IMPACT ASSESSMENT STUDY OF VILLAGE DEVELOPMENT PROGRAMME 2020-2021

Submitted to

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REPORT ON IMPACT ASSESSMENT VILLAGE DEVELOPMENT PROGRAMME IMPLEMENTED BYMAHARASHTA AAROGYA MANDAL

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1. INTRODUCTION AND BACKGROUND

Bharat Forge Limited, a company incorporated under the Companies Act 1956 having its registered office at Pune Cantonment, Mundhwa Pune. Bharat Forge is actively involved and believes in the overall and holistic social development of communities in Maharashtra. Bharat Forge has taken up multiple initiatives with the objective of up-liftment and betterment of the society through its projects Village Development, Education, Skill Development, Women Empowerment and Community Upliftment and Promotion of Sports. It has led to a focused and targeted impact.

Maharashtra Arogya Mandal, Pune based organization, reputably known as MAM stands for its idea and an ideal. Mainly focusing to extend maximum facilities to the rural poor to promote in them hygienic sense, to make them aware of the need for family planning and to contribute over all development of the people and area. MAM is established in 1960, with the basic aim to provide healthcare to the weaker sections of society, to raise the living standard of the poor and make them stronger physically, mentally, and economically.

MAM is working in Bhimashankar valley in the Ambegaon, Junnar and Khed blocks of Pune District since 1981 with focus on integrated development of the tribal people. The area is inhabited by the tribals Mahadeo-Koli. The area receives about 2000 to 3000 mm of rainfall and the height is about 1000 to 1100 meters above mean sea level. Though it receives heavy rainfall during rainy season i.e. June to September, in summer, drinking water becomes a severe problem along with livelihood insecurity.

Considering common focus areas of improving the quality of life and livelihoods of the tribal Community from the Bhimashankar valley, both the organizations came together and implemented village development project in the selected villages, on five indicators – Water, Livelihoods, Health, and Internal Road & Education etc.

The programme is being implemented from 2017 in 12 villages from Ambegaon block of Pune district, the broad objectives of the programme are as under.

- To increase access and availability of water for domestic as well as farming purposes.
- To reduce soil erosion and increase farm income.
- To promote horticulture plantation and contribute in environmental development.
- To improve access and affordable health facilities to villagers.
- And to promote healthy & safe education to child.

The project was implemented for more than 25000 people from 2017-18 to 2021. The village wise and year wise summary of project activities is given in Annexure I.

Bharat Forge Limited engaged AFARM to conduct an impact assessment of their Corporate Social Responsibility ("CSR") project - Village development project being implemented in select villages of Ambegaon Taluka of Pune District. **Action for Agricultural Renewal in Maharashtra (AFARM)** is an association of Voluntary Organisations (VOs) dedicated to Rural Development in Maharashtra State. AFARM has conducted impact assessment based on agreed Terms of Reference (ToR) for the assignment.

2. ASSESSMENT & METHODOLOGY

The overall objective of the exercise was to study the impacts of the various interventions undertaken in 3-4 years in the project villages with respect to five indicators - Water, Livelihood, Internal roads, Health & Education through MAM & BFL. The terms of reference for impact assessment study is attached as Annexure V.

A team of two professionals from AFARM comprising of Agriculturist & Sociologist conducted the study, Team conducted the desk review of the secondary data provided by the MAM, which helped to develop overall framework of the impact assessment study including framing of indicators and tools to depict the information about each of the indicators.

An online briefing cum planning meeting held between AFARM Team, BFL-CSR team and team of MAM to understand the background, scope of study, project activities, implementation strategy, outreach and expected outcomes of the project. The meeting concluded with finalization of assessment framework, tools, sample size, selection criteria for villages & household along with tentative visit schedule.

After finalization of the framework, team reviewed project related documents & reports, designed & developed impact assessment tools, as Households level questionnaire, Check list for discussion with Community Members for common activity, Check lists for discussion with Villagers, Sarpanch & Panchayat Members, Check List for School Students & Principal, Case studies/ success stories etc. The tools as above used, are annexed herewith as Annexure II.

AFARM team visited the 5 sample project villages and interacted with target community members, Students, Visited field activities & Schools and conducted FGD with village community members and PRI members.

The details of filed visit plan is tabulated as under.

Sr. No	Date	Place / Village Visited	Activity visited
1	18 July 2021	Journey to Dimbe	Drinking water Supply Scheme, Horticulture Plantation, Kitchen Garden, Women participated in Cancer detection camp, School Beautification, Road Side plantation, Land Levelling, Organic Farming, Goat Shed Construction, Nutrition food for School students - School, anganwadi, Students, Wall Compound of School, Water Pond Repairing, Earthen Nala Bund Repairing, Internal Road, Water Tank Construction etc.
2	19 July 2021	Chikhali	
3	20 July 2021	Gangapur	
4	21 July 2021	Kotamdara/ Kolwadi	
5	22 July 2021	Thakarwadi	
6	23 July 2021	Ugalewadi/ Fadalewadi	
7	24 July 2021	Return Journey	

Keeping in view the decided quantum of coverage, team has covered sample size as follows:

Total Sample Size Covered by AFARM Team-

Sr. No	Stakeholders	Total
1	Panchayat Members	17
2	Implementation Partner (HO+Field)	1
3	Principal/ Teacher of the schools	7
4	Students	22
5	Direct Beneficiaries	77
6	Focus Group Discussions with Community members	260

Team also interacted with BFL – CSR team along with head office team of MAM to debrief & collect additional information with respect to impact assessment.

Data analysis and reporting: Upon completion of field investigation the data analysis, interpretation, collation of data work was initiated which was supported by findings of the Team from field observations. Based on the studies of various components of the Village development programme the assessment report is prepared by AFARM.

3. FINDINGS OF THE STUDY

Rationale for the project: The project area is inhabited by the tribals Mahadeo-Koli and receives about 2000 to 3000 mm of rainfall, though it receives heavy rainfall during rainy season drinking water becomes a severe problem in summer.

Approach & access to the interior villages becomes very difficult due to the back water of the Dimbe dam. Most of the tribal families were displaced as their lands submerged in the dam water. Government carried out rehabilitation of these displaced families. However nearly 60% displaced families returned back from places where they had been rehabilitated by Govt. and settled on their old land, which is above the submergence level. Facilities for education, health, electricity and bus transport etc. are extremely poor in these villages. During rainy season, heavy rains and fast flowing streams cut-off most of the area from any forms of vehicular transport.

