4.4 Value chain development and the regional branding of Kalajeera rice in Jeypore, India

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Tribal communities and rice diversity in the Jeypore region

The Jeypore region of Orissa state in India is considered to be a centre of origin of the Aus ecotype of rice, which is known for its early maturing upland varieties. As such, it is home to an enormous diversity in rice landraces (Arunachalam et al., 2006). Figure 4.4.1 shows the location of the Jeypore region in India. Rice has been the staple food of tribal farming communities in Jeypore for generations, and the conservation and use of local rice varieties is central to maintaining their traditional and characteristic lifestyle. Specific varieties are cultivated for use in different occasions, such as festivals, ancestral ceremonies, family functions and rituals. However, the tribal communities are very poor, often suffering from severe malnutrition. This contrast between wealth in diversity on the one hand, and absolute poverty and malnutrition

![Figure 4.4.1 Map showing the location of the Jeypore tract, India.](image-url)
on the other, signals the need for development strategies within a larger framework of community biodiversity management (CBM), for linking conservation with livelihood development. One of the key practices that contribute to poverty alleviation is that of transforming the rich diversity of rice into an economic asset, through a process of value-chain development and market promotion. In this way, communities can obtain economic benefits from their rice diversity.

The M.S. Swaminathan Research Foundation (MSSRF), through its Biju Patnaik Medicinal Plants Garden and Research Centre in Jeypore in the state of Orissa, began working with the tribal communities in 1998. We have been working as agricultural scientists with MSSRF on agrobiodiversity issues for many years, focusing particularly on enhancing food security and livelihoods of local communities. The Swiss Agency for Development and Cooperation (SDC) and the Indian Council of Agricultural Research are supporting MSSRF in this work. MSSRF uses an approach to support tribal communities in the conservation and use of valuable rice diversity in Jeypore, which is quite similar to the approach taken by MSSRF concerning small millets in the Kolli Hills, in the state of Tamil Nadu, as described by King et al. in Chapter 4.3. In both Jeypore and the Kolli Hills, MSSRF uses a CBM methodology in which the creation of economic incentives is embedded.

**CBM practices that contribute to the value chain development of Kalajeera rice**

In this chapter we will discuss the main steps and challenges involved in the value chain development of Kalajeera rice. The tribal farming families of the Jeypore region were actively involved in and committed to this process, generously sharing their knowledge and their time. For further details on the process of genetic landrace enhancement and PVS, see Chapter 5.6.

**Step 1: Good agronomic practices**

In 1998, in order to improve the yields of local rice varieties, we supported training and demonstration exercises in which farmers compared rice plots that were cultivated using good agronomic practices, with plots where farmers applied traditional practices. The farmers observed a 30–70% increase in yield gains. It is important to highlight that the good practices did not include the use of external inputs and did not increase the costs of cultivation (Arunachalam et al., 2006). In this manner, we quickly convinced farmers to adopt many of the good practices.

**Step 2: Genetic enhancement of local varieties and participatory varietal selection**

As a next step, we worked with farming communities on the genetic enhancement of local rice varieties and participatory varietal selection (PVS). These strategies for participatory crop improvement (PCI), applied within a context of CBM, are further explained in the general overview by De Boef et al. in Chapter 5.1. Farmers appreciate the Kalajeera rice variety for its black colour, good aroma, taste and cooking
qualities, as well as for its suitability for use in rice snacks such as puffed rice. These qualities, combined with the fact that it fetches a higher market price than conventional rice types, led communities to select this lowland rice variety for commercial rice production (Arunachalam et al., 2006). For further details on the process applied for the genetic enhancement of the Kalajeera variety, see Chapter 5.6.

**Step 3: Kalajeera quality seed production**

To produce high-quality commercial grain of the Kalajeera variety, we first needed to ensure farmers had access to pure-quality Kalajeera seed. We organized field demonstrations and training workshops on quality seed production and commercial grain production in several villages. We showed farmers the difference between grain and seed, and trained one group of farmers in large-scale quality seed production. This technical know-how was gradually shared with other communities. At the same time, we worked with groups involved in community seed banks (CSBs). We built upon the social and technical capital developed within this community institution, as supported in each of the villages in which we had been operating, in order to promote quality seed production. Shrestha et al. compare our MSSRF model for CSBs with several other approaches for CSBs around the globe in Chapter 2.8.

