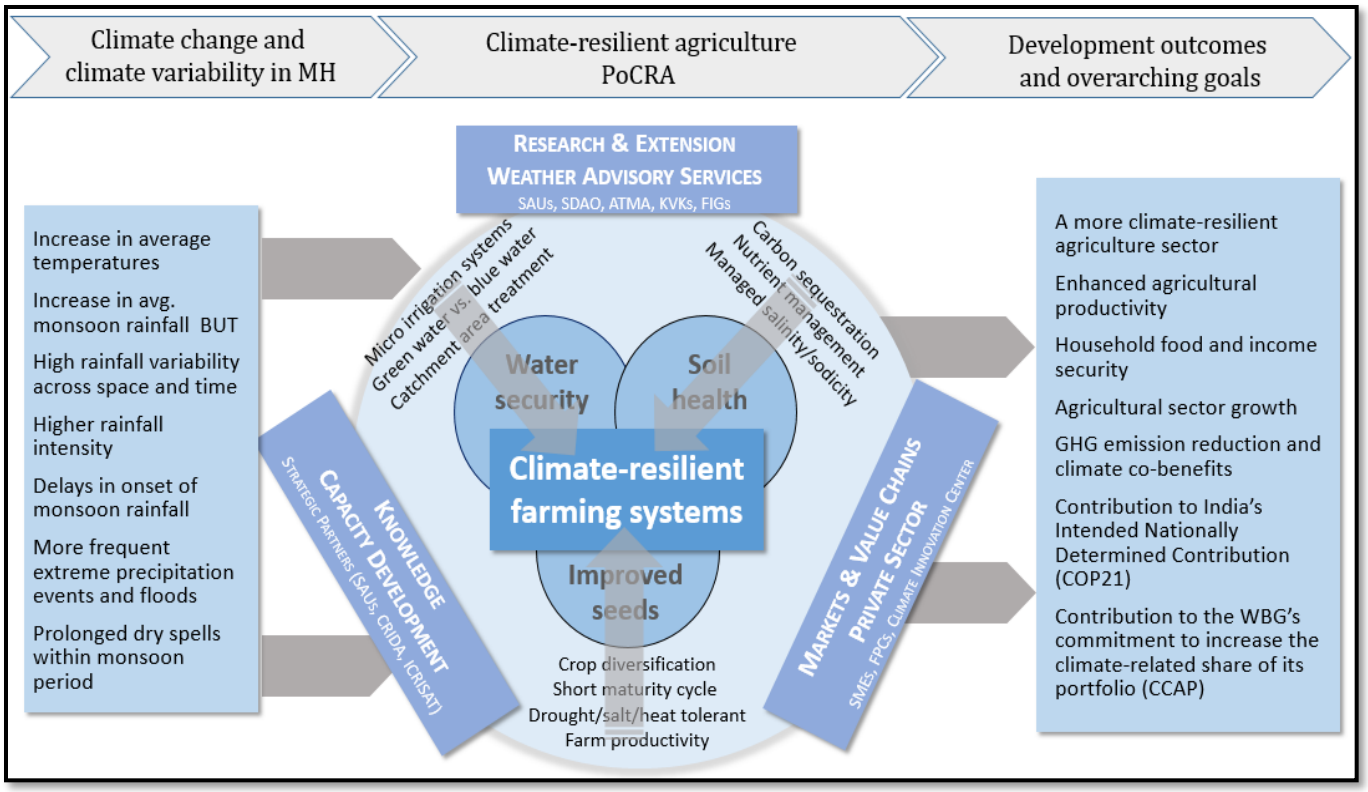


Figure 2: Strategic overview, thematic linkages and expected achievements

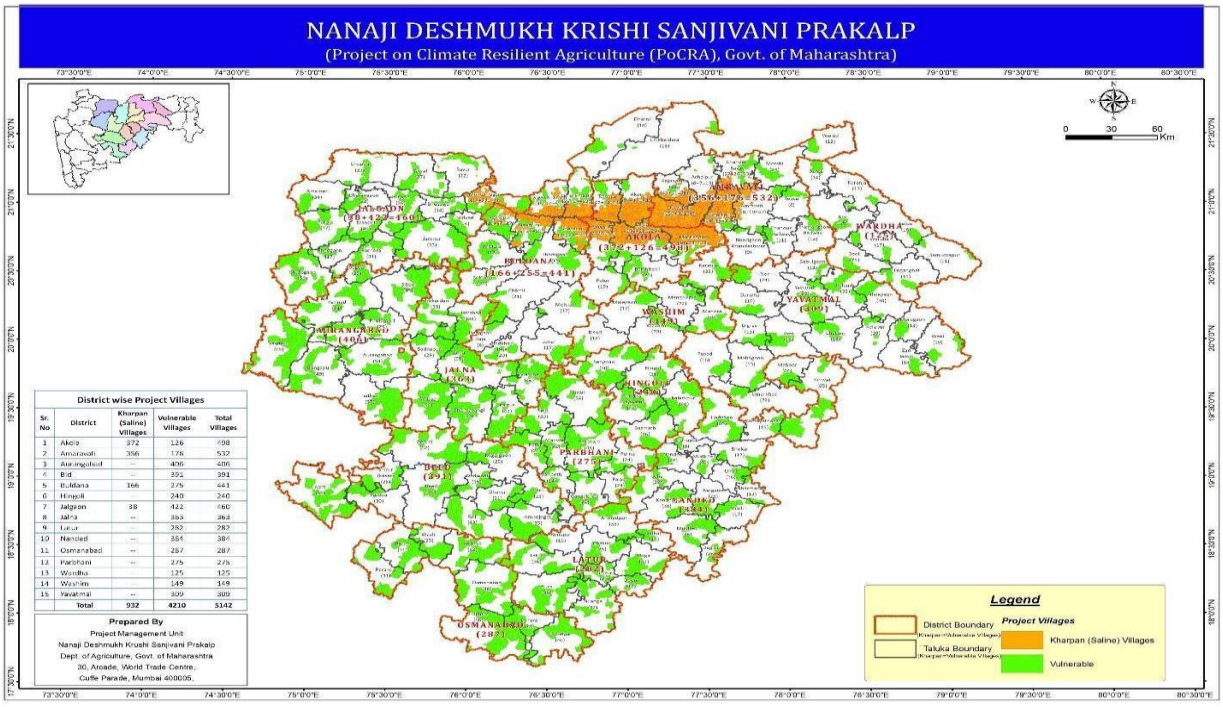
Vulnerability Assessment and selection of Project Villages

Identification of villages for the project was done based on their climate vulnerability. The climate vulnerability of the villages was assessed based on the methodology developed by Central Dryland Research Institute (ICAR-CRIDA) under National Innovations in Climate Resilient Agriculture (NICRA) project.

The key assessment indicators in this methodology include *Climate Exposure* with 25% weightage, *Climate Sensitivity* with 40% weightage and the remaining 35% weightage to *Adaptive Capacity*. Some of the sub-indicators under climate sensitivity include frequency of occurrence of drought (12% weightage), ground water prospects (12% weightage), percentage of small and marginal holder farmers to the total farmers (8%). Similarly, some of the adaptive capacity sub-indicators include village livestock index (8% weightage), farmers' suicides (9% weightage) and % of population having income below INR 5000 (7% weightage) amongst others. The Climate Exposure component too has 13 parameters.

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'. The below figure highlights the project Implementation Villages.

Figure 3:Project Implementation Villages



Component Wise Implementation Status

2. Component A: Promoting Climate Resilient Agricultural Systems

***Objective: The objective of this component is to strengthen 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 is provided below.

2.1 A1: 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). Micro level watershed planning is a Gram Panchayat-level project planning exercise is carried out with the involvement of the community and institutions. This is a seven-day participatory planning exercise which helps in mapping resources, identifying constrains, issues and possible activities for intervention. Micro planning involves local government functionaries, inclusion of people's representatives of local self-government. It is considered as planning based on identified local requirements and gaps. A participatory led approach at the micro level also ensures inclusion of marginalized communities. The approach followed under the project identified inter-linkages and synergies amongst the different components related to the agriculture systems.

Project Planning is carried out at the village level and Cluster plans are prepared for each selected cluster 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. Micro planning has been completed in all the 138 Phase 1 clusters. Out of the 1245 Phase 1 villages, micro planning has been completed in 1220 villages till 31st March 2020.Village development plans have been approved by VCRMC and The District Coordination Committees headed by District Collector. 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 Gram Panchayat and named as Village Climate-Resilient Agriculture Management Committee (VCRMC).

Table 1: Status of preparation of Mini Watershed Plans and DPR in Phase I villages till 31st March 2020

District	Phase-I Villages	Phase I Clusters	Micro-Planning Completed villages	Micro-planning completed clusters	Village Development Plans Approved
Akola	112	13	106	13	106
Amravati	58	12	201	12	201
Aurangabad	121	12	77	12	77
Beed	39	5	58	5	58
Buldhana	126	17	116	17	116
Hingoli	94	5	39	5	39
Jalgaon	48	13	123	13	123
Jalna	84	10	67	10	67
Latur	39	10	92	10	92
Nanded	77	7	70	7	70
Osmanabad	205	12	48	12	48
Parbhani	67	9	82	9	82
Wardha	70	3	39	3	39
Washim	29	5	29	5	29
Yavatmal	76	5	73	5	73
Total	**1245**	**138**	**1220**	**138**	**1220**

Water Balance: The village development plans are prepared to tap the excess runoff available in any year. Excess runoff is calculated based on 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. The Water Balance Framework and mobile application is developed by the project with technical assistance from Indian Institute of Technology, Bombay (IITB). The village water balance is a explained to VCRMCs through chart displayed in the village and based on the water balance VCRMC is enabled to decide cropping pattern and quantum of water conservations structures.

Village Climate Resilient Agriculture Management Committee (VCRMC)

The project has a three-tier implementation structure at the district, sub-division, 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 VCRMC has 13 executive members. 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 must be women. The table below provides a broad composition of VCRMC.

Table 2: **Composition of VCRMC**

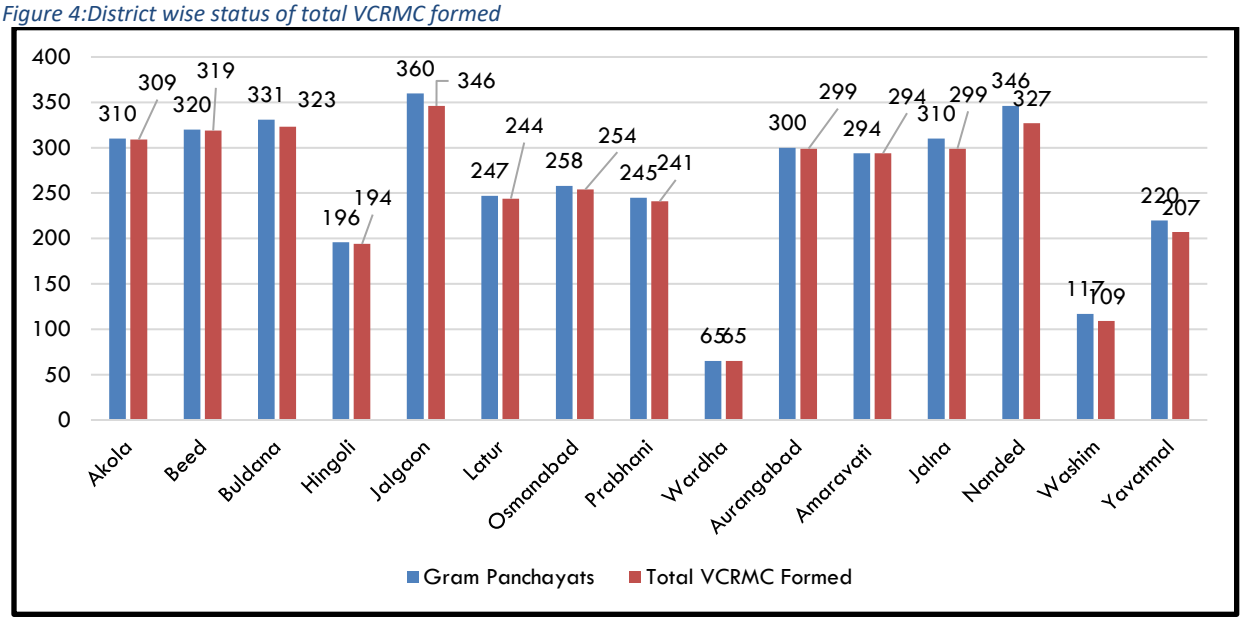
S. No	Committee Members and Social Category	No of Members	Position
A. Executive Members			
1	Sarpanch	1	Chairman
2	Deputy Sarpanch	1	Member
3	Gram panchayat Members (Male-1, Female -1)	2	Member
4	Progressive Farmers Male (General 1. SC/ST/VJNT/-1)	2	Member
5	Women Farmers (General 1, SC/ST 1/, VJNT/-1)	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	Gram-Sevak / Village Development officer	1	Secretary
3	Cluster Assistant	1	Joint Secretary
4	Farmer Friend	1	Mobilizer
	Total Non-Executive Members	4	

Table 3:Phase wise Status of VCRMC Formed at Gram Panchayat Level

Status of VCRMC formed													
S. No.	District	Phase-I			Phase-II			Phase-III			Total		
		Villages	Gram Panchayats	VCRMC Formed	Villages	Gram Panchayats	VCRMC Formed	Villages	Gram Panchayats	VCRMC Formed	Villages	Gram Panchayats	VCRMC Formed
1	Akola	112	70	70	341	209	209	45	31	30	498	310	309
2	Beed	58	51	51	218	162	162	115	107	106	391	320	319
3	Buldana	121	97	97	275	200	200	45	34	26	441	331	323
4	Hingoli	39	34	33	129	102	102	72	60	59	240	196	194
5	Jalgaon	126	93	93	229	183	183	105	84	70	460	360	346
6	Latur	94	79	76	144	124	124	44	44	44	282	247	244
7	Osmanabad	48	43	43	137	117	117	102	98	94	287	258	254
8	Parbhani	84	75	75	145	127	127	46	43	39	275	245	241
9	Wardha	39	19	19	71	35	35	15	11	11	125	65	65
10	Aurangabad	77	59	59	194	135	134	135	106	106	406	300	299
11	Amaravati	205	127	127	327	167	167	0	0	0	532	294	294
12	Jalna	67	55	55	188	162	162	108	93	82	363	310	299
13	Nanded	70	61	58	215	189	189	99	96	80	384	346	327
14	Washim	29	23	23	81	57	57	39	37	29	149	117	109
15	Yavatmal	76	50	50	195	141	140	38	29	17	309	220	207
Grand Total		**1245**	**936**	**929**	**2889**	**2110**	**2108**	**1008**	**873**	**793**	**5142**	**3919**	**3830**

The district wise status of VCRMC formed at project Gram panchayats in Phase I, II and III is provided above in table 3. A total of 932, 2105 and 786 VCRMC committees were formed respectively. 3830 VCRMC committees have been formed as on 31st March 2020. The district wise status of total VCRMC formed is shown in following figure 4.

Figure 4:District wise status of total VCRMC formed



A.1.2 Mobilization of farmers through Female Farmer Friend (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, 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 Tai (Women Farmer's 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 builds capacities of Krushi Tais through exposure visits and training.

Figure 5: brochure and poster to generate awareness about roles and responsibilities of Krishi Tai

Following table indicates district wise numbers of Krishi Tai in project villages. A total of 3145 Krishi Tais identified and designated till 31st March 2020. The project has developed a brochure and poster to generate awareness about roles and responsibilities of Krishi Tai at village level.

Table 4:Status of Mobilization of Krishi Tai

Districts	Number of Krishi Tai appointed As on 30th June 2019	Number of Krishi Tai appointed (as on 31st Match 2020)
Akola	107	330
Amravati	29	344
Aurangabad	64	259
Beed	24	251
Buldhana	10	176
Hingoli	109	136
Jalgaon	69	355
Jalna	117	238
Latur	17	135
Nanded	1	276
Osmanabad	45	157
Parbhani	124	165
Wardha	51	70
Washim	18	107
Yavatmal	109	146
Total	**894**	**3145**

2.2 A2: 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 conservation measures.

A2.1- Demonstration of climate-resilient agronomic (CRA) practices through Farmers Field School (FFS)

School without Classrooms: PoCRA's piloting of FFS has emerged as a strategic intervention to transform rainfed agriculture, and to guide farmers into adopting climate-smart productivity-enhancing agronomic practices. Krishi Vigyan Kendra (KVK), in partnership with ATMA, has implemented 12660 FFS engaging as many host farmers with 341441 guest farmers to implement location-specific action plans comprising diverse aspects of crop planning and production practices.

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 Crops, cropping systems and technologies demonstrated through FFS activity is provided below.

Table 5:Crop wise FFS Plot in 2019-20

Kharif Season Crops			
Cropping Pattern	FFS Plot	Cropping Pattern	FFS Plot
Bajra + Pigeon pea (Tur)	142	Pigeon pea (Tur) + Black gram (Udid)	58
Cotton + Green gram (Mung)	1861	Pigeon pea (Tur)	32
Cotton + Black gram (Udid)	537	Sorghum	13
Cotton	529	Soybean + Pigeon pea (Tur)	2855
Cotton + Pigeon pea (Tur)	163	Soybean	118
Cotton + Ground Nut	2	Soybean + Black gram (Udid)	10
Maize	100	Soybean + Green gram (Mung)	9
Maize + Green gram (Mung)	37	Turmeric	90
Maize + Pigeon pea (Tur)	35	Veg- Chilli	4
Pigeon pea (Tur) + Green gram (Mung)	115	Veg- Onion	9
Total Plots			6719
Perennial Crops		Rabi Season Crops	
Cropping Pattern	FFS Plot	Cropping Pattern	FFS Plot
Sweet Orange	8	Gram	2719
Fig	3	Rabi Jowar	239
Total Plots	11	Wheat	11
		Veg Onion	19
		Total Plots	2988

Table 6:List of Technology demonstrated, and Number of farmers attended through FFS

Sr No	Technology Demonstrated	No of FFS	No of Guest Farmer Attended
1	Preparation of pesticide formulations & spraying	6841	141955
2	Foliar application of 2% DAP	6089	121620
3	Spraying techniques with safety measures	4333	81295
4	Seed treatment with bio-fertilizers	3926	73159
5	Bird perches (10/acre)	3812	68036
6	Irrigation by Drip/Sprinkler	3528	74202
7	Integrated Weed Management	3242	72417
8	Crop residue management	3070	64977
9	Foliar Spray of Micronutrients	3005	64214
10	Seed treatment with fungicides	2815	57512
11	Installation of pheromone traps (4-5/ha)	2555	49986
12	Sticky traps (10/acre)	2102	53658
13	Nipping of apical bud	1964	41324
14	Application of basal dose of fertilizers	1501	29884

15	*Thinning & Gap filling*	*1483*	*30969*
16	*Preparation and application of Dashaparni extract*	*1425*	*28872*
17	*Preparation of Broad Bed Furrow*	*1306*	*26961*
18	*Foliar application of Potassium Nitrate*	*1280*	*26437*
19	*Preparation of neem-based formulations*	*1266*	*25904*
20	*Sowing of border crops/Trap crops*	*1080*	*30665*
21	*Foliar application of 2% Urea*	*780*	*19454*
22	*Application of Soil amendments*	*623*	*29467*
23	*Draining of excess water*	*594*	*11089*
24	*Identification & removal of affected rosette flowers*	*592*	*14438*
25	*Intercultural operation*	*549*	*12597*
26	*Opening of alternate furrow / dead furrow*	*506*	*14756*
27	*Sowing on Broad Bed Furrow (with Planter)*	*458*	*17102*
28	*Sowing across the slope*	*364*	*11629*
29	*Sowing of refugee in cotton*	*289*	*11345*
30	*Use Trichocards / Crysopa (4000 eggs/acre)*	*201*	*11975*

As per the concurrent monitoring report (CMR-II) for the marathwada region, adoption of climate resilient technologies was analysed specifically for FFS guest farmers. 92% of the guest farmers had adopted at least one climate resilient agriculture technology.

The Technologies focusing on reduction in cost of cultivation, reduction in risk, and enhancing productivity are popularly adopted by the farmers.

The following figures showcase different types of technologies demonstrated in the Farmers Field Schools.

*Figure 6:*Technologies introduced in FFS

Intercropping of Soybean-Tur Crop

Broad Bed Furrow Cultivation System

Micro Irrigation – Sprinkler Systems

SRT Plot, Zero Tillage, Tapargoan

Pheromone trap

Alternate Furrow Method

Malegaon, FFS Women Farmers, Dashparni Ark

Gum Trap

The project has conducted farmer field schools to transfer climate-resilient technologies to build climate resilience among the farmers and 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. The district wise status of Farmers Field School conducted during Kharif and Rabi season in 2019 are shown in the following table, divided as per two reporting periods. A total of 9742 Farmer Field Schools were conducted, out of which 6732 were conducted in Kharif 2019 and 3010 in Rabi 2019.

Table 7: Farmers Field School conducted – Kharif & Rabi Season in the two reporting periods

District	Season 2018-19			Season 2019-20		
	Kharif	Rabi	Total	Kharif	Rabi	Total
Akola	205	83	288	700	282	982
Amravati	380	96	476	780	357	1137
Aurangabad	154	16	170	476	200	676
Beed	116	0	116	500	197	697
Buldhana	204	25	229	627	305	932
Hingoli	78	39	117	315	151	466
Jalgaon	136	6	142	452	184	636
Jalna	134	67	201	483	229	712
Latur	178	79	257	325	194	519
Nanded	140	63	203	520	251	771
Osmanabad	94	47	141	310	104	414
Parbhani	164	65	229	446	201	647
Wardha	66	19	85	160	57	217
Washim	55	8	63	178	88	266
Yavatmal	148	53	201	460	210	670
Total	**2252**	**666**	**2918**	**6732**	**3010**	**9742**

District wise participation of Host and Guest farmers is shown in the following table (8). The number of host farmers in Kharif season were 6732 out of which 8% (540) were female. Total guest farmers who attended FFS in Kharif season of 2019 is 1,61,621, from which 7% (10799) were female farmers.

Table 8:District wise participation of farmers in FFS (Kharif 2019) Season

District	Host farmers – Kharif 2019			Guest farmers- Kharif 2019		
	Female	Male	Total	Female	Male	Total
Akola	46	654	700	730	15370	16100
Amravati	74	706	780	2470	21870	24340
Aurangabad	54	422	476	562	11098	11660
Beed	39	461	500	416	11986	12402
Buldhana	32	595	627	449	9004	9453
Hingoli	27	288	315	149	6753	6902
Jalgaon	29	423	452	1132	9974	11106
Jalna	35	448	483	345	11362	11707
Latur	21	304	325	581	6608	7189
Nanded	43	477	520	683	13012	13695
Osmanabad	21	289	310	330	5136	5466
Parbhani	26	420	446	334	9004	9338
Wardha	17	143	160	498	3419	3917
Washim	17	161	178	221	4358	4579
Yavatmal	59	401	460	1899	11868	13767
Grand Total	**540**	**6192**	**6732**	**10799**	**150822**	**161621**

The participation of farmers in the Rabi 2019 season is shown in the following table. The total participation of host farmers in Rabi was 3010. 11% (327) of the host farmers in Rabi season were female. 64,359 farmers participated as guest farmers out of which 5% (3366) were female.