Scattered hamlets of 10-20 houses each, 1-3 Km from each other and connected by steep, precarious footpaths. Transport of harvest from field to home by head-load only. Bullock carts almost non-existent. Most of the land is hilly, barren, and are unfit for cultivation. As far education the model of -one-teacher per 2-4 classes in a single room school generally does not work properly. Illiteracy among women is very high, Medical facilities are extremely scarce. Drinking water is a serious problem in summer. Government services – Programs, facilities hardly reach most of the population. Agriculture is almost rain fed, heavy soil erosion due to steep slope, restricts commercial cultivation hence low returns from the agriculture. This is the peculiar scenario in the visited area by the team.

To uplift the community residing in the tribal valley, BFL and MAM started implementation of Village Development Programme in the selected villages. Villages were selected on the basis of needs, scope, and preparedness of villagers and socio economic conditions. Selected villagers are in 25-30 km periphery of Dimbe dam site.

Project Interventions: Summary of activities implemented in all 12 villages since 2017-18 to 2020-21 is tabulated as under whereas village wise details are given in Annexure III

Sr. No	Name of Activities	Villages	Year wise No of Families Benefited				Net Families Benefitted	Area (Acres)	No of Plants
			2017-18	2018-19	2019-20	2020-21			
A	**Livelihoods Activity**								
1	Kitchen Garden	7	986	105	97	0	1078	--	--
2	Horticulture Plantation	8	1016	102	213	0	1168	--	5624
3	Land Leveling	10	3	109	210	298	620	230.8	--
4	Organic Farming	3	0	0	0	12	12	--	--
5	Goat Shed construction	3	3	13	15	3	34	--	--
B	**Health Activity**								

Sr. No	Name of Activities	Villages	Year wise No of Families Benefited				Net Families Benefitted	Area (Acres)	No of Plants
			2017-18	2018-19	2019-20	2020-21			
6	Women's Cancer Detection Camp	5	91	0	394	0	485	--	--
7	Telemedicine center	3	0	780	0	413	1193	--	--
C	**Education**								
8	Nutrition food for School, Anganwadi	3	0	280	476	0	487	--	--
9	Wall compound for School	1	0	0	81	0	81	--	--
10	School's Beatification-room	8	0	0	366	0	366	--	--
D	**Water Activity**								
11	Water pond repairing	1	0	0	35	0	35	--	--
12	Earthen Nala Bund / Check Dam Repairing	4	70	295	300	0	595	--	--
13	Water Tank Construction	4	65	150	45	0	260	0	0
14	Road Construction (Internal/ connected)	3	88	60	40	0	188	--	--
15	Road Side Plantation	4	500	710					1250
	Total	**12**	**2822**	**2604**	**2272**	**726**	**6602**	**231**	**6874**

Total families in 12 villages are 5066, Land Levelling is major activity implemented in maximum number of villages (10) followed by horticulture plantation (8), School beautification (8) and Kitchen Garden (7) and so on. However Telemedicine center has covered maximum number of families (1193) followed by horticulture plantation (1168), Kitchen Garden (1078), Land Leveling (620) etc.

A. Livelihoods Activities:

Livelihood activities had supported & benefitted to individual households in the villages. Such activities are Kitchen Garden, Horticulture Plantation, Land Levelling, Organic Farming and Goat/ Cattle shed Construction.

A-1 Kitchen Garden: Kitchen Garden is promoted almost in all visited project villages, in which a kit of different 12 to 15 vegetable seeds (Tomato, Brinjal, lady finger, Fenugreek, Spinach, Palak, Radish, Beetroot, Carrot, Ridge Guard, Bottle guard, Sponge Guard etc) were provided to each family, who are interested and having suitable place (around 50 to 100 sq m) for cultivation of vegetables. MAM team has provided initial hands-on training to the identified families and supervised the activity over a period. The activity is implemented in 3 years 2017 to 2020

During the assessment, team interacted with 42 such families and collected the information from them. Summary of the same is tabulated as under.

Sr. No	Parameters	Kotamdara	Ugalewadi	Gangapur	Chikhali	Thakarwadi	Total/ Average
1	Surveyed no of families Cultivating KG	8	10	2	8	14	42
2	No of families received vegetables for consumption	8	10	2	8	13	41
3	Average no of day's received vegetables in year per family	101	134	75	72	115	106
4	Average quantity of vegetables received per day (kg/ family)	1.62	1.30	2	1	1.40	1.37
5	Amount of rupees saved due to vegetables received from KG in Year (Rs/ Family)	3939	4830	5100	2063	4536	4036

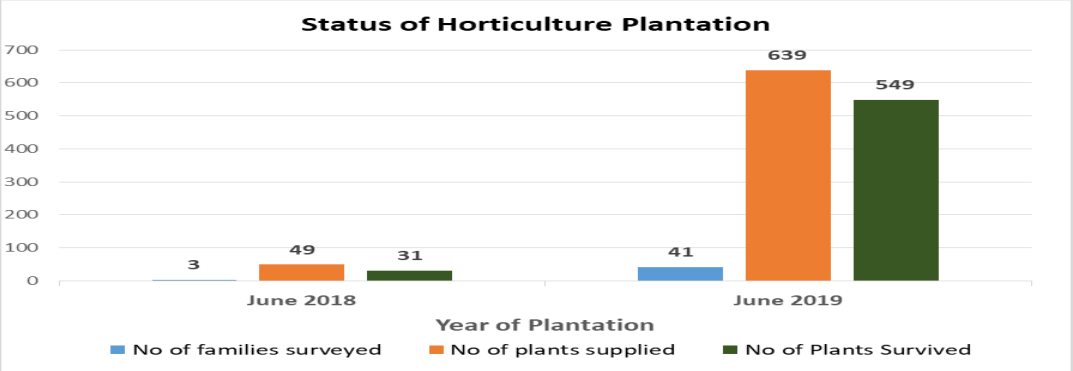
Table above indicates that out of 42 families 41 has established kitchen garden and received yield/vegetables from it and used for consumption. **Each family has received 1.37 Kg vegetables per day for the period of 3.5 months during monsoon season & saved average Rs 4036/- on purchase of vegetables from Market.**

This is not only serving the need of target families but has added value in their daily diet due to availability and consumption of variety of fresh vegetables. In absence of the Vegetables from Kitchen Garden normally they use 3 to 4 types of local vegetables in their diet, this served the purpose of nutritious & balance diet to the

some extent contributing to reduce the malnutrition in Children & Women and improving the health condition. This needs to be continued by providing training inputs on preservation of seeds for use in next season.

