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Guinea: Networks that Work

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6.1 Introduction

6.1.1 Agriculture

Bordered on the north by Senegal and Mali, on the south by Sierra Leone and Liberia, on the east by Côte d'Ivoire and Mali and on the west by the Atlantic Ocean and Guinea Bissau, Guinea has one of the most favourable climates for agriculture in West Africa with 6.7 million hectares of cultivable land, of which only 24% are farmed. Although mining (of mainly bauxite, aluminium, gold and diamonds) is the country's major source of foreign exchange, for the 9.7 million citizens agriculture is the major occupation. It contributes to 18.7% of the gross domestic product (2004). Rice, maize, sorghum, millet, cassava and fonio are common food crops, with coffee, rubber, palm and cocoa as the main cash crops. Shifting cultivation is common.

Guinea has four natural regions, defined largely by rainfall. Lower Guinea receives 2800–4000 mm spread over 6 months. Upper Guinea is drier with 1300 mm of rain over 5 months. Middle Guinea (Fouta Djallon) is slightly wetter with 1500 mm per year, whereas Forest Guinea receives 2000–3000 mm of rain during 9 months.

Rice is the most important food crop and its production is the most organized.

In 2000, rice production covered 42% of the total farmed land (about 700,000 hectares) for a total production of 700,000 tonnes of paddy (Barry, 2006). Rice is grown in all four natural regions of Guinea. About 65% of rice land is devoted to upland rice, followed by mangrove rice (16%). Lowland and flooded rice are of



equal importance. Per capita rice consumption is estimated at 69 kg (WARDA, 2007). In 2003, the local rice sector generated about 340 billion Guinean francs (GNF) (\$67 million), 5% of the gross domestic product.

Before the 1950s Guinea was the third largest rice producer in Africa, after Egypt and Madagascar (Portères, 1966). Guinea was self-sufficient in rice and exported a surplus to other countries in West Africa. In recent years, population growth (3.1% per year) has threatened Guinea's food security. Despite a doubling in production over the past decade, to 1.47 million tonnes in 2009, rice is now imported to meet the rising demand. Imports were estimated at 44% of the national rice demand in 1995, falling to 25% in 2000 and rising again to 40% in 2002 (MAEF, 2007a).

To increase food security, the Guinean government plans to introduce rice cultivation on 25,000 more hectares in favourable areas of Lower and Upper Guinea (MAEF, 2007b). It wants to boost the production to 2.5 million tonnes by 2015. To achieve this, the government collaborates with international partners, invests in roads, bridges and dykes and supports the dissemination of new technologies, such as improved rice varieties (Nerica and the CK series) and yield-enhancing farming practices.

At a national level, potato is a minor crop but has become increasingly important in the economy of the Fouta region, where the climate is favourable to its production. About 16,000 tonnes of potato are produced every year (MAEF, 2007a).



Guinea used to export rice, but now has to import it to meet the rising demand.

6.1.2 Seed systems in Guinea

Informal seed system. The informal seed system supplies the bulk of seed to farmers. From the previous harvest, farmers and local seed dealers save seed for the next cropping season, and pass it on through barter, gift or sale. The informal seed system provides inexpensive seed thanks to its low production cost. Seed is produced and stored as part of crop production (Richards, 1986). However, a few farmers specialize in seed production (Okry *et al.*, 2011). The informal seed system is more effective at supplying seed of orphan crops (such as fonio, yam and potato) and self-pollinated crops. In Guinea the informal seed system supplies more than 90% of farmers' seed (SNPRV, 2001).

Formal seed system. From production to sale, formal seed is broken into discrete activities, done by different stakeholders rather than a single farmer, and it is fully regulated by the government. The Institut de Recherche Agronomique de Guinée (IRAG) conducts breeding for all crops and produces breeder and foundation seed,

supported by selected farmers and farmers' associations. The national extension system (Agence Nationale de Promotion et de Conseil Agricole – ANPROCA, ex-SNPRV) then distributes foundation seed to farmer seed producer groups, who multiply it into quality seed, under its supervision (only when projects support the activities). Seed producers, some of whom are organized in associations or cooperatives, usually sell the seed themselves. There are only a few retailers in Guinea. The formal seed system focuses exclusively on improved varieties and commercial crops, such as cotton and cocoa.

