4.5 Marketing local rice varieties in Vietnam, supported by their participatory genetic enhancement and intellectual property rights

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From bulk production to product differentiation

The Vietnamese are beginning to feel the negative effects of the accelerated economic growth that has been taking place in their country over the last 20 years, and its impact on agricultural prices, the environment and human health (Dao The Anh et al., 2003). Because of this, researchers and policy-makers from the Ministry of Agriculture and Rural Development (MARD) are becoming increasingly interested in establishing quality value chains. There has been a switch from a production economy, which was inherited from the collectivist period, to a quality-based economy with niches based on product differentiation. The identity of the product and its uniqueness and reputation are now valued as much as the formerly more important economies of scale (Allaire, 2002). Using intellectual property concepts, such as trademarks and geographical indications, these local products can be differentiated from bulk production and provide protection for the producers, who are also custodians of the genetic resources on which the product is based.

This is a turning point for rural communities in their role as custodians of plant genetic resources (PGR). Will this development allow farmers to regain their central role in the development and maintenance of varieties, and in seed production, a role that they pretty much lost during the Green Revolution? And how will they benefit from regaining this role? In this chapter, we aim to answer these questions based on lessons learned from various experiences concerning the marketing of local varieties in Vietnam.

Intellectual property rights: creating benefits for custodian farmers

Officially, 22 agricultural products and foodstuffs are registered under the protection of geographical indications and designations of origin in Vietnam. In addition, a large number of other products are protected by trademarks that refer to geographical names. Laws concerning geographical indication strive to promote agricultural activity, help producers to obtain a premium price for their authentic products, and eliminate unfair competition and the misleading of consumers by non-genuine products.
In Vietnam, the initiative for protecting a local product often comes from local authorities at the provincial and district levels, which start mobilizing agronomists, geneticists and economists from research institutes to help small-scale farmers in building up these new channels. Subsequently, the farmers join in this dynamic process. The initiation of the process by local authorities or researchers, rather than by farmers, makes sense since intellectual property rights (IPRs) are complex mechanisms for which an understanding of larger markets, and the design and implementation of regulatory frameworks, is required. In other similar experiences shared in this book, non-governmental organizations have played vital roles in seeking such types of protection, as can be seen in the process for registering Kalajeera rice as a farmers’ variety in India, which was facilitated by the M.S. Swaminathan Research Foundation (Chaudhury and Swain, Chapter 4.4); and in the support provided by Local Initiatives for Biodiversity, Research and Development (LI-BIRD) for the formal release of Pokharel Jethobudho rice in Nepal (Silwal et al., Chapter 5.5).

Nevertheless, our partners in Vietnam are fully aware that the farmers need to be properly involved in the whole process in order to be successful. To do this, they help the farmers to organize themselves into small groups of producers that then gradually expand in size. In the case of Tam Xoan rice from the Red River Delta (Hai Hau), for example, the Hai Hau Association for the Production, Processing and Marketing of Tam Xoan Rice joined 43 small-scale farmers together in 2004, on just a few hectares of land. Today, the association includes 442 farmers, and involves an area of 54 ha. The price for Tam Xoan rice produced in Hai Hau can reach up to 55% more than rice of the same variety produced in another location.

One of the difficulties in constructing value chains for a localized product is that no form of labelling provides a genuine guarantee of origin. Producers may still suffer from unfair practices involving the use of the name of their reputable product for a product that does not offer the same characteristics. It is estimated that 30–70% of Tam Xoan that is sold as originating from the Hai Hau district is in fact a mixture. The large wholesale buyers and retailers are often more concerned with volume than with quality (Binh and Duc, 2007; Moustier et al., 2010).

To ensure that a product is genuine, producers must organize themselves, define their unique production area, and ensure that consumers can distinguish a product by its origin. They should also differentiate their products from other similar products if possible, through packaging and the use of typical characteristics that help the consumers recognize the origin. In Vietnam, if the product is a local variety, researchers and producers invariably enter into a process that is referred to as phuc trang (‘restoration’), concerning a giông co truyền (‘traditional variety’). The Vietnamese term phuc trang also includes the notion of forcefulness and could be translated as ‘reinvigoration’, although it also includes a sense of ‘homecoming’, which refers to the true origin of the variety.

**Participatory genetic enhancement of local varieties in support of their marketing**

In Vietnam, we use the term ‘restoration’ for selection that is carried out within local varieties in order to make them uniform and stable, which is seen as an essential pre-
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requisite for strengthening their marketing. We follow the terminology for approaches to participatory crop improvement (PCI) within a context of community biodiversity management (CBM), as outlined by De Boef et al. in Chapter 5.1.

Below, we detail the steps involved in the participatory genetic enhancement (PGE) of local rice varieties in Vietnam.

**Step 1: Collection of accessions and social reconstruction of the variety**

Agronomists from the Centre for Agrarian Systems Research and Development (CASRAD) first gathered accessions from the main zone in which the local variety is grown, and these then formed the basis for its genetic enhancement. At the same time, they collected information from farmers about the characteristics that, in their view, shape the ideal variety. Blind tastings were then held, during which farmers were invited to score accessions for their aromatic quality and taste. These initial activities generated a consensus among farmers, researchers and provincial administrators concerning the identity of the variety. This social reconstruction of the variety was a very important step for organizing farmers into an association of producers that will, in future, respect specifications. During each of the following steps, the agronomists worked to give a more institutionalized form to the producers’ association.