A-2. Horticulture Plantation:

Fruit growing is one of the important and age old practices, cultivation of fruit crops plays an important role in overall status of the mankind and the nation. Fruit crops gives economic as well nutritional advantages. High production and net profit, efficient utilization of resources including waste, barren land for production are some of the economic advantages whereas fruits has specific importance in human diet as they are the good sources of vitamins and minerals. Project has promoted 5624 Mango fruit plants across 8 villages covering 1168 families since beginning. Of which 2570 plants were planted as block plantation & rests on farm bunds. Team has visited plots and interacted with 44 beneficiary families from 5 villages, status of plantation is presented graphically as under.



Alfanso & Keshar varieties of Mango fruit crop are distributed & planted through project whereas the digging of pits, pit filling with compost, plant protectants & nutritional supplements including planting, watering, preparation of shade at initial stage is done by beneficiary. Considering the availability of area for plantation, interest & local resources with the farmer, 10 to 40 saplings were provided to each family. Some of the beneficiaries had planted additional Mango plants at their own contribution.

First year plantation completed 3 years, average survival percentage of first year fruit plant is good i.e. 63%, whereas 19 plots (43%) out of 44

have been observed 100% survival. It is also observed that 15 farmers planted the fruit trees on farm bunds. First year plants are about 7 to 8 ft height. None of the Mango plant has started yield now, generally it starts 4th to 6th year onwards and the economic life of a mango tree exceeds 35 years, this means once it starts bearing fruits will give yields till 30 years. Now at the stage it is difficult to predict yields but at the start of bearing the yield may be as low as 10-20 fruits (2-3 kg) per tree, rising to 50-75 fruits (10-15 kg) in the subsequent years, and to about 500 fruits (100 kg) in its tenth year if care & maintenance is proper.

In short mango plantation will become the good income source to the family in years to come in addition to the ecological conservation.

A-3. Organic Farming:

Organic Farming uses ecologically based pest controls and biological fertilizers derived largely from animal and plant wastes and nitrogen-fixing cover crops. Normally, it reduces the dependency on external agriculture inputs which reduces the input costs, improves the soil health and produce the quality production.

In view of this, it is being promoted with 12 farmers in 3 villages during 2020-21 with guidance and suggestions by experts of Komis company team. AFARM team interacted with 2 such farmers where they used compost, Jeevamrut, Neemark & dashparni extract for Potato, Onion & Cucurbit crops. During interaction with these farmers, **it is understood that they just completed one year, there is no major change in production except improvement in quality & decrease in input costs compared to conventional farming. Normally, it takes 3 years for conversion from conventional to organic if practiced full organic way.**

It is well-known that organic commodity has due importance now a day's as peoples are more & more health conscious. There is demand to the organic commodity in the market if it is certified organic products.

Organic Farming may be promoted as group based activity in which farmers should practice it in a contiguous cluster/ area by adopting Participatory Guarantee Scheme (PGS) Certification.

A-4. Land Levelling:

Land leveling activity is implemented to bring waste land into the productive asset and to improve the economic condition of the family in the project villages. Generally, 1 acre waste / barren land is levelled through Machine work in 20 hrs, of which cost of 14 hrs is supported through project whereas cost of 6 hrs is the contribution by beneficiary / land owner. This work is completed in 10 project villages covering 230.8 acre area of 620 families.

To assess the impact of the land levelling activity team interacted with 43 households who has completed the activity and visited the levelled plots. From the field visits, it is evident that most of the families started cultivation in waste plots after completion of land levelling work.

The table below depicts the income earned by the land owners leveling work.

Sr. No	Years completed	Area Surveyed (Acres)	Average Yield (Qtls/ Acres)	Average Income (Rs/ Acre)	Expenses (Rs/ Acre)	Net Income (Rs/ Acre)
1	1 (2020-21)	12.65	4.8	16917	7391	9526
2	2 (2019-20)	2.25	62.20	117732	38372	79360
3	3 (2018-19)	6.5	9.21	18156	8088	10068
4	**Average**	**21.4**	**8.85**	**19978**	**8129**	**11849**

The farmers started cultivation of crops like Paddy, Jawar, Soyabeen, Potato, Bean, Onion, Wheat, Gram, Pea, Tomato, Leafy Vegetables, Fodder Crops, and Groundnut etc. in levelled plots. They are cultivating the crops in Kharif, Rabbi as well as in summer season wherever the irrigation facility is available.

From the table above, it is evident that

the farmers could earn on an average net income of Rs 11849/- acre from the levelled plots. Some of the farmers could earn exceptionally high income by cultivating crops like Onion & Potato. Although land levelling is high investment activity which is giving better returns and contributing to the economic development of families, hence there is more demand for this activity in all villages.

A-5. Goat Shed Construction:

The Goat rearing and agriculture labour work is the main sources of income for agricultural labours and landless family. The house of tribal community is small and there is no separate place for Goats hence most of the time they keep the Goat in their home or outside of home in open kachha shed in all season. During rainy season it creates unhygienic condition due to urine and goat manure, it creates infestation of house flies, teaks, mosquitoes etc. Due to the infectious insects family members also suffers from disease infections. The effect of this unhygienic condition in and around the house, causes sometime death of goats, human infections and their by economic loss. Sometime there is danger of wild animals. To overcome the situation, construction of pacca goat shed is promoted under the project.

Goat shed with capacity of 20 Goats is promoted. The size of Shed is 12 x 18 feet with cement flooring, galvanized sheet roof, four side ventilation in steel fabrication. The Goat rearing family contributed 10 % of total cost of Goat shed.