As the seed production units are located near cities, farmers in remote areas are discouraged from accessing quality seed. Moreover, many are reluctant to pay more than the grain price to buy seed if they are not sure the source can be trusted or if they are unaware of the added benefits of the quality seed.

6.1.3 Evolution of the formal rice seed sector in Guinea

The first support for the formal seed sector was in 1986, as part of a broader food security programme funded by the World Bank. Four well-equipped seed centres were built in Kilissi, Koba, Guéckédou and Bordo to produce, process, store and package 'acceptable seed' under the supervision of the national research system (acceptable seed has followed the standard procedures for seed production, but has not been certified). Two early maturing and improved varieties, CK 5 and CK 7, were identified to increase national rice production.

The newly created seed centres multiplied foundation seed, processed and packaged resulting seed into 5 kg bags and developed, in collaboration with SNPRV, technical notes related to the characteristics and use of each variety. SNPRV disseminated the bags free of cost to selected farmers, who were trained and expected to diffuse seed and technical information within their community. The programme ended in 1992. Farmers had not accepted the two improved varieties: they were too early maturing (requiring intensive bird-scaring and delicate postharvest processes) and too sensitive to weeds.

The seed centres closed in 1997 because of limited impact and lack of funds. They remained government property until the liberalization of the seed sector in 2004, when they were handed over to private entrepreneurs and farmers' associations (Okry *et al.*, 2011).

In 1997 IRAG and the extension service launched a pilot programme with AfricaRice (ex-WARDA) to accelerate the diffusion of Nerica (varieties created by crossing two rice species: *Oryza glaberrima* × *O. sativa*). At first, four of these interspecifics were introduced in Guinea: Nerica 3, Nerica 4, Nerica 6 and IAC 164. Later projects, such as the African Rice Initiative, continued to disseminate Nerica varieties.

Meanwhile, from 1997 to 2003 Sasakawa Global 2000 (SG2000) extended its activities to Guinea, organizing small-scale seed producers. Apart from rice, SG2000 promoted cowpea, maize, soybean and the cover crop mucuna (velvet bean), to enhance soil fertility (SG2000, 2005).

More often, seed components have been part of agricultural development projects that promoted improved varieties and created farmer seed enterprises, which collapsed once the projects ended.

6.1.4 Seed legislation in Guinea

Seed law. Guinea, with the FAO, wrote a law on seed and agro-inputs, applicable to all agricultural crops. It sets the norms and aims to stimulate production, marketing and the use of quality seed. It also stipulates who can certify seed and how it should be done. The law was recently approved by parliament and will soon take effect.

Seed certification. The Direction Nationale de l'Agriculture (DNA) should implement national seed policy and seed quality control, but the quality control laboratories are under-equipped and non-functional, the national seed committee is still not formed and the seed inventory is not yet completed. Moreover, there is not enough staff trained in seed certification. In reality, there is little proper seed quality control. Most seed producers simply produce at standards acceptable to their clients.

Below we present five seed enterprises in Guinea. They all include rice, the major staple. The first case deals with a traditional rice seed producer and dealer who developed a small seed distribution network in two countries. She produces seed of local rice varieties without agrochemicals. Besides seed, she also sells paddy and palm oil, which at times clients exchange with her for seed. The second case is another one-person seed enterprise that started in the 1980s with project support, but which is still in business 5 years after the subsidies ended. The third case is an agro-dealer who also sells seed of rice, maize, cowpea and vegetables. The last two cases describe enterprises that mainly produce seed potato, followed by rice and maize.

6.2 Mama Adama Yansané

6.2.1 History

Mama Adama Yansané, a 60-year-old widow, has been running her rice seed business for over three decades. In the 1970s she started trading rice seed in Bassia, Sierra Leone (Bramaia chiefdom), where she got married. A few years after her husband died, she returned home to Bokariya-Tassen in Guinea in the 1990s.

After returning Mama Adama continued running her one-woman seed enterprise, and kept taking seed orders from Bassia and the surrounding area. She married the village imam in her home village. Unlike neighbouring villages, selling seed is forbidden in Bokariya. The imam banned it, citing religious reasons (Box 6.1). Mama Adama's seed business is informal (non-registered) and small, even though it operates in two countries. Her seed business steadily grew until the Sierra Leone civil war

Box 6.1 The unspoken profession.

