

ENABLING HOLISTIC VILLAGE TRANSFORMATION

CASES FROM AKOLA AND
WARDHA, MAHARASHTRA



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CASES FROM AKOLA AND
WARDHA, MAHARASHTRA



Youth for Unity and Voluntary Action (YUVA) is a non-profit development organisation committed to enabling vulnerable groups to access their rights and address human rights violations. YUVA supports the formation of people's collectives that engage in the discourse on development, thereby ensuring self-determined and sustained collective action in communities. This work is complemented with advocacy and policy recommendations on issues.

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INTRODUCTION

The Vidarbha region in the state of Maharashtra, India, witnesses thousands of farmer suicides annually. Even with a 15 per cent drop in deaths from 2015–16, the region still ranked number one on farmer suicides in the country in 2016¹. The acute water crisis and poor soil quality of the area has led to low crop productivity amidst higher input cost, affecting farmers dearly. While at least 80 per cent of the land under cultivation in the state is rain-dependent², irregular monsoon patterns have wreaked havoc.

Given the absence of sustainable rainwater conservation and harvesting processes, farmers have been left with no alternatives. They have resorted to growing a single crop a year given the paucity of water, but even these efforts have often amounted to nothing due to the vagaries of the weather. The absence of agro-allied income opportunities has further increased distress, drawing farmers into a cycle of mounting losses, debts, and other unceasing woes. With 50 per cent households in the region living below the poverty line, there is a pressing need for long-term interventions.

Within the Barshitakli *taluk* of district Akola and the Deoli *tehsil* of district Wardha in Maharashtra, which this brochure focuses on, the government has (as in other districts) intervened in different ways to provide relief, from supplying tankers to protective irrigation facilities and loan waivers³. However, these efforts have often offered temporary relief instead of lasting solutions.

1 | Mukherjee, Sanjeeb. 'Big rise in farmer suicides in four states during 2016, says NCRB data'. *Business Standard*, 23 March 2018. Accessed on 16 August 2018. https://www.business-standard.com/article/economy-policy/big-rise-in-farmer-suicides-in-four-states-during-2016-says-ncrb-data-118032300025_1.html

2 | Khapre, Shubhangi. 'Agriculture in Vidarbha, Marathwada at high risk to climate change: Report'. *Indian Express*, 2 Feb 2016. Accessed on 14 August 2018. <https://indianexpress.com/article/cities/mumbai/agriculture-in-vidarbha-marathwada-at-high-risk-to-climate-change-report/>

3 | Kelkar-Khambete, Aarti. *Droughts in Maharashtra: Lack of management or vagaries of climate change, India Water Portal*, accessed on 18 December 2014. <http://www.indiawaterportal.org/articles/droughts-maharashtra-lack-management-or-vagaries-climate-change>

Holistic, integrated efforts are key to kick-start and ensure sustained change. Further, Youth for Unity and Voluntary Action (YUVA) strongly believes that for any intervention to be successful, community participation is an essential pre-requisite. Therefore, when the opportunity presented itself, we looked forward to facilitating a comprehensive action plan for 25 villages of Barshitakli tehsil, district Akola, and 32 villages of Deoli tehsil, district Wardha, under the CAIM project framework⁴. Developments in each village towards sustainable agriculture were to be governed by a Village Development Committee of 14–19 members (with 50 per representation of women) who would actively participate in decision making, based on their requirements. This bottom-up phased approach would, we hoped, offer some relief from the existing situation and provide sustainable solutions for communities to move from mere subsistence to sustainable living even after the project ended. The interventions outlined in the pages that follow were identified by the communities themselves, who drove the change efforts with ownership and inspired others to join them. Accordingly, interventions aimed at empowering communities, soil and water conservation, the development of small and medium enterprises, sustainable agriculture interventions, market linkages, and more, and here's how it all unfolded ...

4 | CAIM = Convergence of Agricultural Interventions in Maharashtra's Distressed District Programme, 2010–2017.

CAIM was initiated by the Maharashtra Government with the support of the International Fund for Agricultural Development.

The programme aimed to address the issue of agrarian distress in the Vidarbha region of Akola, Amravati, Buldhana, Wardha, Washim and Yavatmal, and intended to contribute towards the development of resilient production, sustainable and diversified household incomes, and on-farm/off-farm livelihoods, thereby enabling farmers to face production and market-related risks without falling back into poverty and distress.

EMPOWERING COMMUNITIES

As in many parts of India, availability and access to timely and low-cost credit is often limited for farmers and agricultural labourers in Barshitakli *taluk*. Yet, particularly for smallholder farmers and landless labourers who have limited savings, credit is key to accessing technology, agricultural inputs and equipment, and marketing opportunities, which in turn are essential components in establishing sustainable and profitable farming systems or agro-allied businesses. With few options to get loans or credit to carry out their agricultural activities, farmers needed to find other means of doing so.