Outreach of Goat shed activity -

Project Activities	Village	No of Families assisted				Families Covered
		2017-18	2018-19	2019-20	2020-21	
Goat Shed construction	Thakarwadi (Chas)	3	7	8	0	18
	Kolwadi/ Kotamdara	0	6	7	0	13
	Dasturwadi	0	0	3	0	3
Total		3	13	18	0	34

The assessment team visited these two villages and they observed that Goat shed is constructed as per the plan with well ventilation. Team visited the beneficiaries in two villages and it is observed that on an average all families owned & rearing 7-20 Goats. Of which 3 Goat owners vaccinating the goats and others are giving the medicines after infection. During the interaction with beneficiary families, they mentioned that, after the goat shed construction, there is no dirty odour, no flies and teaks in shed and

also reduced infection of family members. The percentage of health issues reduced substantially at family as well as within goats. Also, wastage of fodder reduced and shed cleaning become easier. **They also added that before goat shed, the mortality of newly born kids was more and now there is no mortality of such kids. It is understood during the interaction with beneficiary families that, there is increase in net annual income ranges from Rs 15000/- to 35000/- having rearing unit of 15 to 20 goats.**

It is here suggested that regular vaccination including insurance cover should be done to avoid further loss due to seasonal outbreak of diseases. Further, Periodical handholding & check-up through Govt. veterinary doctor & sharing of goat rearing farmers will help to understand the better goat management practices.

Based on the above discussions, it can be concluded that the activities included under the livelihoods component are addressing the needs, priorities and aspirations of the target group including women. The project has supported mostly the poor, vulnerable & marginalized families in the villages. Still there is need to set family / beneficiary selection criteria to avoid benefits reaching to the big/ reach farmers in case of land levelling. Activities implemented are in line with the Govt. development programs & priorities.

B. Health Activity:

These activities are mainly implemented for creation of quick access to remote villagers for opinion & advice of expert doctors.

B-1. Women Cancer Detection Camps:

Women health checkup camp is important in tribal area because women are not aware about own health and they are not taking the care of treatment immediately. Negligence of health related problems in women is common in these area. The public health service is difficult to access to due remote location & poor public transport facility. Hence, there is need to arrange health camp for women to check the cancer and general health problem. The main objective was to aware women about the health, to diagnose health problem of poor women and treat the women with free medicine. In health checkup camp 485 women having 30-60 years age group participated. All participated women were tested for cancer of which 6 women further referred to check up to Sahyadri hospital in Pune. 90 women were checked for general health by collecting blood samples and also treated with medicine thereafter.

Sr. No	Project Activities	Village	No of Women Participated				Total
			2017-18	2018-19	2019-20	2020-21	
1	Women's Cancer Detection Camp	Thakarwadi (Chas)			118		118
		Fadalewadi/ Ugalewadi	91		0		91
		Gangapur Kh			91		91
		Chikhali			110		110
		Dasturwadi			75		75
Total			91	0	394	0	485

Out of 12 project villages, health checkup camps were arranged in five villages and treated 485 families. During impact assessment study team interacted with 2 women from each in 3 villages, they have very poor access for health services and they want this service once in year for all community. They also added, instead of checking only for cancer, there is need for general health checkup of women and mainly for gynecological problem. This is good entry level activity in village to build trust with community to increase participation in project activity.

B-2. Tele medicine center:

After arranging the health checkup camps in villages, the MAM team realized that there is need to start the clinical services at village level in order to provide in time

first aid treatment to avoid further complication in health of village community. BFL outsourced DOORSTEP organization to support & implement this activity in villages. Minimum requirement to start this activity at village level such as suitable place for dispensary, water, electricity is arranged by Grampanchayat in consultation with MAM. Clinical set up, medicines, nurse and assistant at village level & expert doctor for online services from Pune is arranged by DOORSTEP. On experimental basis telemedicine clinical services started in Thakarwadi (Chaas) with nurse & assistant attending at village.

Initially nurse is taking primary information of patients and checking Blood pressure, sugar level, weight, temperature and O2 level of patients, thereafter online checking & discussion of patient takes place with expert doctor from Pune, after that expert doctor provides the medicine prescription and accordingly the nurse is giving the available medicines to patients as suggested by doctor. They also prescribe the outside medicine to patients. The patient is paying Rs 5 as service charges.

Outreach of telemedicine activity-

Sr. No	Project Activities	Village	Total Families in the village	No of Patients benefited				Total
				2017-18	2018-19	2019-20	2020-21	
1	Telemedicine centre	Thakarwadi (Chas)	549		780	0	0	780
		Fadalewadi / Ugalewadi	322		0	0	190	190
		Chikhali	211		0	0	223	223
Total			1082	0	780	0	413	1193

Out of 12 project villages, this activity started on pilot basis in Thakarwadi in 2018-19 for three months. The activity proved very useful but due to net connectivity problem this activity was closed. Recently the activity is started in Fadalewadi and Chikhali in 2020-21 where the net connectivity is good. The assessment team visited in Fadalewadi - Ugalewadi telemedicine center and interacted with nurse, 6 patients and villagers. **Team observed that, due to availability of clinical service in villages, patients are taking the treatment in time. The villagers replied that, telemedicine clinical service is very useful for especially to women and children. They further said that the facility of injection and saline in the center will be very useful.**

C. Education Activities:

C-1. Nutritional supplements for students of Anaganwadi and primary school:

Under mid-day meal scheme of Govt, only rice and daal, khichadi and amti are being provided in Anaganwadi and schools. The quantity of mid-day meal is provided as per age group of students. The student below 3rd standard gets 100 gm rice and 20 gm dal and for those up to 5th standard gets 120 gm rice and 30 gm Daal under midday meal.

In view of this that MAM has provided peanut laddu and egg as nutritional supplement food to Anganwadi and primary School students. The objective was to meet the need of balanced nutrition of students, to attract the students in school and to increase the presence of students as part of happy education. The result of this activity is students started demanding the peanut laddu and eggs in home. Earlier students were not eating peanut laddu in home.

Sr. No	Name of Village	No. of Z,P. Primary Schools	No. of Students	No. of Anaganwadi	No. of Students
1	Thakarwadi	4	180	5	104
2	Kolwadi-Kotamdara	2	78	4	49
3	Dasturwadi	1	29	1	21
Total		**7**	**287**	**10**	**174**

Nutrition food is promoted in 6 primary schools & 10 Anganwadi in 3 project villages in 2019-20. Altogether 461 students of primary school & Anganwadies children benefited.