Table 9:District wise participation of farmers in FFS in Rabi 2019 Season

District	Host farmers- Rabi 2019			Guest farmers – Rabi 2019		
	Female	Male	Total	Female	Male	Total
Akola	25	257	282	205	6013	6218
Amravati	43	314	357	892	7802	8694
Aurangabad	28	172	200	109	3404	3513
Beed	23	174	197	145	4650	4795
Buldhana	29	276	305	71	3120	3191
Hingoli	20	131	151	44	2521	2565
Jalgaon	27	157	184	285	4530	4815
Jalna	13	216	229	20	5002	5022
Latur	16	178	194	243	5073	5316
Nanded	29	222	251	289	5726	6015
Osmanabad	6	98	104	58	1715	1773
Parbhani	32	169	201	45	3601	3646
Wardha	3	54	57	127	1132	1259
Washim	16	72	88	38	1787	1825
Yavatmal	17	193	210	795	4917	5712
Grand Total	**327**	**2683**	**3010**	**3366**	**60993**	**64359**

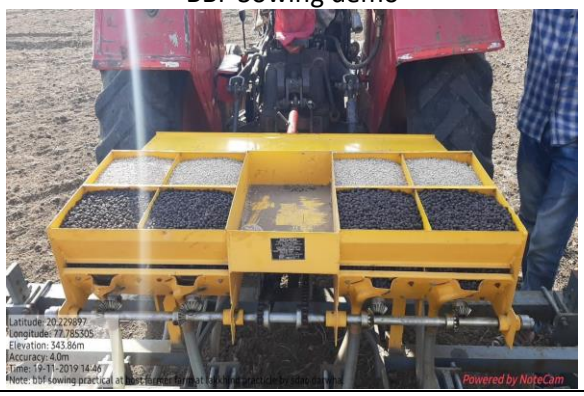
The table 10 below compares the total of Host and Guest farmers in 2018-19 and 2019-20. The total number of host farmers increased from 2918 to 9742. Most of the increase was found in male members, that witnessed an increase of 2782 to 8875 male farmers. In case of guest farmers, male guest farmers increased from 21432 to 211815 in the two reporting periods while female guest farmers increased from 652 in 2018-19 to 14165 in 2019-20. The total increase in the guest farmers is therefore from 22084 to 225980 participants.

Table 10: Participation of Host and Guest farmers in FFS- 2018-19 and 2019-20

Particulars	Male	Female	Total
Host farmer 2018-19	2782	136	2918
Host farmer 2019-20	8875	867	9742
Guest farmer 2018-19	21432	652	22084
Guest farmer 2019-20	211815	14165	225980

Figure 7: FFS Technology Demonstrations

BBF Sowing demo



Farmers Field School for Women

The project has taken continuous effort to increase the women's participation in various activities. from kharif season 2019, the project has started the women farmers field school in the project villages. The total 131 Women FFS was conducted and 2960 women participated in Women FFS conducted in the kharif and Rabi season 2019-20. The highest Women FFS is conducted in Yavatmal (21), followed by Amravati (13) and Aurangabad (12). It is observed that, the participation and attendance of women farmers in FFS is found to be impressive. Their active participation as led to enhance adoption of Neem extract for control of various pests.

Figure 8:Technologies introduced in Women FFS

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<tr><td>Pest /Disease Observations, Hatwanjari, Maregaon, Yavatmal</td><td>Preparation of AESA chart</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Pest Surveillance by Pheromone Traps</td><td>Demo. of Protection kit (Pesticide Hazards)</td></tr>
</table>

Yield Observations in FFS and control plots

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 and 2019-20 is shown in the following table. When comparing the percentage change in yield in FFS plot versus control plots in case 2019-20, the highest percent change is observed in Green Gram (58%), Followed by Black gram (38%), and Turmeric (34%) in Kharif season. Also increase in yield of rabi crops i.e. Gram (16%) and Rabi Jowar (17%).

Table 11:Yield Observations in FFS and control plots

Crops	Total FFS Plots		Average of Number of FFS Plots		Average yield (kg/ha)		% change FFS vs control plots	Average yield (kg/ha)		% change FFS vs control plots
					FFS Plots	Control Plots		FFS Plots	Control Plots	
	2018	2019	2018	2019	2018	2018		2019	2019	
Kharif season										
Cotton	1200	3092	871	1962	556	459	21	1293	1324	-2*
Soybean	816	2992	671	1868	1033	854	21	1268	1084	17
Green gram	768	2023	79	1512	357	327	9	281	178	58
Turmeric	28	90	28	67	3827	3398	13	6100	4549	34
Pigeon pea	628	3201	19	1999	503	427	18	855	706	21
Black gram	104	609	16	428	689	620	11	235	170	38
Bajra	-	142	-	98	-			1949	1563	25
Rabi Season										
Gram	666	2802	568	2051	916	794	15	1427	1235	16
Rabi Jowar	-	239	-	157	-			1279	1091	17

*It is observed that in case of cotton FFS plot yield is lower than the control plot. This is due to introduction of PDKV Hybrid with BT (PKV Hy2) which performed poorly as compare to existing BT hybrids.

The yield of cotton in 2019 is higher than the previous year (2018), this is due to favorable weather condition and good rainfall received in 2019.

In case of Green Gram and Black gram, the yield of both FFS and Control plots is lower than the previous year, it is mainly due to heavy rainfall during harvesting period.

Farmer Field School-New approach by Startup BharatAgri :

A start up in agriculture extension and Value chain development BharatAgri was given opportunity to provide solution to turmeric farmers and show advantage of technology enabled platform in extension mechanism and information dissemination.
Important aspects of this platform:
1. Use of advance data science – Use of Soil, Water and Weather parameter for customized planning for individual Host farmer

2. Educating farmers about advanced techniques – Farmers to be educated about advanced techniques of cultivation from seed, chemical selection to post-harvest processes

3. Conducting Farmer Field Schools (FFS) in efficient manner - Fixed schedule and dynamic FFSs as per changes of weather for farmer's farm location and urgency indicated by algorithm for crop and climate

4. Continuous communication and feedback from Host farmers – Host farmers to be communicated continuously for updates activity updates with and without FFS

5. Continuous communication and feedback from Guest farmers –Guest farmers to be communicated continuously for updates activity updates with and without FFS.

6. Traceability technology – Demonstration of traceability of produce for host farmers

7. Better productivity and lesser cost of production for farmers – Demonstration that using technology enabled platform of BharatAgri, farmers can reduce input cost by at least 15% and also increase productivity by 30-60% in 1st year of adoption

8. Connect with domestic and export buyers – Host farmers are to be connected with buyers for better price for produce than local market via BharatAgri .

Outcome:
● BharatAgri has managed to reach more than 9000+ farmers during a season long FFS by their innovative methods

● BharatAgri is providing access to its helpline number to not just the host farmers but also to the guest farmers where all the doubts asked by the farmers are being solved. Over the course of the last 8 months, they have attended to more than 1100 calls of guest farmers from the 79 PoCRA villages

● BharatAgri has connected the farmers of each PoCRA village with his/her nearest dealer so as the farmers are not required to travel a greater distance to buy fertilizers.

● BharatAgri has distributed pamphlets to the farmers where solutions of all the pests which the farmers usually face are mentioned along with the dosage and the method of application.

● BharatAgri executives provided information about other crops (other than Turmeric) on need basis for the benefit of the farmers attending the FFS who are growing other crops with Turmeric being the primary point of discussion.

● All associated host farmers of this project have seen 25-40% increase in productivity. Even the guest farmers have reported 10-15% increase in productivity.

A2.2. Enhancement in Carbon Sequestration

To improve soil health through carbon sequestration, the project is promoting afforestation and horticulture plantation on a large scale. Plants fix atmospheric CO2 through photosynthesis and convert them as biomass by storing them in various organs. Plantation crops are perennials that are grown in large scale and are mostly found in mixed species cropping systems. Such cropping systems offer a large amount of biomass production per unit area than mono cropping systems. Hence, they act as carbon pools and help in reducing the effect of global warming.[3] 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 number of farmers for horticulture has increased. The increase is seen for guava, custard apple and mango orchards. The status of horticulture plantation is shown in the following table.

Table 12:Status of Horticulture plantation

Horticulture	As on 30th June 2019			As on 31st March 2020		
	Number of farmers	Area (Ha)	Matching Grant (INR lakh)	Number of farmers	Area (Ha)	Matching Grant (INR lakh)
Agroforestry	-	-	-	5	2.14	0.15
Citrus (Orange, Sweet lime & Kagzi lime)	47	20.25	11.58	128	44.41	52.4
Custard Apple	25	8.99	5.94	1056	408.08	322.39
Guava	14	4.45	7.26	285	140.46	96.92
Mango	6	3.12	2.77	314	384.18	265.09
Pomegranate	14	3.65	3.39	131	51.15	63.43
Total	**106**	**40.44**	**30.94**	**1919**	**1030.43**	**800.37**

As of March 2020, the total 1919 farmers are benefited worth matching grant INR is 800.37 lakh. the highest 1056 Farmers benefited from plantation of custard apple, and 314 farmers benefited from plantation of Mango. The total area under horticulture plantation as of 31st March 2020 is reported 1030.43 ha.

[3] (Subramaniyam, etal, 2017)

Figure 9:Horticulture Plantation

Mr. Kadu Kisanrao Moin , Sweet Lime Plantation at Chinchadgaon, Vaijapur, Aurangabad

Horticulture Plantation in Village Chichadgaon, Aurangabad

Horticulture Plantation of Gauva Tree in Village Daulatabad,

Horticulture Plantation of Orange Tree in Village Eklaspur, Washim

A2.3. Improvement of saline and sodic lands

The project is being implemented in 932 villages, with a total area of 7500 km^2 which have sodic and saline soil. This lies in the Purna valley of Vidarbha region in an east-west elongated basin with slight convexity to the south. It covers 6 districts of Amravati, 5 districts each of Akola and Buldhana.

The key constraints include salinity and sodicity of soils. However, presence of salt inflorescence is hardly seen. Shrinking and swelling of the soil is predominant. The soils have high clay content from 50-70%. The soils also have low hydraulic conductivity and thus become susceptible for poor drainage, severe erosion with formation and enlargement of gullies.

Interventions for Improving soil health in Purna river basin

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

a. Status of FFS conducted in Sodic and Saline villages

The progress of the FFS conducted in Kharif & Rabi season during 2018-19 and 2019-20 in the sodic and saline villages is shown in the following table. A total of 2583 Farmer Field Schools were conducted in Kharpan villages, out of which 484 were conducted in 2018-19 and 2099 in 2019-20. The total 49979 Guest farmers participated in FFS during 2019-20.

Table 13:FFS conducted in Sodic and Saline village

Districts	2018-19		2019-20	
	Kharif Season	Rabi Season	Kharif Season	Rabi Season
Akola	169	76	605	238
Buldhana	48	14	279	125
Jalgaon	4	0	50	23
Amravati	134	39	522	257
Total	**355**	**129**	**1456**	**643**
Grand Total	**484**		**2099**	

b. 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.

Table 14:Individual beneficiaries of Farm pond, Sprinkler, and Water Pump

Activities	30th June 2019			31st -March2020		
	Number of farmers	Matching Grant (INR lakh)	Area (Ha.)	Number of farmers	Matching Grant (INR lakh)	Area (Ha.)
Farm Pond	3	1.5	3	11	6.79	11
Sprinkler irrigation	223	29.43	275.81	865	139.21	1116.6
Water Pumps	35	3.56	42.51	229	31.57	229
total	**261**	**34.49**	**321.32**	**1105**	**177.56**	**1356.6**

As of March 2020, the total 1105 farmers benefited worth matching grant INR is 177.56 lakh. out of which Farm Pond (11), Sprinkler Irrigation (865), Water Pumps (229) including with diesel engine. The total area covered under protective irrigation was 1356.60 ha. The total 11 farm ponds were constructed, and the water storage capacity created of 19.16 thousand m3 in sodic and saline villages of project.

A2.4 Protected Cultivation

This subcomponent intends to demonstrate the benefit of high-value crops under controlled environment and address the microclimate variability. This includes support to poly houses, polytunnels and shade nets along with the planting material. The advantages of protective cultivation are higher productivity, providing a better environment to crops and it helps to protect from high temperature, pests and diseases. The number of farmers who were benefited and financial assistance disbursed are shown in the following table.

Table 15:Number of beneficiaries and disbursement of grant for protected cultivation

Activities	Up to 30th June 2019		As on 31st March 2020	
	Number of farmers	Matching Grant (INR lakh)	Number of farmers	Matching Grant (INR lakh)
Planting material Poly-/shade net house	2	15.94	11	57.3
Planting material for vegetable production	2	4.03	28	46.31
Polyhouse	-	-	2	14.10
Shade net house	1	2.93	53	368.98
Total	**5**	**22.89**	**94**	**486.69**

As of March 2020, the total 94 farmers are benefited worth matching grant INR is 486.69 lakh. 28 Farmers benefiting from planting material for vegetable production, 11 Farmers benefiting from Planting material Poly-/shade net house and 53 farmers received benefited shade-net house in the current period. In the Concurrent Monitoring Round, I and Round II it was reported that farmers are apprehensive to apply for benefits like shade net and poly house due to the high amount of initial investment required for the same. Feedback was also received from potential beneficiaries that percentage of matching grant from the project should be increased for these activities.

Shade Net, Aambewadi, Jalna

Savitribai Hivarde, Shade Net, Shernapur,Aurangabad

Shade Net, Umrad, Buldhana

Figure 10: Shade Net

A2.5 Integrated Farming Systems

Under this sub-component, activities such as rearing small ruminants, backyard poultry, fishery, sericulture, and apiculture has been promoted. The common interest group of landless farmers, vulnerable group of women farmers, widows and people from scheduled castes and scheduled tribes have been supported to meet the inclusion criteria. The number of beneficiaries of backyard poultry farming is lesser with only 9 farmers receiving it. As of March 2020, the total 3601 families had benefited from Integrated farming worth matching grand INR 1282.71 lakh, out of which the number of families assisted from Backyard poultry is 9, Small ruminants 3514 and sericulture 72. The status of activities covered under the integrated farming system is as follows.

Table 16: Status of beneficiaries and disbursement of grant for integrated farming system

Activities	30th June 2019		31st March 2020	
	Number of farmers	Matching Grant (INR lakh)	Number of farmers	Matching Grant (INR lakh)
Backyard poultry	6	0.15	9	0.34
Inland Fisheries	-	-	6	0.79
Small ruminants	430	137.88	3514	1256.63
Sericulture	-	-	72	24.96
Total	**436**	**138.02**	**3601**	**1282.71**

Figure 11: Sericulture and Small Ruminants

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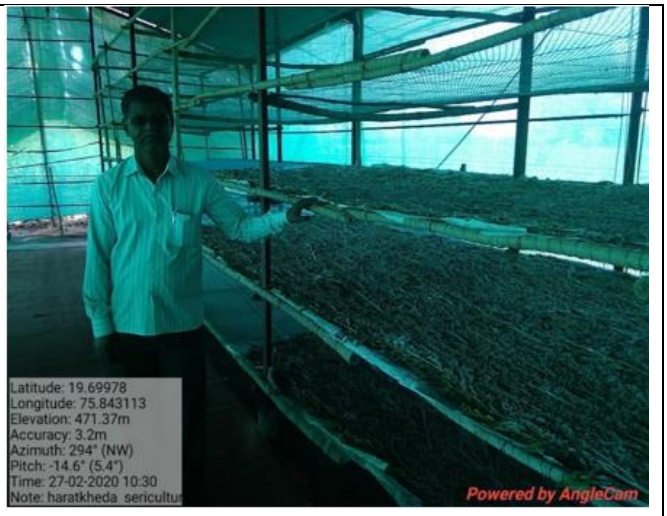
<td> 
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<td>Madhukar Krushna Gopane, Wadner, Paranda,Osmanabad</td>
<td>Sharadabai Devidas Tupe, wadod bajar</td>
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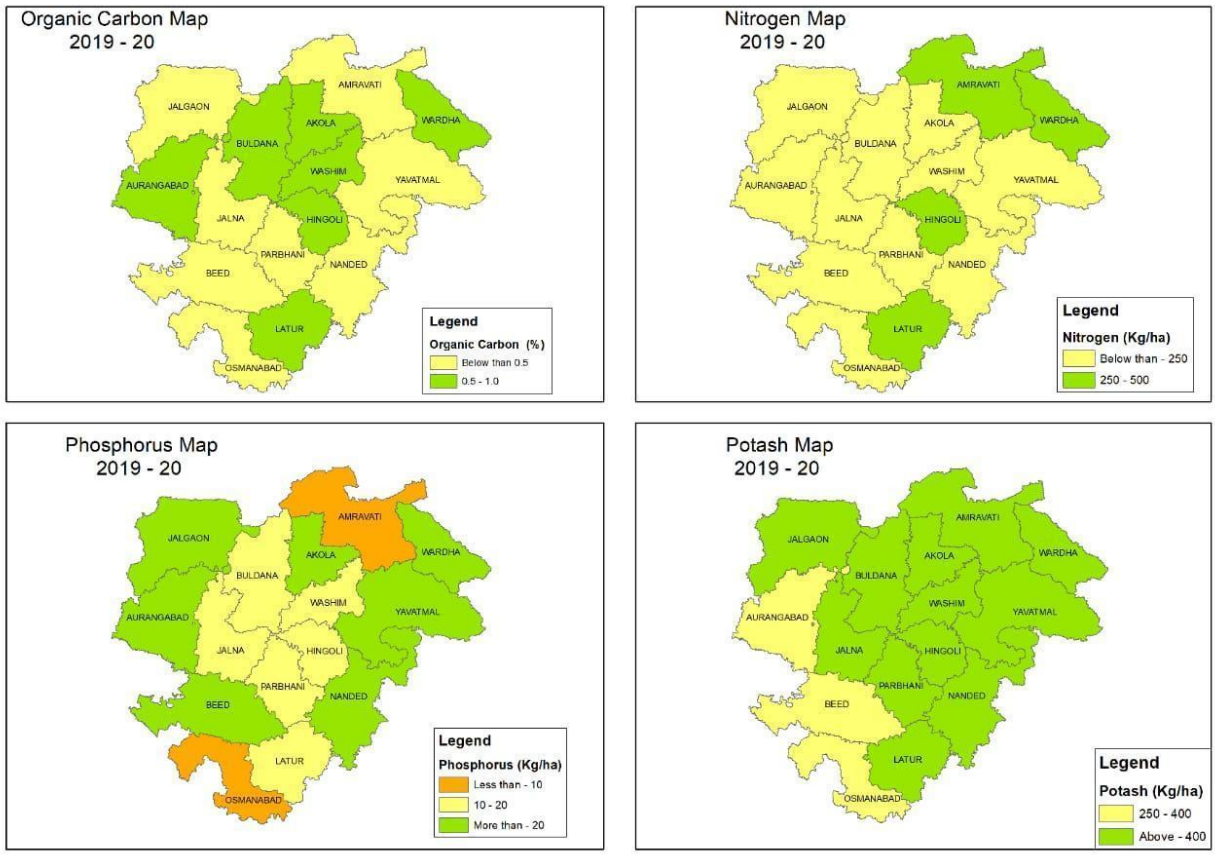
A2.6 Soil Health Management

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 analyzed during Kharif and Rabi 2019 and district wise nutrition status is shown in the maps. The organic carbon map of the region shows high content of Carbon in the regions of Aurangabad, Latur, Buldhana, Washim, Akola, Hingoli and Wardha. Nitrogen is found higher (250-500 Kg/Ha) in the districts of Latur, Hingoli, Wardha and Amravati. Phosphorus content in the soil is least (less than 10 kg/ha) in Amravati and Osmanabad. Content of potash is lesser (between 250 and 400 kg/ha) in Aurangabad, Beed and Osmanabad.

Figure 12: Soil Nutrient status (GIS Maps)



Soil Health Improvement

Use of organic input during production such as organic pesticides, fertilizers and other non-chemical inputs can revive soil health. Towards this end, the project has introduced organic input production unit and vermicompost unit for farmers to avail. As of March 2020, 11 farmers benefited worth matching grant INR is 0.60 lakh. out of which 10 are from Vermi Compost, and NADEP units. The details of beneficiaries and grant provided is given in the table below:

Table 17:Improving soil health use of organic inputs and vermicompost promoted under the project

Activities	30th June 2019		As on 31st March 2020	
	Number of beneficiaries	Matching Grant (INR lakh)	Number of beneficiaries	Matching Grant (INR lakh)
Vermi compost and NADEP units	1	0.05	10	0.57
Organic input production unit	1	0.03	1	0.03
Total	**2**	**0.08**	**11**	**0.60**

Figure 13:Vermi- Compost and NADEP Units

Phulaji Baburao Mudhol, Belmanda, Hingoli

Madhukar Rajaram Sarap, Kanheri, Akola

Rekha Madhukar Khandare, Pimpari Road, Yavatmal

3.3 A3: Promoting efficient and sustainable use of water for agriculture

In this component, focus is given to support activities which are 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 encompasses 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 have been promoted. The district-wise progress of soil and water conservation works is shown in the following table. The total of 803 soil and water conservation works completed worth INR 917.1 lakhs and works of values INR 2003 Lakh are in progress as on 31st March 2020.

Table 18: Progress of Soil & Water Conservation Works Completed

Sr. No.	District	Micro Planning Completed Villages (Phase 1	Up to 30th June 2019		As on 31st March 2020	
			Physical	Financial (INR Lakhs)	Physical	Financial (INR Lakh)
1	Akola	106	10	4.94	13	5.3
2	Amravati	201	1	0	1	0
3	Aurangabad	77	36	54.19	83	121.5
4	Beed	58	9	0	30	39.5
5	Buldhana	116	6	2.05	11	4.1
6	Hingoli	39	261	24.71	301	126.4
7	Jalgaon	123	16	3.94	85	79.5
8	Jalana	67	3	10.96	27	64.6
9	Latur	92	10	24.55	20	49.1
10	Nanded	70	60	3.95	64	8
11	Osmanabad	48	40	76.87	86	168
12	Parbhani	82	2	1.94	8	9.7
13	Wardha	39	16	84.42	35	176.8
14	Washim	29	8	13.65	16	24.8
15	Yavatmal	73	14	24.21	23	39.9
	Total	1220	**492**	**330.38**	**803**	**917.1**

The activity-wise progress of soil and water conservation works are shown in the following table 20. As on 31st March, under the catchment treatment activity, the total area treated under continuous contour trenches (CCT) is 48 ha. and 156 ha. under deep CCT.

