



Women participate in a training for processing millets. Credit: L. L. C. King/ASA

## IMPACT BRIEF

# Promoting kodo and kutki millets for improved incomes, climate resilience and nutrition in Madhya Pradesh, India

This project was supported by the International Centre for Agriculture Development (ICAD), the European Commission and the CGIAR Research Programmes on Climate Change, Agriculture and Food Security (CCAFS) and Agriculture for Nutrition and Health (A4H). The activities were carried out in close partnership between Bioversity International, Action for Social Advancement (ASA) and the Mid-Sectoral Alliance for Transformation (MSAT) with support from numerous collaborators.

Kodo millet (*Paspalum scrobiculatum*) and kutki millet (also known as little millet, *Pennisetum sumatranse*) are central to traditional rainfed farming systems of Gond farmers in eastern Madhya Pradesh, India. These cereals have good protein, fibre and mineral content with a low glycemic index. Because of their low water requirements and early maturation that helps them escape drought, they are recognized as key assets to support farmer adaptation to climate change, which is bringing ever-greater drought pressure to eastern Madhya Pradesh. Despite these important values, the production area of minor millets has declined more than 50% in Madhya Pradesh in the past two decades. Low productivity, weak market channels, and difficult processing have encouraged abandonment of small millets as more convenient and profitable crops have been introduced, and market access and opportunities for wage labor have developed in the region. Production of minor millets remains important among tribal farmers in isolated sloping and rocky lands where other crops are difficult to produce, yet low yields and poor marketability limit the benefits they provide these populations.

### Unleashing multiple benefits from minor millets

To secure greater benefits from minor millets for producers and to encourage their wider use in support of climate change adaptation, a holistic approach addressing multiple bottlenecks in their supply and demand was followed in the project “Linking

agro-biodiversity value chains, climate adaptation, and nutrition: Empowering the poor to manage risk”. Activities sought to connect producers to markets and to enhance and multiply impacts for food security, conservation, profitability and women’s empowerment. From 2015 to 2019, multiple stakeholders were consulted and involved to devise pro-poor and gender-sensitive interventions. **Farmer producer companies** that were owned by women shareholders from the local communities were a key point of intervention to raise productivity and enhance the commercial potential of these crops.



This initiative focused on 30 villages and three farmer producer companies in Mandla and Dindori Districts in eastern Madhya Pradesh. The baseline household survey was completed with 297 households in 2015 and the endline survey with 287 households in 2018. The three farmer producer companies included in the project were built up with the support of Action for Social Advancement (ASA) and the engagement of women’s self-help groups that were established in the study area since 2013.





Farmers participate in a field-level demonstration of best practices in millet cultivation. Credit: © Melkote, University International

## Improving yields

Millet cultivation in eastern Madhya Pradesh traditionally involves broadcasting seed, no use of fertilizer or manure, and limited attention to weeding, as priority is given to paddy. To enhance millet yields, farmers were trained on a package of best practices that was developed by Krishi Vigyan Kendra (KVK), Dindori that included **line sowing and weeding** among other techniques.

At the start of the project, the millet seed used by farmers in eastern Madhya Pradesh was found to be by and large made of landraces, and typically farmers planted grain stored for several years, resulting in poor yields. **Participatory selection trials** were carried out to identify highest yielding and preferred varieties of kodo and little millet. The farmer producer companies were nurtured to produce and commercialize multiple varieties that were found to be best performers in the trials. The farmer producer companies contracted local smallholders to produce the seed, which was certified by the Madhya Pradesh Seed Certification Agency.

## Generating economic benefits through collective marketing

Lack of attractive farm gate prices, low transparency and too many intermediaries were identified as some of the reasons why farmers are not motivated to market millets. To help overcome these issues, **aggregation of millet grain was organized through the farmer producer companies**. This action was devised to reduce the number of middlemen between the farmers and consumers in order to achieve a better price through bulk sale. Over the course of the project the farmer producer companies procured grain from local producers at their doorstep and payed within 3-4 days, whereas other buyers typically had longer delays in payment. The farmer producer companies carried out primary cleaning, grading and color sorting, giving farmers a share in the value-added price. The project team and the Madhya Bharat Consortium of Farmers Producers Company Limited (MBCFPCU)—a State level federation of farmer producer companies—were