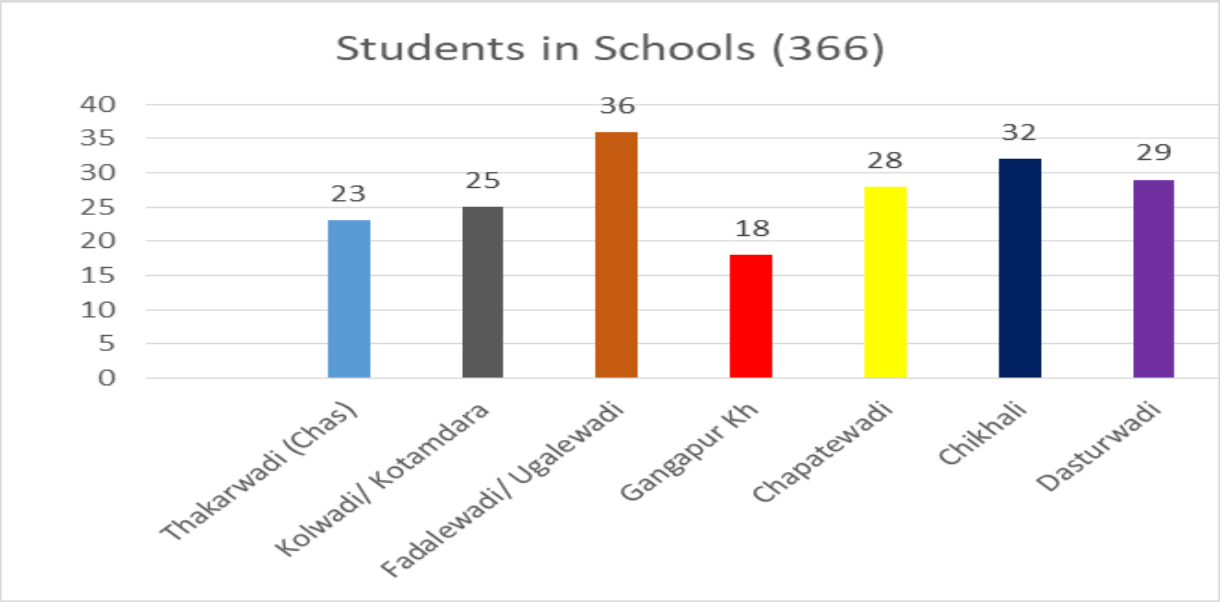
During the assessment, team visited Thakarwadi & Kolwadi-Kotamdara villages and interacted with 12 students, 2 head masters of primary school & 1 Anganwadi teacher and collected the factual information from them. Headmasters, Anganwadi teacher & students told that, they received (1 peanut laddu & 1 egg/student) daily in school which was provided by MAM.

The quality of peanut laddu was good. The balanced nutrition is important for growth of children at early age group. Peanut laddu are also rich in calcium that helps strengthen bones & help boost the immunity. Eating the peanut laddu & eggs in the regular diet of children helped them to gain the weight & height. It is also supported for reducing the malnourishment in students. Principal, stated that this program benefited to increase daily presences of students in school.

During the interaction with the students, **we realized that they are very happy with food supplements. Now schools are closed due to Covid- 19 lockdown and students are waiting for opening the school. Mothers also happy with this initiatives for students. MAM & BFL needs to continue the same in primary schools and Anaganwadies.**

C-2. School Beautification:

To create happy learning atmosphere in school and to develop good educational environment in primary school, MAM has taken initiative for beautification of schools. This was the demand of school teachers and Education Committee of GPs. MAM in coordination with Gram panchayat education committee and Department of Primary Education of Zillha Parishad finalized the plan of school beautification, based on which MAM team identified Anganwadies and primary schools of 8 villages and completed the beautification. The details of villages and benefitted students are presented in following graph.



Out of 12 project villages, beautification of schools is completed in 8 villages and altogether 366 students got benefitted.

Beautification activities like painting of classroom & passage, painting, installation of doors & windows, construction of school compound wall & painting, paving blocks etc. are implemented in school premises. The painting had given vibrant appearance to the look the school looks beautiful and clean.

Teachers expressed that the students are happily attending the schools and also helps the presence of students in the school increased. The students, teachers and villagers are happy with this initiatives. The Grampanchayat school committee has taken the responsibility of repair and maintenance of the school in future.
Teachers requested to support with provision of tablets, computers, projector, smart television for e- learning, library, RO water purification unit.

C-3. Construction of wall compound:

The assessment team visited Numbarwadi (Thakarwadi) school to work of construction of wall compound. The earlier wall compound was broken due to heavy rainfall. The benefit of wall compound is to protect newly planted trees and school amenities from free domestic animal and also to stop entry of villagers when school is closed. Teachers expressed that the wall compound work is good and will protect the school building and amenities from free grazing animals and also stop unwanted use of school by villagers. The Gram panchayat and school has taken the responsibility of maintenance of wall compound in future.

D. Water Activity: The activities included are Water pond repairing, Earthen Nala Bund / Check Dam Repairing, Water Tank Construction,

D-1. Earthen Nala Bund / Check Dam/ Water Pond Repairing: Mostly these are old structures constructed by Govt. agencies/ Zilha Parishad and are either silted, leaked or defunct due to various reasons. Altogether 7 such structures were repaired/ deepened and 1 newly constructed under the village development project in last 4 years. Village wise summary is given as under.

Sr. No	Name of Village	Type of Structure	Year	No of families benefitted
1	Thakarwadi (Chas)	Construction of New ENB -1	2017-18	110
		Deepening of Old ENB - 2	2018-19	
2	Gangapur Kh	Deepening of Old ENB - 2	2018 -19 2019-20	320
3	Fulwade	Earthen Nala Bund repairing -1	2019-20	150
4	Chapatewadi	Deepening of Cemenet Nala Bund -1	2018-19	15

Assessment team visited 4 structures in Thakurwadi & Gangapur where the old earthen nala bunds (ENB) were desilted & widened main stream through machine, repaired leakages at cut of trench, pitching to main wall, outlet construction etc works completed under project. At the time of visits all structures were partially filled with rainwater. The community members expressed their satisfaction about this work. The Silt deposited in the structure was desilted and fertile soil were brought by neighboring farmers in their farm as their own contribution. Respective Grampanchayat (GP) members actively participated in planning & executions of these activities.