When we first asked about seed dealers, people said that there were none in their village, because the imam had forbidden it. As we did more interviews, we realized that many farmers buy seed from Mama Adama. One interviewee even requested anonymity if we further discussed Mama Adama's seed business with others.

When we met Mama Adama she readily admitted that she sold rice seed, but added that her clients were mainly from outside the village. She said in the village she sells rice to people, not seed. When we asked, 'What is the difference between the seed sold to outsiders and the rice sold to Bokariya farmers?' she admitted that there was no difference. Mama Adama was creatively bending her husband's rule to create a seed monopoly.

started in 1991. Her clients left Bassia to settle elsewhere and farmers from villages across the border in Guinea also began growing less rice, for fear of invasion.

Mama Adama has always specialized in seed of local rice varieties. Before the war in Sierra Leone ended in 2001, she grew and sold *dixi* (*O. glaberrima*) and *samba* (*O. sativa*). However, she abandoned these varieties after their demand dropped. *Dixi* is a ‘heavy variety’, meaning that people who eat it feel full for a long time. *Dixi* was a favourite during the war, but it is sensitive to drought during flowering and its popularity declined. *Samba*, on the other hand, is a ‘light variety’ and is mainly eaten by elderly people, given to children at boarding school or sold to people in the cities. After Guinean farmers who had fled the border area returned home, they brought with them a new variety called *saidou gbéli* (*O. sativa*) named after the person who introduced it, although no one is sure where *saidou gbéli* came from. It is high yielding, drought-resistant, adapted to the local environment and suitable for both uplands and lowlands. Besides, it can be sown from late May to early September, unlike all other varieties, which have narrower planting windows. Mama Adama now sells only *saidou gbéli*, as it soon became the most popular variety in her area.

Every year Mama Adama produces a field of rice seed, but she does not keep records of her sales. She has always sold her entire seed production (in 2007 this was 1.5 tonnes from 1.2 hectare). Her seed business prospered after the end of the war, as demand for seed outstripped supply.

Mama Adama says that the demand grows every year as larger areas are planted to rice, while she produces less seed as she gets older. Mama Adama could enlarge her business by letting someone else grow the seed or by buying seed from other farmers, but she is afraid of compromising quality. She thinks that seed quality, and her reputation, should be preserved by all means.



Mama Adama Yansané stores her rice seed in a basket, while she keeps paddy in bags.

6.2.2 Structure

Management. Mama Adama’s seed business serves neighbouring farmers. She has no contact with external organizations working in seed development, although she took a literacy course from APEK (Association pour la Promotion Economique de Kindia), a local NGO.

Besides rice seed, Mama Adama sells groundnut seed, palm oil and rice paddy. She started trading palm oil and paddy when she started her seed business. These three enterprises are linked because palm oil and paddy are often bartered for rice seed.

Paddy and rice seed are grown, stored and handled separately. Mama Adama grows and processes seed by hand, using no pesticides or botanical products to control storage pests. Seed is stored in a large basket, while paddy is stored in polythene bags.

Land. In Bokariya-Tassen, land is managed communally. Every year a committee of elders allocates land to each household. Allocation within the household rests with the household head, so Mama Adama depends on the imam for land. Once she receives her land from the imam, she selects the best patch to grow seed. She knows that the most fertile land has more shrubs, darker soil and greener vegetation. Her husband usually gives her the land she desires.

Labour. Land preparation, weeding and harvesting are the most labour-intensive tasks in rice farming in Bokariya. Finishing them on time determines the success or failure of one's rice crop. At these crucial times labour is scarce as the demand is high and only people with special relationships with the work crew can hire labour then. Villagers who previously received a gift or a loan of seed from Mama Adama may give her priority when deciding who to work for, out of respect.

Quality control. Mama Adama believes that quality comes from keeping control of her seed production at all times. 'The quality of my seed keeps me in the seed business. People come from far away to buy my seed. How can I assure quality if I do not produce my own seed?' She added, 'I have kept only one variety to avoid seed mixture.'

