



Clashes Between Formal and Informal Seed Systems

A Case Study of Maize Seed Production in Eastern Java, Indonesia



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For centuries, farmers have been seed producers and have been adapting seeds to new circumstances. This paper discusses the co-existence of informal farmers' seed systems and the more recent commercially-oriented seed systems, which are based on legal property rights and formal procedures. This co-existence led to court cases in Kediri Regency in East Java and the imprisonment of maize seed farmers, who produced and sold composite maize seeds. The accusations and court verdicts are put in the context of the political-economic importance of the maize sector, company interests, the impact of the green revolution, farmers' values and modern seed laws in East Java. The paper draws attention to the difference in technological cultures, and non-alignment of farmers' values to formal seed laws and regulations (and vice versa). A better understanding of the characteristics, the power and the connection of these different technological cultures is fundamentally important for redefining seed rights, just practices and fair prices. A higher appreciation of farmers as seed innovators and multipliers would furthermore create potential for availing quality seeds at more affordable prices to farmers, who, in contrast to the seed companies, do not yet earn much from their maize production.

The context: farmers and a multinational company

Farmers accused and jailed because of maize seed production

Between 2004 and 2010, 15 farmers from Kediri, a small town in East Java, have been prosecuted for illegally producing and distributing maize seeds. The accusations related to the violation of three laws pertaining to the Plant Cultivation System (Law No. 12/1992), Consumer Protection (Law No. 8/1999), and Plant Variety Protection (Law No. 29/2000).

Kuncoro was one these 15 farmers. After the police found bags of maize seed in his house, he was sent to court on the allegation of illegal maize seed production. Kuncoro had produced seeds in the context of a contract farming relation with PT. BISI, a multinational seed and agro-input company. After that experience, he combined his own seed production techniques with the company methods he learned. Referring to Law 12/1992, he was accused for purposely distributing or selling seed without going through the official seed certification process. He was sentenced to five months in prison and had to pay a fine.

The local maize seed producers had to face the multinational seed company (PT. BISI) in court. During the court cases, the company and the Government related to different laws, which were adopted in the preceding years.



Figure 1: Kuncoro in his maize plot.



Figure 2: Kuncoro in jail.



Figure 3: High maize tower, Boyolali, Central Java.

PT. BISI – The lead multinational seed and agro-input company

BISI – largest player in seed and agro-input business

BISI (PT. BISI International Tbk¹) is a limited liability company, which was founded in 1983 by the Charoen Pokphand Group of Thailand. At the time of the court cases, BISI was the largest player in the seed and agro-input business sector in Indonesia, with a market share of 52% in 2011. In terms of sales, it was the number one company for hybrid maize, rice and horticultural crops, and a major producer and seller of pesticides and fertilisers.

Hybrid maize – most important single product

Representing 40% of BISI's turnover, maize seed was the most important single product. As from 2007, BISI is listed on the Indonesian Stock Exchange. BISI's main competitors in the hybrid maize business were Pioneer (Dupont), Monsanto and Syngenta, which all have access to international genetic resources. The parent seed, or foundation seed, of BISI's hybrid maize was produced in association with Monsanto (BISI, Annual Report, 2008a).



Figure 4: Advertisement poster of BISI-2, a maize variety produced by PT. BISI, which triggered farmers' court cases. Source: PT. BISI.

Contract farming

To produce commercial hybrid seed, BISI cooperated with farmers through contract farming arrangements. BISI provided the parent seed at a cost to farmers, provided technical trainings, carried out monitoring and, if necessary, also provided interest-free loans to farmers for buying fertilisers and pesticides. Farmers had to provide land, water and labour to produce hybrid maize, which they had to sell to BISI, upon deduction of the costs of parent seeds and loans. BISI ensured the transport of the farmer's harvest to BISI stores. At least 40,000 farmers were involved in the programme in 2007 (BISI, Hybrid Seeds, 2008b).

According to the company (BISI, Annual Report, 2008a), the contract farming system was a form of corporate social responsibility and supported farmers in improving their farming system from 'subsistence or traditional to production of diversified, higher value-added products', by providing technical knowledge and regular supervision during the production phase (BISI, Annual Report, 2008a). BISI claimed that the system was beneficial to farmers in terms of financial profit, technical support and guaranteed seed sales.