The total 7 construction of Loose bolder structure, 4 Gabion structures, 60 Cement Nala bunds and 1 Earthen Nala bunds works have been completed, under the drainage line treatment activity. For creating on-farm water security, the total 8224 ha. area treated under compartment bunding and 644 ha. of graded bunds. The number of old structure works rejuvenated is 170.

Table 19:Activity wise status of soil and water conservation works

Activities		Up to 30th June 2019		As on 31st March 2020	
	Unit	Physical	Financial (INR lakhs)	Physical	Financial (INR Lakh)
A3.1 Catchment Treatment					
Continuous Contour Trenches (CCT)	Ha.	44	8.32	48	11.72
Deep CCT	Ha.	86	1.94	156	10.21
A.3.2 Drainage Line Treatment					
Construction of loose bolder structures	Nos.			7	5.04
Gabion Structure	Nos.			4	6.91
Earthen Nala Bunds	Nos.			1	5
Cement Nala Bunds	Nos.	50	62.36	60	171.29
On-Farm Water Security					
Compartment Bunding	Ha.	2999	155.38	8224	363.74
Graded Bund	Ha.	599	52.36	644	176.96
Rejuvenation of Old Structure	Nos.	56	50.03	170	166.24
Total			**330.39**		**917.11**

Figure 14: Compartment Bunding

Surewadi, Gangapur, Aurangabad

A3.3 Construction of new water harvesting structures

Farm ponds help to provide protective irrigation through water harvesting. As of 31st March 2020, the project has constructed 1286 community farm ponds, 399 individual farm ponds, and 693 farm pond linings. Fewer individual farm ponds with lining were constructed as compared to the previous time period. The water storage capacity created from farm ponds by 7488.57 m^3 excluding salinity affected villages.

Table 20:Construction of New Water Harvesting Structures

Farm pond type	30th June 2019		As on 31st March 2020		
	Number of farm ponds	Created water Storages capacity (1000 m3)	Number of farm ponds	Created water Storages capacity (1000 m3)	Matching Grant (INR lakh)
Community farm ponds	31	97.91	1286	5339.16	3511.03
Individual Farm pond with lining	210	398.43	325	667.4	230.24
Individual farm pond without lining	4	5.18	31	60.61	14.2
Farm Pond lining	81	126.53	693	1347.14	621.24
Construction of farm pond with inlet & outlet (Black Soil)	1	1.71	7	9.46	3.09
Construction of farm ponds without inlet and outlet (Black Soil)	13	22.24	36	64.81	17.23
Total	**340**	**652**	**2378**	**7488.57**	**4397.03**

A total number of 62 open dug wells were constructed and 32 open dug wells were recharged. A total of 148.96 lakhs of matching grants were provided in this regard up to till 31st March 2020. The status of construction and recharge of open dug wells are shown in the following table.

Table 21:Number of wells constructed

	30th June 2019		As on 31st March 2020	
Activities	Number of beneficiaries	Matching Grant (INR lakh)	Number of beneficiaries	Matching Grant (INR lakh)
Construction of open dug well	12	20.4	62	145.80
Recharge of Open dug wells	2	0.21	32	3.16
Total	**14**	**20.61**	**94**	**148.96**

Figure 15:Construction so new water harvesting structures (Farm Ponds)

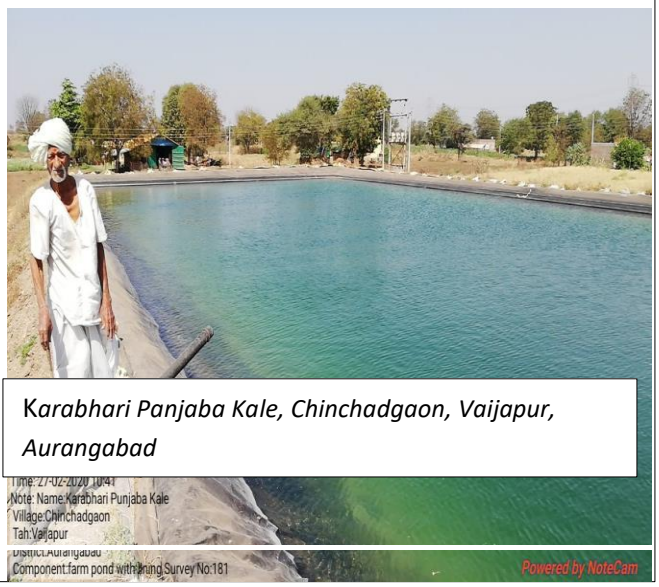
Community Farm Pond without inlet and outlet (with lining), Daulatabad, Aurangabad

Farm Pond without inlet and outlet (with lining), Mr. Krishna Madhukar Kharat, Dawargaon, Tal. Badnapur, Jalna

Community Farm Pond, Mr. Anil Tulshiram Shelke Kumbhefal, Aurangabad

Community Farm Pond, Mrs. Deepali Nilesh Gulave, Palasgoan, Tal. Khultabad, Aurangabad

Farm Pond with inlet and outlet (without lining), Dahi Village, Amravati



Karabhari Panjaba Kale, Chinchadgaon, Vaijapur, Aurangabad

A3.4 Micro Irrigation Systems

The project is supporting to increase water use efficiency at the farm level. Micro Irrigation technology e.g. drip and sprinkler irrigation including drip fertigation to increase the productivity of crops with less water should be popularized, as per the guidelines from **the Government of India. Needed credit facilities should be available to the farmers to pay for** the equipment. The Government of India is committed to accord high priority to water conservation and its management. To this effect Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) has been formulated with the vision of extending the coverage of irrigation 'Har Khet ko pani' and improving water use efficiency 'More crop per drop' in a focused manner with end to end solution on source creation, distribution, management, field application, and extension activities. The major objective of the PMKSY is to achieve convergence of investments in irrigation at the field level, expand cultivable area under assured irrigation (Har Khet ko pani), improve on-farm water use efficiency to reduce wastage of water, enhance the adoption of precision-irrigation and other water saving technologies (More crop per drop), enhance recharge of aquifers and introduce sustainable water conservation practices by exploring the feasibility of reusing treated municipal based water for peri-urban agriculture and attract greater private investment in a precision irrigation system. The implementation approach of PoCRA is much in alignment with Government of India's vision and programme.4

1003 farmers had benefited up to till 30th June 2019 and 14399 farmers had benefitted up to till 31st March 2020, from micro irrigation systems. The area covered under micro-irrigation activities was 1777.69 Ha which increased to 14930 in the current reporting period. Matching Grant of INR 4975.49 lakhs was provided up to 31 March 2020, which is much higher than INR 179.36 lakhs – as provided up to 30th June 2019. The progress of drip and sprinkler irrigation systems is as follows.

[4] https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1561334

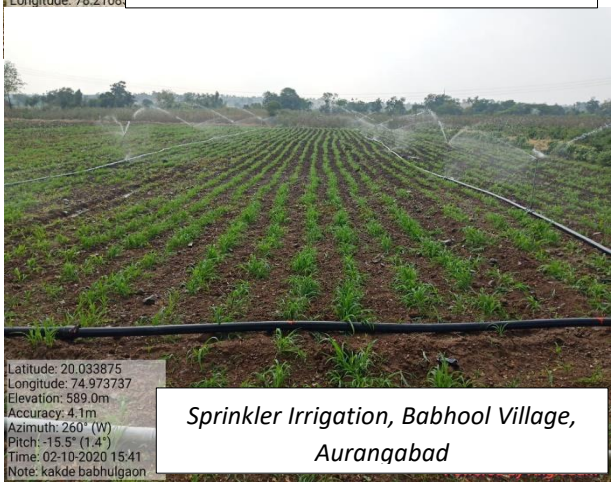
Table 22:New Micro Irrigation Systems installed

Micro-irrigation Systems	As on 30th June 2019			As on 31st March 2020		
	Number of Farmers	Area (Ha.)	Matching grants (INR lakh)	Number of Farmers	Area (Ha.)	Matching grants (INR lakh)
Drip Irrigation Systems	203	387.05	72.64	5433	5731.4	3424.55
Sprinkler Irrigation	800	1390.66	106.72	8966	9198.6	1550.94
Total	**1003**	**1777.69**	**179.36**	**14399**	**14930**	**4975.49**

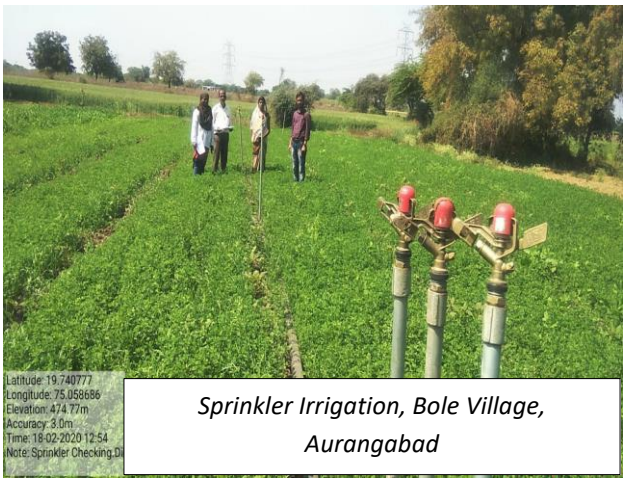
Figure 16: Drip and Sprinkler Irrigations

Anup Dilip Padole, Pimpalkhuta, Warud, Amravati

Drip Irrigation. Jalki Ghat. Auranaabad



Sprinkler Irrigation, Babhool Village, Aurangabad



Sprinkler Irrigation, Bole Village, Aurangabad

A3.5: Protective Irrigation

The project is supporting protective irrigation and effective use of water using water pumps and pipes. Substantial dependency on rainfall makes cultivation in un-irrigated areas a high risk, less productive profession. Empirical evidence suggests that assured or protective irrigation encourages farmers to invest more in farming technology and inputs leading to productivity enhancement and increased farm income. Findings from Concurrent Monitoring Round I survey suggest that activities related to sources of water and means that help to increase the water availability to farmers are the most in demand and effective. These mainly include most importantly pipes and water pumps.

As compared to the status of beneficiaries from June 2019, the number of beneficiaries for water pumps (Diesel Engine and Electric Pump -5 HP) has increased from 1263 to 16542. The total number of farmers benefited increased from 3513 up to till June 2019 to 29442 more up to till March 2020. The increase is in the case of Pipes (2250 to 12900). Matching Grant of INR 4616.28 lakhs was provided to protective irrigation supported activities up to till 31 March 2020. The progress of protective irrigation activities are as follows.

Table 23:List of Protective irrigation supported under the project

Activities	30th June 2019		As on 31st March '20	
	Number of farmers benefited	Matching Grant (INR lakhs)	Number of farmers benefited	Matching Grant (INR lakhs)
Water pumps	1263	104.19	16542	2320.95
Pipes	2250	292.54	12900	2295.34
Total	**3513**	**396.73**	**29442**	**4616.28**

Figure 17: Protective Irrigation Systems (Pipes and Water Pumps)

Haribhau Bapurao Chamnar, Yelda, Ambejogai, Beed

Suregaon, Aundh Naganath, Hingoli

Motor Pum, Osmanabad

Dattatray Raghu Mudhe, Wadgaon, kalamb, Osmanabad

A4: Response of farmers to farm level investments through the Direct Benefit Transfer (DBT) mode

The project facilitates marginal landholders (0-1 Ha), small landholders (1-2 Ha), Medium landholders (2-5 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 portal has been live from February 2019 and till 31st March,2020 the individual benefit of Rs 171.46 Cr has been successfully transferred to the bank accounts of 43972 farmers. The detailed status of DBT is given in following table:

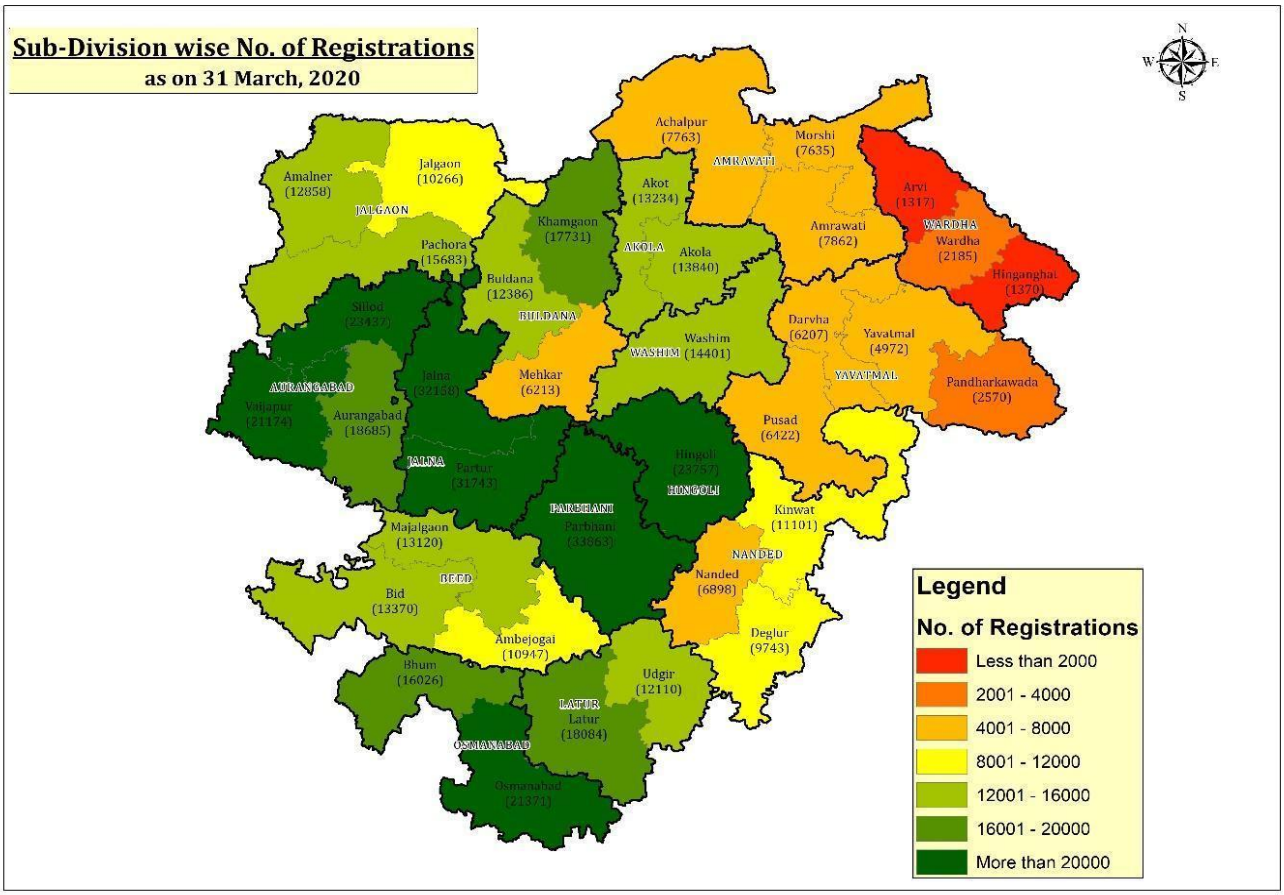
Table 24: DBT Status as on 31.03.2020

District	No. of Registrations	No. of Applications	No. of Issued Pre-Sanction	No. of Beneficiary cases	Disbursed Amount (In Lakh)
Akola	27075	41786	4363	1693	381.18
Amravati	23260	36511	5671	2960	517.05
Aurangabad	63301	197043	41458	14832	5381.55
Beed	37439	98415	9724	1397	303.63
Buldhana	36334	66685	8226	3756	966.22
Hingoli	23757	54428	11554	4464	945.48
Jalgaon	38814	78290	17328	6494	1735.82
Jalna	63905	212489	17112	4894	3596.48
Latur	30196	58339	10888	4259	715.51
Nanded	27755	53196	5513	1658	307.86
Osmanabad	37397	79794	15248	4541	1011.95
Parbhani	33863	89101	10636	2496	550.34
Wardha	4872	8005	1954	847	144.1
Washim	14405	28630	3007	1399	260.28
Yavatmal	20171	33680	4065	1835	328.61
Grand Total	482544	1136392	166747	57525	17146.06

The status of applications and disbursement as on 31st Match 2020 on the DBT system across the project administrative units is shown in the following maps.

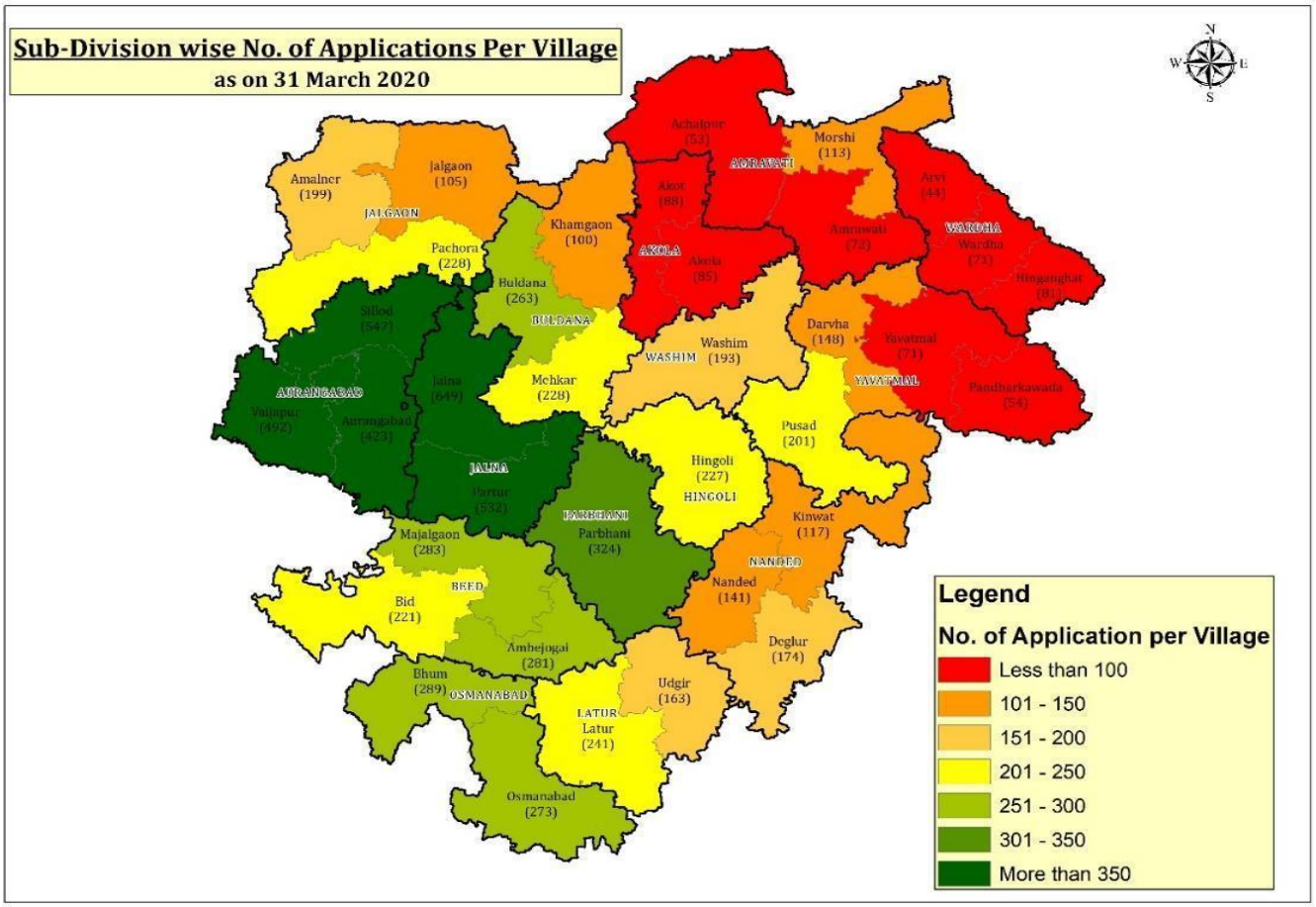
The figure below highlights the number of registrations, sub-division wise, as on 31st March 2020. The least number of registrations, less than 2000, came from sub-divisions of Arvi (1317) and Hinganghat (1370). While on the other end, many sub-districts witnessed registrations higher than 20,000. These sub- districts include Sillod (23,437), Jalna (32,158), Partur (31,743), Parbhani (33,863), Hingoli (23,757), Vaijapur (21,174) and Osmanabad (21,317).

Figure 18: Sub division wise no. of registrations



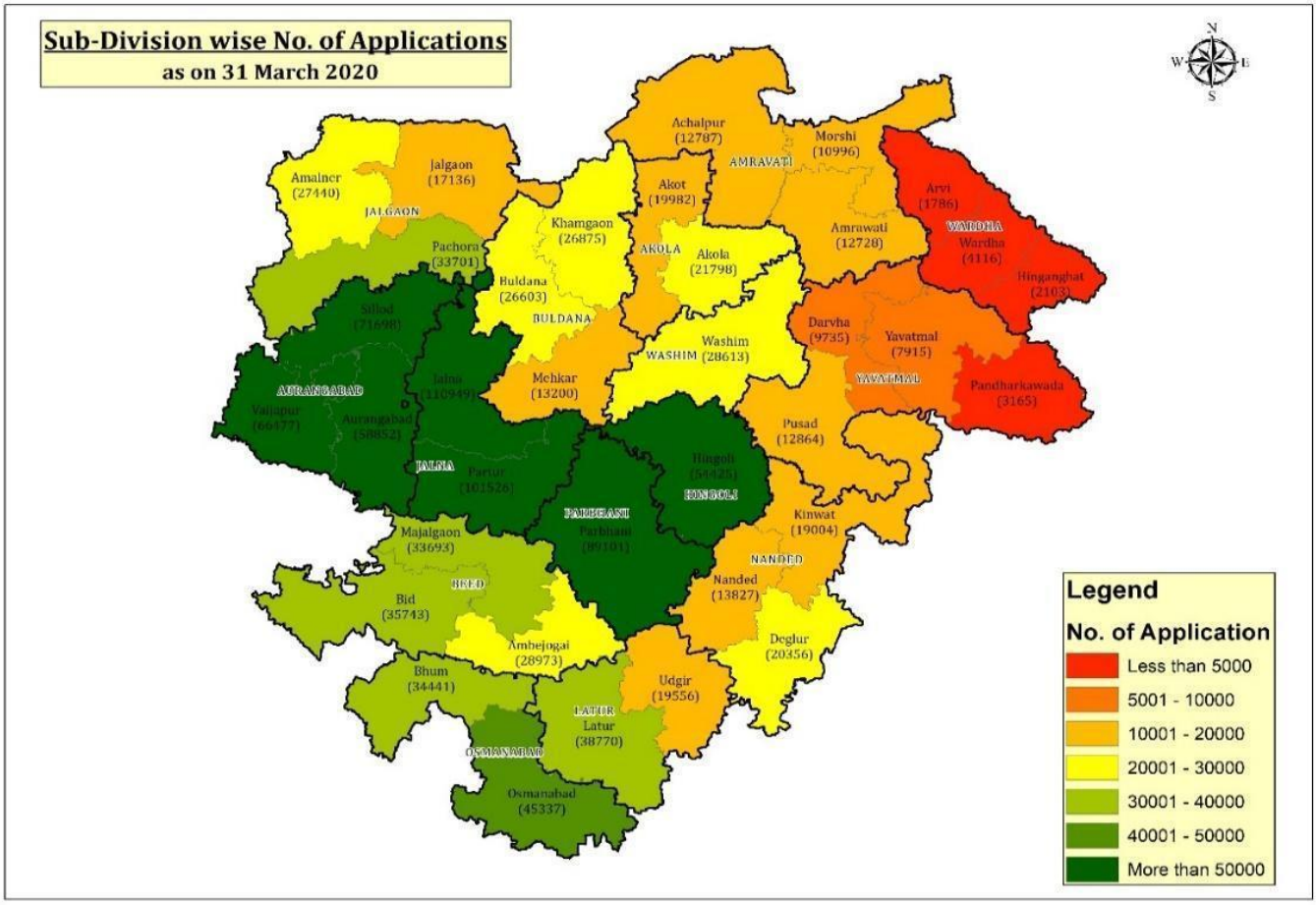
If we compare the number of applications per village, as on 31st March 2020, the below figure the highlights that the applications per village in north east part of the region, including sub-divisions of Achalpur (53), Akot (88), Akola (85), Arvi (44), Amravati (72), Yavatmal (71), Wardha (71), Hinganghat (81) and Padharkawada (54) has less than 100 applications. On the other side, Vaijapur (492), Sillod (547), Jalna (649), Partur (532) and Aurangabad (423) witnessed more than 350 applications per village.