Keeping seed pure requires skill and work. To avoid mixture, Mama Adama does not harvest seed from the edges of her seed field. These areas are harvested as paddy. Since farmers broadcast their seed and rice fields are continuous with no clear borders between neighbouring fields, edges can easily have a mix of varieties. To prevent seed from mixing with other varieties and dirt and to reduce time for scaring away chickens and other rice lovers, Mama Adama dries seed under the sun on tarpaulins in her courtyard.

She tests seed dryness by cracking a few grains between her teeth. The sound of the cracking grains tells her the dryness of the seed. She believes that seed that is harvested on time, well-dried and properly stored has a good germination rate. She does not need to test that.



A passion for quality and a focus on a single variety have built Mama Adama's reputation.

6.2.3 Cash flow

Apart from selling seed, Mama Adama also buys paddy from farmers just after harvest, stores it and resells it as paddy throughout the year. At the beginning of the season seed and paddy cost the same, namely 2000 GNF per kg (\$0.50). Quality seed (clean, insect free, unspotted and well-dried) becomes more expensive and can reach up to 3500 GNF per kg (\$0.90) towards the end of the planting season. The price of paddy also varies throughout the year, but never reaches this level.

Farmers buy seed or barter for it. Mama Adama may give or loan seed depending on the person involved. Some farmers also trade paddy for seed. The exchange rate is not fixed.

Mama Adama runs her business with her own funds. She could borrow from local moneylenders, who often charge up to 100% interest, but she believes that no credit service will give her a loan since she is too old.

Mama Adama produces seed without agrochemicals, thus reducing her costs. All farm tasks are done by hand, for which she hires labour.

6.2.4 Marketing

Most of Mama Adama's customers are rice growers, informal dealers and occasionally farmers' associations (Table 6.1).

Her seed network expands through her kinship ties. For example, Samba Yansané, one of her nephews living in Bassia, Sierra Leone, takes seed orders before the sowing season from nearby villages: Siakhaya, Kabaya, Sabuya, Surumaya, Fadugu, Sogbaya, Yaya and Sulemania. Samba's father used to take the rice orders before he died. Samba, only 22 years old, travels to Bokariya, crossing the Great Scarcies River on the border, to get seed from Mama Adama. Samba collects transportation fees and receives a commission from farmers. In Guinea, customers come from Kaff (7km), Sangaran (1.5km), Konkoya (1.5km), Boubouya (4km), Salamou (4km) and Kondedara (5km). Although Mama Adama occasionally used to take seed to her relatives, now most customers come to her house to get seed.

Mama Adama only has so much flexibility. She has a fixed capacity to produce seed and produces none off-season. The seed she sells is from the year before and, as she fears enlarging the enterprise, the quantities have not really changed. Once her seed is sold she never buys paddy to sell as seed.

Mama Adama does not pack her seed before selling it. Customers come with their own containers, mostly plastic sacks, or a piece of cloth and a bowl for small quantities.

Table 6.1. Clients of Mama Adama Yansané.

	1995	2000	2005	2009	2015 (predicted)
<i>Individual farmers</i>	1	1	1	1	1
<i>Local dealers</i>	2	2	2	2	2
<i>Groups and cooperatives</i>	–	–	–	3	3
<i>Projects and NGOs</i>	–	–	–	–	4

Ranking assessment by senior management of seed enterprise, 1 being the most important.

6.3 Ibrahima Sherif

6.3.1 History

Sherif, 66 years old and a driver by profession, was born in Samoukiry, Lower Guinea. In the 1980s he migrated to Foulaya, where he started farming. He was growing avocado trees, vegetables and a bit of upland rice when a delegation from the World Bank visited his village with government extension agents to monitor one of their projects in 1984. He must have made a good impression because soon after

the visit the director general of the extension service allowed him to get a lease-to-own for a water pump to increase his production. The charges amounted to 500,000 GNF (\$100). With the new equipment, Sherif increased his production and became a model farmer, regularly receiving and impressing official visitors.

When donors changed their policy on agricultural extension in the 1990s and group approaches came into vogue, the local NGO APEK started grouping farmers into associations and unions. Sherif was elected chair of the union of cereal producer groups of Kindia. In this role Sherif negotiated a tractor for the union, but of course he could use the tractor too, and so he increased his production and with the surplus bought fertilizers, herbicides and pesticides.