Lack of knowledge or awareness regarding available schemes, subsidies and benefits had often held farmers back from making large strides in their agricultural activities. Women, who are vital to the agrarian economy, were often unable to realise their potential in agriculture too. Additionally, the absence of support and adequate training to carry out activities or businesses prevented the people from exploring additional income generating opportunities or improving efficiencies of existing practices. Training and knowledge transfer were needed to empower agriculture-

dependent communities and enable them to make informed decisions on the various activities undertaken and to improve their economic status.



Orientation session for community members

BUILDING FINANCIAL AND GROUP CAPACITIES

An important way to empower local communities was through capacity building and by supporting them with the tools they need to succeed. Within the communities in Barshitakli and Deoli *tehsil*, care was taken to promote and strengthen self-help groups (SHGs), joint liability groups (JLGs) as well as other local institutions, and by promoting income generating activities. **SHGs helped members save regularly, making credit more accessible to them, whereas JLGs assisted members with loans and other business-related investments. In total, training was provided to 477 SHG members and 119 JLG members.**

EMPOWERING WOMEN

Empowering women automatically translates into the overall empowerment of the family or household unit, so efforts were taken to organise women's groups and make information and credit available to them to help them run small scale businesses. To build their skills and capacities, dedicated training and capacity building was given, particularly to women from women-headed households. This also improved their ability to independently interact with concerned banks, government departments and other partners. **Through empowerment and capacity building, women have been better equipped with knowledge and capabilities to make informed decisions related to agriculture and agro-allied activities.**

ESTABLISHING VILLAGE DEVELOPMENT COMMITTEES

Collectives provide a forum for people to discuss issues that matter to their development, voice their concerns and find appropriate solutions for self-growth. The creation of 'Village Development Committees' (VDCs) helped in this regard, which govern sustainable agricultural activities in each village and facilitate the implementation of different farming or agro-allied related activities. Representatives of VDCs are individuals elected by the villagers and are meant to represent all sections of the community such as landless labourers, farmers, etc. Each VDC has 14–19 members with 50 per cent of its members being women, allowing for equal representation.

Bharat, the President of one VDC who describes himself as a farmer, recounted his experience of becoming head of the VDC in his village. With assistance and training on how to carry out various responsibilities as VDC President, he soon brought many changes to the villages, including helping initiate organic and poultry farming,

liaising with government departments for seed distribution, soil testing, facilitating the creation of welfare groups and coordinating with expert scientists to transfer knowledge to farmers.

Through regular training and orientation of VDCs, a sense of ownership was developed among the VDC members and they now oversee activities that had started during the CAIM project period, particularly the community-based interventions. 20 village volunteers were also trained and they actively initiate various convergence activities and liaise with government departments to promote the outreach of new schemes in the village. In Khopodi, a village less than 40 km from Akola, the formation of a VDC has transformed the village. The Committee initiated various measures including liaising with government schemes for subsidies for dairy farming as well as fodder kits, which were given free of cost by the project. Two farmers in the village, Dattaram Thakre and Devanand Ghogare who decided to opt for this business found themselves each getting a net profit of INR 1,000 in the span of 1.5 months. In the summer season, they get up to INR 20,000 as additional income from the fodder activity.

CONVERGING FARMING WITH EXISTING GOVERNMENT SCHEMES

The project facilitated the convergence of existing schemes of the government for the benefit of the farmers in the area. Three-fourth project activities were covered through these government schemes. Relevant schemes and beneficiaries were identified for different project activities, which provided farmers with benefits in the nature of agricultural input subsidies, seed distribution, fertilisers, and pesticides, and so on. Some of these government programmes are Mahatma Gandhi National Rural Employment Guarantee Scheme, Vidarbha Watershed Mission, National Horticulture and State Horticulture Mission, Rastriya Krishi Vikas Yojana, Rainfed Agriculture Development Program, National Crop Insurance Scheme, Pulse Production Program, distribution of mulch cows and buffaloes by the Government of Maharashtra (GoM), distribution of goats by GoM, Poultry Scheme of GoM, Small Scale Industries for Women SHGs, warehouse construction through warehouse corporation and National Bank for Agriculture and Rural Development (NABARD), seed distribution programme and Gram Bijotpadan, and Jalyoukta Shivar.

Many of the government schemes are available for farmers every year but need some amount of liaising to avail of their benefits. For example, seed distribution is available free of cost, so when the concerned government department was requested to provide seeds to 3 villages and share knowledge on production, organic farming, soil testing, etc., 75 farmers learnt more from these sessions and 150 acres of their land was covered. This, in turn, reduced input costs and increased farmers' savings as well as improved the quality of soil.

IN CONCLUSION

Multiple strategies and methods were employed to empower communities in Barshitakli and Deoli *tehsil*. Steps were also taken to empower women, who play an equally important role in agriculture. Capacity building sessions were organised every month for the VDC members in 25 villages to help them drive decisions best suited for farmers in their respective villages. Nowadays, VDCs equip other community members in the village with tools they need for agricultural activities. They liaise with government departments for support, strengthening these relationships so that they can be taken forward beyond project cycles. Thanks to awareness and accessibility of government schemes, farmers and agricultural labourers have been able to tap into the benefits of these schemes and improve their financial status. Through training and capacity building of SHGs, JLGs, and women's empowerment, community members are now better positioned to access resources available to them.

