Conserving indigenous seeds for livelihood security – Experiences from Tamil Nadu, India

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India has a rich diversity of both wild and cultivated crops. Most indigenous varieties are hardy, resistant to pests, require lesser farm inputs, yield good amount of fodder and the grains fulfill specific nutritional and other dietary needs. Besides these, indigenous varieties provide the basic genetic material for developing any other variety in future. In spite of all odds, Indian farmers have been conserving indigenous varieties in their own way. In some situations only indigenous varieties are better suited than high yielding varieties. For example, in the alkaline soils of Tamil Nadu, an indigenous variety of paddy called *Kalarpalai* alone can be cultivated.

In recent years however, there has been a marked decline in the variety and diversity of cultivated crops such as rice and cereals. The Green Revolution emphasized the use of high yielding varieties which responded only to high doses of fertilizers and pesticides. Today, the genetic base has narrowed down considerably. Monoculture, using expensive inputs to maximize production has become the order of the day. Genetic uniformity invites disaster by making the crop vulnerable to pest and disease attacks.

During the 1970s, the Grassy-Stunt Virus devastated rice fields from India to Indonesia, endangering the world's single most important food crop. After a four year search which screened over 17,000 cultivated and wild samples of rice, only one population of the species *Oryza nivara*, growing wild near Gonda in Uttar Pradesh, was found to have a single gene for resisting Grassy-Stunt Virus Strain 1. Today, resistant rice hybrids containing the wild Indian gene are grown across 1,10,000 sq. km. of Asian rice fields.

The rate at which indigenous Rice varieties are getting depleted is extremely alarming. It is becoming increasingly clear that to maintain biodiversity in farmers' fields, an alternative system of seed production and distribution has to be created. Although farmers feel the need to grow some of the traditional varieties, lack of seed availability prevents them from doing so. Efforts at community level will help in restoring back the lost biodiversity. This article explains in detail as to how this community based effort has contributed to the livelihood security of small and marginal farmers of Tamil Nadu, India.

The beginning

In the year 1993 - 94, CIKS was working with farmers in Valayampattu village on biological pest management through participatory experimentation method. The programme was quite successful and farmers realised the benefits of using plant products as alternatives to pesticides. During the farmers meetings, several farmers expressed interest in cultivating indigenous varieties if they could get access to the seeds. It was around the year 1995 that CIKS with the support of Navdanya, an NGO working on seed conservation, launched its on-farm conservation activity in Valayampattu.

Kappakar for food security

More than 30 farmers have been conserving seeds of *Kappakar* paddy variety in Thiruvanaikovil village of Thirukazhukundram block for more than three generations. They have been conserving this variety as it is tolerant to drought, able to withstand floods, has less pest incidence and is cost effective. During the Samba season (August – January) of this year (2002), Kappakar was sown as a dry crop in about 50 acres of land. Some farmers had sown a high yielding variety called White Ponni, also as a dry sown crop. Since there was no rain for 2 months subsequent to sowing, the crops withered. As soon as it rained, the *Kappakar* crop recovered and turned green. On the other hand, the Ponni crop did not recover. The average yield is about 16 – 18 bags per acre. The Kappakar rice is also tasty. The hay of this paddy variety is also a good fodder for the cows.

Source: S. Varadharajan, Sankar, Krishnan, Manickam, Thiruvanaikovil, Ozhalur (P.O.), Thirukazhukundram block, Kancheepuram district.

In Valayamapattu village, it actively collaborated with the 'Save the Eastern Ghats' Movement for setting up the first community seed bank. Subsequently it expanded its programme to Tiruporur in Kanchipuram district, Nedumbaram village at Tiruttani, Mosavadi village, Vandavasi, Manampathy village, Uthiramerur and Kattankalathur block of Kanchipuram district. Presently, it has spread to 125 villages spreading over the districts of Kanchipuram, Tiruvallur, Tiruvannamalai and Nagapattinam. The efforts have been made in collaboration with local NGOs like Grammiya Munnetra Sangam (GMS), Centre for Development of Disadvantaged People (CDDP), VISA Peace Centre, Women's Welfare Development Association (WWDA).

Process

CIKS started its work by getting detailed information about the indigenous varieties of each area. For this, it conducted a detailed survey on the available indigenous varieties of paddy in that area. An inventory of farmers in different villages who cultivate these varieties were made. This inventory contains information like the reasons for preservation of these varieties, special characteristics of these varieties, mode of cultivation etc. Besides, gazetteers, district reports, travellers accounts, gave information as to what were the traditional varieties that were grown in these areas before the hybrids came in.

Besides information, CIKS also put in a lot of efforts for getting access to the seeds of these indigenous varieties. In some villages, some farmers who were the seed savers, continuing the tradition of conserving varieties for self consumption became a major resource. Seeds were collected/ purchased from these seed

savers. An attempt was made to get these varieties from other parts of the taluk/district/State, wherever available.