Figure 19: Sub division wise no. of applications per villages



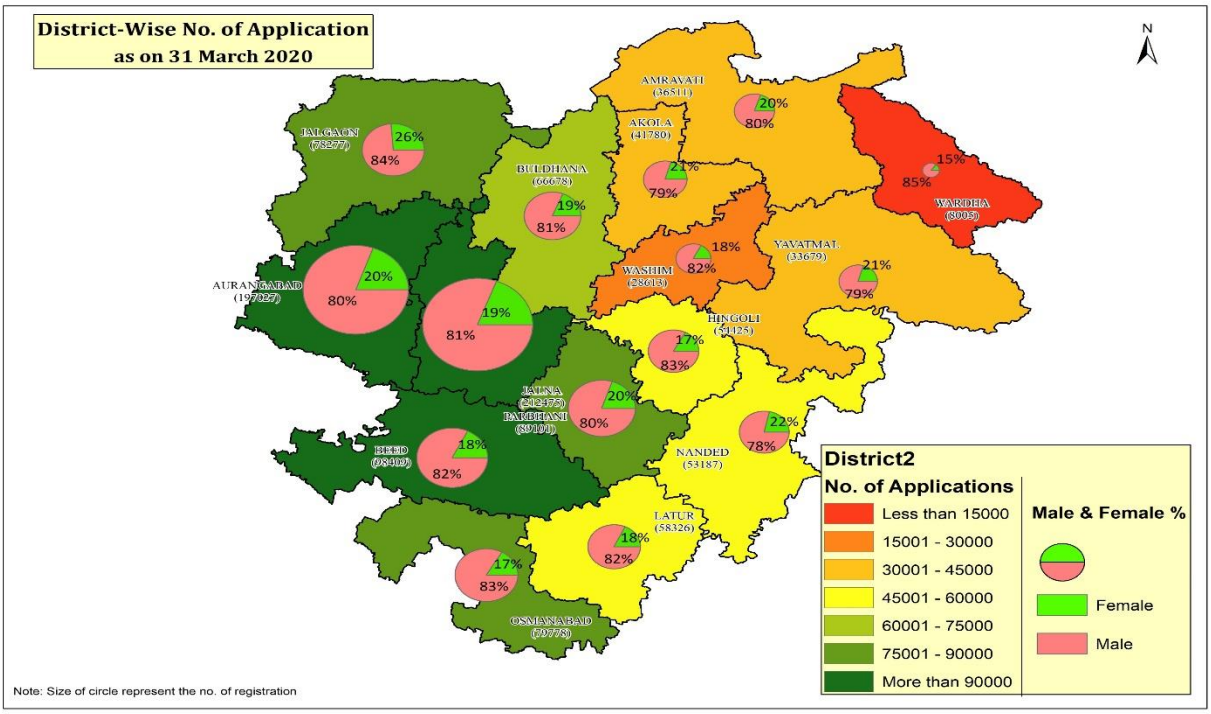
Highest number of applications, that is, more than 50,000 were received from districts of Aurangabad, Jalna, Hingoli and Parbhani. And the least number of applications came from Wardha and Yavatmal districts.

Figure 20: Subdivision wise no. of applications



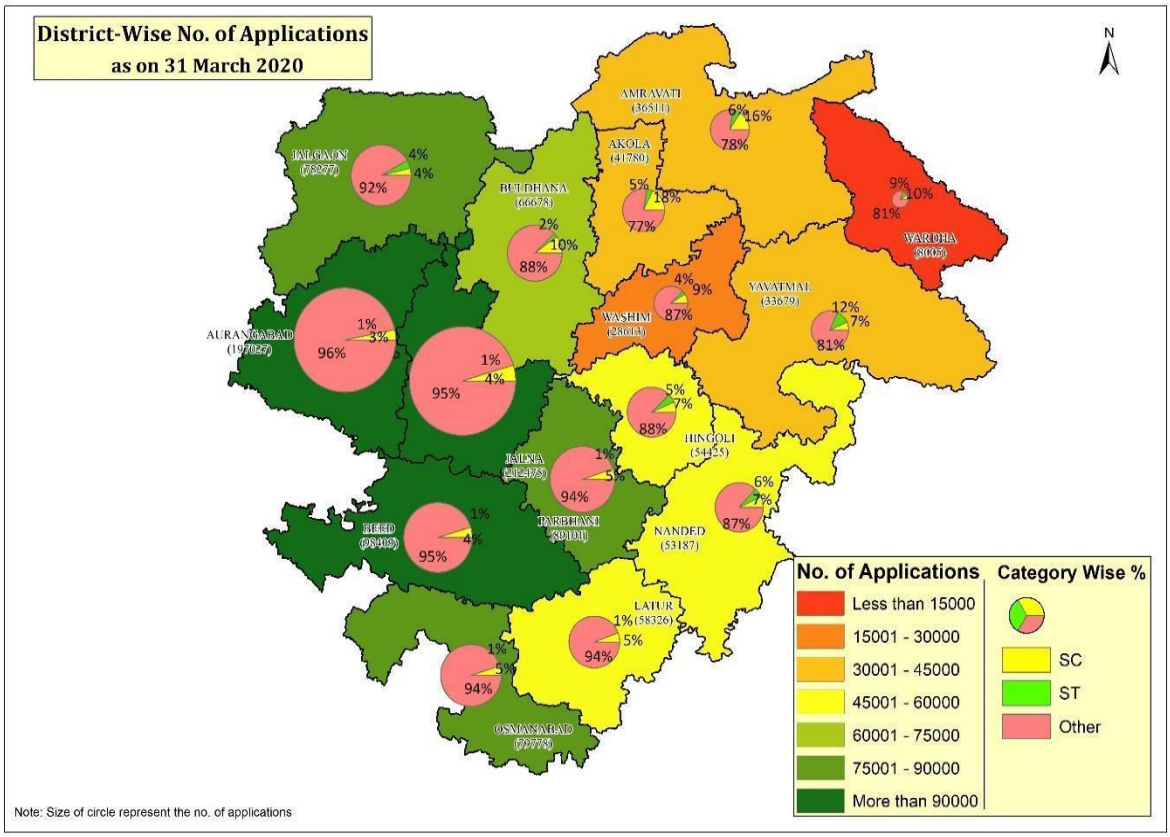
Highest number of applications came from the districts of Aurangabad (1,97,827), Beed (98,409) and Jalna (2,12,475). Wardha (8005) district on the other hand saw the lowest number of applications. The gender wise applications represent in the following figure.

Figure 21:Subdivision wise no. of applications



Highest number of Scheduled Caste applications came from Akola (18%) and Amravati (16%) districts. Highest number of Scheduled tribes' applications came from Yavatmal (12%) and Wardha district (9%). The percentage of other applications ranged from 77% - 96% across the districts.

Figure 22: District wise no. of applications (Social Category wise)



The highest number of disbursements happened in HIngoli (4447), Latur (3021), Aurangabad (4375), Vaijpur (4996) and Sillod (5378) sub-divisions. On the other hand, lowest number of disbursements happened in subdivisions of Arvi (169), Hinganghat (152), Yavatmal (387), Darvha (293), Pandharkawada (191), Bid (145), Ambejogai (271) and Deglur (314).

The below graph further divides the district into sub-divisions and provides an insight on sub-division wise subsidy amount disbursed. Maximum amount has been disbursed in the subdivisions of Pachora (INR 8,79,28,434), Sillod (INR 22,40,22,851), Jalna (INR 22,32,83,381), Vaijapur (INR 17,07,83,499), Aurangabad (INR 14,33,48,844), Partur (INR 13,63,64,537) and Hingoli (INR 9,45,19,465). On the other side, sub-division of Arvi (INR 29,37,756), Hinganghat (INR 24,95,749), Pandharkawada (3196197) and Ambejogai (INR 46,02,077) witnessed total subsidy disbursed amount of less than INR 50 lakhs.

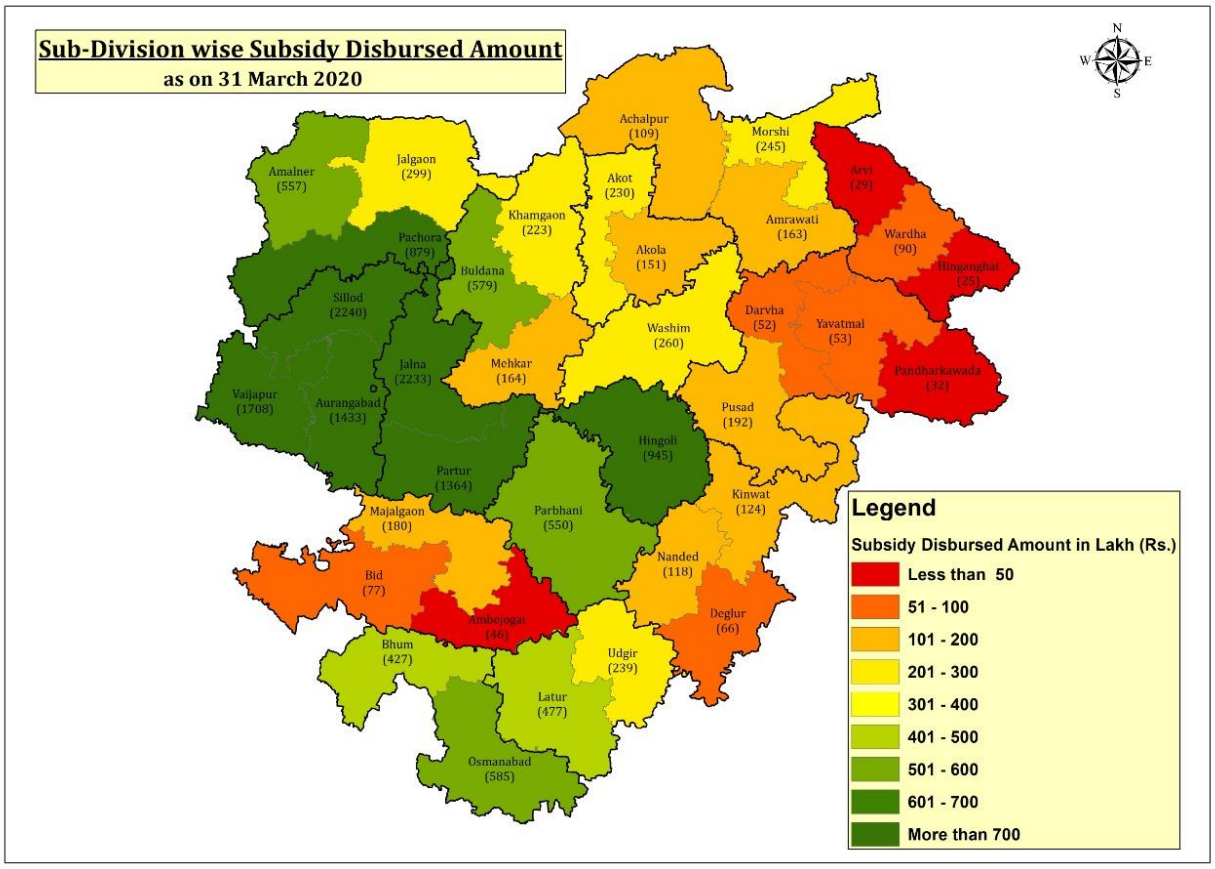


Figure 23: Subdivision wise subsidy disbursed amount

Majority of the disbursements to farmers have been done in a period of 31-60 days (34%) followed by a period of 11-30 days as in 34 % of the disbursements. Very few disbursements (9%) were done within 1-10 days of request. A significant percent increase can also be seen in the disbursements that took 31-60 days, when compared to the previous reporting period. However, if one looks at the absolute number disbursements made, it increased 5 times from 10,682 to 57523. On an absolute basis, 3195 more farmers, which is almost twice than the previous reporting period, were provided with disbursements in less than 10 days.

Table 25: Average Disbursement Period in Days (From payment of request by farmers)

Period (No. of Days)	As on 30th June 2019		As on 31st March 2020	
	Disbursement to no. of farmers	%	Disbursement to no. of farmers	%
1-10	1,995	19	5190	9.0
11-30	5,098	48	19,794	34.4
31-60	2,484	23	19872	34.5
Above 60	1,105	10	12667	22.0
TOTAL	10,682	100	57523	100.0

Component B-

Post-harvest Management and Value Chain Promotion

1. 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.

3.1 B.1 Promoting Farmer Producer Companies

1. Establishment of Custom Hiring Centers

The project is supporting to establish custom hiring center to promote farm mechanization for coping up with climate variability in the project area. FPOs and SHGs have been encouraged to establish such Custom Hiring Centers (CHCs) for the benefit of the farmers. CHCs helping in inter-culture, harvest and post-harvest operations in the project area. However, project is promoting to custom hiring centers, so that small and marginal farmers are able to access the costly machines on rent to achieve desired farm productivity without compromising soil health and water use efficiency. This activity supported to timely agricultural operations aided by farm mechanizations services run custom hiring basis.

As of March 2020, 60 business proposals of FPCs and SHGs have been given pre-sanctions to establish Custom Hiring Centers (CHC). The total value of pre-sanctioned proposals of CHCs is INR 1091 lakh. The district wise status of number of pre-sanctions given to business plans for establish custom hiring centers are shown in the following table.

Table 26:District wise status of Pre-sanctioned proposals of Custom Hiring Centre

District	FPCs		SHGs		Total	
	No of Proposals	Amount (INR Lakh)	No of Proposals	Amount (INR Lakh)	No of Proposals	Amount (INR Lakh)
Akola	1	14.7	4	52.02	5	66.72
Aurangabad	1	40.42	1	12.5	2	52.92
Beed	6	119.61	1	19.6	7	139.21
Buldhana			3	39.47	3	39.47
Hingoli	2	35	11	162.54	13	197.54
Jalana	2	39.8	6	99.73	8	139.53
Jalgaon			1	19.55	1	19.55
Latur	8	150.16	2	36.63	10	186.79
Nanded	3	54.64			3	54.64
Osmanabad	2	72.58	2	32.65	4	105.23
Wardha	1	15.87			1	15.87
Washim	2	33.53			2	33.53
Yavatmal	1	40.79			1	40.79
Total	**29**	**617.1**	**31**	**474.69**	**60**	**1091.79**

It is observed from above table that, In the case of FPCs, the maximum business plans have given pre-sanction to establish custom hiring Centre in Latur (8), followed by Beed (8) and Nanded (3). Other hand in case of SHGs, the maximum business plans have given pre-sanctioned to establish customs hiring Centre in Hingoli (13), followed by Latur (10) and Jalna (8).

Figure 24: Farm Equipment's in Custom Hiring Centre (Latur District)

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Multi Crop Harvester</td>
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Tariff Sheet</td>
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<td>  </td>
<td>SVR Krishi Mitra Producer Company ltd.
At- Akhrawai, District- Latur

Custom Hiring Centre</td>
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3.2 B2. Strengthening Emerging Value Chains for Climate Resilient Commodities

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. The number of FPCs assessed is 619 in the project area. The district wise status of FPCs assessed is shown in table below.

Table 27:District wise FPCs Assessed

District	District wise No of FPCs assessed (as on 31st March, 2020)
Akola	23
Amaravati	56
Aurangabad	57
Beed	53
Buldhana	49
Hingoli	24
Jalna	37
Jalgaon	28
Latur	74
Nanded	29
Osmanabad	59
Parbhani	17
Wardha	43
Washim	22
Yavatmal	48
TOTAL	**619**

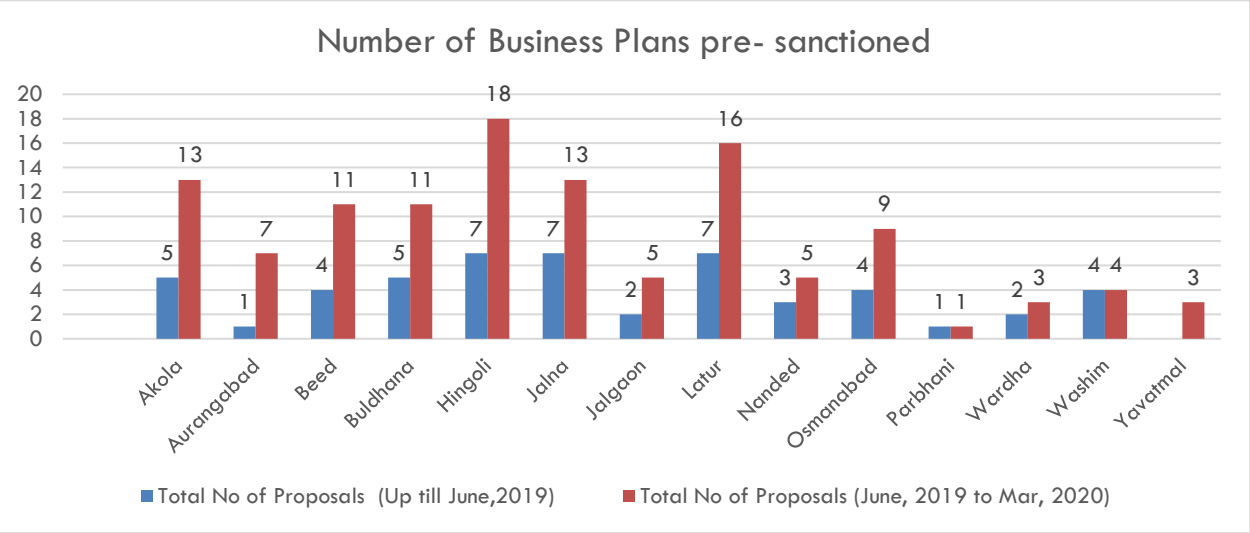
To build climate resilience beyond the farm gate and provide end-to-end solutions, the project has given pre-sanctions to business plans under the activity of promotion and strengthening the existing farmer's producer companies. The district wise status of several pre-sanctions to the business plans and amount of business plans is shown in the following table 28.

Table 28:Status of pre-sanction of Business Plans of FPOs (as on 31st March 2020).

District	PMU		PD ATMA		SDAO		Total	
	No of Proposals	Amount (INR Lakh)	No of Proposals	Amount (INR Lakh)	No of Proposals	Amount (INR Lakh)	No of Proposals	Amount (INR Lakh)
Akola	0	0.00	3	76.00	10	140.52	13	216.52
Aurangabad	2	169.75	2	64.68	3	45.00	7	279.43
Beed	3	257.22	8	176.49	0	0.00	11	433.71
Buldhana	3	300.00	1	50.00	7	115.15	11	465.15
Hingoli	1	52.53	4	166.35	13	197.54	18	416.42
Jalana	0	0.00	6	164.31	7	111.06	13	275.37
Jalgaon	2	181.10	2	37.66	1	13.00	5	231.76
Latur	6	475.02	3	64.19	7	122.60	16	661.81
Nanded	0	0.00	2	52.04	3	54.64	5	106.68
Osmanabad	3	183.12	3	52.04	3	30.36	9	265.52
Parbhani	0	0.00	0	0.00	1	18.00	1	18.00
Wardha	0	0.00	0	0.00	3	35.19	3	35.19
Washim	0	0.00	0	0.00	4	100.52	4	100.52
Yavatmal	0	0.00	2	77.03	1	4.15	3	81.18
TOTAL	**20**	**1618.74**	**36**	**980.79**	**63**	**987.73**	**119**	**3587.26**

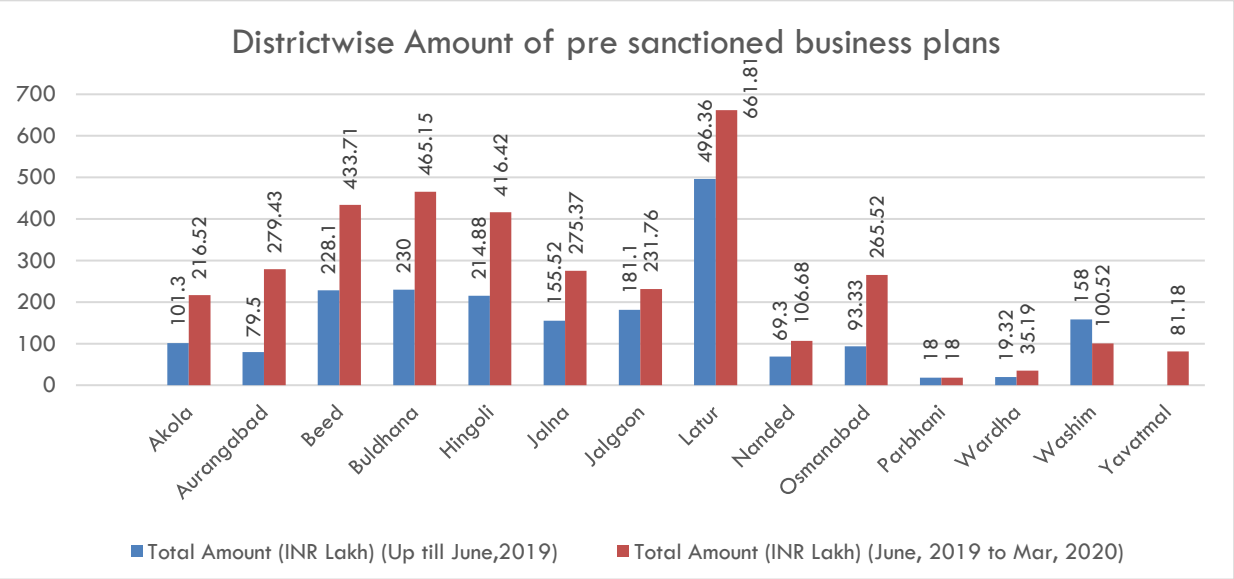
In the chart below the comparison of number of proposals pre- sanctioned up till June 2019 and up to till March 2020 has been provided. It may be observed that there has been an overall increase in the pre- sanctioned proposals. For the period up till June 2019, 52 business proposals have been given pre-sanctions and while total 119 business proposals of FPCs /SHGs had given pre sanction up to till March 2020 i.e. there was an increase of 69.6 per cent.