**Step 4: Grain production and initial marketing**

In 2004, farmers in the Jeypore region produced 31 tons of Kalajeera grain (Table 4.4.1), half of which they hand pounded and sold as unpolished rice for a good price to farmers in surrounding villages. However, local markets, rice mills and traders were still not offering remunerative prices. This prompted MSSRF to approach the National Agricultural Cooperative Marketing Federation of India Ltd (NAFED) and the Government of Orissa. In recognition of the value of the Kalajeera variety and its grain quality, NAFED procured large quantities of Kalajeera grain for highly competitive prices. The prices were similar to those usually offered for Basmati rice in the export markets (Arunachalam et al., 2006). NAFED and the Government of Orissa signed a memorandum of understanding for the procurement of Kalajeera, which

<table>
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<tr>
<th>Table 4.4.1</th>
<th>Details on Kalajeera production in the Jeypore region</th>
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<tbody>
<tr>
<td><strong>Information</strong></td>
<td><strong>Year data</strong></td>
</tr>
<tr>
<td>Cultivated area (hectares)</td>
<td>12</td>
</tr>
<tr>
<td>No. of villages</td>
<td>14</td>
</tr>
<tr>
<td>No. of households</td>
<td>49</td>
</tr>
<tr>
<td>Total production of grain (ton)</td>
<td>31</td>
</tr>
<tr>
<td>Seed production(ton)</td>
<td>4</td>
</tr>
<tr>
<td>Grain sold to NAFED/ORMAS (ton)</td>
<td>Nil</td>
</tr>
<tr>
<td>Household domestic consumption (ton)</td>
<td>28</td>
</tr>
<tr>
<td>Price of Kalajeera grain (US$/kg)</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Source: MSSRF (2009).
created economic benefits for the tribal communities in Jeypore. This expanding market encouraged tribal farmers to increase production to 121 tons in 2006, and to 491 tons in 2007. However, in 2007 the Government of Orissa stopped supporting Kalajeera production and marketing, compelling the farmers to look for other, perhaps less government-dependent, marketing channels.

Step 5: Establishment of the Kalajeera cooperative society

With the production of Kalajeera steadily increasing but faced with an insecure marketing system, we realized that the establishment of an institutionally sustainable operational model was required to facilitate the better-coordinated production and marketing of Kalajeera. In 2007, the Kalinga Kalajeera Rice Growers Cooperative Society (KKRGCS) was established under the umbrella of a registered body of tribal farming communities, the Pachabati Gramya Uanayan Samiti. The cooperative society is involved in seed production and distribution, the monitoring of crops, grain procurement and central grain storage. Its executive committee has ten members that the general assembly selects based on their skills and capacities, and these members represent the participating villages. In 2007, KKRGCS commenced with 107 members from 29 villages in the Jeypore region; by 2011, it had reached up to 212 members. It became engaged in organized rice processing in 2009; today, all rice sold is processed. Members of the cooperative society hire local mills to process the rice themselves. All processed grain is sent to a rented central storage facility in Jeypore, and is subsequently packaged.

Step 6: Establishment of seed producer groups

KKRGCS, and a few knowledgeable farmers, maintain a stock of breeders’ seed of the Kalajeera variety. New villages and groups of farmers who join the cooperative society in commercial Kalajeera grain production obtain the seed of the Kalajeera variety from this informal seed stock. Each new village commits itself to maintain its own basic seed that originates from this informal breeders’ seed. This seed is then multiplied on a yearly basis and maintained in the CSB, itself then serving as informal basic seed stock for the grain producers in the village. In each village, a seed producer group is responsible for the regeneration of the basic seed stock, and the production of quality seed for dissemination to grain producers. Members of the KKGRCS are responsible for ensuring quality control, organizing the seed storage, and transporting grain to a central storage facility. They conduct field inspections to ensure genetic purity, and carry out tests on post-harvest moisture content, seed viability and varietal purity. This quality seed is then used for commercial Kalajeera grain production. Grain producers purchase the quality seed from the CSB at an interest of 50%, to be paid back in kind, in the form of returning seed to the CSB. In 2004, five CSBs in the Jeypore region had a surplus stock of Kalajeera from which they were able to supply quality seed to grain producers. In 2011, 23 villages had Kalajeera seed stocks in their CSBs.

To ensure exclusivity and benefit-sharing, only members of the cooperative society may produce Kalajeera seed and grain. In order to monitor the quality of the procedures put in place, the quality of 40 samples collected in farmers’ fields was compared
with MSSRF breeders’ seed. The tests showed no variation in purity and homogeneity. We showed that tribal communities can handle Kalajeera grain production on quite a large scale and, with a sophisticated design, using their CSBs and forming specialist groups of farmers, can autonomously manage the process of quality seed production (Chaudhury et al., 2007). This institutional, social and technical capital is an asset for any future practices to support the communities in their contribution to the conservation of rice diversity and other agrobiodiversity, but also for improving their livelihoods.

