



Improving food security, nutrition and income of tribal smallholder farmers in Sundargarh District, Odisha, India

Introduction

More than a thousand smallholder farmers from predominantly tribal Sundargarh district have been supported to adopt or extend locally appropriate, low-cost, sustainable farming practices to improve food and nutritional security and increase income.



Figure 1. Women's collective take up mixed cropping

The Centre for Integrated Rural and Tribal Development (CIRTD), a long term partner of ActionAid India in Sundargarh district of Odisha, has implemented the project, “**Enhancing income and securing the food and nutrition of Small and Marginal Farmers through Promotion of Sustainable Agriculture in Rainfed Region**”. CIRTD works predominantly in securing the rights and enhancing the livelihoods of marginal tribal and other forest dwellers, women and other smallholder farmers.

Description of the Agroecology system

The agroecology system implemented by CIRTD comprises a series of initiatives, building on local knowledge and innovation:

- Use of improved and drudgery-reducing agricultural implements such as cycle-weeder and cono-weeder, wheel-hoe and millet-weeder for soil loosening and weeding, and markers for setting lines for sowing or transplanting of paddy, millet and other seeds. A subsidy from government schemes was pooled to purchase these implements and the farmers have started collectively using these manually operated agricultural implements.
- Use of bacteria culture prepared from cow dung, cow urine, lentil flour, and molasses and use of bio-pesticide prepared from bitter leaves such as neem, pangamia, custard apple, etc. Meetings with farmers to promote use of bio-fertiliser and bio-pesticides together with demonstration and on-field training was a crucial for the farmers to understand the environmental and economic impact of use of chemical inputs and to sustain their interest in preparation and use of bio-inputs.
- Vegetables grown together with leguminous crops following the principles of mixed cropping.
- Farmers were supported to collect local, drought resilient varieties of seeds from within the community and revive the practice of seed exchange. Farmers were identified as ‘Seed Saviours’ and provided with training on seed production so that local seed availability is ensured and market dependence on seeds is reduced.



- Support to store seeds, and to locally prepare bio-fertilisers and bio-pesticides was extended to individual farmers wherever needed.
- The Systems of Mustard Intensification and Rice Intensification have been adopted by a majority of farmers and 10 collectives of women.



Figure 2. Preparation of dense bio fertiliser by women farmers

Farmer-to-farmer exchanges were organised for farmers to learn by seeing innovative practices in other farmers' fields. Meetings and interactions with pro-farmer agricultural scientists and periodic participation of farmers' representatives in various state and national level farmers' organisation meetings also increased their political understanding of farmers' rights.

Women who undertake more than 50% of all agricultural work, have started demanding recognition of women as farmers so that they can gain access to benefits and entitlements

under government agriculture development schemes. They also demand that the government should support them with a minimum support price and other incentives for climate-resilient crops such as millets, pulses and that millets should be included in government food schemes, e.g. Public Distribution System, Midday Meals for school children and Integrated Child Development Services.

Five 'Farmers' Friends' (Krishak Mitra) from each of 25 villages were identified, trained on their agricultural land in growing indigenous rice, millets, pulses, oilseeds and vegetables in the System of Crop Intensification (SCI) method and the application of organic manure and bacteria culture. They then engaged altogether more than 1000 farmers and other landless agricultural workers in 25 villages on agroecological techniques through training, demo-shows, exposure visits to the areas, best practices and projects. Experts and officials from various agencies also provided training on organic methods of cultivation. The District Manager of Orissa Agro-Industry Corporation provided improved agricultural implements such as cono-weeders, sprayers and pump sets with up to 50% subsidy and as a result more implements were purchased. Nominal users' fees have been collected by the Farmers Clubs for repairing and maintenance of the equipment.

The new farming practices i.e., the system of root intensification and line sowing, mixed farming, and millet cultivation were piloted on small plots owned by the farmers. After experiencing the input cost and yield benefits and realising other benefits of sustainable farming practices, farmers were motivated to increase the land coverage for these practices.

CIRTD is also an active member of the Western Odisha Farmers Organisations' Platform who has been working on the issue of farmers in the State and demanding the revival of millet production in the State in addition to demands for greater public investment in agriculture and promotion of sustainable agriculture practices, minimum support price for crops, protection of indigenous seeds, recognition of women as farmers and policy support for women farmers. CIRTD has also been a member of the National Platform for Rights of Women Farmers (MAKAM) which continuously demands for policy and programmatic support to ensure women's resource rights and more importantly recognition of women as farmers.