CIKS also participated regularly in agriculture fairs and festivals, enabling exchange of seeds with farmers. CIKS efforts were disseminated through pamphlets bringing them in touch with more farmers who were interested in or already conserving these varieties. Attempts were also made to get access to some indigenous varieties from the rice research stations of Tamil Nadu such as Tirurkuppam, Ambasamudram and Aaduthurai.

Setting up farmers' Seed Banks

In every village where the Centre works, farmers have been organised into Organic Farmers Sangam (association), for exchanging seeds as well as information. So far, it has established 40 Organic Farmers Sangams. These sangams have members who come together for a common cause of organic farming and indigenous seed conservation. The sangam members pay a monthly subscription which is maintained in a bank account. Elected office bearers take care of and give directions to the working of the sangams.

Several meetings with the farmers were held in different villages regarding the importance of the indigenous varieties. Farmers used part of their land towards conservation of indigenous grain varieties. CIKS provided the seeds procured from that area and surrounding areas from farmers who already grow it. The farmers are provided seeds with the understanding that at the end of the season they return twice the quantity of seeds that they have taken from the seed bank. CIKS provides constant training to the network of farmers in organic cultivation of indigenous varieties. They are also trained to prepare plant based biopesticides on their own. Farmers are also trained in various composting techniques. Farmers are also provided with bio inputs like biofertilisers (*Azospirillum, Azotobacter* etc) and neem seed cake. Information about the crop at every stage, the type and quantity of inputs used, pest control techniques used, characteristics of crop and yield obtained are recorded for each farmer.

Initially, farmers were cultivating indigenous varieties in the part of their land. Currently, farmers have come forward to convert their entire land into organic. In several villages, farmers are cultivating organically as a group. Patches of land which are adjacent to each other are all under organic cultivation. CIKS monitors these lands and helps in getting them certified by an external certifying agency. Farmers would now get a certificate as a group for organic cultivation.

The sangams maintain the village community seed bank. Storage structures for the seed bank are provided through the programmes initially, with a beneficiary contribution and later it is maintained by the sangam. The borrowing and returning is controlled by the sangam. Sangams may also be provided with certain agricultural implements like sprayers, tarpaulin sheets for drying grains and so on which are hired out for a nominal rate. Some sangams also run biopesticide units as an income generating activity. The basic know how and the infrastructure is provided by CIKS.

Demonstration and *in situ* conservation centres

During the course of its work for the last 10 years on indigenous seed conservation, CIKS has collected more than 130 varieties of paddy suitable for cultivation in Tamil Nadu. There is a network of farmers who cultivate this and conserve this year after year. The farmers choose to cultivate one or two varieties depending on the soil type, irrigation facility and agroclimatic region to which they belong. However, all these varieties have to be conserved year after year. They also need to be conserved in more than one region so that they are not destroyed due to the vagaries of climate. Besides this, the Centre experiments with any new variety that it can get and cultivates it at least for a few seasons before passing it on to the farmers. Sometimes the Centre also gets access to rare varieties and the amount it gets may be a handful (say a few grains). These have to be cultivated with great care and propagated. In addition to all these, CIKS needs places where these varieties are cultivated year after year and farmers can come and take a look at the standing crop and decide for themselves what they would cultivate. For all these purposes, *in situ* conservation centres have been established in the experimental farm of CIKS and selected farmers fields. In these *in situ* conservation centres, more than 50 varieties are grown at a time.

Supporting marketing initiative

During the course of CIKS work on conservation of indigenous varieties, it was very depressing to note that farmers did not get a reasonable return in the regular market. To overcome this, CIKS evolved a programme of linking up the consumers with the farmers. Arogyam is a programme which has registered members. These members ensure the purchase of organically grown indigenous varieties. This programme provides a good market for the farmers cultivating indigenous varieties organically. This pilot programme on marketing has shown that it would be possible to make available organic products to the consumer at rates on par with the existing inorganic products and also provide the farmer a reasonable return.

To strengthen the marketing network further, CIKS has encouraged Sangam members in three districts, to register their groups as organic farmers producers societies. These societies will be supported by CIKS initially for a couple of years to raise the working capital for marketing. With this initial support, these societies in future will take charge of the entire marketing on their own.

Conclusion

After nearly 10 years into this programme, CIKS has come up with certain models for the maintenance and sustainability of the effort. Currently, it has nearly 3000 farmers spread in nearly 125 villages who conserve these varieties organically. There are more than 800 households which maintain integrated organic home gardens.

Starting from a handful of five indigenous rice varieties, CIKS biodiverse organic farming programme has enlarged into a major effort spread in four districts of Tamil Nadu. Currently, the Centre has more than 130 rice varieties being conserved organically and more than 50 varieties of vegetables providing nutritional security to households. It hopes to expand this effort to the entire state and probably to the entire country.

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