In the early 1990s Sherif produced seed of local varieties, such as *sewa*, an upland *O. sativa* variety, but in 1996 he abandoned it to produce seed of improved varieties of rice, soybean and mucuna with support from SG2000.

Over the years, he has collaborated with several projects. One day the former President, the late Lansana Conté, visited Sherif's farm and soon after he received a tractor for his own farm from the Ministry of Agriculture and a water pump from SG2000. However, in 2004 SG2000 left Guinea, ending the subsidies for Sherif's seed business. After that he bought all his own inputs, although in smaller amounts.

Sherif tried growing seed of the upland rice Nerica 4 in 2003, 2004 and 2006, but abandoned it because threshing was tedious. Ideally, Nerica 4 should be threshed the same day it is harvested. When the bundles remain in the field for a couple of days, it has to be threshed by machine. Sherif focuses on seed of improved lowland varieties, such as CK 90, CK 21

and CK 801 (Table 6.2). Occasionally, he grows Nankin. All these are improved lowland rice varieties. Nankin was introduced by the Chinese, while the CK series were bred by the national rice breeding unit at the Kilissi station. These varieties have yield potentials of 5 to 6 tonnes per hectare and are all found in the local seed trade.

Table 6.2. Rice seed produced (tonnes), Ibrahima Sherif.

	2005	2006	2007	2008	2009
<i>CK 90</i>	0.3	5.0	15.0	–	–
<i>CK 21</i>	5.1	5.0	9.0	2.0	1.0
<i>CK 801</i>	0.1	1.0	5.0	1.0	5.0
<i>Dia</i>	–	–	–	–	3.0

In 2008, Sherif decided to include *dia*, a local rice variety, for seed production. He grew 3 tonnes of *dia* in 2009 and plans to include more local varieties in 2010. Sherif began growing local rice varieties when he had to produce seed without subsidies and also to meet smallholder farmers' explicit demands.

6.3.2 Structure

Management. Like Mama Adama Yansané, Sherif runs a one-man seed enterprise, but, unlike her, he has collaborated with several seed projects that led him to produce improved varieties, besides giving him much valuable equipment.

Besides rice seed, Sherif has produced smaller amounts of seed of maize (since 1997), cowpea (since 2000), soybean (2000) and mucuna (1997–2003), as requested by SG2000. But he stopped producing mucuna seed because of the limited demand. For years, mucuna was promoted as a miracle crop to restore soil fertility, but farmers

never took it up because, as they correctly say, it occupies cultivable land and it is not edible. After he stopped receiving subsidies he reduced the area grown, cut down on the use of agrochemicals and included local rice varieties in his portfolio.

Land. Sherif owns about 46 hectares, of which 44 hectares are lowlands and 2 hectares upland. Only 41% of the land is exploited. Upland fields are used for maize seed (1 hectare) and cowpea seed production (1 hectare). About 17 hectares of lowlands are devoted to lowland rice seed production. Seed fields of different varieties are far away from paddy fields and separated from one another by dykes to reduce the chances of seed mixture by flood.

Equipment. Since 2003 Sherif has owned a tractor, which is still running. He also has a pair of cows for ploughing and two water pumps for irrigating occasional off-season seed.

Labour. Sherif has limited household labour. He hires labour for land preparation, building dykes, transplanting, harvesting and threshing. The household labour takes care of other crops like fonio and vegetables.

Links. Sherif has extensive relationships with rural development organizations. For many years, research and extension have used Sherif as a model farmer.

Quality control. Sherif receives no external quality control for his seed farm. He has participated in several training sessions on seed production in Guinea and Senegal. These courses and follow-up sessions from research and extension have helped Sherif to do his own quality control.



Sherif had to include local rice varieties and gradually built his network after projects came to an end.

6.3.3 Cash flow

Since SG2000 left in 2004, Sherif has run his seed business on his own funds. The equipment he obtained from SG2000 and the Ministry of Agriculture helped. However, Sherif realized that he cannot keep producing only seed of improved rice varieties, which he once sold mainly to projects and farmers' unions. To stay in business and reduce production costs he also started producing local rice varieties in 2008.