Step 7: Enhancement of autonomy and creation of a robust marketing strategy

From 2007 to 2009 the cooperative society continued to market a large part of its produce through NAFED (see Table 4.4.1), without, however, the direct involvement of the Government of Orissa. Farming communities prefer to sell to NAFED as it pays a higher price for the Kalajeera grain than the private sector (i.e. US$0.30/kg, see Table 4.4.1). In addition, NAFED pays for the produce in full within two months after harvesting, while the private sector takes more time, often paying in several instalments.

In 2009, MSSRF and the cooperative society began to sell packages of processed Kalajeera rice through the parastatal Orissa Rural Development and Marketing Society (ORMAS). Its major contribution is that of assisting the cooperative society in organizing the marketing channels in Orissa; for example, it links the cooperative society with supermarkets and ensures its participation in pallishree melas, exhibitions for promoting rural, tribal products of India. The exhibitions provide the cooperative society with a platform to access prospective buyers. ORMAS also provides credit, with minimal interest, to support marketing. The price of Kalajeera grain now fetches up to 50% more than that of the high yielding varieties promoted and subsidized by the Government of India. These favourable market conditions have resulted in a significant increase in the area under Kalajeera cultivation, and in the number of households cultivating the variety (Table 4.4.1).

Step 8: Regional branding for protecting the Kalajeera variety

In order to obtain a stable market, it is important to have a unique and high-quality product. MSSRF contacted Tilda Riceland, which is a private company dedicated to processing and exporting rice, and asked them to test the unique quality traits of Kalajeera. Their results showed that Kalajeera from the Jeypore region outperforms the export-quality Basmati rice varieties, in terms of quality traits like relatively low stickiness, short cooking time and softness (Chaudhury et al., 2007). Additional research conducted by MSSRF confirmed that the Kalajeera variety, which is cultivated and marketed by tribal farming communities, has its origin in the Jeypore region (Arunchalam et al., 2006). To protect this unique rice variety we supported the tribal communities in the regional branding of their variety. In 2007, the cooperative society branded the unprocessed Kalajeera rice from their district as Kalinga Kalajeera. Because the Kalajeera production potential in the Jeypore region appeared insufficient, Tilda Riceland’s plans to export Kalajeera did not materialize.
Step 9: Registration and protection of Kalajeera as a farmers’ variety

In 2009, KKRGCS applied to register Kalajeera as a farmers’ variety under the farmers’ rights legislation of the Protection of Plant Varieties and Farmers’ Rights Authority (PPVFRA). Currently, the cooperative society has fulfilled all requirements, but since it is the first application of its kind the process takes time and official approval is still pending. Through the registration of Kalajeera, the tribal farming communities of Jeypore will be recognized for their role in the development of this rice variety. Furthermore, the registration will help the farmers to protect their variety and ensure their rights under potential future access and benefit-sharing (ABS) mechanisms, which are also further outlined by Bala Ravi (Chapter 6.3).

The sustainability of the Kalajeera rice business and varietal portfolio management

Processed Kalajeera rice from Jeypore is a high-quality unique product with a clear niche market potential. The variety has a number of characteristics that make it interesting for local consumers, elite urban consumers in India, as well as for consumers outside India who appreciate Basmati rice. Through the regional branding and registration of Kalajeera as a farmers’ variety, the cooperative society is better able to protect Kalajeera as a unique business venture. The cooperative society is very keen on the fact that only its members have access to Kalajeera seed to produce Kalajeera grain. To ensure this continues, the cooperative society aims to obtain the exclusive right to produce this variety.

The increase in yield achieved by applying good agronomic practices has resulted in an increase in surplus marketable rice at household level. This, together with the higher market price, has encouraged farmers in the Jeypore region to take up Kalajeera cultivation as a business. Farmers can obtain an average net profit of US$500 per hectare of Kalajeera (MSSRF, 2011a). The area cultivated with Kalajeera, its total production and the number of households taking up its commercial cultivation continues to grow (Table 4.4.1). Through this market chain project, Kalajeera rice has been transformed from a locally consumed, largely ignored and threatened local variety into a commodity in the Jeypore region contributing to the conservation and use of local rice varieties. MSSRF and the cooperative society are currently taking on more local varieties in their portfolio, such as Machahakanta and Haladichudi, to demonstrate that the model developed for Kalajeera rice is a successful strategy within a larger CBM framework (MSSRF, 2011b).

Our successful experience with Kalajeera marketing shows that a market, local as well as beyond, exists for the processed rice of local varieties and their products. This allows the tribal farming communities in the Jeypore region to benefit from the efforts made by their ancestors in developing these varieties over the ages, recognizing the value of their rice diversity and encouraging them to maintain this diversity. The path laid over the past 12 years by the CBM process and its practices for promoting the cultivation and marketing of Kalajeera rice has developed into a model for supporting the management of rice diversity, and for ensuring secure and sustainable livelihoods for tribal communities.