OUTCOME IN NUMBERS	
SHG MEMBERS TRAINED	477
JLG MEMBERS TRAINED	119
VILLAGE VOLUNTEERS TRAINED	20
VILLAGES WITH VDCs	25

SOIL AND WATER CONSERVATION

According to the latest report by the NITI Aayog on Composite Water Management Index¹, 60 crore people in India face high to extreme water stress and the country's water demand is projected to be twice the availability supply by 2030. Particularly in rain-fed, non-irrigated areas, with no access to a big canal or nearby dam, this has already assumed serious proportions, as in the case of Akola and Wardha.

A few government-enabled protective irrigation facilities were extended here until 2008². In more recent years, there had been a few state-led irrigation interventions, but they had fallen short of requirements. Poor rainfall over the past 5–6 years, coupled with the lack of water storage structures to store rainwater, and the use of existing water sources without recharging efforts had further lowered and depleted groundwater levels (in some areas up to 125 feet below ground level from 75 feet earlier). While farmers could grow the groundnut crop till 2007–08 in the summer months, in recent years the water supply had run out months ahead of time, leaving them with no option. In-situ water conservation was extremely important in these arid and semi-arid regions, and it was equally important to increase soil moisture levels for longer periods of time. Just one crop was being sown annually, and unseasonal rains meant that even this single harvest was under threat.

Given the stark local situation, a multi-pronged strategy for change was essential. Over the years, these are the kind of interventions that took place.

WELL RECHARGING

In the village of Khopodi, water sources had been depleting steadily over the years. The acute water scarcity problem needed to be tackled at the earliest, to ensure a good harvest. Work began with the farmers here to improve access to water and increase groundwater levels via well recharging. The process involved allowing

1 | NITI Aayog. *Composite Water Management Index*. June 2018

2 | Water Resources Department Government of Maharashtra. *Benchmarking of Irrigation Projects in Maharashtra State 2007–08*. March 2009. Accessed on 18 September 2018. <https://wrd.maharashtra.gov.in/portal/content/default/pdf/contents/home/kc/BenchmarkingofIrrigationProjects-2007-08.pdf>

rainwater to collect in a storage tank constructed, which was connected to a well nearby with a filter in-between to separate sand particles, charcoal, and other residue. The tank served a dual purpose, effectively storing rainwater and helping it percolate to lower levels, helping in groundwater recharging.

There were 76 well recharge interventions planned, and each farmer noticed an appreciable increase in groundwater levels

over time. As one farmer, Dattaram

Thackarey, stated, 'With regular irrigation I am now able to diversify crops grown, even including crops that need water during the dry season'. Farmers also reported that they were able to pump water for 4–5 hours, an improvement from the earlier 2 hours. Consequently, they saw an increase of 10 per cent in production as well as a subsequent increase in income.

IMPACT OF WELL RECHARGING

- Crop diversification possible
- Water availability increased by 4 months annually—summer crops can be grown now, which was not possible earlier
- Increase in water pumping capacity from 2 hours to 4–5 hours
- 10% increase in production

CEMENT AND MAATI NALA BUNDS

The cement *nala* bund (CNB) was another intervention to successfully store and utilise water for irrigation. Inside a river or *nala* (watercourse) nearby, a cement bund was constructed to store water. Wells located nearby on both sides of the bund were automatically recharged in this manner, and the water could be used directly in irrigation efforts or transported via lift irrigation to other farms. The *maati nala* bund (also known as earthen bund), was another means for in-situ water conservation. It was constructed on wastelands, with the earthen structure storing water flowing downstream from hills or other sources, and recharging the groundwater through gradual percolation.

The farmers of Januna village, with 40 acres of land under irrigation, had been struggling with the water scarcity problem for years. They had been cultivating vegetables mainly for the past 10–12 years, given their quick harvest, but they had stopped doing so in recent times because of the water crisis.

Between 2013 and 2016, 15 CNBs were constructed, leading to a water storage capacity up to 60 lakh litres. **Water is now available in the dry months and due to the increased water supply, vegetable cultivation has restarted and the production, yield and income of farmers has also increased.** In total,



Cement nala bund constructed at Sarkinhi

over 2,500 hectare

agricultural land has been brought under CNB treatment, and 150–160 wells nearby have been recharged. **While the water supply in this area would finish off by October earlier, now the availability has continued till December.**

NALA/RIVER REVIVAL AND WIDENING

Nala/river revival/widening/deepening initiatives also took place in villages. With *nalas* and rivers losing their depth thanks to increasing soil accumulation (silting), their water carrying capacities had drastically reduced. De-silting and deepening took place via machines. The moist and extremely fertile soil was added to the fields for better harvesting. This was an important intervention as the *nala/river* had often overflowed previously during times of excess rain, and crops on either side had been damaged. **In total, 14 *nalas* were desilted, and 3 *nalas* were widened and deepened.**

FARM PONDS

Farmers also constructed water harvesting ponds or farm ponds (a deep trench 3m deep, with a length and breadth of 15m or 30m each) to store rainwater in individual fields. **Overall, 10 farm ponds were constructed, helping farmers provide protective irrigation to their crops, while also replenishing groundwater levels.**

Pump sets and diesel engines provided to farmers facilitated the quick flow of water to desired areas, while micro-irrigation facilities to over 300 farmers (via sprinkler or drip irrigation and PVC pipes) minimised water wastage.