To individual rice growers, Sherif sells seed on average at 3500 GNF (\$0.90) per kg, but the price can reach 5000 GNF (\$1.30). Unlike many seed dealers in Guinea, Sherif no longer accepts loans, gifts or barter. 'Some farmers reimbursed their loan with mixed seed and some even did not reimburse me at all,' he said.

Customers referred by the Chamber of Agriculture (Chambre d'Agriculture) bought seed at 2500 GNF (\$0.70) per kg. Sherif said the Chamber of Agriculture helped him acquire inputs and equipment, so he gives them a special price because he wants to keep good relations with them.

Sherif said he sells rice seed for just 2000 GNF (\$0.50) per kg to farmer groups and unions as an expression of solidarity with them, even though he is no longer the chair of the farmers' association, and to show commitment to the groups' efforts to raise revenues of other farmers. Sherif also uses the farmers' union to develop his seed distribution network. He believes that by offering a discount to groups he will encourage individuals to try improved varieties.

6.3.4 Marketing

Sherif's clients have changed a lot over time, as he gradually started to build his network after projects came to an end (Table 6.3). Local dealers are likely to play a stronger role in the future.

Up to 2004, customers were mainly referred by the Chamber of Agriculture (50%), followed by individual rice growers (30%) and farmers' unions (20%). The Chamber of Agriculture did not put official orders for its own use, but directed seed orders from projects, state farms and NGOs to Sherif as a faithful, recognized seed producer.

Seed is sold at Sherif's store. The discount Sherif gives to associations is part of his marketing strategy, as individual farmers get to know him through this. If off-season seed production is abundant, Sherif advertises at the local radio station before farmers start sowing. Advertisement usually takes 4 weeks and starts about 2 weeks before the sowing period. The radio spot explains the importance of improved varieties, and says that Sherif produces and sells the seed, and that he can be reached at his village, or through farmer's associations, researchers and extension agents. The advertisements helped Sherif build his popularity and reputation in the area.

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6.4 Comptoir Agricole

6.4.1 History

In the early 1990s the Belgian NGO ACT (now called TRIAS) invested heavily in training farmers and building roads to improve farmers' access to markets. It noticed that farmers of Bangouya village, near Kindia, could make better use of their lowlands if they had vegetable seed, which ACT helped them acquire.

In 1994, before ACT stopped its intervention in Guinea, it decided to organize Bangouya's farmers in a cooperative called CCIAC (Coopérative de Commercialisation

Table 6.3. Clients of Ibrahima Sherif.

	1995	2000	2005	2009	2015 (predicted)
<i>State farms</i>	2	2	2	1	4
<i>Individual farmers</i>	–	3	3	2	1
<i>Groups and cooperatives</i>	–	4	4	3	2
<i>Research institute</i>	–	6	6	4	6
<i>Local dealers</i>	–	5	4	5	3
<i>Projects and NGOs</i>	1	1	1	6	5

Ranking assessment by senior management of seed enterprise, 1 being the most important.

des Intrants Agricoles de Kindia) to obtain vegetable seed and agro-input supplies. It was led by former ACT staff. Incofin, a Belgian social investment company focusing on micro-finance, provided financial support for CCIAK and helped them import vegetable seed from Belgium. CCIAK rapidly enlarged its activities and started a store in Kindia.

Also in 1994, Comptoir Agricole was created and registered as a private company to distribute agricultural inputs (seed, agrochemicals and farm equipment) and food (such as paddy). CCIAK and Comptoir Agricole thus shared the seed market.

CCIAK cooperated with Incofin until 2000, when the latter stopped working in Guinea. However, until 2003 Incofin linked CCIAK to Belgian and Dutch seed companies, allowing CCIAK to import vegetable seed for sale.

In Guinea's financial crisis of 2003 the Guinean franc lost value and CCIAK nearly went bankrupt. It stopped importing vegetable seed and adjusted by engaging in local seed supply. Due to the harsh financial crisis, CCIAK could not survive alone and merged with Comptoir Agricole in 2004, retaining Comptoir Agricole as its official name.