Figure 25: Number of Business Plans pre- sanctioned



In the chart below the comparison of amount of pre sanctioned business plans up to till June 2019 and as on March 2020 has been provided. It may be observed that there has been an overall increase in the amount sanctioned. For the period up till June 2019, the amount of pre sanctioned business proposals was Rs.2044.71 lakh and as of March 2020 it was Rs.3587.26 lakh.

Figure 26:District wise Amount of pre sanctioned business plans



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 67 business plans of FPCs till March 2020 and amounts of pre-sanctioned proposals INR 2643.68 lakhs till March 2020. The project has given pre-sanctions to activities such as agri-malls, cattle feed processing unit, HDPS-Planter, Silk, Industry, preparing poultry and warehouse.

Table 29:Business Activity wise Proposals of FPCs Pre- Sanctioned (As on 31st March 2020)

Type of Business activity	No of FPC proposals	Amount (INR Lakh)
Agri. mall	1	18.5
Cattle Feed Processing Unit	2	57.28
Cleaning, Grading and processing Center	6	333.66
Custom hiring center	29	617.1
Flour mill	1	80
HDPS-PLANTER	1	4.15
Oil mill/ wooden oil extraction	3	132
Preparing poultry	2	110.63
Seed Processing / Storage Center	6	385.26
Silk industry	2	151.72
Turmeric processing center	1	50
Warehouse	13	703.38
Total	**67**	**2643.68**

Status of pre-sanctions given to the SHGs according to proposed business activities is provided in the Table below. It may be observed from the Table below that The project has given pre-sanction to 67 business plans of FPCs till March 2020 and amount of pre-sanctioned proposals were INR 943.58 lakhs up till till March 2020.

Table 30:Business Activity wise Proposals of SHGs Pre- Sanctioned (As on 31st March 2020)

Type of Business activity	No of SHG proposals	Amount (INR Lakh)
Air-conditioned fruit and vegetable sales center	1	20.03
Cattle Feed Processing Unit	1	24.26
Cleaning, Grading and processing Center	1	15.00
Custom hiring center	31	474.69
Seed Processing / Storage Center	1	93.86
Turmeric processing center	3	82.00
Warehouse	14	233.74
Total	52	943.58

In the Table below, the status of completed work and subsidy paid by the PMU is provided. As can be observed, total number of proposals sanctioned, value of proposal scrutinized for sanction, number of proposals sanctioned for payment of subsidy and value of subsidy is indicated in the Table.

Table 31: Status of completed work and paid subsidy by PMU (as on 31st March, 2020)

District	Completed work		Matching Grant (INR lakh)	
	No of Proposals	Amount (INR Lakh)	No of Proposals	Amount (INR Lakh)
Aurangabad	1	90.75	-	-
Hingoli	1	15.00	-	-
Jalgaon	4	75.76	-	-
Latur	1	21.34	1	21.34
Nanded	1	19.05	-	-
Osmanabad	0	0.00	-	-
Parbhani	1	18.00	1	10.00
Wardha	1	9.54	1	9.54
Yavatmal	1	4.15	1	2.49
TOTAL	**11**	**253.59**	**4**	**43.37**

The source of fund for payment of capital subsidy has been indicated in the Table below. It may be observed that of the total 119 proposals, majority that is 66 of them were funded by banks while 53 of them were self-funded. Of the 66 proposals to be funded by banks, loan has been approved for 29 of them.

Table 32:Source of Fund (as on 31st March, 2020)

Source	No. of proposals	Number of proposals Loan Approved
Bank Funded	66	29
Self-Funded (Less than 20 lakh INR)	53	-
TOTAL	**119**	**29**

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 are to leverage the assistance available from SFAC viz Equity grant and partial credit guarantee.

3.3. B.3. 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.

Table 33:Climate Resilient Varieties of Seeds

S No.	Crop	Variety	Main Characteristics
1	**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
2	**Moong (Green Gram)**	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
3	**Udid (Black Gram)**	AKU-10-1	7 - 8 grain/pod, resistance to pm, 76% *dal* recovery
		TAU-1	Moisture stress tolerant, bold seeded
4	**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
5	**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
6	**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
7	**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
8	**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
9	**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 and 2019 is shown in the following table. It may be observed that there has been an increase in the number of growers from 1520 to 6460 i.e. an increase by 3.25 time. It may also be noted that the area under seed production increased from 4134 hectares to 14734 hectares i.e. an increase by 2.56 times.

Table 34:Seed Production of Climate Resilience Varieties- Kharif -2018-19 and 2019-20

Crop	Varieties	Number of Growers		Area under seed production (Ha)	
		2018	2019	2018	2019
Moong	BM-2002-1, BM-2003-2, UTKARSHA	71	222	180	569
Soybean	DS-228, JS-2029, JS-335, JS-9305, MACS-1188, MAUS-158, MAUS-162, MAUS-71	1322	5673	3693	13014
Tur (Pigeon Pea)	BDN-711, BSMR-736, ICP-8863, ICPL-87119, PKV TARA, VIPULA	54	246	133	513
Udid	AKU -10-1, AKU-15, TAU-1	73	319	128	638
TOTAL		**1520**	**6460**	**4134**	**14734**

Status of seed production of climate resilience varieties of Gram, Sorghum and Wheat crops during Rabi season 2018 and 2019 is shown in the following table. It may be observed that there has been an increase in the number of growers from 648 to 2379 i.e. an increase by 2.6 times. It may also be noted that the area under seed production in Rabi season 2019-20, increased from 1508 hectares to 4465.3 hectares i.e. an increase by 1.96 times.

Table 35:Seed Production of Climate Resilience Varieties- Rabi -2018-19

Crop	Varieties	Number of Growers		Area under seed production (Ha)	
		2018	2019	2018	2019
Gram	DIGVIJAY, JAKI 9218, PHULE VIKHRAM, RAJ VIJAY, RAJVIJAY-202, RAJVIJAY-203, VIJAY, VIRAT, VISHAL	612	1945	1441	3781.7
Improved Rabi Sorghum	M-35-1, PKV-Kranti, SPV 1411, SPV 1595, Revati	36	169	67	346.8
Wheat	-	-	242	-	336.8
Safflower	-	-	23	-	3388
TOTAL		**648**	**2379**	**1508**	**4465.3**

In total 8839 growers were provided with assistance for production of climate resilient seeds during the period 2019-20. Of the total 8839 growers, 6460 were kharif seed growers and 2379were Rabi seed growers. The crop wise status of seed production in Kharif and Rabi season (2019-20) are shown in following table.

Table 36:Production & Area under sowing from Seed Production Programme - 2019-20

Sr No	Crop	Growers (Nos)	Area (Ha)	Total Production (Quintal)	Probable Sowing Area (Ha)
Season: Kharif 2019-20					
1	Soybean	5673	13014.2	65071	86762
2	Pigeon Pea	246	513.8	3288	32883
3	Black Gram	319	638.8	1916	15970
4	Green Gram	222	569.9	1710	14247
TOTAL		**6460**	**14737**	**71985**	**149861**
Season: Rabi 2019-20					
1	Gram	1945	3782	54456	90761
2	Jowar (Sorghum)	169	347	3884	38842
3	Wheat	242	337	9430	9430
4	Safflower	23	48	339	3388
TOTAL		**2379**	**4514**	**68110**	**142421**
Grand Total		**8839**	**19251**	**140095**	**292282**

The amount disbursed for production of climate resilience seeds (as of 31st March 2020) was INR 321.23 lakh.

Table 37:Amount Disbursed for Seed Production of CRS (As on March 2020)

Districts	Number of Farmers	Amount Disbursed (In Lakh)
Akola	310	26.36
Amravati	302	37.96
Beed	7	1.19
Buldhana	473	42.11
Hingoli	77	5.19
Jalgaon	129	7.18
Latur	1126	80.18
Nanded	67	4.87
Osmanabad	254	18.23
Parbhani	850	70.89
Washim	118	14.32
Yavatmal	189	12.76
TOTAL	**3902**	**321.23**

Figure 27:Seed Production Plots

Seed Production: Pigeon Pea, Yavatmal

Seed Production: Kharif Udid, Buldhana

Seed Production: Kharif Moong, Amravati

Seed Production: Rabi Harbhara, Akola

Component C:

Institutional Development, Knowledge and Policies for a Climate Resilient Agriculture

4.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 or 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.

4.2Capacity 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 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.

In the project for capacity development and review meetings various Events (Training /Workshop/Exposure/Meetings) are organized at different level as training and exposure visit of VCRMC members, technical and skill development of farmers, capacity building of officials and staff at state, district and subdivision level etc. To manage and monitor the training program, the project has developed 'Training Management Application'.

Using this application user can organize event by selecting event type, date, time, participants, and venue along with the coordinator who will conduct the event.

The coordinator will capture the attendance of the participates, along with the group photograph. Once the event is closed by the coordinator it gets reflected at the PS HRD/PS Agribusiness dashboard.

PSHRD/PS Agribusiness can view/ download the details reports of the closed event with consists number of Male /Female Participant attendant the event. It can also view the number of the event attendant by participant till time.

Application Features

1) Schedule Event (Training /Workshops/Exposures/Meetings)
2) Monitor the Participant attendance
3) Track the number of event attendant by participant
4) Observe the performance of facilitator in given time frame
5) Track number of Events organized by District and sub-division
6) Manage the frequency of types of events organized in various districts / locations

a. Training and Capacity Development of VCRMC members

Since VCRMC is the most important stakeholder for the project, the project has focused on their training and capacity development. The following activities have been completed during the period. Details are given in each section separately.

- From July 2019 to March 2020 total 3861event were organized. Total 39979 beneficiaries built their capacity under various capacity building events as shown in Table 1 below.
- Out of total beneficiaries the male participants were 24822 (62.08%) and female participants were 15157 (37.91%) as shown in Figure 1.

Table 38: Capacity Building Events during the period July 2019 to March 2020

S. No.	District	Training				Workshop				Exposure Visits			
		No. of trainings	Male	Female	Total Participants	No. of workshops	Male	Female	Total Participants	No.of Exposure Visits	Male	Female	Total Participants
1	Hingoli	195	1339	694	2033	9	454	18	472	3	131	103	234
2	Aurangabad	60	2009	525	2534	5	164	23	187	0	0	0	0
3	Beed	217	624	944	1568	10	99	54	153	0	0	0	0
4	Washim	167	802	822	1624	8	1346	279	1625	0	0	0	0
5	Wardha	108	1524	661	2185	10	889	83	972	14	123	91	214
6	Jalna	236	1069	1430	2499	0	0	0	0	1	23	0	23
7	Osmanabad	149	1411	1260	2671	13	275	110	385	12	107	53	160
8	Parbhani	249	656	444	1100	2	107	15	122	0	0	0	0
9	Jalgaon	146	383	358	741	100	2903	1209	4112	0	0	0	0
10	Latur	82	1431	550	1981	5	550	184	734	0	0	0	0
11	Yavatmal	197	847	871	1718	25	1196	389	1585	0	0	0	0
12	Nanded	312	602	359	961	1	25	11	36	0	0	0	0
13	Amaravati	459	329	949	1278	74	207	1300	1507	0	0	0	0
14	Akola	161	1760	802	2562	4	100	55	155	0	0	0	0
15	Buldana	598	1066	468	1534	228	271	43	314	1			0
	TOTAL	**3336**	**15852**	**11137**	**26989**	**494**	**8586**	**3773**	**12359**	**31**	**384**	**247**	**631**

Figure 28: Number of events held for Capacity Building

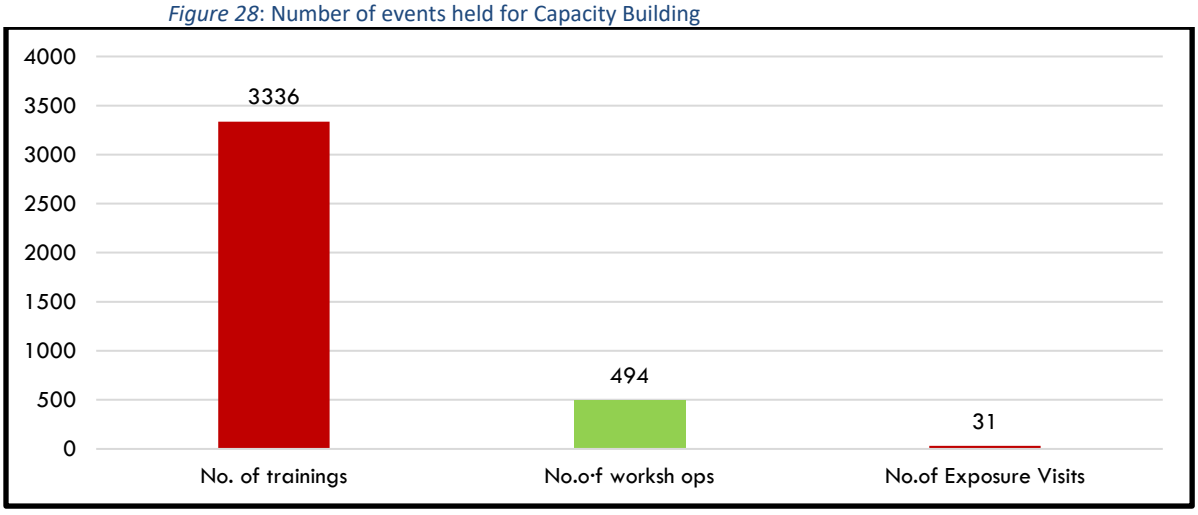
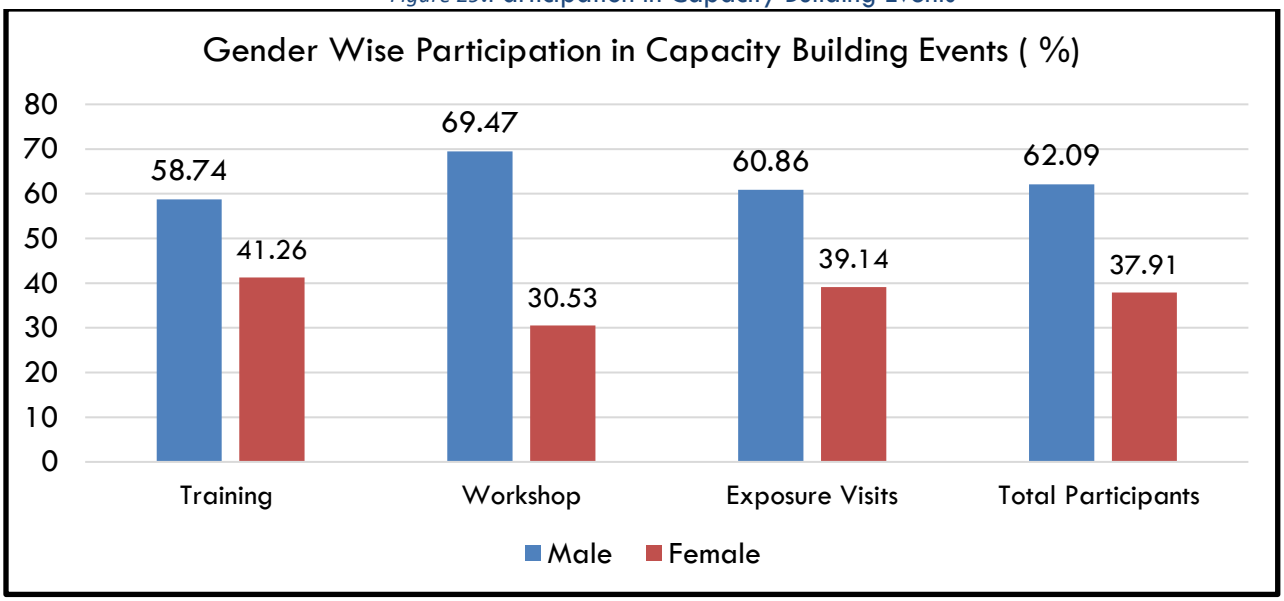


Figure 29:Participation in Capacity Building Events



The project has conducted project orientation training for the VCRMC members. In the previous period, a total of 2759 training programmes were organized with total 38878 members participating. In the current period from July 2019 to March 2020, a total of 1654 trainings were conducted during the period with a total of 18528 members attending the programme, out of which 47% were females and 53% Males.

The training was organized on Project Orientation, VCRMC members' orientation & management for VCRMC members, Agri-allied Enterprise- Sericulture, Farm Mechanization, Farmers Field School, Registration & Management of Producer Companies, Financial Management and Account Keeping, Irrigation & Water Management etc.

The district-wise participation of VCRMC members in training programme is shown in the following table.

Table 39:Status of Training of VCRMC members as 0n 31st March 2020

S. No.	District	VCRMC Formed				Orientation Training of VCR MC Members					
						Phase I		Phase II		Grand Total	
		Phase I	PoCRA· II	PoCRA-111	Total VCR MC Formed	No.of VCRMC	VCRMC Members	No.of VCR MC	VCRMC Members	No. of VCR MC	VCRMC Members
1	Akola	70	209	30	309	59	637	207	3252	266	3889
2	Amaravati	51	162	106	319	51	1250	152	2023	203	3273
3	Aurangabad	97	200	26	323	84	584	134	2050	218	2634
4	Beed	33	102	59	194	31	675	162	3048	193	3723
5	Buldana	93	183	70	346	82	1058	193	2740	275	3798
6	Hingoli	76	124	44	244	39	490	102	1406	141	1896
7	Jalgaon	43	117	94	254	43	978	85	1187	128	2165
8	Jalna	75	127	39	241	75	369	160	1558	235	1927
9l	Latur	19	35	11	65	19	668	110	1734	129	2402
10	Nanded	59	134	106	299	64	1317	187	3011	251	4328
11	Osmanabad	127	167	0	294	124	418	83	1556	207	1974
12	Parbhani	55	162	82	299	41	904	118	1652	159	2556
13	Wardha	58	189	80	327	51	253	35	540	86	793
14	Washim	23	57	29	109	22	304	57	891	79	1195
15	Yavatmal	50	140	17	207	so	518	139	1807	189	2325
	Grand Total	**929**	**2108**	**793**	**3830**	S.35	10423	1924	28455	2759	38878

In addition, workshops were conducted for the VCRMC members along with training programmes. The workshops were organized on the topics Project's orientation in phase III villages, Demonstration and Implementation of various project activities, farmer's workshop prior to Rabi & Kharif season etc. A one-day workshop was organized for all female VCRMC members for their orientation and active participation in decision making.

Capacity Building Process for VCRMC:

The capacity building process for VCRMC members designed in a series of orientation, refresher, and advance training for their better understanding. Training module is attached as Table 1, 2 and 3.

Orientation Training

The orientation training will be a one-day induction/ orientation of VCRMC members (Table: 1). It will include role and responsibilities of VCRMC members along with the climate resilient agriculture: concept, need and approach, micro-planning process, understanding and planning to develop village plan and cluster plans, beneficiaries' selection criteria, accounting, community procurement plan etc.

Refresher Training cum Workshop

After orientation there will be refresher training which is designed within 3-4 months duration after orientation of the VCRMC members. During the refresher training the VCRMC members will come up hand to hand field experience of implementation exercise of various project activities and first round of FFS demonstration on selective crops in each village. The module of refresher is designed with to include training on Good practices and issues in operationalization of committee, ensure effectively implementation of IPM strategy, water Budget, opening of VCRMC account and accounting process, Progress of Budget envelop and implementation of action plan, best practices of climate resilient technologies, equity, benefit sharing, constraints, Gender sensitization, coordination and linkages, allied livelihood activities, safeguard concerns & contingency plan, etc. (Table:2)

The refresher training of VCRMC members also designed with incorporated with new inputs and IT enables techniques, introduction to app developed by then along with feedback mechanism to include the suggestion and inputs.

Advance Training cum Workshop

After three months of refresher training, the advance training is designed for the members. The module of advance training will be specifically based on effectively implementation of Social Audit mechanism, monitoring, Conflict and Resolution mechanism, sensitizing the stakeholders for Post Project Sustainability and technical strengthening of communities to develop sense of ownership and responsibilities regarding O&M mechanism, adaptation & replication of climate resilient technologies and resources in plantations and other conservational activities, handling of contingencies specially in agriculture sector (Table: 3).

This project is implemented and executed in participatory manner thus advance course module will provide a platform to members to put forth necessary updation, change & suggestion for field level implementation strategy to improve & effective implementation mechanism at the field level.

Figure 30: Training of VCRMC and Other Stakeholders

VCRMC Training Programme through live Streaming

VCRMC Training Proramme through live Streaming

Training on Micro-Planning for VCRMC in Washim district

Trainings of Krishi Tai

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 Agricu[illegible]lture 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 Sub divisional 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 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.

*Figure 31:*Training Prog for Conducting Farmers Field School (FFS)

b. 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.

c. 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.

d. Exposure Visits

Exposure visits were organized for VCRMC members and project's beneficiaries to various center of excellence under the category within state and within district/ division/ sub-division. In the previous period, a total of 65 exposure visits were organized with total 768 members participating, out of which 57% were males and 47% females. In the current period from July 2019 to March 2020, a total of 14 exposure visits were conducted with a total of 73 members attending the programme, out of which 53% were Females and 53% Males. Thus, there is a considerable increase in the women participation for the exposure visits. This is attributed to training and capacity building of women and encouragement by the project to attend the events.

The purpose of the exposure visits is to expose the trainees to the best practices in climate resilient agriculture. Under this activity, the project organizes the exposure visits for the farmers and project implementation staff within the district, within the state and outside the state.

Exposure visits were organized for VCRMC members and project's beneficiaries to various center of excellence under the category within state and within district/ division/ sub-division.