OTHER INITIATIVES

Graded bunding was another simple yet effective measure for soil and water conservation, reducing the length of slope of the land so that the water could leave the field slowly after irrigation without loss of fertile soil. For wasteland plantation survival, the continuous contour trend (CCT) was useful, whereby a trench would store water for use and recharge groundwater levels. Interventions also included sowing across the slope instead of along the direction of the slope. This would lead to the formation of automatic bunds to store water, and it was an intervention requiring no cost! Agricultural methods were also improved with the use of a broad bed furrow (BBF) seed planter, which helped plant seeds on a moist bed (capable of retaining water for longer duration) with furrows on either side to drain off the excess water.

IN CONCLUSION

To promote many of these activities, farmers were connected with ongoing government schemes such as Vidarbha Watershed Mission, Rashtriya Krishi Vikas Yojana, Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), and Jalyoukta Shivar, among others. **Overall, 4,000 hectare land was treated, and the groundwater level increased by 3–4 feet, providing farmers more access to water for livestock and irrigation requirements.** With these interventions in place, it has become easier to offer farmers protective irrigation facilities, and the sowing of a second crop in the rabi season has been possible. **An approximate net profit of INR 7,000 per acre has been experienced by the farmers.**

OUTCOME IN NUMBERS	
LAND TREATED (IN HA)	4,000
INCREASE IN GROUNDWATER LEVEL (IN FT)	3-4
WELLS RECHARGED	76
CEMENT NALA BUNDS (CNBs) CONSTRUCTED	15
FARM PONDS CONSTRUCTED	10
MICRO-IRRIGATION FACILITY BENEFICIARIES	300
PVC PIPES DISTRIBUTED	2,430
PUMP SETS AND DIESEL ENGINES PROVIDED	56

ALTERNATIVE AND ADDITIONAL LIVELIHOODS

The Food and Agriculture Organization estimates that 70 per cent rural households in India still depend primarily on agriculture for their livelihood and 82 per cent farmers are small and marginal farmers¹. In Vidarbha, where a significant share of the population lives below the poverty line², most farmers are small farmers with marginal holdings of less than two hectares³.

With agriculture being subject to a number of variables, making farmers vulnerable to fluctuating market prices, the promotion of non-farm income opportunities is critical to ensure sustainable livelihoods. A major way in which this can be done is through the promotion of small and medium enterprises (SMEs) that rely on agro-allied activities, such as horticulture, floriculture, animal husbandry, composting, processing mills and resource centres. SMEs also empower local communities to be self-reliant, with the decision-making driven by self-help groups (SHGs), farmer provincial groups and joint liability groups (JLGs), and help the community enhance income over time.

While there are several kinds of SMEs, including those focused on composting which is used in organic farming and will be covered under the Sustainable Agriculture chapter, the SMEs listed in this chapter were chosen by the community based on their acceptance of the vocation, the state of livestock rearing, suitable land and environment, and recommendations from agricultural scientists and government departments. These are some of the main SMEs that developed over the course of the years.

1 | FAO. *FAO in India: India at a glance*. Accessed on 17 October. <http://www.fao.org/india/fao-in-india/india-at-a-glance/en/>
2 | Bhandhari, Laveesh and Chakraborty, Minakshi. 'Spatial poverty in Maharashtra'. *Livemint*, 5 January 2015. Accessed on 18 October 2018. <https://www.livemint.com/Opinion/tB0zd9TfIxyPnwmKG65w0L/Spatial-poverty-in-Maharashtra.html>; World Bank. *Maharashtra-Poverty, Growth and Inequality*, 20 June 2017. Accessed on 18 October 2018. <http://documents.worldbank.org/curated/en/806671504171811149/pdf/119254-BRI-P157572-Maharashtra-Poverty.pdf>

3 | Prakriti Resource Centre for Women and Development, and Housing and Land Rights Network. *Surviving Stigma: Housing and Land Rights of Farm Widows of Vidarbha, Maharashtra*, 2017. Accessed on 18 October 2018. http://hlrn.org.in/documents/Surviving_Stigma_Farm_Widows_Vidarbha.pdf

BACKYARD POULTRY UNITS

To supplement the income of farmers and enhance their food security, backyard poultry initiatives were undertaken in Barshitakli. The community identified 1,350 families and equipped each of them with a poultry kit which included 25 birds, poultry feed, and other associated implements. In the village of Zodga, 19 families tried



Backyard poultry unit

backyard poultry and found that, within a short span of two months, the chickens had started laying eggs. **Each family got around 15 eggs a day, which when sold gave them an additional income of INR 4,500 per month.** Additionally, poultry waste was used in organic farming instead of chemical fertilisers, making the soil more fertile and reducing farming costs.