Figure 5: Farmer harvesting corn, near Yogyakarta, Java, Indonesia.

¹ PT = *Perseroan Terbatas*, represents a limited liability company; BISI = *Benih Inti Subur Intani*, literally meaning seed of the fertile essence of *Intani* ('intan' means diamond); Tbk = stock symbol for '*Terbuka*' or open, referring to the legal construction of the company as open to investment.

The maize sector in Indonesia

A sector of growing importance

The court case and the accusations of farmers' illegal seed production have to be put in the context of the growing importance of the maize sector in Indonesia, and in the eastern part of Java in particular. After rice and cassava, maize is the third most important food crop in Indonesia and the second most important in terms of cultivated area, after rice (Sutiyorini & Waryanto, 2012)². Maize is an alternative to rice, because of its higher yield potential and lower water use (Yasin, 2008).

Maize is important in government policies, as a staple food supporting national food security, as an important component of animal feed and important input for the food industry, and consequently, exports (ibid.). Maize made up 60 per cent of feed rations due to the rapid growth of the national poultry industry (Kasryno et al., 2007).

Suitability and importance for East Java

Maize has been cultivated intensively in the province because of the suitable agroecological conditions. Maize grain production in East Java amounted to almost five-and-a-half million tonnes in 2010 (Sutiyorini & Waryanto, 2012). White maize is an important staple food, second after rice. Moreover, maize production and development in East Java has made a major financial contribution to farmers, since it is an area with many poultry feed factories that can bulk-buy maize grain as a raw material (Warisno, 2007). In fact, poultry feed factories take about 50 per cent of all maize produced.

Hybrid maize for a growing maize sector

East Java, being the number one maize-growing area in Indonesia, hosted most seed companies and the second largest number of maize seed distributors (Sayaka, 2005b). With the growing demand for maize in East Java and Indonesia at large, many farmers went into maize seed production and trade, including many farmers in the Kediri area. Most farmers were interested in buying hybrid seed because it was well known to produce high yields.

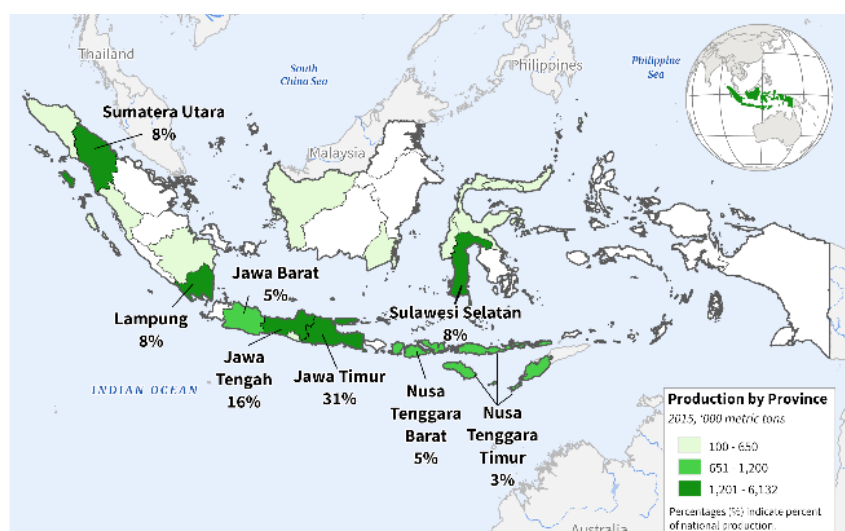


Figure 6: Indonesia corn production. Source: Badan Pusat Statistik Indonesia (Indonesia Central Bureau of Statistics) <https://ipad.fas.usda.gov/countrysummary/default.aspx?id=ID&crop=Corn>

Maize seed farmers and traders' organisation

In the context of a rapidly growing maize sector and the popularity of hybrid maize, the numerous small-scale farmers and traders of Kediri Regency founded an organisation for maize seed production and marketing in 2002, known as BTM.

² References, statistics (e.g., on maize production in Indonesia), economic indicators (e.g., on currency conversion rates) and other values are given based on the 2004–2010 period, to provide the relevant context to the court cases.