Figure 32: Exposure Visits

Wardha, Subdivision

4.3 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. SAU's (State Agriculture Universities)

MoU between PoCRA and SAU's has been signed on 17th Jan 2020. This assignment aims with following objectives and Deliverables

Objectives

1. The study is therefore proposed to determine the crop coefficients for the major crops for the State of Maharashtra by Lysimetric studies with following specific objectives.
2. To estimate the values of crop coefficients of important field crops over their growth period by using lysimetric study.
3. To estimate water requirement of different field crops for efficient irrigation water management.

Deliverables

From the start Installation of Lysimeter SAU's will provide detail reports on crop Kc, water & irrigation requirement by different irrigation practices for Major Crops in respected Districts of Agriculture University

3. National Bureau of Soil Survey and Land Utilization 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.
4. 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.

4. 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 (Phase I) is been received on 27th August 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.

Draft reports on Cluster wise groundwater recharge plan for 4Clusters (Phase II) has been received. The following information are 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.

Specific work Recommendations from the study at cluster no. 514_GP-17_02, Badnapur Taluka, Jalna District are as follows:

i) Optimum planning of GW recharge and need to control the irrigation draft less than the recharge.
ii) Application of Regulatory measures for not drilling bore wells.
iii) Optimum use of water saving practices.
iv) There should be annual GW budgeting on a regular basis.
v) Need to plan cropping pattern as per GW availability.
vi) Need to discourage groundwater use for filling farm ponds.
VII) No. of Recharge Trenches with Recharge shafts recommended: 27
No. of Gabions structure recommended: 15
Desilting of Existing Percolation Tanks recommended: 03
Compartment Bunding recommended for an area of 300ha.

Similarly, draft reports on Cluster wise groundwater recharge plan for (i) Cluster no. 512_PPG-03_01 (Kalamnuri Taluka, Hingoli District), (ii) Cluster no. 525_MR-07_03 (Washi Taluka,

Osmanabad District) and (ii) Cluster no. 504_WRWN-03_01 (Samudrapur Taluka, Wardha District) ha been received.

5. 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. The following MoUs have been signed:

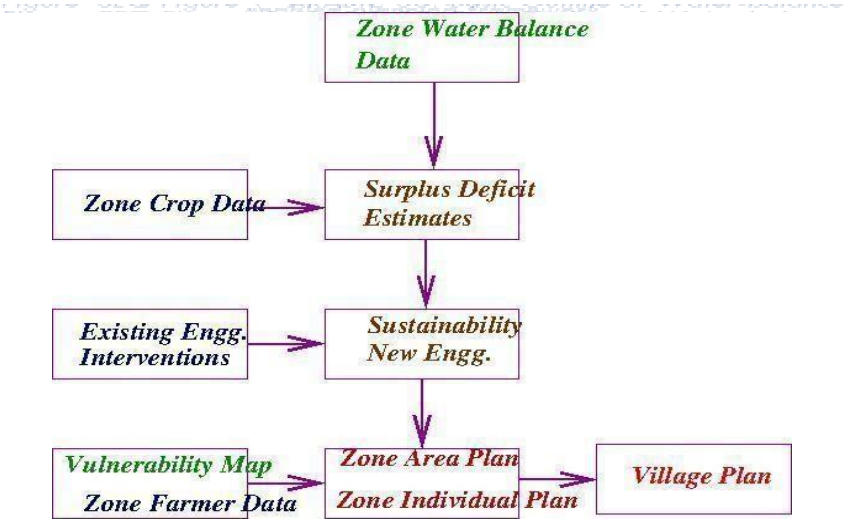
- **MoU -I**

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.



Legend

a. Green - Inputs from PoCRA PMU
b. Blue - Inputs from field
c. Brown - Water Budget generated by processing green and blue inputs
d. Red - Plans prepared based on Water Budget

- **MoU- II**

The MoU has been signed on 2nd November 2018. The duration of the contract is 12 months from the date of signing MoU. The total cost of the contract is INR 72,12,000/-.

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 Mahabhulekh 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.

The complete report has been received on 31st December 2019.

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

MOU-III

The MoU has been signed on 3rd October 2018. The duration of the contract is 24 months from the commencement of work, i.e., from 31st December 2019. The total cost of the contract is INR 2,04,36,000/-.

Objectives

- To attain resource optimization through enhanced energy efficiency.
- To support and assist the technical partners of PoCRA with institutional Knowledge of IIT Bombay and mainstream their inputs.
- To carry out studies and participatory action research activities which will help the project attain the result indicators.
- To help PoCRA in conceptualization and setting up a climate Innovation Centre (CIC).

Deliverables

Refined Water balance framework and support to PMU.

- Mainstreaming of Inputs from external technical agencies for formalization of Model and Planning Methodology.
- Design and support for the development of Contingency Planning Framework based on inputs from CRIDA & other agencies.
- IT tools: Extending Dashboard for various applications ranging from monitoring of project activities, biophysical parameters, water related status indicators, contingency planning across a variety of user themes. Development of farm level applet usable for various purposes such as computing water productivity, marking interventions etc.
- Extension activities and research for better community comprehension.
- Delivery of Models, tools, reports, applications along with source code, training material and manual for scaling up.

II. Energy

- Calculations of water productivity and cost of water/energy in crop production based on protective irrigation measurements and water balance calculations.
- A framework to identify and evaluate risks in access and quality of power to farmers as a constraint to farming and its mitigation.
- Design of an extension program to improve pump selection and water infrastructure thus improving system performance and making energy use more efficient.
- Report on village level irrigation energy infrastructure and its determinants and impacts on access.
- Delivery of framework, tools, reports, and dashboard facility. Calculations of water productivity

Inception Report (Phase I) has been received on 24th January 2020. The report briefs about the methodologies and timelines for completion of the assignment.

Currently Phase II work is in progress where

Water Balance:

Design of project-based Indicators and incorporation of the same in the Dashboard,

Literature and preparation of material for selected training topics like Water Budget, maintaining Krushi dairy.

Energy:

a. Detailed project plan and methodology for crop water productivity measurements including the selection of villages and farmer locations.

b. Detailed project plan and methodology for village selection to evaluate grid infrastructure constraints and risks.

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 study FPCs, including those which are successful, and 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.

4.4 Safeguards

a. 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. Like 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.

b. 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.

Social and Tribal Inclusion strategy:

The vulnerability and poverty are more than low income, it is also about exclusion, unaccountable institutions, and powerlessness. Thus, the project focuses on the need of the farming community in planning, implementation and monitoring processes adopt the stand to "put people first" in holistic development processes.

Social inclusion

Social inclusion is the process of improving the terms on which individuals and groups take part in society improving the ability, opportunity, and dignity of those disadvantaged based on their identity. The project acknowledge the United Nations has committed to "leaving no one behind" to promote inclusive growth and achieve the Sustainable Development Goals (SDGs) and World Bank Group's twin goals of ending extreme poverty and boosting shared prosperity.

The project is focused on 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.

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%. The VCRMC ensures the active participation of the farming community in project and ownership at the gram panchayat level.

Implementation Strategy

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 all the 5142 villages. The project has designed a three-tier implementation structure at the district, subdivision, and village level. Village Climate Resilient Agriculture Management Committee (VCRMC) is responsible for the planning implementation and monitoring of the project activities at the village / Gram panchayat level. The VCRMC shall (i) prepare participatory village micro-plans, (ii) select beneficiaries for individual benefit activities, (iii) plan and execute community works as per approved annual action plan, (iv) be responsible for the maintenance of assets, and (v) facilitate social audit of the project activities.

Gender Sensitive Initiatives

In Maharashtra, the prolonged drought completely devastated the agriculture sector and men migrated to cities in search of livelihood opportunities. Women faced a double burden of risks due to climate change and the responsibility to feed the family.

The Project had taken a gender-sensitive approach to involve the women stakeholders in Agricultural related decision-making and sustainable climate-resilient farming practices.

- In the VCRMC (a statuary body of Gram Panchayats) 50 percent of members are women.
- Deployment of female mobilizer in every project village nomenclature as 'Krishi Tai' nominated by VCRMC.
- To ensure inclusiveness and justified benefit distribution, priority given to SC, ST, Women, and Divyaang.
- Through Capacity Enhancement Need Assessment (CENA) exercise prioritized the women stakeholder's needs and capacity building areas.
- Piloted the dedicated climate-resilient Farmer Field Schools of Women and ensured at least five FFS in a subdivision.
- The maximum participation of female farmers during FFS is encouraged.
- Out of two volunteers to conduct a micro planning process in the village, preferably one-woman volunteer is ensured.
- To ensure inclusiveness, the women beneficiary from landless family eligible for agri-allied activity 'Goat rearing'.

Arrangement of Women Mobilizer "Krishi Tai" at VCRMC/GP Level

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 Tai (Women Farmer Friend) act as an interface between project officials and the village community and help in mobilization efforts. She will 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.

4.5 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 documenting the decision taken and instructions issued. At the sub divisional 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:**

a. 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.

b. The stakeholders can send their complaints or suggestions through postal correspondence to Office of the Project Director, Nanaji Deshmukh Krishi Sanjeevani Prakalp, 30 A/B Arcade, Cuffe Parade, Mumbai Pin: 400005.

c. 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.

d. The PMU telephone lines no. +91 22 2216 3351, +91 22 2216 3352 are available and open during working days and hours.

e. 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 Sub divisional Agricultural Officer (SDAO).

f. 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.

1. 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 Sewak has 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**.**

4.6 Information and Communication Technology (ICT)

The project seeks to deploy innovative ICT-based solutions as a means of demonstrating the potential benefits of ICT solutions. ICT solutions are expected to emerge as robust mechanism for completing all project components. ICT based solution aims to continue process to collect information on actual implementation of project activities compared to those scheduled in the annual work plans, including the delivery of quality outputs in a timely manner, to identify problems and constraints (technical, human resource, and financial), to make clear recommendations for corrective actions, and identify lessons learned and best practices for scaling up.

1 Digital Innovation Lab

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

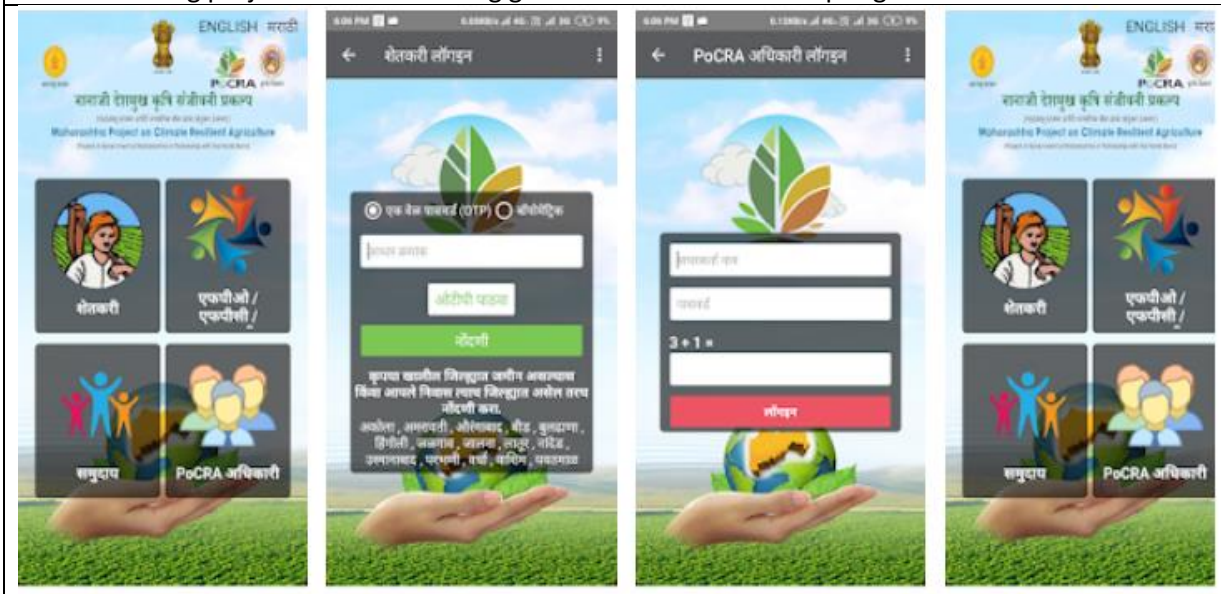
Following are the objective of the Lab

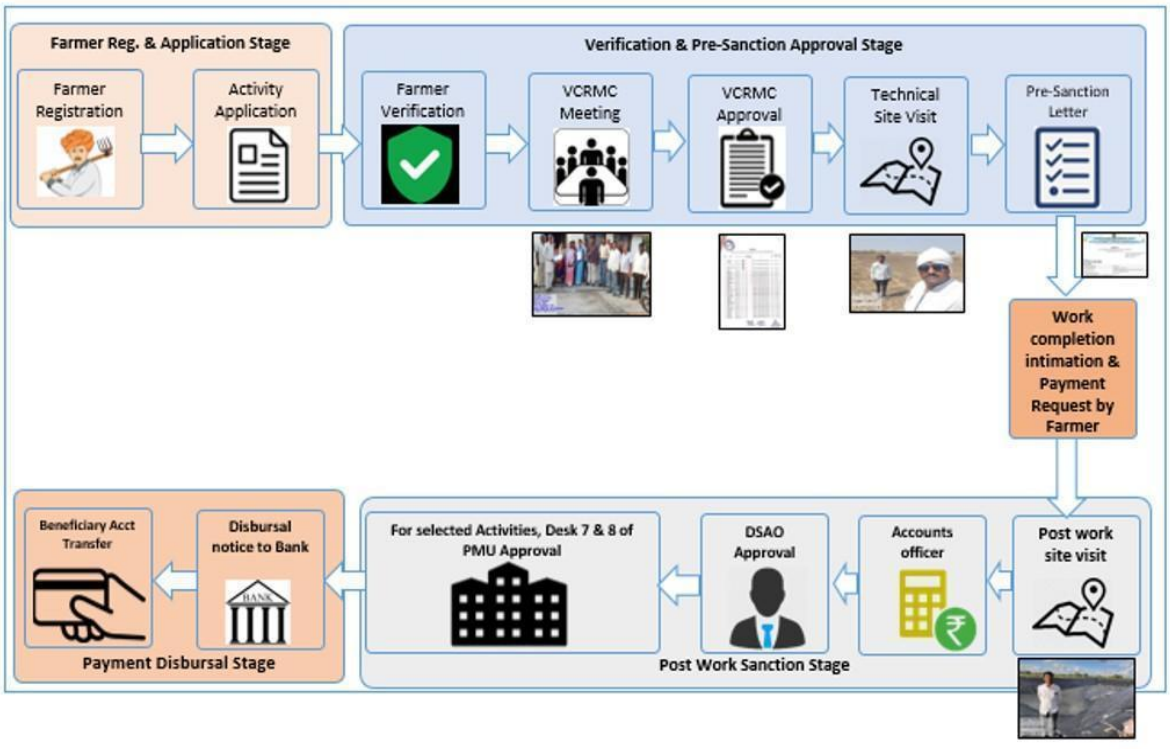
1. Design, Develop and Manage Mobile application (Bi-Lingual English and Marathi)
2. Hire, Manage and Maintain a dedicated cloud to host application
3. Host, Maintain and Manage the applications on the Cloud
4. Develop Innovation use cases around climate –resilient agriculture and innovative farming
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.

PoCRA_DBT Portal Process Flow – Individual Farmers

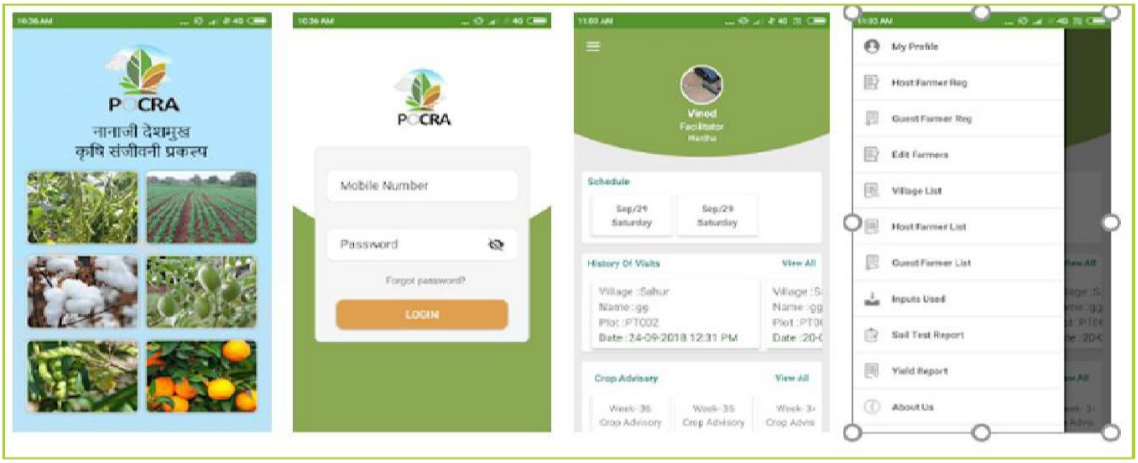
PoCRA project has also taken an initiative in Maharashtra to pioneer in adopting DBT. The process for transferring project related matching grants to beneficiaries adopting the DBT framework





Farmer Field School (FFS) App

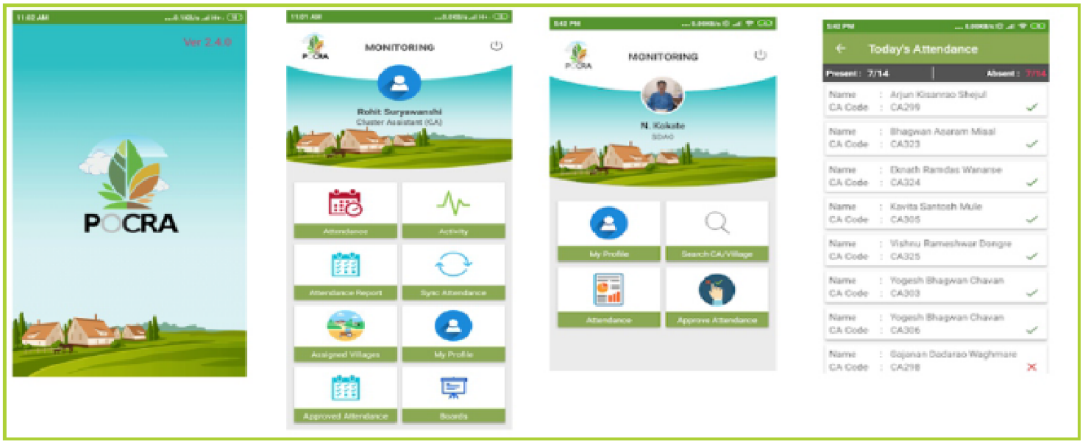
- The FFS is a participatory approach that uses non-formal adult education methods based on experimental learning techniques and participatory training methods
- FFS emphasize learning by doing. The learning process takes place in the field and is normally designed to last for a full growing/cropping cycle. This enables farmers to participate fully in the implementation of all component of the technology from planting to harvesting
- Farmers Field School (FS) is a season-long on field interactive learning process recommendation by the Food and Agriculture Organization (FAO)
- These FFS are being implemented by Facilitators under the technical guidance of Krishi Vigyan Kendra (KVKs



Staff monitoring application

The staff monitoring appl 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, Training & Exposure Visit, Micro Planning, Post-harvest management
- PMU/SDAO can monitor the performance of the Cluster Assistants
    - Agri-Business Specialists can add/update Post-Harvest activities of the 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, 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 Coordinators can utilize this app

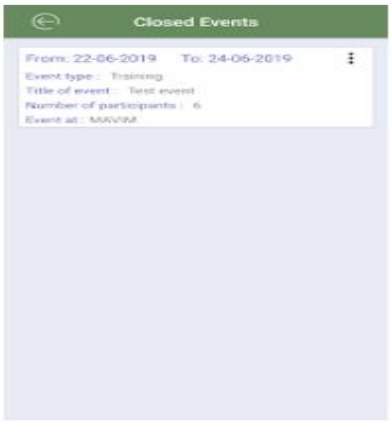
Based on the schedule, reports are generated

PoCRA Training

PoCRA Productivity

3+

Add to wishlist



Financial Management Application

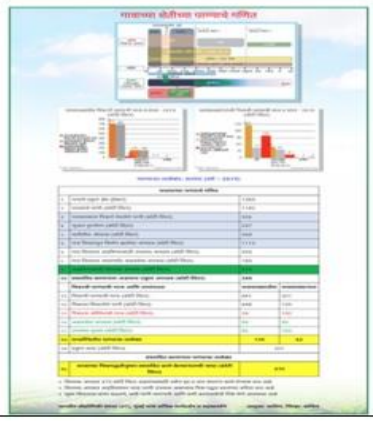
The purpose of the Financial Management System is to monitor and manage the financial activities across all the financial centres to ensue

- 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

MLP application

MLP is Micro Level Planning used by POCRA for getting the statistics of a village based on the water budget, crop information, govt. facility available in a village such as gram panchayat, banks, weather requirements. It is a way for the agency appointed by POCRA team to login into the app using the village census code and fills in the MLP details. It contains six-day activities for completing MLP for a village. It would result in ease of access to the reports of MLP and various other reports for POCRA team



4.7 Geographic Information System (GIS)

Role of GIS

GIS act as an essential tool for the management of the agriculture sector by acquiring and implementing accurate information into a mapping environment. GIS combined with remote sensing is extensively used to produce linked maps on soils, ground water potential zones, drainage, transport network and settlement, land use and land cover. GIS application in agriculture also helps in management and control of agriculture resources. In the process of selection of project villages, the climate vulnerability was calculated for the hydrological units (mini watersheds) using a GIS platform. Various layers including the administrative boundaries and groundwater prospects map was used for the computation of the vulnerability index.

An important component of the project is village level participatory planning for natural resources 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 data, and current water storage structures etc., following maps helps 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.
2. Village land use-land cover Map- This map gives information about agriculture land and season wise cropland.
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.

The project has developed different mobile and web application through Digital Innovation Lab. These applications capture and generate geospatial data. This data is being used for monitoring analysis and evaluation. Project is planning, monitoring, and decision making. A part of this information will be shared in the public domain.

Use of Remote Sensing & GIS Technology (Engagement With Startups)

With the help of Maharashtra State Innovation Society, start-ups like **SatSure and Earth Analytics** have been engaged by the project on pilot basis to deliver technological solutions for following purpose.