- ⇒ In total, 1872 people in the focal villages were trained on the package of practices for millet cultivation
- ⇒ Participatory selection trials were conducted in 2015 and 2016 and a "crowd sourcing" trial was conducted in 2017 that involved 47 farmers who planted and ranked the performance of varieties (see [climpro.net](http://climpro.net) for more information)
- ⇒ The variety evaluation trials included 9 varieties of kodo and 6 varieties of kutki, among which kodo variety JK439 and kutki varieties JK-8 and JK-36 stood out as best performers. The preferred varieties had yields of 1480-1690kg/ha on average as compared to around 1000-1200kg/ha for local varieties. Yields under typical growing conditions in farmers' fields in the targeted districts were much lower (around 250 kg/ha on average according to government records).
- ⇒ The production of target seed by the farmer producer companies increased more than 10 fold between 2015 to 2018, reaching a cumulative production of 127,100 kg over the project of six varieties of kodo millet and three varieties of little millet
- ⇒ The endline survey did not reflect strong adoption of improved varieties, as most households continued to use their own seed.

involved in seeking the best possible price for the millet grain. Negotiations were held with dealers locally and in Nashik, Maharashtra, where the majority of millets were found to be destined in our value chain assessment. Profits from the millet business are shared equally amongst the farmers that collectively own the companies. Thereby this initiative has opened a new income-earning opportunity for women, who are the primary shareholders. Processing options were explored in value chain stakeholder consultations, including the potential for the farmer producer companies to produce a *bhagar* (fasting) food, which was found to be a major use of small millets in the value chain assessment. However, this option was not pursued in the current project because of perishability and challenges ensuring product quality.

## Raising consumer demand

Low consumer interest and a perception of millets as 'poor man's food' is still strong in Madhya Pradesh despite rising awareness of their health benefits. Though most people were familiar with minor millets and appreciated their taste in the rural areas of Mandla and Dindori districts, our assessments revealed that people are largely unaware of these grains in bigger cities in Madhya Pradesh such as Bhopal and Jabalpur. Difficult processing is a major reason why rural families stop eating millet. The processing is associated with considerable drudgery and advanced processing technology is not reaching rural areas. Some have managed to modify paddy dehulling machines to make them suitable for millet but the outcome is usually of low standard.

To raise interest and demand for millets among consumers in Bhopal, a **Millet Gala** was organized on 21 May 2016 to glamorize consumption of millets by serving them in a high-profile event with novel recipes devised by a local chef. The event was invitation-only but competitions for tickets were held over the radio, which gave opportunity for the general public to attend and brought further attention to the event. The guest list included government actors, local hotel managers, nutritionists, chefs, farmers, and scientists. Gala attendees were sent home with a basket of millets, recipes, and inspiration to cook these traditional cereals at home.

Another key action in the project was to ease drudgery by providing better processing equipment. **Three**

- ⇒ Approximately 573,600 kg of millet grain was procured by the farmer producer companies over the project period. The quantity collected increased 8-fold from 2015 to 2019.
- ⇒ The farm gate price increased from 15.5 Rs/kg in 2015 to 21.3 Rs/kg in 2019. These farm gate prices were similar to those reported by farmers in the baseline study but with the benefit of a more convenient procurement system. In total, 60,499,456 INR was paid to local millet producers.
- ⇒ The percent of households commercializing small millets increased from 10% to 35% for kodo and from 16% to 30% for kutki between 2015 and 2019.
- ⇒ In 2019, 1242 people (86% women) were working in the millet enterprise with 275,000 INR paid in labor expenses. The number of workers increased 9.5 times from the start of the initiative. Over the whole project, 516,200 INR was earned by local people through the millet business.
- ⇒ The price obtained by the farmer producer companies for small millet grain increased from 17.5 Rs/kg in 2015 to 26.1 Rs/kg in 2019.
- ⇒ The number of buyers for small millets from the farmer producer companies diversified from one in 2015 to five in 2019.
- ⇒ Profits from the millet enterprise increased by 893% from 2015 to 2019 and totaled 479,164 INR over the whole project. Profits were reinvested in the farmer producer companies, as was decided by the shareholders in consultation with the Boards of Directors during the Annual General Meetings.
- ⇒ The total number of shareholders increased from 1863 in 2015 to 5285 in 2019, of which more than 99% were women.



Women participating in milling and millet processing  
Credit: C. D. D. King, 2016/11