“

Seeds are so central to people's cultures and food systems, to control seeds is to control life” (Fakhri 2021)

It was legally established in 2004, with at least 100 members from the Kediri area. According to the BTM statutes, the aim of the organization was to support seed production and trade through trainings, discussions, networking, advocacy and sharing market information among the members. Since its establishment, BTM has been a leading local farmer organisation, producing non-certified maize seed. Among its members, only one was a registered seed producer, who was also sentenced to jail because of not labelling the maize seeds. Some other members had previously worked in BISI, or were involved in contract farming.

The two systems of maize seed production

In 2006, BISI sold their hybrid seed in the agro vet shops for prices ranging between IDR 26,000 and 37,000 (e.g., between 2 and 2.86 Euro) per kg.

The seed farmers in Kediri were able to sell their maize seed in the market for IDR 11,000 (0.85 Euro) per kg, e.g., 26-42% of the company price.

BISI's profit margin on hybrid maize sales were much higher than the farmers' income deriving from the harvested yield of purchased BISI seed.



Figure 7: Maize husks from farmers' seed: male (left) and female (right) parent seeds.

Smallholders thus developed maize seed production autonomously, outside of government programmes and business structures. According to the economic analysis of the farmers, it did not cost too much to produce maize seed. For that reason, they sold their maize seeds at a much lower price than BISI. The farmers produced quality seeds in creative ways, including using more varieties and different cross-breeding strategies.

Laws and interpretation of the court cases

Three laws

Three laws were referred to in the farmers' court cases: Law No. 12/1992 on Plant Cultivation System; Law No. 29/2000 on Plant Variety Protection and Law No. 8/1999 on Consumer Protection.

Accusations

Between 2004 and 2010, farmers from Kediri were accused of:

- Cultivation without permission, e.g. using BISI hybrid maize lines for seed multiplication;
- Purposely distribute or sell seed without going through seed certification;
- Selling maize seed, e.g., engaging in local seed business;
- Distributing seeds without label / trading maize seeds in plastic packaging without label attached.

The court sittings and sentences

In court, the government was represented by the police. The company sent their staff as expert witnesses, to support the allegations of illegal farmer activities. At first farmers did not have legal support. It came out that farmers often signed papers (of which they did not know the contents), under police warnings that otherwise they would not be released from the police office. Farmers were generally sentenced to 4-6 months in prison, with a one-year probation period, and payment of a fine. In some cases farmers received the official court documents, sometimes not.

Media attention and lawyer support

Some sentences were officially published in the media, or the court case got media attention in other ways. This led to more attention from the communities, journalists, BTM and NGO's.

Demonstrations were held during the court days or on days that a farmer was released from prison. Later on, some farmers got support from a lawyer. This sometimes resulted in a release of legal charges, appeals to the Supreme Court and/or a reduced prison time.



Figure 8: Media coverage on a series of seed farmers' cases in Kediri during 2004–2010. (Picture of Memo Newspaper of February 8th 2006).

Review of Law No. 12/1992

Because of inconsistencies, the Constitutional Court granted a judicial review on Law No. 12/1992 in July 2013. Since then, farmers would be allowed to independently discover and collect seeds and to have the freedom to produce and sell their seeds at a limited scale (Pribadi, 2017). However, the ratification of Law 22/2019, as the official revision of Law 12/1992, conflicted with this Constitutional Court decision. According to Articles 27(1) and 29(3) of this new law, farmers should report breeding activities and results to local authorities, and seed varieties could only be distributed in their own district. The latest law is considered a throw-back in a struggle to reclaim farmers' rights over seeds (Antons, Winarto, & Prihandiani, 2020).



Figure 9: Kuncoro showing one of his maize varieties.



Figure 10: Kuncoro next to weighing scale and bagged seeds he is still producing and selling at small scale.

A clash of technological cultures

Farmers have been breeders for thousands of years

Since the agricultural revolution, 10,000 years ago, farmers have brought food production systems to life. With trial and error, farmers have domesticated plants and animals and have continued experimenting to improve seeds based on observed performance and to adapt seeds to changing environmental conditions and consumer demands. In Indonesia, hundreds of agricultural products and thousands of seed varieties represent the agro-ecological and cultural diversity of the archipelago.

Informal and formal seed systems

Seen in this perspective, scientific research, seed companies and government regulations have only very recently come into the breeding and seed production arena. In a short time, seeds have become a commodity and big business, rather than a collective good shared among farmers in communities. Around the world, most farmers are currently in two systems: informal farmers' seed systems (for food crops that are not commercially interesting) and formal, commercially-oriented seed systems (for hybrid, vegetable and other commercially interesting seeds). For maize, farmers' seed and commercial hybrid maize seed co-exist in the seed and farming systems in East Java and beyond.