It is evident from the community interaction that the completed works are benefiting community (595 families) at large in terms of i) improvement in ground water table in the wells/ borewells particularly in peak period during Dec to May, ii) Increased

area under protective irrigation as well as vegetable cultivation in rabi & summer season, iii) increased drinking water availability to human as well as livestock's. With the increased availability of water, the farmers in the close vicinity of the structures started cultivation of Onion, Potato, Tomato, Garlic, Chilli, summer Bajara, & leafy vegetables.

There is need to organize beneficiary farmers in the form of water users groups who are taking at least direct benefit of it. This will help to take care & maintenance of the structure, an income generation activity like fishery can be initiated as an additional income to users group or GP. Catchment treatment may be taken to avoid repeated siltation in the structure.

D-2. Construction of Drinking Water Supply Tank

To created access and ensure availability of safe drinking water to the village community, initiatives like installation of tap water system, deepening of drinking water well, installation/ repairing of tap water pipeline etc. are undertaken. Altogether 4 such works/ schemes were completed under the village development project in last 4 years. Village wise summary is given as under

Sr. No	Name of Village	Capacity (Lits)	Year	No of families benefitted
1	Thakarwadi (Chas)	40000	2018-19	150
2	Kolwadi-Kotamdara	10000	2017-18	25
3	Fadalewadi-Ugalewadi	10000	2017-18	40
4	Chikhali	10000	2019-20	40

The project was implemented where there is no access or previous water supply scheme exists through Govt or other agencies.

Assessment team visited 4 schemes in Thakarwadi, Chikhali, Fadalewadi-Ugalewadi & Kotamdara. The quality of work done found satisfactory. The community has also contributed partly in the construction (e.g. Rs 20000/- in Chikhali village). The tank capacity is designed by following norms of 40 liters per person per day requirement in rural area. During the visit, it is observed that all the visited schemes were found functional and drinking water benefits are reaching to the needy community.

Especially women who use to fetch drinking water far away from wells / springs throughout the year. It is understood that in Chikhali village women & children were fetching drinking water from well-located in valley which is 3 km away from village & requires / consume 2 hrs normally and even full day in summer season to fetch water. This facility has reduced drudgery of women and are more satisfied for creating the access throughout the year and they started utilizing their time & efforts for other domestic / household works.

It is found that common tap model is more useful & durable than individual tap water supply model specifically in this project area. There is need to handover the scheme to respective GP for its care & maintenance, including electricity bill & collection of water charges otherwise it will becomes the responsibility of MAM / BFL.

D-3. Road Side Plantation:

To increase roadside greenery and restore some ecological diversity including environmental benefits the initiative was started. Considering the need tree species like Gulmohar, Karanj, Raintree, Jack fruit, Kashid, Sisoo etc selected and planted along sides of village entry road in Thakarwadi, Kolwadi-Kotamdara, Gangapur & Chikhali. Altogether 1250 trees were planted in 4 villages in the year 2017 & 2018. Healthy tree saplings were provided under the project including installation of tree guard to protect it from domestic as well as wild animals. Survival percentage of tree plantation is observed 99% in Chikhali, 90% in Gangapur & Takarwadi and 75% in Kolwadi-Kotamdara village and is good. Planted trees observed better growth, some of the trees are more than 15 to 20 feet height with vigorous growth. Better survival is mainly due to timely gap filling, timely completion of operations like weeding, earthing up, watering etc.

Under severe climatic conditions, selected roadside trees can form wind breaks and shelter belts to protect crops. They can restore some ecological diversity to areas of agricultural monotony. They can be used by bees to produce honey and wax.

At the time of plantation it was decided that respective Gram Panchayat will take care of supervision, gap filling, cleaning, watering etc. but is not happened due to various reason hence it was done through project support. This can be initiated through Gram Panchayat under MGNREGS scheme by providing work to Job card holder families from the village. Benefits under *Shatkoti Vruksha lagwad* schemes of forest dept. may be taken for new road side plantation or Gap filling.

It is also suggested that road side plantation should be registered at GP register and necessary undertaking for care & maintenance should be taken from them.

D-4. Road Construction (Internal/ connected):

Cement / Pacca Road Construction is done in 3 villages to provide better communication access mainly during rainy season to the community in hamlets / villages. Prior to work completion internal roads were muddy, covered with waste water and unhygienic whereas internal roads were kaccha, muddy during rainy season with stones and hence villagers were facing problems for transport of goods from fields. Considering the need & demand from the villagers, Cement / Pacca Road were constructed under the project as under.

1. Thakarwadi to Bagwadi connecting road – 210 m created access to 29 families
2. Bhangewadi/ Bhadewadi & Jadhavwadi to Kolwadi connecting new pacca road – 1 km, created access to 59 families
3. Apti hamlet connecting road – 461 m created access to 40 families

This created better access and hygienic condition in the hamlets, villages.

Contribution to achieve Sustainable Development Goals:

The post Million Development Goals are now called as Sustainable Development Goals (SDGs) by UN System. The Open Working Group has suggested a list of 17 SDGs with different possible areas of intervention.

The village development project interventions touches with number of issues concerning food security & nutrition, poverty, health, education, water, sustainable agriculture and issues arising out of climate change.

Although a number of policies and programs are in place to address them the implementation has been a major concern. Women, especially from rural areas and farming households suffer due to various issues especially health and nutrition (even progressive province Maharashtra has shown decline in sex ratio in recent years), unemployment, denial of property rights, denial of access and control over natural resources and political participation. The growing impact of climate change is also visible from increasing incidences of natural calamities which have further worsened socio-economic living of women.

The food producing farmer is suffering today because of growing debts arising from loss or reduction in crop yields, ever increasing input costs, crop damage due to unseasonal rains and hail storms and lack of MSP policies. Agriculture and allied activities still remains major source of survival for more than 65% population of rural India and majority (90%) of them are small and marginal farmers. Their economic conditions are fast depleting due to increasing climate change incidences.

All these factors severely affect small and marginal tribal farmers, women and landless. At this background the interventions undertaken under village development project (as described in above chapters) is contributing to address these issues to achieve the stated SDG's 1, 2, 3, 4, 6 and 13 related to food security, poverty, health, sustainable agriculture, water, education and climate change, etc.