HOUSEHOLD DAIRY UNITS

The livestock sector, primarily dairy, contributes to over a quarter of India's agricultural gross domestic product (GDP) and is a source of income for 70 per cent of India's rural families⁴. For Sriram Tupwade, a farmer from the village of Rustamabad in Barshitakli taluk, dairy production seemed like a good way to diversify his source of income. While the cost of purchasing buffaloes can be a deterrent for small

IMPACT OF HOUSEHOLD DAIRY UNITS

- Project support helped buy 2 buffaloes
- Each buffalo gave 12 litres of milk per day, sold for INR 400 daily
- Monthly dairy income INR 9,000

4 | The World Bank. India: Issues and priorities for agriculture, 17 May 2012. Accessed on 18 October 2018, <http://www.worldbank.org/en/news/feature/2012/05/17/india-agriculture-issues-priorities>

farmers, the project support (50 per cent of the purchase cost) meant that each farmer could purchase 2 buffaloes. **For the 157 households who got into dairy production, initial cost recovery was possible within 4 months, and they were assured monthly net profit of INR 2,500–3,000.** Soon after his initial purchase, Sriram was even able to purchase a third buffalo! Along with 5 other farmers in his village, he now supplies milk to private hotels and houses where he gets a higher price for it.

GOATERY UNITS

SHGs, JLGs and farmer producer groups also began goat rearing to diversify their income in case of crop failure. 276 famers who were part of this SME initiative were provided with a goatery unit each, which comprised 10 goats. **Through goat rearing, farmers could expect to expand the goatery to around 20–22 goats a year and when sold, they each earned an additional amount of approximately INR 4,000–5,000 per goat.**

SEED PRODUCTION

Farmers were encouraged to participate in seed production initiatives to improve their livelihood prospects. Across 14 villages, farmers tried out onion seed production on 8 acres of land each. Farmer producer groups partnered with seed production and marketing companies such as Jindal Private Limited and Anant Seed Company who decided to buy it from them at a pre-decided rate. Seed production yielded INR 50,000 per acre additional profit for each farmer seasonally, in addition to their conventional crop yield.

HORTICULTURE AND FLORICULTURE

Horticulture, which involves the cultivation of fruits and vegetables, and floriculture, which involves the cultivation of flowering plants, are other examples of SMEs taken up by farmers to diversity their income. Additional crops such as pomegranate, bananas, papayas and turmeric

THE CASE OF A BANANA PLANTATION

- Cultivation costs (including irrigation, cost of fertilisers, pesticides, etc) of INR 1,15,000
- Yield of 300-350 quintals per hectare
- Each quintal of produce sold at INR 800
- Net profit INR 1,25,000

began to be grown. Though the input costs for horticulture (which include costs of soil cultivation, irrigation, fertilisers, weeding and pesticides) can be high, it also provides higher net profits than some of the other agro-allied activities. For Motiram Vasuderav and Shantaram Rathod who decided to start a banana plantation on one hectare of their land and spent INR 1,15,000 in cultivation costs, **a yield of 300–350 quintals per hectare with a selling price of INR 800 per quintal was a blessing**. As they say, 'There is no doubt that these crops, in addition to regular crops we grow, will increase our yields and profit margins.' In all, close to 110 hectares of land were used for horticulture and floriculture.

DAL MILLS

Women play a crucial and active role in agricultural development and its allied activities. Their involvement is also reflected in the SHGs they have formed and the SMEs they have undertaken through these groups. In 3 villages in Barshitakli, SHGs comprising of 10 women each purchased a dal mill machine for their village to process and sell *toor dal*. The SHG members were trained on how to operate and manage the mill, and the costs of the mills were covered through bank loans, project subsidies and member contributions. The mills run between mid-January to mid-June, providing an additional source of income during these 5 months.

In the village of Rustambad, the dal mill processed 300 quintals in one season. **With the dal sold for INR 500 per quintal, the SHG enjoyed a total net profit of INR 60,000** after deducting expenses of electricity, labour and other input costs. Once the input costs were offset in the first 3–4 seasons, it would be profits all the way for the SHGs running the mill in future.

While the income gained from processing dals may seem less as compared to other enterprises



Dal mill unit

because the profits are split amongst all members of the SHG, this also means that investment costs for each member are less. Additionally, many of the women save money by processing raw dal free of cost for their home consumption. Furthermore, some of the dal from their own fields is also processed and packaged by the SHGs themselves and sold in the markets.

SMALL PRODUCT AGRICULTURAL RESOURCE CENTRE (SPARC)

With many farmers unable to afford their own agricultural equipment (like tractors), an affordable alternative is to rent these equipments. This is where Small Product Agricultural Resource Centres (SPARC) are tremendously useful, since they act as agricultural equipment banks, lending agricultural machines and tools to farmers who need them on a rental and per acre basis. The equipments are bought collectively by SHGs through bank loans and member contributions after identifying and assessing needs. A total of **46 SPARC units were set up**. For the farmers who were members of SPARC, they received additional earnings through profits made from renting the agricultural machinery and equipments. They were also able to access these machines for free or at a nominal charge for their own fields, thereby reducing labour time and increasing productivity.