Political space

Continuous demand to revive millet cultivation at the state level through the Farmers Organisations' platform and locally at the district level by CIRTD and the farmers' groups has been an important strategy. Government officials were kept updated about the initiative through invitations to meetings, farmers field visits, seed fairs etc. which increased confidence in the government officials to engage with CIRTD:

- With support from the Government of India, the State Government of Odisha has partnered with CIRTD for a Programme entitled "National Project on Promotion of Organic Farming" to increase productivity as well as the scale of production by reaching increased number of farmers. CIRTD will identify at least 1000 farmers to cover 1500 acres in 30 clusters. Small plots of at least 50 acres will be covered by 100% organic farming. The government will provide support in terms of seeds, organic inputs and capacity building over 3 years. A prime benefit to the farmers will be that each organic food-crop grower will receive a Certificate for Organic Produce under PGS (Participatory Guarantee System) in India.
- The Deputy Director of Agriculture (DDA) has finalized support through CIRTD for promotion of the revival of millet production by supporting with 500 quintals of seeds of different types of millets in Sundargarh district.
- The District Department of Agriculture of Sundargarh has agreed to provide finger millet seed to farmers through CIRTD for cultivation in all the 17 Blocks of Sundargarh District from June, 2017.
- The District level office of the National Bank for Agriculture and Rural Development (NABARD) and the State Bank of India, District Branch have collaborated with CIRTD to set up a Value Addition Unit (Millet Biscuit, Millet Cake Production Unit) and marketing of finger millet and other millets.
- The revival of millet cultivation at local level together with other organisations who are partners of ActionAid India in other tribal populated districts of the State and similar work by a national level organisation WASSAN could influence the State Government to take up the Millet Promotion Programme in the tribal districts across the State.

Outcomes of the practices

All these practices have resulted in increased food and nutritional security and increased income through sale of surplus. More than 1000 small & marginal farmers now own the techniques of low-cost methods of ecological farming with application of locally available inputs such as climate resilient indigenous seeds. These farmers are preserving and exchanging among themselves and other interested farmers around 80 varieties of paddy including ten aromatic varieties, eight types of pulses, seven types of oil seeds, four types of millets, 48 types of vegetables and tubers.

Women farmers also say that the drudgery-reducing agricultural implements can be used by them as easily as by men and is a step in the recognition of women as farmers when they organize in collectives. Success was measured through regular field visits by the project team and ActionAid staff. Towards the end of the project, an end-line study was conducted for the project and was compared with the baseline survey which, together with an external evaluation, confirmed the substantial change and success achieved.

The increase in yield of mustard cultivation was also verified by the Government's Agricultural Science Centre at district level. As a result of adoption of innovative methods of transplantation, rice productivity has increased up to 50% to 60% in indigenous varieties of paddy. Similarly, Ragi (Finger



millet) production has increased up to 3 times as compared to conventional method of sowing or transplantation. Mustard production has also increased up to 36 quintals per hectare through the system of root intensification. Besides this, varieties of vegetables have been grown by intercropping cereal crops like millets with leguminous crops or pulses such as blackgram, cow-pea etc, by maintaining adequate space between lines and between plants so that weeding and soil working could be carried out more easily. As a result of such System of Crop Intensification (SCI) the farmers, particularly landless women and women farmers with little land grow varieties of foods grains, vegetables, pulses to fulfill their nutritional needs and have disposable income from sales of surplus crops.

Women farming organically have formed producers' collectives at local level and a federation at apex level and put forward demands for market space with the local Market Committees at Gram Panchayat level and at the Chairman of Sundargarh Municipality. As a result of continuous dialogue, the Municipality has provided separate space for selling only organically grown foods grains and vegetables.



Figure 3. Women's Collective: mustard grown along with potato & green-pea in the same plot using SCI methods

Message from farmer to farmers

"I tried again and again to convince my husband to go for the organic way such as transplanting paddy and millet in lines, popularly we call it SRI [system of root intensification], then apply Ghan Jeewamrit (the dry and dense form of bio-fertiliser) and Taral Jeewamrit (the liquid form of bio-fertiliser made from cow-dung, urine, jaggery and gram flour) and at the end we harvest 15 Quintals of Paddy and 10 Quintals of finger millet per acre - which is respectively two to three times more than our previous years' yield.

Now, my husband and neighbouring farmers are following my advice. I feel proud and happy."

— Message from Mrs. Teresa Mundu, Karla Village, Sundargarh, Odisha State

"Before, we farm-women were compelled to weed by bending our backs and waist in knee-deep mud and water in the field for 6 to 8 hours a day in hard agricultural labour. Consequently, we have been suffering backache and pain in backbone, waist, knee and the whole body. Now, due to the use of cono-weeder, cycle weeder etc we can do weeding operations by walking straight unlike always in a back-breaking posture."

— Message from Mrs. Partapup Lakra, Dhabadoli Village, Sundargarh, Odisha State



Figure 4. Partapup Lakra reduces drudgery by using Cycle-Weeder