1	No poverty	End poverty in all its forms everywhere
2	Zero Hunger	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3	Good Health & Well Being	Ensure healthy lives and promote well-being for all at all ages
4	Quality Education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5	Clean Water & Sanitation	Ensure availability and sustainable management of water and sanitation for all
6	Climate Action	Take urgent action to combat climate change and its impacts

E: Case Studies:

E-1 - Goat shed changed the business perspective of Goat rearing

Mr Dagadu Ganpat Pardhi a resident of Thakarwadi (Chas) village from Ambegaon block, village receives comparatively low rainfall than villages on uphills of Bhimashankar. During interaction with Mr Pardhi he said that, I owned two acre rainfed land. Due to hilly area and low rainfall, we have no option other than labour and goat raring. As I am handicapped person, goat rearing was only option for me for livelihoods. Initially I had fifteen goats. As, my house is very small, I used to tie these goats adjacent to my house. There is no trouble in summer but in rainy season, we have to keep goats in the house. Previously due to their urine and goat manure, there were lots of mosquitoes, teaks and flies in the house. As a result, there were disease infections in goats, deaths of newborn goats and over expenditure on medicine leading to loss of Rs. 12000 to 15000 annually. In the rainy season, it was difficult to feed the goats in wet place. Up to 2018, we have not considered goat raring from commercial point of view and we are satisfied with the amount whatever we were getting.

In 2018, with the financial support of Bharat Forge Company, Maharashtra Arogya Mandal (MAM) has undertaken a study on the goat rearing system in our village. Bad effects of goat raring in house were studied. Based on the conclusions, it was decided to construct goat shed of size 12 ft x 18 feet that can accommodate 20 goats through 10% people contribution, in order to reduce loss due to goat deaths and ensure the goat raring in improved manner. Maharashtra Arogya Mandal has given me preference due to my disability. With my own contribution of Rs.15,000/- and financial aid, I set up goat shed in 2018-19. At that time I have 8 goats and 9 bucks of local breed. Since setting of goat shed, I started purchasing Bor, Kathewadi & Rajasthan breed goats. I am using peanut, wheat and maize coarse as a feed. Since last two years, my net income is Rs.35,000/- excluding expenses of Rs.15000/-. One buck was sold at Rs.17,000/-. I am now constantly experimenting goat rearing of new breeds. Today I have three Kathewadi, two Rajasthani and four local goats and bucks. Due to goat shed, my goats are being protected from wild animals. I learnt about timely vaccination, fodder management proper spacing between two goats and caring of them etc.

through the guidance. It helped to improve the health of goats and also my family members and reduced the cost of illness.

Due to goat rearing the means of sustainable income were created, from it I have purchased two buffaloes. Now I am using Goat manure in the farm instead of selling it. I am cultivating soyabean on one acre and groundnut and sorghum on half acre each. It provides some amount of goat fodder in summer. My wife works as labour in rabbi and summer season.

In summer season I am doing the work of protection of other farmers crops which are ready to harvest and from that, I am getting 5-6 Qtls of grains which is sufficient food grain for my family throughout the year. We are able to complete education of both children up to 10th standard.

Despite my disability, a goat shed inspired me to live with self-respect and for experimenting professionally. Now we are planning to have more than 20 goats. Today we have no debt and living a happy life.

E-2: Converting waste land into Productive Asset

Mr. Ashok Baban Gawade resident in Kolwadi, Tal. Ambegaon Dist Pune. He is small farmer from tribal community having 68 guntha rainfed land and out of that only 48 guntha was under cultivation. Normally he grows two crops in year and earns around Rs 15000/- income from existing cultivable land. His economic condition was comparatively poor than other resident in the village.

Mr. Gawade attended the meeting organized by Maharashtra Arogya Mandal, in the year 2017-18. After understanding the criteria and guidelines for the Land levelling he decided to contribute required amount for develop his 20 guntha land which was sloppy and undulating. His 20 guntha land was levelled during summer season in 2018, in which 20 hrs machine work was done costing total Rs 17000/- of which cost of 14 hrs Rs 11600/- was supported through project and he contributed cost of 6 hrs i.e. 5400/-.

Immediately after completion of work he started cultivation and grown various crops in the developed land.

Summary of crops grown by Mr Gawade in his plot -

Sr. No	Season	Name of Crop	Yield (Qtls)	Total income (Rs)	Expenses (Rs)	Net Income (Rs)
1	Kharif 2019	Potato	20	20000	12500	7500
2	Rabi 2019	Jawar	4	10500	2500	8000
3	Kharif 2020	Potato	12.5	12500	7100	5400
4	Rabi 2020	Jawar	3	8000	3500	4500
	Total	--		**51000**	**25600**	**25400**

At present he cultivated Potato in the kharif 2021 season and expecting 10000/- net income. Prior to completion of land levelling his income was Rs 15000/- from farming now it has gone up and at present his total income is more than Rs. 40000/- per year. He is very happy with the increased income especially due to income from land levelled plot, and now he has started investing it in improvement in domestic needs at home and improved better living condition.

At the end he replied that "***This is need based initiative taken by Bharat forge and MAM to increase family income and converted waste land into productive assets. The income depends upon the type of crop,***

rainfall, and production cost, but this land levelling work really benefitted me, I am thankful to BFL and MAM for making my unproductive waste land productive."

E-3: Self-Reliance through Goat Raring

My name is Shankar Vitthal Bhange, I am from Kotamdara village of Ambegaon block. I owned 11 gunthe rainfed land and 15 x 20 feet house. We are four members, including my wife and two children. I along with my wife and elder son work as farm labour for fulfil our livelihoods. In 2017-18, I have started goat rearing by borrowing one goat from my sister. Goat rearing started on principle of selling bucks and raring female goats and Kids, resulted in increase in number of goats. However, due to lack of space in the house, a shed was constructed around the house with the help of net and able to rare upto 5 goats and can earn about 15,000/- annually. This annual income encourages our passion for goat rearing. In summer, I could able to somehow manage, but in rainy season, surrounding around the house become unhygienic due to goat urine manure. The house was infested with mosquitoes, teaks, beetles and flies. This leads to an increase in the disease incidences of goat disease with increase in medicinal cost. Every year during the rainy season, 2 to 3 new born goats were dying. I was making the way through it and continued goat rearing. However, due to lack of enough space, was not able to rear more than 5 goats.

