



# Seed Mothers

Hundreds of Seed Mothers in Odisha, India in action to conserve traditional seeds

## Introduction

The Adivasi communities of Odisha, India, have experienced substantial losses of many natural resources from their area, which are key elements ensuring their food and livelihood security. Many farmers from the Adivasi communities have lost diverse varieties of traditional local crops like millet based mix crops while trying out market seeds. The local resilient crop systems have been destroyed through this process. The local crops include little millet, pear millet, kodo millet, foxtel millet, til, many varieties of beans or pulses, and varieties of short duration upland paddy. The small and marginal farmers have become food insecure, while there Investments in farming have increased so as the debt burden on famers. Worried over repeated failures in not being able to make families food secure, ORRISSA considered the advice of Elder Adivasi Farmers to help revive the traditional forms of agriculture.

ORRISSA NGO, as a change agent, had been promoting agriculture in the villages with improved practices based on modern farming approaches, with the support received from MISEREOR Germany, since 2007 ([www.misereor.de](http://www.misereor.de)). However, conventional support such as market seeds, chemical fertilizers and pesticides, small irrigation pumps, post-harvest machines, farm tools, etc. did not yield any sustainable result. It was found that the farmers could not sustain the efforts and build value using these inputs. Looking at the challenges of farmers and having a notion that farmers are not adopting modern practices has become an ongoing issue.

Community consultations reasoned that traditional farming still holds ground. The village level farmer groups recognized the inherent knowledge of Adivasi women with respect to traditional farming wisdom. The male-dominated Adivasi People's Organizations identified resourceful Adivasi women in the villages and termed them as Seed Mothers. These Seed Mothers were the key to help ORRISSA team to challenge the assumptions of the modern farming orientation and stimulate new learning from the community.

The initial challenge was to bring dignity to the local seeds and practices associated with them. Another pressing challenge was to add objective value to the traditional practices in the minds of young farmers. Seed Mothers mobilized the community at the village level. They also gathered knowledge from fellow farmers. The exchange visits of local farmers and Seed Mothers to other locations - where traditional farming systems are helping families to produce more food - has helped to inspire farmers and motivate others to promote traditional seeds and natural farming.



Figure 1. Biodiversity mapping

## Description of the Agroecology system

### Crop plan with seed mapping

Seed Mothers organize annual Village Level Seed Mapping at the community level. Farmers of the village recreate the map of their farm land. Uplands, dry patches and low lands are identified in this



map. The seeds available to families are listed through the process. Once seeds and land types are identified the families are then asked to select the crops they would like to grow on their land. At this point the families exchange their seeds with fellow farmers. The village also lists the type of seeds it would source from other villages.

### **Biodiversity Mapping**

Seed conservation starts with bringing dignity to the local resource base and farm wisdom through Community Biodiversity Mapping. The farmers display their local natural resources and assert the values associated with them. This includes the economic, social and cultural facets linked to the local resource base. Management values of these resources are also ascertained through sharing information on the cost of production and ease of access. The critical role and importance of local forests is appreciated in the mapping exercise for its role in supporting traditional agriculture, the animal population of the households (which is a critical part of the family livelihoods) along with provisioning uncultivated forest food and income from the non-timber forest products that the community can freely access.

### **Seed Multiplication**



Figure 2. Crop nursery

In the crop specific designs, such as the mixed cropping system along the forest tract uplands (which was earlier a shifting cultivation practice model), the families grow a minimum of 13 varieties to a maximum of 47 varieties. Millets, pulses, greens, paddy and tubers grow in combination, creating a healthy design to foster growing space for creepers on the stout pulses plants, retain soil moisture as well as improving soil nutrition levels, while addressing the problems of flash rains and long dry spells.

Timing of the harvest helps families to access food all through the year. This model of crop diversity helps families to harvest some food under extreme climatic conditions. The Seed Mothers struggle to enrich crop diversity in their villages. This is for the fact that there are not enough seeds available to support all the smallholder farming families. The unpredictable climate change effects are further marginalizing farmers. Seed exchange continues to be an intense engagement undertaken by the Seed Mothers. The village selects willing farmers to first multiply seeds which will be exchanged with fellow farmers in the village. The women's group in the village create seasonal nurseries to raise saplings of the fruit bearing trees and that of the vegetable seedlings to help families multiply the seeds.

### **Pure Seed Production**

To sustain the efforts of local farms, the Seed Mothers realized that pure-seed production should be a continuous process to enrich local family farms and local crop diversity. This process is intense and time demanding. However, the resilient Seed Mothers continue to bring out multiplied seeds from the local varieties. This process is being done through selection (Pure Line Selection). The process of pure line selection is done by marking the plants and branches which show healthy growth, uniform grains and the capacity of holding more grains. The Seed Mothers make an effort to select the branches during the growing stage, then again during the fruiting stage and at the harvest stage to ensure that the future seeds are collected from stable and capable branches.

### **Nurturing Seeds**

Seed collection: Starting with limited seeds was a challenge the Seed Mothers took on with confidence. Starting with a selected number of farmers to identify and collect good seeds from, this



process has matured into a systematic approach and understanding of key steps to locate a good seed stock and multiplication of seeds.