- Sowing Intelligence including sowing period estimation and sowing progress
- Estimation of Crop Acreage
- Crop Health Monitoring
- Productivity of water using ET, NDVI, and CCE data
- Harvest Intelligence including harvest window estimation and harvest progress

- Estimation of Crop Performance
- Yield Estimation
- Drought Trigger

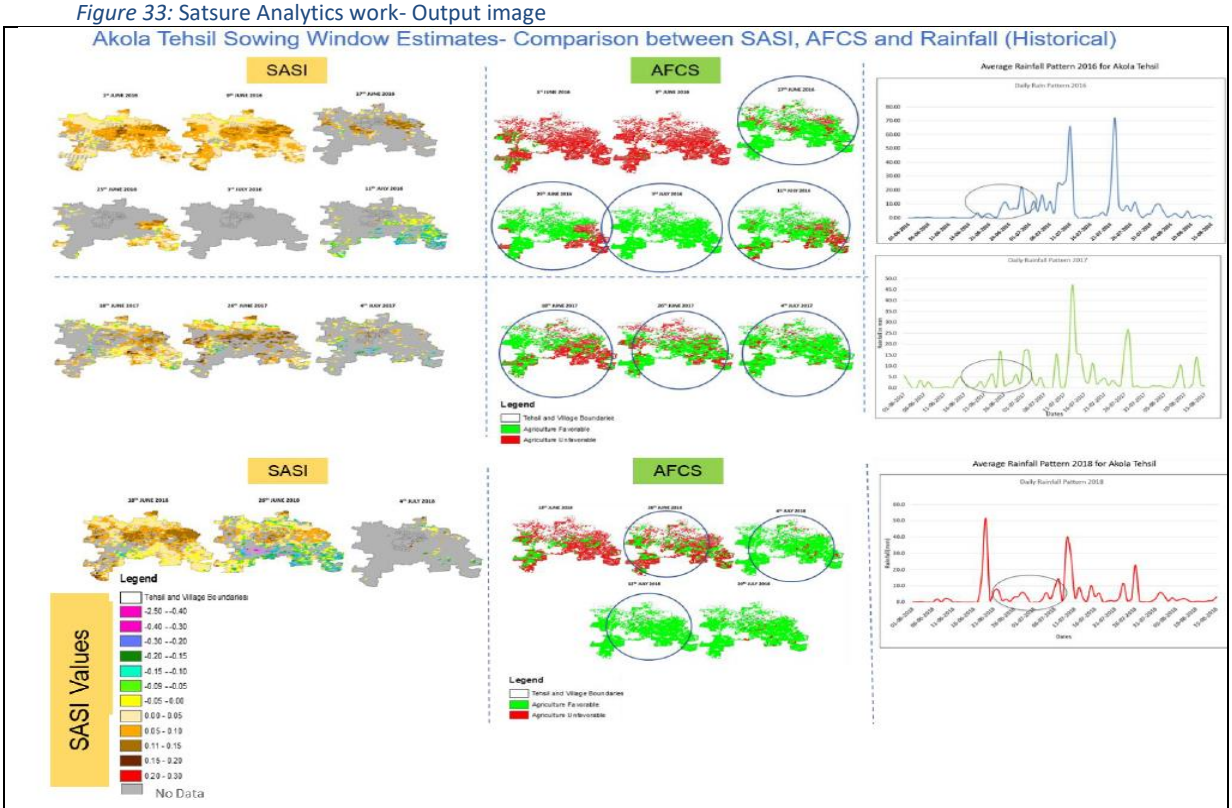
The Start-ups demonstrated their capabilities and improved their understanding of corp monitoring and preparing agricultural advisories. The project has piloted these studies in seven districts in few clusters.

Satsure

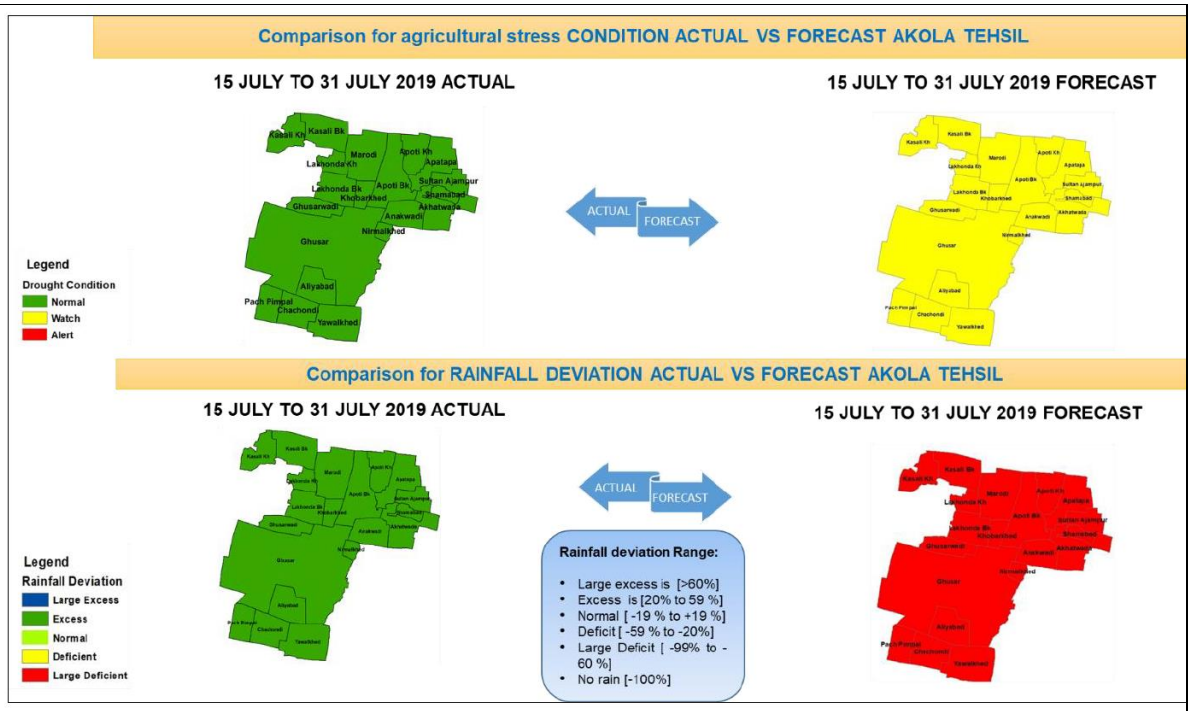
Satsure Analytics has delivered the following products for the Kharif season of 2019 for five clusters of the project area using optical remote sensing data:

Sowing Window Estimation, Sowing Progress, Crop Acreage, Crop Health Condition, Pest Condition, Agricultural Stress Condition

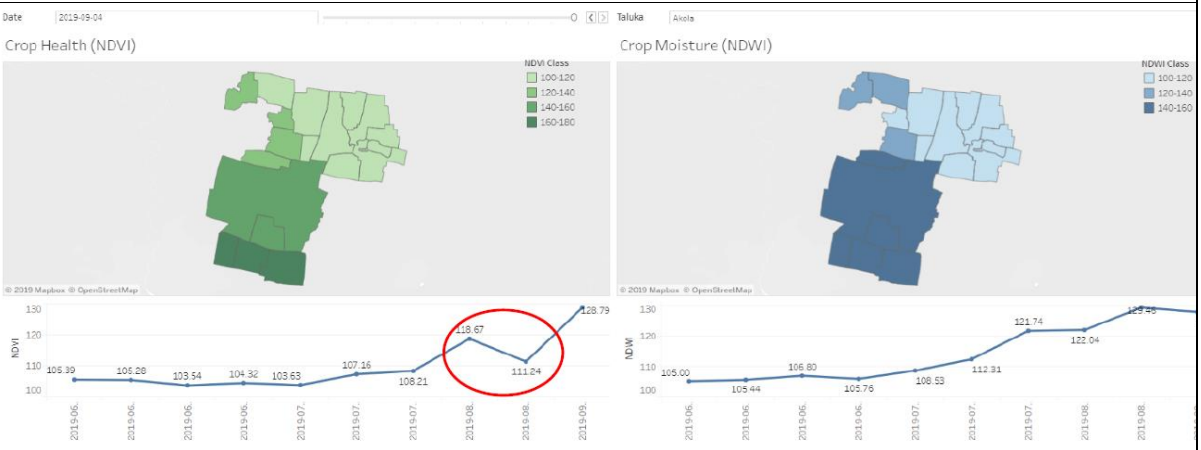
Figure 33: Satsure Analytics work- Output image



Sowing Window Estimation - Sowing window estimation is a module which estimates the potential sowing window based on physical parameters like weather, potential moisture condition, cropping patterns and farming practices. It is estimated according to Area Favorable for Crop Sown (AFCS).

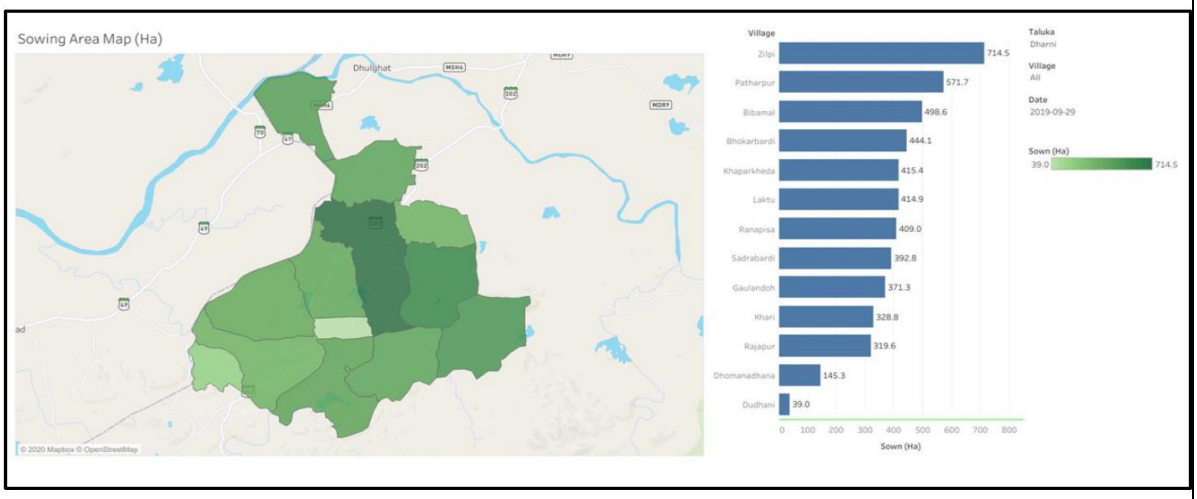


Agricultural Stress Condition Comparison (Actual vs Forecast) - Agricultural stress condition comparison was done for forecasted vs actual data. The following images show the comparison of agricultural stress and rainfall condition at tehsil level for Akola.

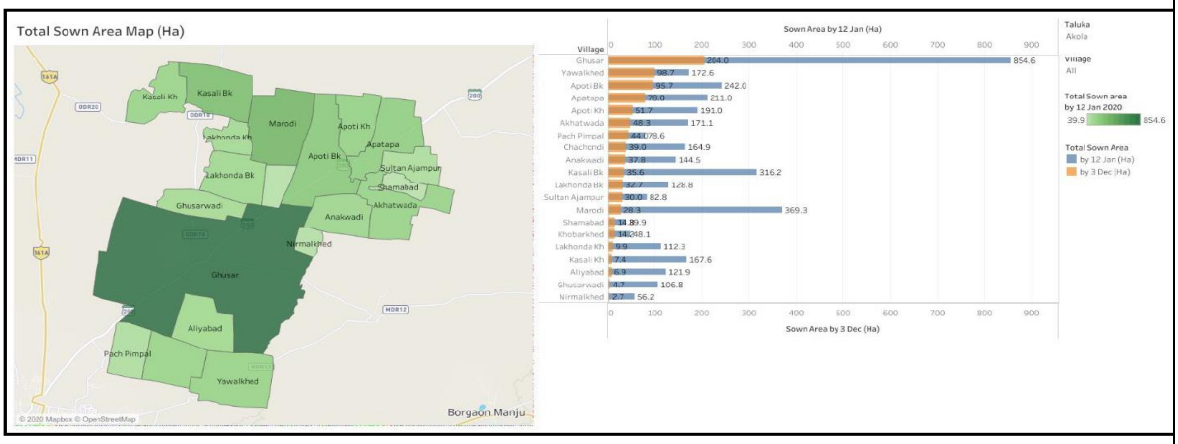


Crop Health Monitoring and Pest Condition Monitoring: The crop health data as a timeseries analysis has been shown in figure. The NDVI information has been fall between 10th August to 25th August. Thus, the drastic drop in NDVI could have been due to an incident pest or disease in the region

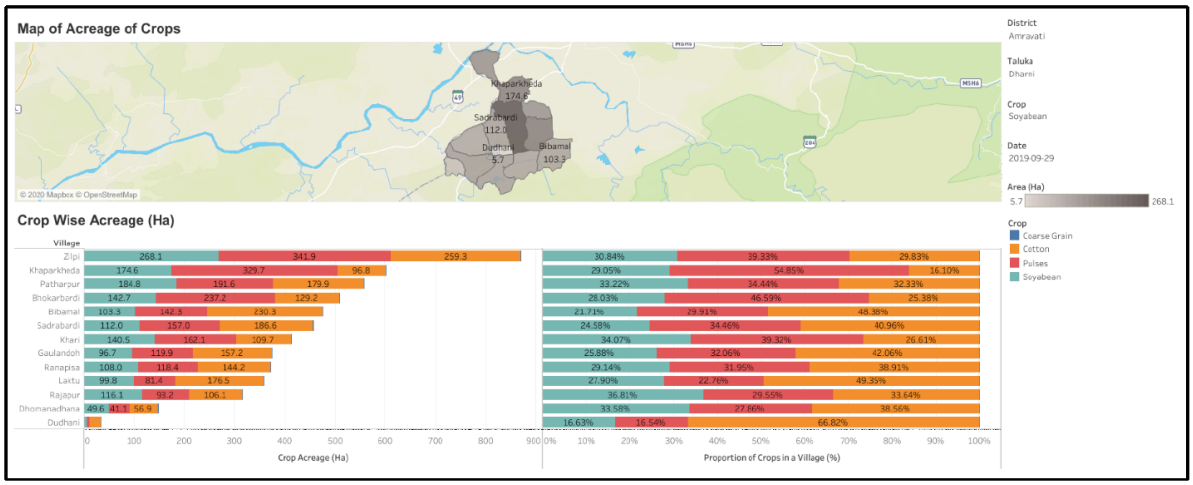
1. Kharif Sowing Area Map



2. **Rabi Sown Area Map** (Comparison of Sown Area for two dates was added to Rabi.)



5. Kharif Crop Acreage

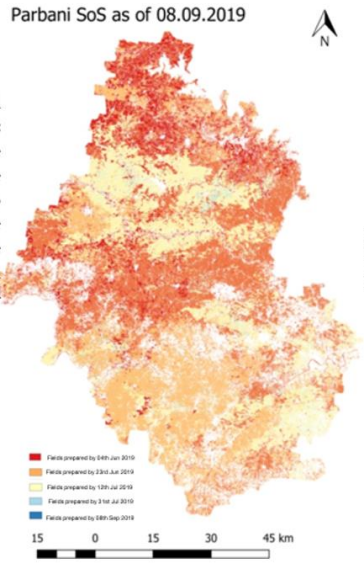


Earth Analytics

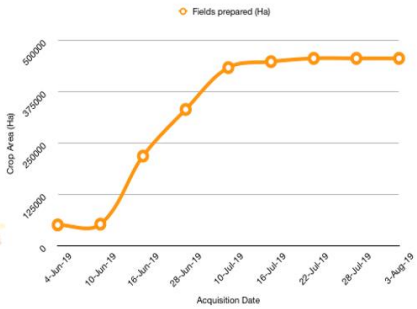
Earth Analytics India (EAI) use radar image-enabled remote sensing data which has the advantage to permeate the clouds that are prevalent during the Kharif season. EAI has delivered the following products for the Kharif season of 2019 for Parbhani: Start of Season Monitor, Land Cover Map, Crop Stress Map, Crop Type Map Water Reservoir Monitor

*Figure 34:*Earth Analytics- Output

Parbhani field preparation was identfied during the second half of June and the first two weeks of July. The emergence of the vegetation had been observed around 14 days afterwards.

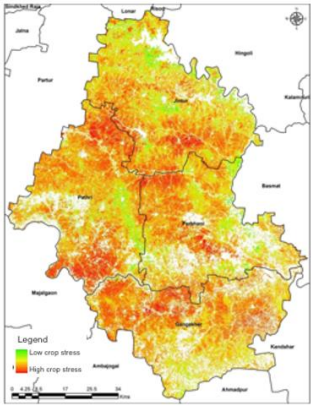


Crop phenology map – Parbhani (8th Aug 2019)

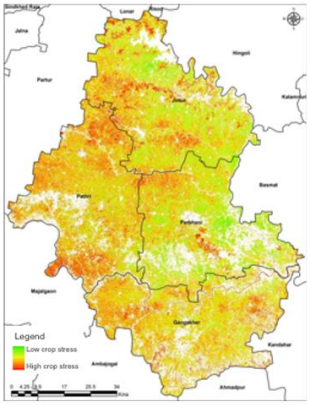


Crop Stress Map Parbhani District

A potential crop stress had been registered both on the satellite data and field observation in Central to Northern pockets of the districts at the end of July. by early August, rains had arrived and the areas marked as potentially under stress by the satellite observation had returned to normal growth patterns again as can be seen on the two pictures.

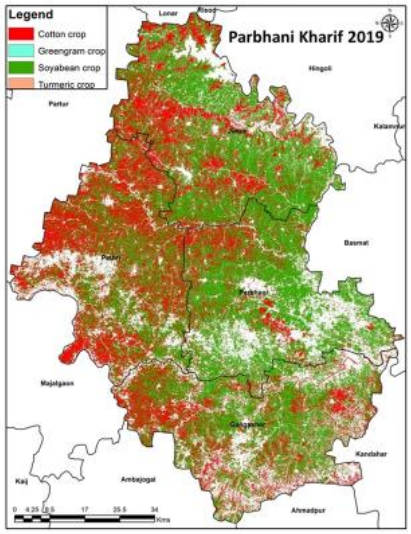


Map 3: Crop stress map – Parbhani (22nd Jul)



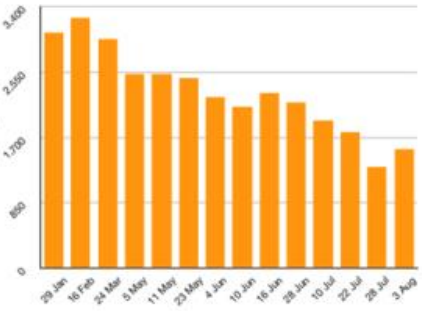
Map 4: Crop stress map – Parbhani (3rd Aug)

Parbhani District – Crop type map



The major crops found in Parbhani are cotton and soyabean. In small pockets also turmeric and green gram had been planted.

Water pond monitor – Parbhani



Water pond monitor – Parbhani

Water body monitoring has been done in the Prab district using sentinel-1 SAR time series data. senti time series data used starting from 29th June 2019 3rd August 2019 for every 12 days gap. The total covered by water on land in the Prabhani distric been estimated.

Component D:

Project Management

5. Component D: Project Management Support

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

5.1 Project Management and Support

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

Table 40:Status of Staff Position (March 2020)

Level	Sanctioned Posts			Filled Posts		
	Regular	Contractual	Total	Regular	Contractual	Total
PMU	26	45	71	18	30	48
District	15	75	90	13	67	80
Subdivision	72	72	144	57	69	126
Cluster		500	500		500	500
FFS Facilitators*					455	455
FFS Coordinators*					59	59
Total	**113**	**692**	**805**	**88**	**1180**	**1268**

*These persons are working on honorarium basis

5.2 Monitoring and Evaluation (M&E)

As part of Project Management, it is pertinent to have a robust monitoring and evaluation system, which would help to ensure and track if the project is achieving its intended objectives.

The specific objectives of M&E activities of PoCRA 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.

The key deliverables as part of the M&E activities to be conducted by external consulting organizations have been mentioned below.

S.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 Midterm 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

To conduct the M&E activities for PoCRA, PMU has appointed two consulting organizations separate for the Marathwada and for rest of the project area. The project had signed a contract with 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 project has onboarded NABARD Consultancy Services Private Limited (NABCONS) for consultancy services for M&E activities of the project in the Rest of Project Area on 12th December 2019.

The Sambodhi & TERI Consortium has submitted and received approval on the inception report followed by the Concurrent Monitoring Round I and the baseline survey report have been submitted and the findings were presented to the PMU team. Further, the Concurrent Monitoring Round II findings and the report have been submitted to PMU.

NABCONS which had been recently onboarded has received approval on its inception report and is currently conducting in the process of conducting the baseline survey as part of the impact evaluation of the project.

5.3 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 advance technology for effective communication

The project has used the live streaming system for orientation training of VCRMC members on 6th Feb 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.

VCRMC

Apart from training and strengthening activities, the project support to VCRMC 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/UCIHg3Leo4yby5fUM9Gk2rQ). PMU has created audiovisual content on project activities and uploaded the same on the project official YouTube channel.

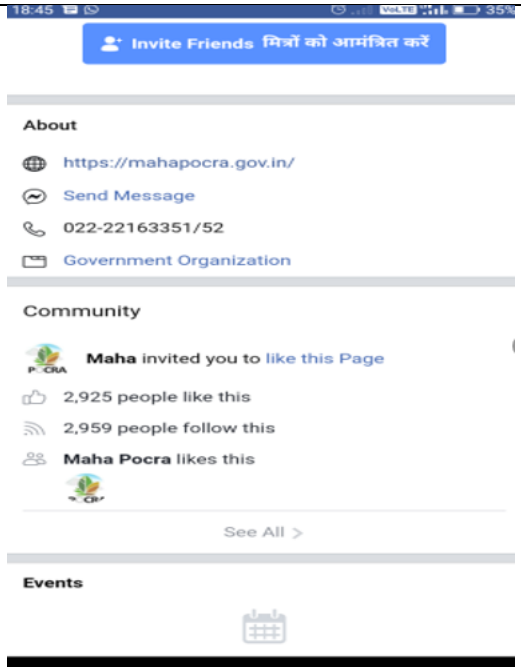
Use of Social Media

The content on Social media has been designed for awareness generation and information dissemination. PMU, PoCRA has developed two new digital accounts on Twitter and Instagram in addition to our Facebook page.