In the year 2019-20, with the financial support of Bharat Forge Company, through Maharashtra Arogya Mandal, I have contributed 10% amount i.e. 10,500/- to build 12 ft x 18 ft shade far away from house. After setting up shade, I have purchased 4 goats and extended goat rearing by handing over the responsibility to my son who was school dropout.

Due to the hills around the village, fodder is available at free of cost for 7 to 8 months, but in summer, we are collecting the fodder from irrigated area. Vaccinating goats in the beginning of every season, keeping the shed clean, proper fodder planning has resulted in remarkable income. For the year 2020-21, I have sold 4 male goats and 2 female goats and earned Rs. 32,000/-. Now, despite the rains, not a single goat or kid has died and also no incidence of illness in my family members. This year invested Rs.17,000/- for compound. Now I have total 16 Goats. Now I am planning to increase the number of goats up to 40-50 and the emphasis will be on increasing the sustainable income of the family from goat rearing by reducing the wage work.

"I could extend goat raring only due to help received from Bharat Forge Company and Maharashtra Arogya Mandal. I would like to express my gratitude for this initiative and like to suggest that families like me should be supported by creating a sustainable source of income like goat rearing."

E-4: Ishtewadi Water Supply Scheme reduces Women's Drudgery

Village Mapoli, Pokhari, Jambhori and Chikhali Gram Panchayats from Ambegaon taluka are included under Pokhari Regional Water Supply Scheme of Government. Depending on the availability of electricity, these villages are supplied with water twice a week. There was uncertainty as to when the drinking water of the scheme will reach 45 families in Ishtewadi from Mauje Chikhali Gram Panchayat. As a result, many families in the village were not getting drinking water. Every woman in the family used to spend at least 1 hour to fetch the drinking water from nearby well by stepping in mud at a distance of half a km. In the summer, when the water sources in the village were depleted, women had to fetch water from a well at a distance of 1 to 1.5 km from the nearby farm area in mountain valley. For which they have to expend 1.30 to 2 hours in morning, which affects their housework, cooking and preparation for sending schoolchildren and their farm work.

Bharat Forge Ltd. and Maharashtra Arogya Mandal jointly constructed a 10,000-liter cement concrete water storage tank at Ishtewadi under the Village Development Program. A half-inch connection has been taken from Pokhari Regional Water Supply Scheme. The 1100 feet pipeline laid down from source of water to tank and this solved, the problem of drinking water of 45 families in Ishtewadi permanently. Now it requires only 20-25 minutes to carry the water from tank. The wandering of women for drinking water is over. Now they are able to complete their task of cooking and preparing their children to go to school on time and to go in time for farming. **This_initiative is a boon for women from our village", said Hausabai Bangar, Gram Panchayat member.**

4. Recommendation and Way Forward

Impact assessment study of Village Development Program leads us to conclude that the development process of individual households is taking place through an implementation of set if interventions. Intervention envisaged and implemented in the given context of the project region is very much appropriate and relevant and proved effective in addressing the livelihood needs of the tribal community. The documented trends further support and strengthen the importance of interventions in aiming for an overall socio-economic development of the project communities.

However there is scope for further consolidation and building upon the development took place so far. In this respect the assessment team has following set of recommendations to ensure integrated & sustainable development of target community.

- In order to improve upon the achieved growth rate, it becomes imperative to emphasize upon to ensure long term sustainability of the programme. Thus the focus needs to be shifted to attainment of integrated livelihoods development of community through intensification & integration of interventions.
- To ensure sustainability there is need to form and strengthen Community Based Organization's, (CBOs) presently there is lack of such CBO's. Formation & capacity building of Farmer Producer Groups/ Common Interest Groups/ self-help group/ Village Organization etc. and involving them in decision making since beneficiary selection to entire project cycle management. This will help to develop their ownership towards project interventions and strengthen them to take responsibility after post project.

  For example mechanism of users group on Earthen Nala Bund deepening structure at Gangapur need to be in place. It can be envisaged from the present rate and scale of dragging out of the ground water that if proportionate mechanism is not thought off and if any community based self-regulatory mechanism within the village does not came out, may lead to distraction. This is just noted for the cause of caution and not as prediction.
- Since the project is promoting on-farm & off farm livelihoods within farming community, farmers training & handholding on periodical basis through expert input will play a critical role for ensuring adoption/ replication of new, innovative, and tested agriculture technologies by the farming community. Hence it is recommended that to consider farmers training & knowledge transfer as one of the key areas of future intervention. This will expand the outreach of the project interventions.
- In case of goat rearing regular vaccination including insurance cover should be done to avoid/ reduce the mortality due to seasonal outbreak of diseases. Further, Periodical handholding & check-up through Govt. veterinary doctor and training to goat rearers on suitable goat management practices will lead to quality production of goats.

- To further strengthen the livelihood component of the project the feasibility of initiation of collective micro-enterprises such as collection & value addition of Hirda, rice processing, nursery, potato processing etc may be explored. The team is in the opinion that such activities may be taken up through women SHG or farmer Groups.
- Since the project interventions are in line with the existing Govt. development programmes, an appropriate strategy for leveraging these programme must be incorporated during next phase. This opportunity need to be utilized with the active involvement of Grampanchayat & facilitation by the project team. In fact the process of preparation of Gram Panchayat level development plan shall be utilized as an opportunity for preparation of convergence plans.
- The focus has to be shifted from activity base monitoring to impact base monitoring it can be started with identification & setting impact indicators and setting targets for and time lines for the same. Once it is set, baseline may be conducted to track the progress against the preset targets.
- Project Team should be provided with periodical capacity building inputs to strengthen the quality of project implementation.
- To ensure the sustainability of the soil & water conservation activity such as land levelling and desilting of water harvesting structures, such activities need to be implemented by following the ridge to valley approach in a given local micro-watershed / micro catchment in a given drainage system.
- The activity like school beautification should be taken as entry point activity in project village to build the trust of village community and to increase the participation of villagers during next phase/programs.
- Considering the utility of cancer detection camps & telemedicine services it should be continued wherever the network is available.

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