IN CONCLUSION

SMEs are a good opportunity for farmers wanting to supplement their agricultural income. They are also sustainable models since the ownership and responsibility lie with local groups who directly benefit from its activities and are therefore highly invested in ensuring its sustained growth.

OUTCOME IN NUMBERS	
FAMILIES BENEFITING FROM BACKYARD POULTRY INITIATIVES	1,350
HOUSEHOLD DAIRY UNITS	157
GOATERY UNITS	276
VILLAGES TAKING UP SEED PRODUCTION	14
SPREAD OF HORTICULTURE/FLORICULTURE (IN HA)	109
DAL MILL UNITS	8
SMALL PRODUCT AGRICULTURAL RESOURCE CENTRE (SPARC)	46

SUSTAINABLE AGRICULTURE

It is well-known that food insecurity has been one of the country's most pressing challenges. India's foodgrain production has increased fivefold since the Green Revolution¹. However, modern farming practices increased the use of chemical fertilisers and pesticides, leading to deteriorating soil quality, water pollution, and even lowering crop productivity in many cases. For small and marginal farmers, many on the brink of poverty, such practices have made farming an increasingly expensive and unsustainable livelihood. Finding ways to reduce the costs of production and improve crop productivity is therefore crucial to their survival in the agricultural sector. Reducing their dependence on the market by developing their self-sovereignty has been an important objective.

For many farmers habituated to chemical fertiliser and pesticide use, the switch to organic farming was a significant shift, brought about by increased awareness of alternate practices and by negating scepticism regarding its need and advantages. Farmers were convinced of the long-term benefit of sustainable agriculture after participating in knowledge sharing sessions, and by engaging with other farmers who have gained from such approaches. Here's how these initiatives unfolded.

CROP DEMONSTRATIONS

Seeing is believing. Before adopting organic farming, many farmers justifiably wanted to see proof of its benefits. Demonstration plots were therefore used to show and discuss techniques and consequent benefits of organic farming. The plots of about 10–15 early adopters of organic farming in each village were selected for this exercise. These farmers had earlier been trained in sustainable agriculture methods, which included the use of vermin/biodynamic composting and organic pesticides prepared by them. 86 'field camps' were organised for the remaining community members with the objective of allowing them to observe the organic farming practices, which included integrated pest management techniques as well

1 | Ministry of Agriculture & Farmers Welfare, Department of Agriculture, Cooperation & Farmers Welfare Directorate of Economics and Statistics, Agriculture Statistics At A Glance 2016. Accessed on 19 September 2018, <https://eands.dacnet.nic.in/PDF/Glance-2016.pdf>

as low external input sustainable agriculture (LEISA) techniques being practiced. 13 exposure visits were also organised for agricultural labourers and farmers from neighbouring villages. Expertise and advice from agricultural scientists were provided to farmers during this time of training. In total, 700 hectares of land were covered by providing crop demonstrations to farmers. **485 farmers adopted sustainable agriculture practices after being a part of such demonstrations.**



Farmers engaged in biodynamic composting

INTEGRATING ORGANIC FARMING WITH TRADITIONAL PRACTICES

Across Barshitakli and Deoli *tehsil*, YUVA worked with farmers to implement sustainable farming practices. These included LEISA farming techniques, which combine scientific knowledge and technology with traditional farming practices that are based on naturally occurring biological processes and encourage organic inputs such as biodynamic-composting and vermin composting, instead of harsh chemical fertilisers. **Small farmers adopting these practices were able to produce greater agricultural output while using fewer resources, thereby increasing crop yields and reducing water and soil pollution.** To reduce farmers' vulnerability to market risks and fluctuating prices, the practice of inter-cropping, integrated nutrient and pest management, and other strategies were adopted, which significantly reduced costs and risks. These interventions increased crop productivity under rain-fed conditions by improving the quality of crops and soil.

Nanda Prakash had spent 25 years farming her 2 acre plot of land on which she used to grow soya beans and *toor dal*. This was her regular source of income, but the increasing costs of using expensive chemical fertilisers which reduced her profit

margins worried her. She began to look at options to reduce costs. When she received information in her village about sustainable farming, which uses organic fertilisers such as biodynamic compost, she decided to implement these practices on her own land. While sceptical about the benefits of organic farming at first, she soon found that her cost of production had reduced by INR 2,500 per acre and she was able to grow 2–3 quintal extra produce per acre, given the improved health of her soil and its 'poison-free food'. Needless to say, that she is now a believer of organic farming and continues to practice sustainable agriculture. Biodynamic composting, in particular, has been well received in many villages and over the course of four years, 1,200 composts were created for this purpose.