In addition to farm inputs, Comptoir Agricole sells up to 100 tonnes of rice seed per year, although it does not produce any of the seed itself (Table 6.4). It also sells seed of maize and groundnut and resumed its former trade in vegetable seeds (tomato, pepper, cucumber and onion). The amount of seed sold per year largely depends on the money available to import vegetable seed and the amount of good local seed that its scouts can source.

In 2008 and 2009 Comptoir was hit by the global financial crisis. To reduce overhead costs it got rid of salaries by handing over its seven shops to its employees. Currently, it supplies the shops with inputs. After sale, Comptoir deducts the capital and leaves the profits to the employees, who now earn money only if they sell.

Individual rice growers from Madina Oula, near the southern border with Sierra Leone, supply Comptoir Agricole with seed of both local and improved varieties. Some seed comes from government employees who farm their own land part-time. Occasionally Comptoir Agricole sells seed of improved varieties produced by the national rice breeding unit at the Kilissi Research Centre (Table 6.5).

Table 6.4. Seed sales (tonnes), Comptoir Agricole.

	2007	2008	2009
<i>Rice</i>	98	78	67
<i>Maize</i>	5	7	6
<i>Groundnut</i>	40	3	2
<i>Vegetables</i>	0.3	0.7	0.5

Table 6.5. Rice seed supplied (tonnes) to Comptoir Agricole.

Supplier	Variety supplied	Quantity (tonnes)*
<i>Formal seed producer from Labe</i>	Nerica 4	6
<i>Kilissi Research Centre</i>	CK21, CK90	50
<i>Rice growers</i>	Nankin, kaolaka, saidou gbéli, saidou firê	80
<i>Sunday farmers (loan reimbursement)</i>	Diverse	1.5

*Data from 2007; includes both seed sold and emergency seed distributed under the FAO project Office of Special Relief Operations (OSRO).

The rice varieties sold include *saidou firê* (local variety), *saidou gbéli* (local variety), *kaolaka* (local variety), Nankin (improved variety), Nerica 4 (interspecific), CK 21 and CK 90 (improved varieties). *Saidou firê* and *saidou gbéli* are the most popular upland varieties grown in Kindia region, where Comptoir Agricole has its headquarters.

6.4.2 Structure

Comptoir Agricole was created by a group of former civil servants and registered as a private company. Comptoir Agricole has seven shops located in Lower Guinea (Kindia, Dubreka and Forecariah) and Middle Guinea (Dalaba and Labé). Comptoir Agricole covers the entire country when contracted to distribute emergency seed by projects (such as OSRO) or by humanitarian and international organizations, such as FAO and the World Food Programme (WFP).

Links. Comptoir Agricole is a member of professional associations, including the national Association des Producteurs Importateurs Distributeurs d’Intrants Agricoles (APIDIA) and the international African Seed Trade Association (AFSTA).

At the local level, however, Comptoir Agricole is poorly linked with formal seed producers except for one seed producer trained by SG2000, who sold them 6 tonnes of Nerica in 2007. According to its director, Mr Hamidou Diallo, ‘seed projects and local NGOs have helped a lot in training formal seed producers, but, after the training, the formal seed producers served exclusively the projects and NGOs involved. These seed growers were not allowed to diversify their clients. The projects and NGOs are trainers, suppliers of foundation seed and buyers of the produced seed.’

6.4.3 Cash flow

Comptoir Agricole sells agrochemicals, paddy and seed of various crops. It is a seed retailer, but does not produce seed. Comptoir Agricole collects seed at harvest, stores it and sells it at planting season. It does not process seed. Young people who work part-time for Comptoir visit the seed-producing villages on motorbikes and advise the company when the seed is ready. Over the years these young people have built up their social networks. They know exactly which farmers produce good quality seed. Comptoir then goes to the villages, collects the seed and pays cash at 1000 GNF (\$0.25) per kg. Comptoir only sells seed on credit to civil servants farming their own land part-time. Interest rates vary according to the person involved and other chemicals bought.

6.4.4 Marketing

Farmers make up 65% of Comptoir’s customers. Others are projects and Sunday farmers, who are part-time farmers. Comptoir Agricole reaches its customers mainly by participating in fairs and distributing booklets presenting its products. