Community initiatives for agrobiodiversity conservation and climate-resilient agriculture

BAIF Development Research Foundation, with its legacy in grassroots development spanning more than 50 years, has brightened the lives of 5 million families from 1,00,000 villages in 12 states in India

An exposure visit of seed savers groups to in-situ conservation sites.

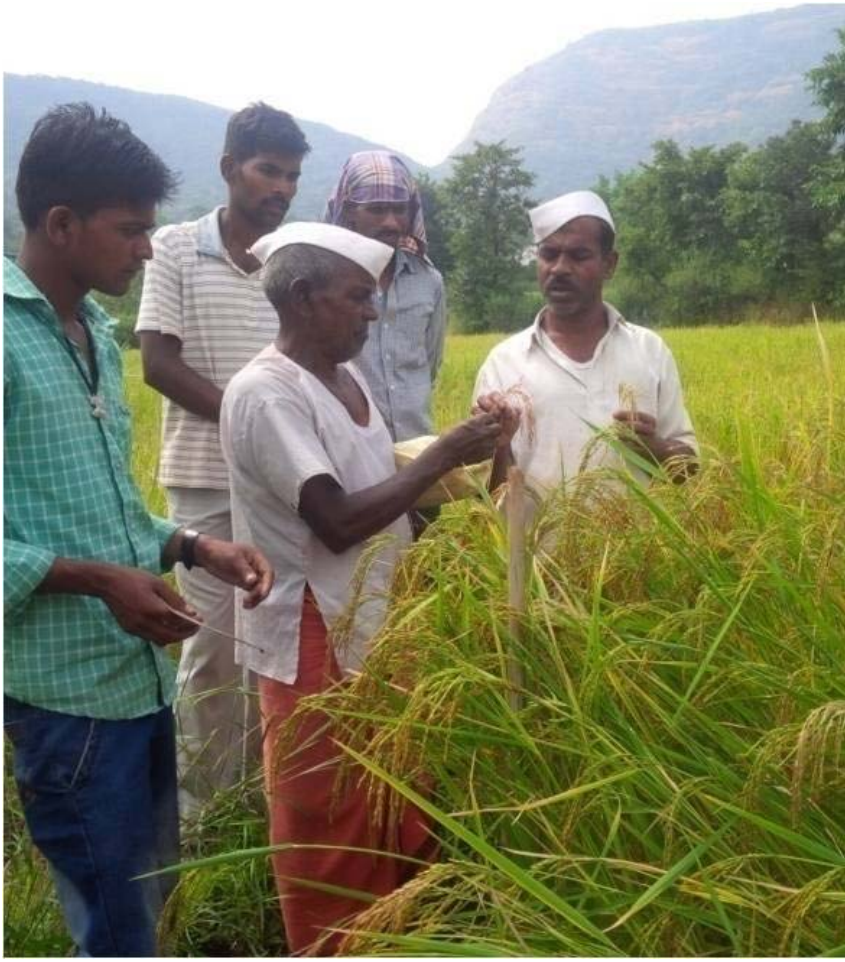
Increasing vagaries of nature caused by global warming, fast eroding natural resources and the growing number of small and marginal farmers, have dealt a cruel blow to the livelihood of rural communities, particularly to the nutritional security of women and children. To promote sustainable development in vulnerable regions affected by climate change, BAIF launched location-specific biodiversity conservation and climate-resilient agriculture, involving local communities rich in traditional wisdom. The strategy was to conserve soil, water and forest resources to enrich soil productivity and preserve crop and livestock biodiversity by in-situ and ex-situ conservation. The aim was to introduce promising traditional crop diversities under climate-resilient agriculture with newly released hardy and short duration crop varieties, while empowering small farmers, particularly women, to develop an efficient value chain. Women being the major stakeholder in drought-prone and tribal regions, their empowerment was ensured through the formation of Self Help Groups, training in climate-resilient agricultural production, adoption of improved tillage operations, farm tools and equipment to reduce physical labour, conservation of native genotypes of important crops and selection of promising and hardy landraces for large scale cultivation.

In Maharashtra under the genetic conservation initiative of BAIF, 350 landraces of rice, millets, sorghum, maize, hyacinth bean and cowpea crops, were collected for in-situ conservation. The local communities formed seed saver groups which selected more promising genotypes, produced 13.2 tons of paddy seeds of worthy landraces and distributed them among other farmers through six community seed banks to expand the area under native varieties. Farmers have sold 3.5 tons of traditional races of rice under the brand, 'Farming Monk'. A central community seed bank at Jawhar in Thane district and BAIF's seed bank at Central Research Station at Urulikanchan near Pune, preserved 588 and 473 accessions of rice, finger millet, little millet, maize, and sorghum respectively in cold storage for ex-situ conservation. A total of 75 landraces of these crops have been deposited with NBPGR (National Bureau of Plant Genetic Resources) for IC numbers. More than two lakh grafts of 262 candidate races of Mahua, Hirda and Behda have been planted on BAIF's campuses, community and private lands for conservation. As mixed

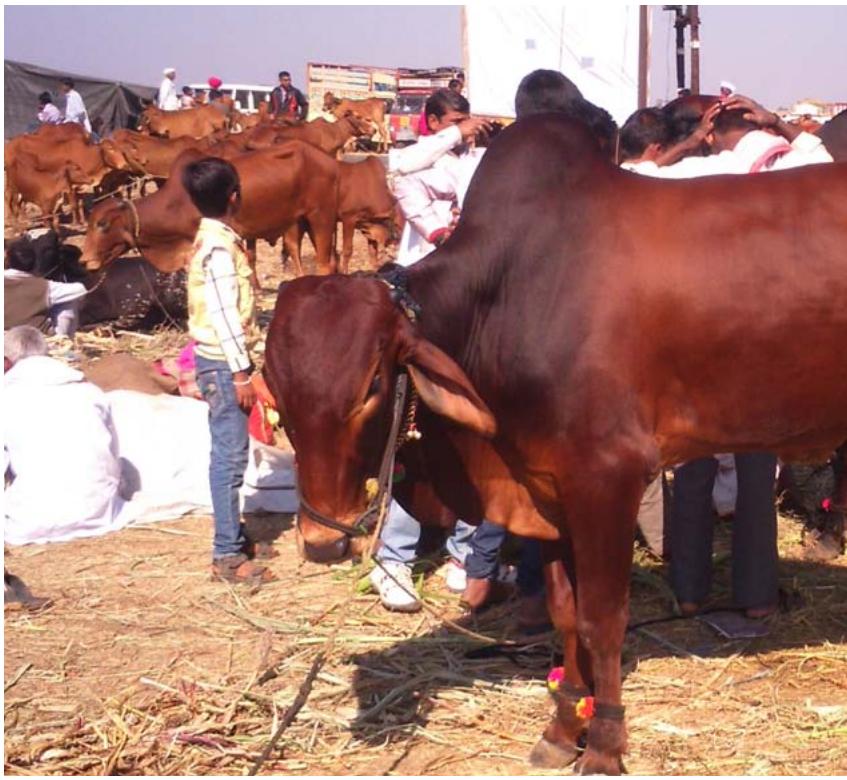
farming can boost the income of marginal farmers, conservation of hardy native breeds of Dangi, Lalkandhari and Gaolao cattle, Sangamneri and Berari breeds of goat and Satpudi breed of poultry was organised in 142 villages of nine districts involving local communities.

Under the Climate Smart village development initiative, 11,250 families from 75 villages of Uttar Pradesh, Bihar and Madhya Pradesh, adopted climate-resilient technologies to enhance their crop yield by 69% and income by 96%, while reducing CO_2 emission by 55%. 800 families in Uttarakhand cultivated vegetables in polyhouses. 2,200 families established orchards with hardy fruit crops and short duration pulse varieties on 900 ha in desert regions of Rajasthan and Gujarat. 287 families collected 8.6 million litres of rainwater in tankas and 126 farmers used gravity-based drip irrigation to earn a net annual income of Rs. 1.50 lakhs/ha. Cultivation of improved varieties of vegetables with organic inputs fetched Rs. 62,750/ha for 110 farmers in Kutch and Rs. 78,070/ ha for 22 farmers in Barmer. Rooftop rainwater harvesting structure with tank benefitted 215 families. Fodder-based cropping systems generated an average income of Rs. 62,075/ha. Cactus cultivation for fodder was adopted by 400 farmers.

A gender-sensitive approach to enrol women from marginalised families in Self Help Groups, engagement of champion women farmers and cadre of women community resource persons for handholding, mixed farming approach, the formation of a safety net through weather-based crop advisories and crop insurance and involvement of public and private players, further enhanced the crop production and income.

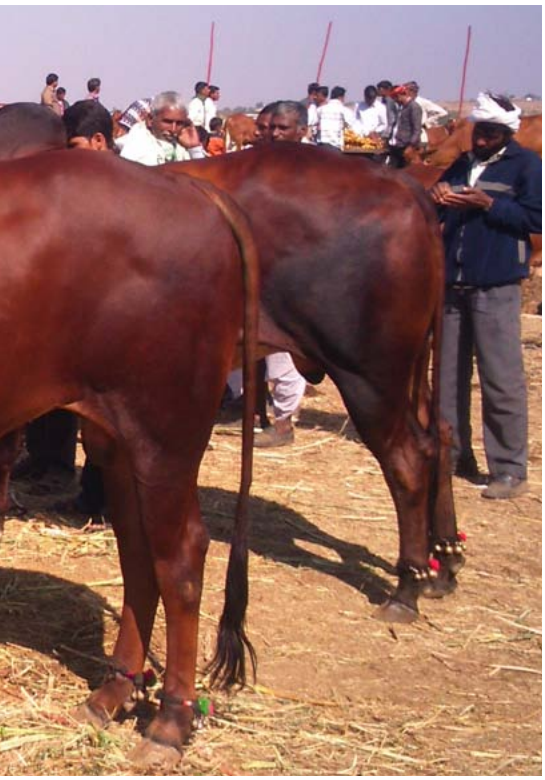


Participatory seed selection for germplasm purification.



Promotion of Lalkandhari cattle at the local fair.

Training of tribal youth in grafting of Mahua plants.



Sustainable livelihood in semi-arid region with drought-tolerant fruit crops.

COMMUNITY SEED BANKS:

Kalsubai Seed Saver Group takes the lead

A village-level in-situ conservation centre.

With the introduction of high yielding varieties, traditional varieties of food were neglected. However, in the absence of recommended practices, these high yielding varieties became uneconomical. This led BAIF to initiate the collection of traditional genotypes of important crops, involving the local communities. Fortunately, women from tribal communities took the lead to undertake the collection and conservation of traditional varieties of different crops. In 2015, community seed banks were established with the support of Maharashtra Gene Bank Project for in-situ conservation, selection of worthy cultivars, seed production and distribution among other farmers for large scale cultivation. Thus, Kalsubai Parisar Biyane Savnardhan Samajik Sanstha was registered in Akole, Ahmednagar district, with a membership of 2,000 women and 250 men, for the conservation of crop biodiversity. Starting with the collection of rice varieties, the work was extended to the collection of 114 accessions of 40 crops, maintained in 10 in-situ conservation centres spread over 94 ha land with proper documentation about landraces. The seed saver committee of 11 members, monitoring the conservation, engaged 615 members for seed production of selected landraces and produced 13 tons of seeds for distributing among other farmers, after checking the quality. Kalsubai Sanstha determines seed procurement and sale price based on the cost of production, cleaning, marketing, promotion and transportation expenses.

Kalsubai Sanstha organises annual seed exhibitions, wild food festivals, field visits to conservation centres and seed banks, and educates visitors about the importance of different varieties for climate-resilient food production. The work of their leader, Rahibai Popare, popularly known as “Seed Mother”, was recognised by the Government of India with the bestowing of “Padma Shri” on her this year.

Active participation of women seed savers in the local Mahua festival.

Focus in post-COVID-19 world

Regenerative agriculture is the direction for making farming a part of the solution, to ensure climate resilience, stable livelihoods and an ecologically sustainable future.

- Girish Sohani
President
BAIF

Vegetable cultivation by a super champion woman farmer for nutritional security of the family.