IMPACT OF ORGANIC FARMING

- Chemical fertilisers substituted with organic fertilisers like biodynamic compost
- Production costs reduced by INR 2,500 per acre
- 2–3 quintal extra produce per acre
- Improved soil health and chemical-free produce
- Earlier net profit of INR 12,500 increased to INR 21,000 per hectare

ENABLING ACCESS TO AGRICULTURAL INFORMATION THROUGH VILLAGE INFORMATION CENTRES

For individuals wanting to learn more about the various components of sustainable agriculture, organic farming, setting up of small and medium scale enterprises, as well as information regarding the CAIM project and relevant government schemes, **42 Village Information Centres (VIC)** were set up in different villages to



The Village Information Centre in Nimbara village

provide this information in the form of books, magazines, brochures and flyers. These centres were also used by farmers to conduct meetings and to share their experiences about the practices they had adopted.

IN CONCLUSION

Based on farmers' experiences, we have observed that the cost of cultivation for those who have implemented organic farming practices has reduced by 15–20 per cent per hectare. Farmers who have continued with these practices have reported reduced input costs, more resilient production, improved crop productivity, better soil quality and increased income. Many other farmers are also being motivated to incorporate similar practices in their own farming, having seen the benefits of sustainable agriculture.



Field camp with farmers

OUTCOME IN NUMBERS	
LAND COVERED BY CROP DEMONSTRATIONS (IN HA)	700
FARMERS ADOPTING ORGANIC FARMING	485
FIELD CAMPS	86
EXPOSURE VISITS	13
BIODYNAMIC COMPOSTS	1,200
VILLAGE INFORMATION CENTRES	42

ESSENTIAL MARKETING LINKAGES

Though organic farming reduces costs of cultivation and improves crop and soil quality, lack of market access, exploitation by intermediaries, low negotiation power, and non-awareness of marketing opportunities can cripple farmers, making them lose out on any profits gained through sustainable agricultural practices. It was critical to promote an enabling environment to market agricultural produce, which eliminates or reduces market intermediaries and their associated costs, increases farmers' bargaining power, and links them directly with the agriculture produce marketing committee (a government-run bazaar where farmers sell their produce through an auction system), in order to lower marketing costs and ensure fair prices.

However, post-harvest losses and short shelf-life of produce meant that farmers were often inclined to sell their crops at less than optimal prices. Lack of processing and storage facilities further added to their inability to demand feasible prices and subjected them to market dictates. Farmers, therefore, needed to find ways to increase the intrinsic value of products and prevent wastage or decay of produce due to a lack of storage facilities.

FACILITATING PRODUCER GROUPS AND PRODUCER COMPANIES

One way of strengthening market linkages is by organising farmers cultivating the same crop in a village into Producer Groups for each crop. 15–20 farmers formed a Producer Group and in each village there were usually around 4–5 Producer Groups farming 4–5 different crops. These Producer Groups were provided with support and training, to eventually enable them to form a Producer Company, which can act as a collective bargaining agency for farmers in 25 villages.

Producer Companies then mobilised farmers and negotiated prices on their behalf. By directly connecting them with markets, they ensured that farmers have a better bargaining position due to their collective bargaining power. They also promoted processing and value-addition of agriculture and allied products, which enabled

farmers to get fair prices for their produce and reduced their vulnerability to production and market risks. Additionally, for farmers wanting to set up businesses, Producer Companies helped assist in the process.

After training 496 Producer Group members, a Producer Company was established for 25 villages. Before setting up the company, however, farmers were offered access to training and information on a company's functioning and operations, with the main objectives being value addition and processing. While a few farmers had some prior knowledge on how to form the company, an initial workshop for all the farmers helped them better value the need for such a company and its processes, as well as the different roles and responsibilities of its members. Once the company's board members were selected, a second workshop helped discuss the importance and functions of the board. Finally, a third workshop was organised to inform shareholders

and members about the company's benefits. **The company now functions on its own and is involved in the processing, value addition and marketing of its produce.** The Producer Company also assists in connecting farmers with a seed supplier who provides farmers with the seeds that they require at a fixed rate.



Farmer producer company sells processed and packaged dal

ENABLING FARMER CERTIFICATION STATUS

With organic food gaining importance in our markets, certification of produce is important to demand the right price for it. Farmers in 16 villages with an area of 486 hectares tied up with a company to sell their organic produce such as wheat, toor and moong dal. The company certified the produce at their own costs (which would have otherwise cost each farmer around INR 20,000–30,000 per certificate) and farmers could avail of this organic certification free of cost. The benefits of this

FARMER CERTIFICATION OVERVIEW

- 496 Farmers from 16 villages opted for certification status
- Each saved INR 20,000–30,000 on certification costs
- Further savings on transport and market intermediaries costs
- 15% premium for certified organic crops sale
- Improved soil fertility
- Additional income of INR 200 per quintal

arrangement were simple. There were no transport costs and direct interactions also meant that market intermediaries were eliminated, leading to fewer costs. **With the implementation of organic farming, farmers have seen their soil fertility improve and get additional income of INR 200 per quintal. The organic certification has also yielded a higher price—15 per cent premium for crops that are organically certified.**

RENOVATING RURAL WAREHOUSES

Warehouses help store crops post-harvest. Since farmers usually harvest their crops at the same time, should all or most of the produce be sold together, the excess supply would lead to falling crop prices or the excess harvest being wasted. Storage facilities help avoid such a scenario, minimising price volatility and ensuring fair prices to farmers. **Four warehouses were renovated to make them useable for storage of produce, with the farmers contributing towards some of the costs and the remaining being borne by the project.**

