

Project: Empowering Smallholder Farmers through promotion of sustainable agriculture and water harvesting & conservation methods

Location: Bathinda district, Punjab

Background: Presence of small and marginal farmers 28.7% (25,180) of the total landholding (87,436) in Bathinda district of Punjab belongs to small and marginal farmers with landholding size of less than 2 hectare. Thus, the district has significant number of smallholder farmers who are facing several challenges with respect to agriculture and allied activities. Also, semi-medium, medium and large farmers in Bathinda also faces similar climatic and agri & allied sector challenges.

Social capital: There are approximately 1,491 SHGs in Bathinda district covering 14,505 SHG members. Thus, compared to other districts, presence of social capital in Bathinda district is low. Block-wise presence of SHGs in the district is as follows: Bathinda: 229 SHG, Bhagta Bhaika: 160 SHG, Goniana: 189 SHGs, Maur: 115 SHGs, Nathana: 108 SHGs, Phul: 160 SHGs, Rampura: 173 SHGs, Sangat: 162 SHGs and Talwandi Sabo: 195 SHGs respectively.

Food processing in the district: Bathinda district is recognized as a potential production cluster for Wheat, Paddy, and Milk. Honey is selected as the potential agri commodity under One District One Product for Bathinda. Also, the district is recognized as milk processing cluster in Punjab. Milk products are also seen as major exportable item in the district.

Widespread crossbred livestock population: The district has primarily crossbred cattle population i.e. 1,22,456 which constitutes 79% of total cattle population in the district. Buffalo population of the district is only 2.34 lakh as per 2015-16 livestock census. Thus, the district has presence of high yielding dairy animals. However, the management of these animals under rapidly changing climatic conditions and accessing low cost inputs and better markets is a key challenge.

Low area under horticulture crop: While the productivity of horticulture crop in the district is good, area under horticulture cultivation is still low due to mass level of Paddy and Wheat cultivation.

Key horticulture crops in Bathinda			
Crop	Area (Ha.)	Yield (Kg. Per Ha.)	Production (MT)
Potato	5,906	26,126	1,54,300
Onion	385	21,435	8,252
Garlic	286	11,596	3,316
Tomato	276	24,286	6,703
Brinjal	196	21,637	4,241
Total Vegetables	9,444	22,179	2,09,462

Scope for reducing water consumption with water conservation methods: As per Aquifer mapping and management plan of Bathinda district, adoption of different water saving method can have significant impact in water conservation in the area. The table below presents that Phul, Maur and Bathinda are three blocks with highest potential to reduce water consumption with proposed water conservation methods.

Block	Net ground water availability (MCM ¹)	Total irrigation draft (MCM)	Reduction by use of underground pipeline	Reduction by Artificial recharge	Reduction by replacing Paddy with Maize	Total (MCM)
Phul	187.56	314.23	26.28	3.69	100.52	130.49
Maur	138.63	170.05	14.22	2.41	16.50	33.13
Bathinda	341.05	342.62	28.65	3.94	0.00	32.59
Rampura	252.82	160.07	13.39	0	0	13.39
Nathana	219.93	149.75	12.52	0	0	12.52
Sangat	155.61	83.83	7.01	0	0	7.01
Talwandi Sabbo	146.16	81.99	6.86	0	0	6.86

Presence of stubble burning in the district: Stubble burning is a prominent phenomenon in Punjab resulting in large scale environment pollution within Punjab and nearby states. Bathinda is also one of the active contributing districts in stubble burning in the state.

Goal of the Project: To empower 12,000 smallholder farmers through promoting sustainable agriculture and water harvesting and water conservation resulting in enhanced income for the smallholder farmers

The objective of the project are as follows:

Objective 1: Strengthening Community Based Organizations by building their capacities

Objective 2: Natural Resource Management through promotion of water conservation and water harvesting methods

Objective 3: Promotion of sustainable agriculture practices within smallholder farmers

Objective 4: Enterprise promotion and support

Objective 5: Enabling environment creation for enterprise and smallholder farmers

Project framework

CARE India will adopt the following framework for promotion of sustainable agriculture and allied activities under the project.

Impact framework for the project:

Strengthening Community Based Organizations

80% of the community institutions (SHGs, WUGs, Federations, Producer Groups) promoted under the project are sustainable

50% of the participants adopted promoted package of practices with respect to collectivization, financial inclusion and digital literacy

150 SHGs from SC/ST/OBC/Minority/Female Headed Households trained on collectivization, financial inclusion, digital literacy and entrepreneurship. (The existing women literacy rate is 55.37%.)