**Step 2: Establishment of selection criteria**

Two or three samples that were considered to be the best were used as the genetic basis for follow-up activities. Ms Pham Thi Huong, a geneticist at the National Centre for Variety Evaluation and Seed Certification (NCVES) in Hanoi, explains that such accessions are used for what she calls the ‘purification and discovery’ of the original characteristics of the variety. Ms Pham Thi Huong assisted farmers and agronomists in the PGE of the sticky rice variety Nêp Cai Hoa Vang from Kinh Môn and the aromatic rice variety Tam Xoan from Hai Hau. The location of Hai Hau and Kinh Môn are illustrated in Figure 4.5.1. Based on the farmers’ initial descriptions, together they compiled a matrix with some 60 characteristics that they used to guide selection among the accessions. They applied a selection process that follows the protocol to produce pure lines of rice varieties, based on the professional standards for seed production set by MARD in 2006. They used this protocol for the PGE of the Tam Xoan and Nêp Cai Hoa Vang local rice varieties.

**Step 3: Purification of the seed**

Farmers planted the seed of the two or three accessions that had been identified as being the best during Step 1 in their own fields, in several plots of 200 m² with 8000 plants. From the tilling stage and after each crop stage, the farmers gradually eliminated all the plants that did not have the characteristics required. They were then invited to select only 150 plants that corresponded best to the 60 characteristics they wanted to retain. Farmers harvested the panicle from each selected plant individually and Ms Pham Thi Huong, the geneticist, assessed the number of grains per panicle
and evaluated their quality. The selection pressure during this first year of cultivation in field trials to purify the seed was intense as we only maintained 1% of the plants.

**Step 4: Pure line selection**

The grains of each selected plant constituted one line and the seed of the lines was sown in small separate plots of equal size in the farmers’ trial fields. At this point, the farmers no longer eliminated plots that deviated from the standard variety type; instead, they marked the ones that best matched the unique traits of the variety, applying a process of positive selection. Two days before harvesting, the farmers randomly selected 20 individual plants from each plot that they had marked earlier. Ms Pham Thi Huong evaluated these plants for five quantitative criteria: plant height, number of ears per plant, ear length, number of grains per ear, and weight per thousand grains. She calculated the average values of selected plots using these criteria, and when the average values for a selected line deviated from an allowed variance, the line was removed, as it was considered to be too heterogeneous. The seed of those plots that passed the uniformity tests was considered breeders’ seed of the restored variety.
Implications of the selection process

Farmers originally cultivated broad ranges of slightly heterogeneous varietal populations that together constituted a local variety. However, the current process of genetically enhancing local varieties results in a significant reduction of their allelic polymorphism (Fukuoka et al., 2006). The originally diverse nature of local varieties has been reduced to meet the stringent formal requirements of the product’s commercial development. At the end of the process of PGE, only a few lines that are close to the pure-lineage template are retained. This product of the selection process serves as a type of breeders’ seed, which is then multiplied to obtain seed classes similar to basic and certified seed for dissemination to producers. In this way, the PGE supports the commercial exploitation and marketing of local varieties, while at the same time contributing to a reduction in diversity, narrowing the genetic basis of crops and varieties used by farmers, and reducing their potential adaptive capacity. There are those who consider this to be the price that must be paid for variety commercialization, but we now know that with a genetic paradigm less in favour of pure-line varieties, it would be possible to apply a softer selection pattern.

Protection of commercial interests through IPRs

Within the genetically enhanced local variety, each plant cultivated has an identical genotype and therefore a stable and uniform phenotype, just like formally released modern varieties. As such, their characteristics are less and less dependent on interactions between the genome and the environment. Consequently, it has become easy and possible for any external economic agent to cultivate this enhanced local variety outside the area in which it was originally cultivated, and thereby compete with the original local producers, as can be seen with the sticky rice Nêp Cai Hoa Vang from Kinh Môn. The PGE process of Nêp Cai Hoa Vang had barely been completed when provincial authorities began a programme to extend the area of cultivation from a hundred hectares or so up to several thousand hectares. The provincial authorities are quite easily able to ignore the rights of those farmers who have not only conserved the variety but have also contributed to its enhancement. It is therefore vital for farming communities to protect their genetically enhanced local varieties through IPRs by applying collective trademarks or geographical indications.

The balance between meeting market requirements and encouraging the use of diversity

The PGE process promotes the use of local varieties, lessening the threat of their disappearance from competing with modern varieties. However, the PGE and adaptation of diverse local varieties to standardization requirements reduce rather than increase their diversity, and as such diminish rather than reinforce the role of farmers in PGR conservation. With this intervention in the existing system of community management of local varieties important questions emerge: how can we correct the direction of these practices, which are currently used for market-based upgrades of local varieties? How can we insert socio-environmental goals into practices of market
Can PGE and market development focus on the farmers’ involvement and encourage rather than deter the use of diversity when targeting the market? The new PGR professionalism, as elaborated on by De Boef et al. in Chapter 7.1, may guide us in finding the approaches to positively answer these questions.

Normal PGR professionalism in Vietnam led us towards standardization, restricting room for manoeuvre, and constraining us to fix the identity of a variety to a uniform genetic basis. If we want to reverse such a process, we must accept that we will have to move away from standardization. To do this, we should use selection schemes that are better suited to protecting local varieties with their diverse genetic make-up. Our challenge will be to find a balance between the market requirements for standardized quality, and retain the complex relationship that exists between the diversity in the varieties cultivated, their place of origin and their custodian farmers. This can only be achieved when researchers accept that they have to move beyond normal professional standards. We need to adapt our breeding methods to such professionalism, and divert from those used for the production of modern varieties. In Vietnam, we propose the use of population-based breeding methods (Ceccarelli et al., 1994; Bonneuil and Thomas, 2009). Such methods would make it possible to meet requirements for marketing the variety in terms of the social construction of a commercial identity of the variety, and maintain consistent quality; moreover, they would facilitate interactions between farmers, genetic resources and their environment.