**Seed Storage:** The wide array of community knowledge on seed storage is further strengthened by the adoption of shared knowledge and group adoption of practices. In an example of a traditional approach to store seeds, paddy seeds stored in bamboo baskets are painted with soil and cow dung mix paste to ward off insects, the container is air sealed and the top of the basket is secured with a sealing of straw with mud and cow dung (a video of the storage can be found at <https://youtu.be/oe5kUwM4WDg>). The highly perishable pulse seeds are stored with a mix of local herbal leaves and firewood dust to retain the moisture of the seeds and protect them from pests. Seed Mothers continue to learn from outside farmers on new appropriate methods and then transfer this knowledge to the other households of the village.

**Crop management:** Seed Mothers steer the new learning on *in-situ* conservation of water and soil nutrients throughout crop seasons. The issues related to land preparation, seed treatment, weed control, management of long dry spells, flash rain and pest management form part of the crop plan strategies on a regular basis.

**Engaging men:** While the Seed Mothers take the lead, the male farmers are not behind. The men farmers took equal pride in the conservation and improvements of the local crops. A few of the lead farmers have established community nurseries at their villages to multiply local varieties of traditional horticulture and forest species.

## Outcomes of the practices

### **Local Food festival: Ease of access and nutrition is the essence of local food**

The Seed Mothers lead the village level food festivals with their fellow women and menfolk. The women cook various recipes using the seasonal food sources around the habitation to showcase the traditional food identity with its rich heritage and nutrition component of the Adivasi clan.

Many times the seasonal food mappings are undertaken as the first step to the food festivals. The women display the variety of uncultivated food available in the natural surroundings as well as the cultivated food. The diversity of the uncultivated food available in the area authenticates the importance of the forest in Adivasi day-to-day life and food habits as well as the diverse food culture of the community. Food festivals are mostly theme-based. Themes like dry food, forest food, uncultivated food, fish from the wild and meat from the wild are chosen to initiate dialogue on the subject. The Adivasi youth are also given support to prepare mainstream food forms using the local food grains.



Figure 3. The community seed fair

### **Community Seed Fair**

The community Seed Fair brings together hundreds of Adivasi farmers to spread their knowledge and awareness of traditional seeds, to exchange seed varieties with other farmers, and importantly, to reduce dependence on markets for agricultural seeds by promoting the use of traditional varieties (a video on this is available at <https://youtu.be/xZ7NnCjDUg4>). This is a celebration of the bounty of local biodiversity. This celebration authenticates the community belief that their traditional farming systems having the capacity to feed the families in the villages and protect local natural resources.



Named after the local traditional seeds, this seed fair celebrates the diversity of local farm seeds along with the wild food sources of the area. The Seed Mothers bring traditional seeds in decorated earthen pots for display at the fair and they prepare millet based food recipes, to emphasize the nutritional value of the local crops. The farmers' organization uses the occasion to sensitize the mainstream society about the richness and diversity of the Adivasi crops and their value based recipes. Farmers discuss the aspects of traditional seed conservation, exchange of seeds and recognition the good work of the Seed Mothers. Farmers with innovative farming methods receive awards. Emerging challenges such as the aspects of *in-situ* water conservation for seed and water, bio repellents, nutrition gardens, polybed vermin units, soil fertility improvement, pest and disease management and vegetable cultivation are listed in the agenda of public debate.



Figure 4. Seed Mothers exchanging seeds

### Other results

The family farmers now have 27 varieties of short duration paddy, compared with only 7 varieties a few years ago. The Seed Mothers also brought back six varieties of aromatic paddy. The families now grow these varieties to sell at the market to receive cash income for the families. Millets and pulses are the dry land crops of the area and have the capacity to withstand the long dry spells and flash rains (as is the current trend). The Seed Mothers brought in seven varieties of millet and nine varieties of pulses to enrich the family farms to produce food for the families. Over the last nine years these varieties have had surplus harvest during the normal rain seasons and families sell their surplus in the market.

The work around conservation of diverse cropping systems has inspired the farming community to understand the importance of the forest for their crop fields and for the day-to-day life of the Adivasi community. This encouraged Adivasi villages to protect their forests; at seven locations the communities allow natural forests to grow around their habitation. The biodiversity mapping also initiated a movement to protect the bamboo bushes in the village as villagers collect bamboo sprouts during the natural seedling stage to sell in the market resulting in rapid loss of bamboo availability in the area. Bamboo is one of the key life support inputs for the households as bamboo is widely used for many uses such as the construction of houses, as an agricultural implement, for household utensils, during the post-harvest stage for storing seeds and grains, and many others.

In total 5 321 households have enriched their backyard gardens, producing food that is available for between 6 to 11 months of the year. Out of these, 3 272 have their own compost pits and 3 267 use liquid manure. More than 4 700 families are now growing two to three varieties of millet; 2 531 families are growing four to five varieties of millet; and 1 187 families are growing more than five varieties of millet. In addition, 135 farmers are taking up line transplantation of millet and 4 874 families have implemented millet-centred mix crop farming on their uplands.

## Message from farmers to farmers

*“We nurture the seeds, protect them, improve them, and we are emotionally attached to them like to our children, that is why we are Seed Mothers”*

— Kamala Gadaba, Seed Mother, Adamunda, Malkangiri