Integrated Natural Resource Management through promotion of water harvesting and water conservation

Micro plans prepared for 30 Gram Panchayat's

30 Farmer Field Schools formed and trained on Integrated Natural Resource Management

300 hectares of unirrigated land covered under irrigation

150 acres of agriculture land covered under micro irrigation

100 acres of land brought under plantation

120 water conservation units developed

200 Acres of agriculture land brought under chemical free farming

3,000 farmers trained on organic production

Promotion of sustainable agriculture practices within smallholder farmers

3,000 farmers trained on improved dairy management

3,000 farmers trained on horticulture

3,000 farmers trained on poultry / goat rearing / Beekeeping

120 acres of land brought under vegetative cover

30 modern livestock units established

30 solar based technologies demonstrations

60 technology demonstrations to mitigate stubble burning

Enterprise promotion and support

4 cluster federations promoted

Value chain study and Business plan developed for enterprises

15 primary value addition technologies installed

Backward and forward linkages established

Enabling environment creation for enterprise and smallholder farmers

150 SHGs trained on access to entitlement

150 SHGs trained on gender sensitization

The overall progress of the project are as follows:

- 30 potential micro clusters have been Identification and selected for activity interventions. Project orientation meetings has been done in these clusters.
- Project team eco-friendly agriculture practices training has been done on different thematic areas.
- Design and translation of training modules on aligned project activities has been done and distributed to farmers in concerned training sessions.
- Community level project visibility & branding and awareness on sustainable agriculture practices in 30 clusters has been done.
- Two Trainings of community resource person on different thematic areas has been done for better understanding & outcome of field activities.
- Formation of 150 SHG and capacity building training of Self-Help Groups on Collectivization, Financial inclusion, Digital Literacy, Entrepreneurship, Gender and Access to entitlement has been done t village level.
- Formation of 30 water user group cum producer group and 120 trainings of 30 water user group cum producer group at cluster level on natural resource management.
- 375-acre land covered under development of water conservation and harvesting structures. 50-acre land covered under plantation with 34000 plants at village level.
- Development of 5 community nurseries at village level managed by producers groups.
- 30 decomposition of organic waste in to bio-fertilizer units established. 300 producers group farmers training on chemical free farming.
- 300 producers group farmers training on improved dairy management.
- 150 Producer Groups farmers training on small ruminants / Beekeeping or poultry.
- 25 Vaccination and deworming camps held for livestock at village level.
- 1000 soil samples have been collected under soil promotion activity and report given to farmers for their farm soil.
- 5 units Installation of primary value addition technologies for chemical free production, dairy, horticulture, and poultry / goat / beekeeping rearing cluster, Stubble burning reduction technology.
- 3 units establish under custom hiring centre.

Adoption of improved animal management practices resulting in increased milk productivity in Bathinda district, Punjab

Rampari from village Katarsinghwala comes from a very humble background. Her husband expired due to some chronic health problems and now she lives with two minor sons. As there are no earning members in her family she is the sole bread earner. She is a very hardworking women and has taken this milk selling as a bussiness model and she earns a money and runs her daily life smoothly.

Rampari had a total of 3 dairy animals including one cow and two buffaloes. She follows conventional package of practices which are as follows.

- Shed structure and shed management
- Feed & fodder practices
- Reproductive practices
- Vaccination and deworming practices
- Livestock Insurance practices
- Burden of unpaid work and workload sharing within family members
- Clean milk production practices
- Any fatal diseases or mortality incurred to livestock earlier
- Market player with whom she was engaged earlier
- Market rates fetched and fat and SNF ratio of milk.



She is earning 6000-7000 per month by selling milk which is not enough to improve her family's financial condition and not enough for maintaining livelihood of her family.

She attended one day dairy training program at Bathinda which was organized by CARE India supported by HDFC Bank . In the training, she learnt about best practices for dairy farming including balanced feeding for increasing milk production and health management. She also received dairy related material like mineral mixture, cane, tub for feeding, mustard cake, and seed of berseem(fodder) in this training program. She found that dairying can be a significant tool to support their livelihoods, particularly during unfavorable times. She also learned the scientific management of dairy animals, preventive health care of cattle, Vet first aid, feed supplement etc. in that training program. By using those material of dairy direct effect had gone to the milk production from 6 liter per day to 8 liter per day.

Milk production before attending the training program	Selling price per liter Rs. 50/L	Milk production after attending the training program	Selling price per liter Rs. 50/L
4-5 ltr per day	6000-7000	6-8 liter per day	8000-9000

She also said that dedication and awarness on cattle is very important for the sustainblity and i urge all womens to take this challage a profitabile chanllage and they will succeeded. She also add that some of the milk chilling centre or household who buy milk from them are happy as the quality of the milk is standrad one.

Dairy Development is one of the most important interventions done during the project, this intervention aims to help the poor and marginalized farmers in the villages. The livestock plays an important role in the economy of farmers. The landless and marginal land holders depend upon livestock, and it is one of the important assets of the farmers. Buffalo cattle are generally the most profitable and easiest livestock to raise for profit. Buffalo & cattle simply require good pasture, supplemental during the winter, fresh water, vaccinations, and plenty of room to roam.



This project in Bathinda district, Punjab, while the state is considered to be the milk belt of the country yet many of the small holder women dairy producers are still using conventional methods of practices resulting in reduced milk productivity of dairy animals