IN CONCLUSION

Combining sustainable agriculture with effective marketing linkage systems which include producer companies, warehousing and efficient distribution systems, can be highly beneficial for small scale farmers, in particular, who would otherwise remain trapped in cycles of poverty. By improving marketing linkages, an equitable and non-exploitative marketing facility for agricultural and other locally produced and processed products could be assured. This ensured that farmers enjoyed greater negotiating powers and received fair price for their produce. Furthermore, because producer companies were formed and managed by the farmers themselves, they

were able to continue running on its own even after the project ended, thus making it a sustainable model. Through partnership negotiations and by facilitating field visits, YUVA also helped provide more information and exposure to farmers.

OUTCOME IN NUMBERS	
PRODUCER GROUP MEMBERS TRAINED	496
PRODUCER COMPANY SET UP	1
VILLAGES WITH CERTIFIED FARMERS	16
LAND COVERED UNDER FARMER CERTIFICATION STATUS (IN HA)	486
WAREHOUSES SET UP	4

TOWARDS SUSTAINABLE LIVES AND LIVELIHOODS

Agriculture in India continues to employ millions of people across the country. Yet, with as much as 67 per cent of agricultural land in India being held by marginal farmers with holdings below one hectare¹, most small-scale farmers are vulnerable to low crop productivity, scarce and irregular water supply, lack of infrastructure, unsustainable agricultural practices and rising input costs. This ensures that the downward spiral into mounting debts and losses is never far behind.

Through our interventions in Barshitakli and Deoli *tehsil*, with the support of CAIM, we have facilitated the empowerment of communities by building their capacities. Farmers are now better informed about good agricultural practices and livelihood choices. We have worked to facilitate long-term relief through the construction of infrastructure to store and channel water to fields that are otherwise rain-dependent, and have helped reduce farmers' total dependence on agriculture by promoting agro-allied activities such as dairy production, poultry farming and horticulture which help farmers supplement their income. By encouraging sustainable agricultural methods and practices, farmers can reap the long-term benefits of organic farming which improves crop productivity as well as soil fertility. Connecting farmers with markets directly, improving their access to market information, and increasing their collective bargaining power through the creation of Producer Companies has lessened their dependence on multiple mediators and has therefore also led to a reduction in their costs. Warehouses and produce certification also ensure that farmers get better prices for their produce.

In the villages we have been working in, farmers' financial situations have improved and many are now either receiving a supplemental income from agro-allied activities or their costs of cultivation have decreased, thereby allowing them to enjoy higher profit margins. Soil and water conservation as well as organic farming has resulted in ground water table levels increasing and a projected increase of overall production

1 | Press Information Bureau, Government of India, Ministry of Agriculture and Farmers Welfare, Highlights of Agriculture Census 2010-11, Accessed on 19 October 2018, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=132799>

and productivity by 10 per cent. Soil quality and fertility has also improved and healthy and organic food is easily available in the villages. Since the activities that were implemented are not stop-gap solutions but rather contribute to the long-term welfare of farmers, we anticipate that farmers will continue with these activities having seen their benefits and that others will follow them too. The project has also improved household incomes by helping the people transition from mere subsistence or income generation activities to micro-enterprises, with improved access to technology, credit and marketing.

The initiatives are also self-sustaining as farmers manage and control the activities themselves. Additionally, having been made aware of the different government schemes and benefits available to them, farmers are now able to liaise with the relevant government departments to access these benefits and subsidies. **Thus, while our work has been concentrated in 25 villages of Barshitakli tehsil, district Akola, and 32 villages of Deoli tehsil, district Wardha, we envision these steps to be a framework that can be replicated in other villages facing similar problems, among those looking for self-sustaining models of alleviating poverty among farmers and agricultural labourers.**

The interventions are also aligned to YUVA's commitment and holistic approach towards the alleviation of poverty, keeping rural-urban linkages in view and engaging with both geographies to facilitate the setup of just and inclusive spaces everywhere. Given the drastic urbanisation of Indian cities over the past few decades, and the concentration of employment opportunities in urban centres, over the years the country's development trajectory has only become more lopsided as more people migrate from rural to urban areas. **With the kind of holistic village transformation that this project has demonstrated, it is hoped that rural livelihoods elsewhere too can be strengthened and people's empowerment will continue to remain at the centre of transformation efforts.**

ABOUT YUVA

Youth for Unity and Voluntary Action (YUVA) is a non-profit development organisation that helps vulnerable groups access their rights. YUVA encourages the formation of people's collectives to engage them in the development discourse. This work is complemented with advocacy and policy recommendations. Set up in Mumbai in 1984, currently YUVA operates in 5 Indian states.



OUR WORK ON ENVIRONMENT SUSTAINABILITY

YUVA's engagements include natural resource management, enhancement of the human environment, expansion of livelihood opportunities in rural areas, and the improvement of sanitation facilities in rural schools of Maharashtra. The projects are spread across three districts—Akola, Wardha and Nashik—in Maharashtra.