Formal laws accommodate methods of large seed companies

Kuncoro, his fellow farmers in Kediri, seed farmers organised in BTM, and thousands of seed farmers all over Indonesia, practice their own seed system, which we may call the farmers' seed system. This system has lived long before the commercial seed business system practiced by seed companies. The farmers' technological culture can be labelled as informal; it is not formal and has no legal basis.

In Indonesia, which banked on the Green Revolution approach since the 1970's, the role of hybrid maize and the use of fertilizers and pesticides have become very prominent, as is the role of large seed and agro-input enterprises like PT. BISI.

The current formal Indonesian laws accommodate the methods of large seed companies, but not the farmers' seed system. Fundamentally, farmers were not only accused of practices that are illegal according to new government laws, also their culture of independent, customized seed collectors, breeders and distributors was questioned.



Figure 11: Burhana Juwita Moh. Ali, a seed farmer who got a sentence to five months in prison in 2006 for trading maize seeds without label.



Figure 12: Hybrid maize variety (RSA 02) produced by a small seed company. He is having a license to distribute the seed, which he calls Maxsimo, through his own company.

Farmers' technological culture is a living culture

The farmers' technological culture is a living culture that evolves. It incorporates new insights, experiences and new norms and values (Keulartz, Schermer, Korthals, & Swierstra, 2002). In the case of maize in East Java, the farmers further developed their seed innovation system. When working for the company and/or participating in contract farming for producing hybrid seed, the seed farmers of Kediri area and BTM learned new varieties and seed production practices, which they positively evaluated. They incorporated the genetic potential of new varieties and the improved seed production practices in THEIR farmers' seed production culture. In fact, the farmers developed a combined system, incorporating 'modern' seed production techniques in their technological culture.

For the multinational company, BISI, this was problematic. For them, the farmers used THEIR varieties and production techniques, and the farmers did not play the marketing and distribution game according to THEIR rules (sanctioned by the Government), e.g. certification and labelling.

Informality – some lessons learned

Farmers employ their own culture, which is rooted in their assumptions, practices, values, beliefs, and moral norms. These may not align with the formal laws and regulations which are based on property rights and procedures to respect (Pribadi, 2017). It is important to be more sensitive to the informal technological culture of farmers' seed producers, as there is potential to improve farmer-company relations and to avail quality seeds at more affordable prices to farmers, who, in contrast to the seed companies, do not yet earn much from their maize production.

The court cases made headlines some 15-20 years ago. In this article, we put these in a broader perspective. Three fundamental lessons can be shared in the form of three fundamental questions:

What is 'hybrid maize'?

Farmers evaluated hybrid maize as seed of superior quality that increases yield and were motivated to benefit from it. Even though they merely produced composites by deploying various sources of parental materials, both the farmer seed producers and the farmers who were buying and planting these seeds, considered these composites as hybrids. In this way, the hybrid maize has become embedded in farmers' culture, which in turn has been influenced by decades of 'Green Revolution' programs.

What is the 'contract' that binds you?

In the contract farming modality, the perceptions of farmers and the multinational company are different. In the farmers' technological culture, the contract is embedded in livelihood systems and offering an opportunity. Relations are based on trust and rules are bound by moral obligations about what is 'a just practice' and what is not. Full ownership of a seed, including the exclusive ownership of its genetic characteristics, is not seen as a just practice. Farmers claim that 'seed production is a cultural heritage in farmer communities'. Therefore, for them, seed producer registration or seed certification is not necessary for small-scale seed production.

What is 'just practice' and what are 'fair prices'?

Farmers consider that their seed production is a 'just' practice, allowing fellow-farmers to get decent quality seed at a reasonable price. Having been exposed to seed production practices, they work hard to produce quality seeds for fellow farmers. For them there is no reason why they could not use MNC seeds for that purpose, as most of the time they legally purchased hybrid seeds at a high price. Farmers do not easily understand or accept that the multinational companies see seed as business and that costly breeding programmes need to be earned back with profit by selling seeds expensively. That is the reason why some of them are still resistant to be certified seed producers, because this places them in the same category as the MNCs.

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