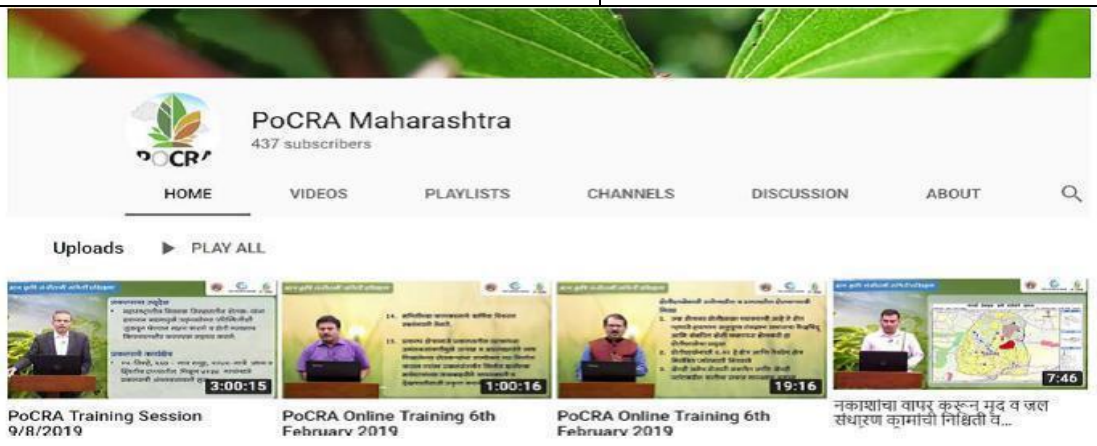
-PMU, PoCRA has more than 100 followers on Instagram

- PMU, PoCRA initiated district level magazine subscription

Figure 35:Use of Social Media



2997 followers on Facebook



YouTube channel of the project, 1.77k followers on YouTube

Figure 36:Project Display Boards and Activity wise Boards

Project Information Boards displayed in the Project Village

Display board of PoCRA at Sub-divisional Office at Hingoli

Display board of VCRMC at Mehranpur, Amravati District

5.4 Procurement Status

Procurement is integral part of project planning an implementation. Project Procurement Strategy Development envisages how the project is planned to be executed. The status of procurement in the project is as below.

Manpower: Project has engaged T&M HR services to provide contractual manpower. So far Project personnel are engaged in different capacities such as at Specialist-Agriculture, Agri-business, HRD, Procurement, PS Agriculture, Accounts officers etc.

Microplanning: Project villages are divided as per the mini-water sheds and further micro-watershed. Execution of Micro Planning process & submission of technically vetted cluster microplanning including list of works, potential beneficiaries & activity wise cost estimation of DPMU & PMU of Clusters under project was assigned to 3 agencies during 2018-19 for Phase I villages. Similarly, 9 activities for MLP of Phase II villages has been initiated.

Digital Innovation Lab: Digital Innovation Lab was set under PoCRA to Design, Manage and Provide Support Services and develop applications for effective implementation of the project. Accordingly, AADHAR linked online beneficiary application form submission system, geotagging of activity-assets created, online verifications and payments, Financial Management System, Field functionaries geofenced attendance system, MLP applications, water balance etc. application supports have been completed. Procurement Review Mechanism and MIS is under process.

Monitoring and Evaluation (M&E): Two agencies for Monitoring and Evaluation (M&E) for PoCRA in Marathwada Region and in Rest of Project Area have been onboarded.
Institutional Tie-ups:

Water Balance: As the project area is prone to vagaries of nature and water being the most critical input, emphasis has been given to utilize every drop of water available. For this purpose, MoU with IIT, Bombay was signed to develop water balance for project villages. While working on it, it revealed that the basic model of water budgeting needs to be refined and there is need to collect basic data with respect to ground water status, soil depth and structure etc. Further, two MoUs were signed with IIB Bombay and also in order to collect additional data required to accomplish this task, MoUs were signed with Groundwater Surveys and Development Agency (GSDA), Pune and National Bureau of Soil Survey and Land Utilization Planning (NBSS & LUP), Nagpur. Now, the Water Budgeting app. is ready to use. Village wise water budget charts are prepared and are being displayed at village level to create awareness about water balance. Integration of Elements of Climate Resilience in Micro-watershed Plans under PoCRA is in process. For this MoU is signed with 3 agencies i.e. State Agriculture Universities in project area i.e. Dr.PDKV, Akola, VNMAU, Parbhani and MPKV, Rahuri.

Table 41: List of Contracts Awarded (upto March 2020)

Sl. No	Contract/ Reference No. and Date	Contract Award Date	Contract Value		Name of Contractor/ Consultant
			US$	Rs. in Lac	
1	IN-MAHAPOCRA-85479-CS-CDS / Water Balance for Watershed Plans under PoCRA (I)	16/8/2017	84546.74	54	IIT,Bombay
2	IN-MAHAPOCRA-55065-CS-CDS / Providing services for Capacity Enhancement Need Assessment, Training Plan, and Support for Implementation thereof.	17/05/2018	169,230.00	108.09	TISS, Tuljapur
3	IN-MAHAPOCRA-34006-CS-QBS / Participatory Microplanning of Clusters selected under PoCRA in Aurangabad Division.	18/05/2018	170352.84	108.8	Watershed Organization Trust (WoTR)
4	IN-MAHAPOCRA-34027-CS-QBS / Participatory Microplanning of Clusters selected under PoCRA in Amravati Division	7/6/2018			Rashtravikas Agro Edn, Sangamner
5	IN-MAHAPOCRA-34026-CS-QBS / Participatory Microplanning of Clusters selected under PoCRA in Latur Division. (5 Districts)	7/6/2018	217459.43	138.89	WAPCOS, Ahmedabad
6	IN-MAHAPOCRA-34035-CS-LCS / Hiring of HR agency for staff recruitment	18/6/2018	84546.74	54	T&M Consultancy services, Mumbai
7	IN-MAHAPOCRA-54916-CS-CDS / Study of FPCs in Osmanabad district, Case study of Select Water Intervention, and M&E support to PoCRA	16/08/2017	84546.74	54	Gokhale Institute of Politics and Economics
8	IN-MAHAPOCRA-59596-CS-CQS / Design, Manage and Provide Support Services for 'Digital Innovation Lab' for PoCRA	13-Jul-18	113668.39	72.6	Run Time Solutions pvt. Ltd. Mumbai
9	IN-MAHAPOCRA-55040-CS-CDS / Water Balance for Watershed Plans under PoCRA	2-Nov-18	112916.86	72.12	IIT,Bombay
10	IN-MAHAPOCRA-42863-CS-QCBS / Monitoring and Evaluation (M&E) for PoCRA in Marathwada Region	6/3/2019	1308755.629	835.9	SAMBODHI and TERI, New Delhi
11	IN-MAHAPOCRA-111784-CS-CDS / Creation of High-Resolution Inventory and Land Use Planning for Climate Resilient Agriculture.	24-May-19	78158.76	49.92	NBSS and LUP Nagpur
12	IN-MAHAPOCRA-111743-CS-CDS / Preparation of cluster wise groundwater recharge plan for 70 clusters with GSDA	14-Jun-19	299044.94	191	GSDA,Pune
13	IN-MAHAPOCRA-42872-CS-QCBS / and Evaluation (M&E) for PoCRA in Rest of Project Area	12/12/2019	822608.42	525.4	NABCONS, New Delhi

14	IN-MAHAPOCRA-136416-CS-CDS-MPKV-RAHURI / Determination of crop coefficients for the major crops by Lysimetric studies under MPKV RAHURI	17/01/2020	67,757.00	43.28	a. MPKV, Rahuri
15	IN-MAHAPOCRA-139390-CS-CDS-VNMAU-PARBHNI / Determination of crop coefficients for the major crops by Lysimetric studies under VNMU PARBHANI	17/01/2020	100,542.00	64.22	b. VNMKV, Parbhani
16	IN-MAHAPOCRA-139392-CS-CDS-PDKV-AKOLA / Determination of crop coefficients for the major crops by Lysimetric studies under Dr. PDKV Akola	17/01/2020	102,686.00	65.59	c. PDKV , Akola
17	IN-MAHAPOCRA-134410-CS-CQS / Consultancy Services for Internal Audit for PoCRA for the period (2018-19 To 2020-21)	18.03.2020	96708.16	61.7675	S. K. Patodia and Associates, Mumbai
18	2019_DOA_503712_1 Invitation for Quotations for Hiring of Vehicles On Monthly Rental Basis and On Call Basis for Travel Around Mumbai and or in Maharashtra	30/01/2020	Approx. 10960	Approx. 7.00 lac (As per use)	Ms. Ambaji Travels (monthly basis excluding airport pickup & drop) & Ms. Pai Auto Pvt. Ltd. Mumbai for airport pickup & drop

Contracts in process

Beside this there are 15 of contracts related to Micro Planning (9), Digital Platform, Procurement Consultant, Procurement of 10 Lysimeters for determination of Crop Coefficient, Development of GIS based decision support system for PoCRA through MoU with Madhya Pradesh State Electronics Development Corporation, Integrating Elements of Climate Resilience in Micro watershed Plans under PoCRA, Research Backstopping to Project Clusters under PoCRA- Maharashtra with CRIDA are in process.

Table 42: Number of District level Contracts: July 1, 2018 - June 30, 2019 (INR Lakh)

Districts	*Goods*			*Non-Consultancy Services*			*Works*			*Total*		
	No. of Contract	Sum of Contract Value	Sum of Payments made till date	No. of Contract	Sum of Contract Value	Sum of Payments made till date	No. of Contract	Sum of Contract Value	Sum of Payments made till date	Total No. of Contract	Total Sum of Contract Value	Total Sum of Payments made till date
Akola	30	69.73	69.73	5	2.5	2.5				35	72.23	72.23
Amravati	15	10.35	6.21	4	3.72	1.92				19	14.07	8.14
Aurangabad	16	3.46	3.27	16	12.05	12	25	338.85	26.18	57	354.35	41.45
Beed	15	13.35	13.35	4	0.81	0.81				19	14.16	14.16
Buldhana	15	13.25	13.25	12	7.94	7.94				27	21.19	21.19
Jalgaon	26	13.98	13.74	16	1.51	1.47				42	15.49	15.2
JALNA	14	109.7	109.07				8	110.08	53.67	22	219.78	162.73
Latur	16	17.7	17.7	3	2.05	1.75	2	36.09	24.54	21	55.84	43.99
Nanded	5	2.81	2.81	2	0.88	0.88				7	3.69	3.69
Osmanabad	19	11.53	11.45	5	0.94	0.94	17	248.62	95.21	41	261.09	107.6
Parbhani	19	26.66	40.75	9	3.52	4.34	5	33.81	5.95	33	63.98	51.05
Wardha	4	2.05	2.05	1	0.69	0.69	10	92.82	81.06	15	95.56	83.8
Washim	9	6.24								9	6.24	0
Yavatmal	7	3.76	2.76	3	0.71	0.71				10	4.48	3.48
Grand Total	210	304.57	306.14	80	37.32	35.95	67	860.27	286.61	357	1202.15	628.71

Table 43: Number of Contracts at District level - July 1, 2019 - March 31, 2020 (INR Lakh)

District	Goods			NCS			Works			Total		
	No. of Contract	Sum of Contract Value	Sum of Payments made till date	No. of Contract	Sum of Contract Value	Sum of Payments made till date	No. of Contract	Sum of Contract Value	Sum of Payments made till date	No. of Contract	Sum of Contract Value	Sum of Payments made till date
Akola	25	36.06	35.58	27	11.29	8.99				52	47.35	44.58
Amravati	2	0.85	0.85	4	1.30	1.30				6	2.15	2.15
Aurangabad	31	21.14	21.00	31	13.33	9.31	11	146.56	65.67	73	181.03	95.98
Beed	19	43.78	43.78				4	45.40	21.04	23	89.18	64.82
Buldhana	25	76.63	32.51	2	1.94	1.94	7	63.83		34	142.39	34.45
Jalgaon	49	45.21	44.99	8	1.13	1.13	18	210.29	156.15	75	256.63	202.27
Jalna	25	170.67	170.05	5	3.12	3.13	10	142.43	53.67	40	316.23	226.84
Latur	12	29.08	28.08				1	2.98	2.94	13	32.06	31.02
Nanded	4	15.76	15.76	4	5.85	5.85	4	53.82	3.95	12	75.43	25.56
Osmanabad	24	6.77	6.77							24	6.77	6.77
Parbhani	4	14.94	14.88	5	3.43	3.44	1	4.01	4.49	10	22.37	22.80
Wardha	12	4.52	2.88	3	2.43	0.86	12	129.73	0.61	27	136.68	4.35
Yavatmal	12	13.43	13.38	8	1.68	1.68				20	15.11	15.06
Grand Total	244	478.84	430.51	97	45.50	37.63	68	799.03	308.52	409	1323.37	776.66

5.5. Financial Management:

1. Project Cost:

The total cost of the project is INR 4,000 crores, out of which the share of the Government of Maharashtra INR 1,200 Crore (30%) and the share of the World Bank is INR 2,800 crore (70 %). The details of the project expenditure as on 31st March 2020 is shown in the following table.

Table 44: Component wise Project Expenditure (as on 31st March 2020) (Amount in INR Crore)

Components	Project Till date (upto30th June 2019) (INR Crore)	Project Till date (up to 31st March 2020) (INR Crore)
A. Promoting Climate resilient agriculture systems	18.07	192.86
B. Post-harvest management and value chain promotion	0.21	4.1
C. Institutional Development, Knowledge and policies	3.84	7.63
D. Project Management	21.61	49.13
Total	**43.72**	**253.72**

2. Provision of Budget:

Every year the provision of funds for project expenses is made in State Govt budget passed by the State Legislature. The year wise budget provision and the release of funds to the project by the State Govt is given in the following table:

Table 45: Provision of Budget (Amount in INR Crore)

F. Y.	Sanctioned Budget			Released Budget		
	External share (70%)	State Share (30%)	Total	External share (70%)	State Share (30%)	Total
2018-19	210.00	90.00	300.00	105.00	51.56	156.56
2019-20	210.00	90.00	300.00	168.00	72.00	240.00
2020-21	350.00	150.00	500.00	0.00	0.00	0.00

3 **Budget Allocation to DPIUs for FY 2019-20.**

The sanctioned budget is released to Controlling Officer of Project i.e. Project Director on BEAMS Portal. The Project Director releases the budget to PMU DDO and District Superintendent Agricultural Officers (DSAOs) of 15 districts in the project area. The DSAO releases the budget to Sub Divisional Agricultural Officers (SDAOs) working under them through BEAMS Portal and through bank to PD ATMA. The budget released to PMU DDO and 15 districts during FY2019-20 to meet their expenses related to project components is given in following table:

Table 46 : The budget released to PMU DDO and 15 districts during FY2019-20

(Figures in Rs)

Sr No.	Accounting Center	External Share	State Share	Total
1	PMU DDO	1470000000	500096000	1970096000
2	Aurangabad	15000000	18367000	33367000
3	Jalna	13000000	13272000	26272000
4	Beed	14000000	8845225	22845225
5	Latur	14000000	8054000	22054000
6	Osmanabad	11700000	10988000	22688000
7	Parbhani	13000000	5848000	18848000
8	Nanded	14000000	106.8575	24685750
9	Hingoli	10000000	15308000	25308000
10	Jalgaon	20000000	7276000	27276000
11	Amravati	14000000	9450000	23450000
12	Akola	26270000	6600500	32870500
13	Buldhana	11000000	5000000	16000000
14	Yavatmal	10000000	21027128	31027128
15	Washim	10000000	5710000	15710000
16	Wardha	13000000	16591700	29591700
	Total	**167,89,70,000**	**66,31,19,303**	**234,20,89,303**

4 **Budget Allocation to VCRMCs.**

The bank accounts are opened at VCRMCs level. After drawal of funds from District Treasury/ Sub Treasury the funds are transferred by SDAO office to VCRMCs bank accounts. The VCRMC meet their expenses from the funds received by SDAO office. The details of fund given to VCRMCs till 31st March since opening of bank accounts is given in the following table:

Table 47: details of fund given to VCRMCs till 31st March 2020

(Figures in Rs)

Sr No.	District	Total No of VCRMC in district	No of VCRMC Account opened	Total no of VCRMC where funds are distributed	Total funds distributed to VCRMC	Expenditure of all VCRMC
1	Aurangabad	190	147	120	2982042	671391
2	Jalna	326	144	87	2175000	52860
3	Beed	314	107	56	1400000	0
4	Nanded	348	175	150	3750000	0
5	Hingoli	236	74	74	1961000	260500
6	Latur	257	176	167	4175000	241714
7	Parbhani	246	74	74	1850000	52000
8	Osmanabad	259	127	55	1375000	431317
9	Jalgaon	317	204	116	1740000	160435
10	Amravati	284	284	284	8180000	2231703
11	Akola	279	232	232	5800000	1527135
12	Buldhana	283	267	255	4477175	471019
13	Washim	80	64	64	985000	0
14	Wardha	65	53	50	1250000	59540
15	Yavatmal	211	173	173	4325000	516538
Total		**3695**	**2301**	**1957**	**4,64,25,217**	**66,76,152**

* consolidation of expenditure at VCRMC level is in process hence, figures of expenditure are interim.

5.IUFR and Claim Status:

The IUFR are prepared by PMU and submitted to TTL of Project for approval. After approval by TTL the reimbursement claims are submitted to CAAA in the formats prescribed in Financial Management Manual. The status of IUFR and Claims submitted till date is given in the following table:

Table 48: status of IUFR and Claims submitted till 31st March 2020

(Figures in Rs.)

Sr No	IUFR Period	Total Expenditure	Amount Claimed for Reimbursement	Date of Claims Submitted	Claim Status
1	Prior Period (Apr 2017-Apr 2018)	47604852	33323396	21/06/2018	Approved
2	April to September,2018	34345125	24041588	3/1/2019	Approved
3	October to December, 2018	58896821	41227775	10/6/2019	Approved
4	January to March, 2019	168011851	117608296	17/06/2019	Approved
5	April to June 2019	128388724	89872107	11/9/2019	Approved
6	July to September, 2019	432869263	303008484	20/11/2019	Approved
7	October to November, 2019	473997035	331797925	13/12/2019	Approved
8	December 2019 to January, 2020	544558936	381191255	7/4/2020	Approved
9	February to March ,2020	648492019	453944413	-	In Process
Total		**253,71,64,626**	**177,60,15,239**		

6 Project Component wise Expenditure for FY 2019-20:

The expenditure of project is divided into four components, Component-A, Component-B, Component-C and Component-D. Further each component is subdivided into sub-component and subcomponent is divided into project activities. The Project Component &sub component wise expenditure is shown in the following table:

Table 49: The Project Component &sub component wise expenditure (Figures in Rs Lakh)

Project Components & Sub-Components	Up to 31st March, 2019	During FY 2019-20	Project till Date (Up to 31st March 2020)
A. Promoting Climate-Resilient Agricultural Systems			
A.1 Participatory Development of mini Watershed Plans	263.56	117.50	381.06
A.2 Climate Smart Agriculture and Resilient Farming Systems	421.88	4780.09	5201.97
A.3 Promoting efficient and sustainable use of water for agriculture	369.47	13333.14	13702.61
Subtotal -A	1054.91	18230.73	19285.64
B. Climate smart post-harvest management and value chain promotion			
B.1 Promoting Farmer Producer companies	0.00	35.03	35.03
B.2 Strengthening Emerging value chains	0.00	48.65	48.65
B.3 Improving the Performance of Seed Supply Chain	14.70	311.71	326.41
Subtotal-B	14.70	395.39	410.09
C. Institutional Development, Service Delivery and Knowledge			
C.9 Strategic Partnership with other institutions	0.00	5.89	5.89
C.10 Capacity Development	244.63	296.39	541.01
C.11 IEC	104.62	111.66	216.28
Subtotal-C	349.25	413.93	763.18
D. Project Management			
D.1 Project Management and Support	1366.85	2633.60	4000.45
D.2 Monitoring and Evaluation	0.00	69.05	69.05
D.3 Information, Communication Tools	302.88	540.35	843.23
Subtotal-D	1669.73	3243.00	4912.73
Total Expenditures (A+B+C+D)	3088.59	22283.06	25371.65

7 Training of Accounts Staff:

Table 50:Training of Accounts Staff:

Sr. No	Topic	No. of Participants
1	Account District wise Training Workshop	77
2	Finance Management System	3
3	Foundation Training to newly recruited accounts staff	57
4	Training on Finance Management System (FMS) at Aurangabad	50
5	Training on Finance Management System (FMS) at Aurangabad	40
6	District wise Reviews Workshops	155
7	District Wise IUFR Review and Training Workshop	100
8	One Day Review &Training Workshop	25

8.Appointment of Internal Auditor:

The Expression of Interest was published on 18/09/2019 for appointment of Internal Audit. The Procurement process has been completed and M/S. S. K. Patodia & Associates has been selected as Internal Auditor. The agreement has been signed on 18th March,2020. The assignment is for FY 2018-19,2019-20 and 2020-21.

9.Rollout of FM Manual:

The translated copy of FM Manual in local language Marathi has been communicated to all accounting centers in January 2019. Also published on projects official website https://mahapocra.gov.in

10.Accounting Software (FMS):

For monitoring of financial matters and accounting of expenditure, the project has developed online Finance Management System (FMS). The training of FMS has been given to accounting staff at all accounting centres. The accounting software has features like Budget Allocation, Opening and Closing Balances, Vender Creation, Book Expenditure, Book Advances, Settle Advances, Settle Deductions, ECS generation, VCRMC Module, IUFR reports and financial reports. The data entry in FMS has been started at all accounting centres. The generation of IUFR reports and other financial reports is under development.

11. Financial Management: Staff Position:

The sufficient provision of Accounting staff has been made for the project at all accounting centres. The 14 staff positions including Finance Specialist are sanctioned at PMU, Mumbai and 138 staff positions are sanctioned for DPIUs. The accounting staff position at various accounting centres is given in the following tables:

Table 51: FM Staff Position at PMU Level

	FS	AO	AAO	Dy.Acct	AC	Total
To be filled	1	1	2	4	6	14
Filled	1	0	1	3	3	8
Vacant	0	1	1	1	3	6

Table 52: FM Staff Position at DPIU Level

Name Post	To be Filled	Filled	Vacant
AOs at SDAO	36	30	6
Project Accounts Assistant at District	30	26	4
Accounts Assistant at SDAO	72	69	3
Total	138	125	13

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Annexures:

Annexure : 1- Procurement Plan 2020-21

The activities proposed for the execution during 2020-21 are consolidated as below. However, considering the pandemic covid19's threat, the proposed procurement plan will be implemented subject to administrative approval for 2020-21.

Sum of Total Estimated Contract Cost (Rs. in Lac)

Row Labels	Goods	Non-Consultants	Works	Grand Total
Aurangabad	40.43	913.16	3554.26	4507.85
Jalna	28.46	270.06	351.64	650.16
Beed	521.08	76.14	493.23	1090.45
Jalgaon	104.41	9.20	379.94	493.54
Osmanabad	490.77	11.42	2142.17	2644.36
Latur	231.64	15.00	3413.09	3659.73
Nanded	322.88	87.55	481.81	892.24
Parbhani	233.413	5.2	2545.28	2783.89
Hingoli	183.22	4.8		188.02
Buldhana	503.428	42.55	1795.385	2341.36
Akola	426.66	198.17	827.75	1452.58
Amaravati	179.91	73.6	455.83	709.34
Washim	9.44		146	155.44
Yavatmal	94.23	46.66	2236.49	2377.38
Wardha	9.73	1.68928	649.77	661.19
Grand Total	**3379.71**	**1755.20**	**19472.64**	**24607.54**

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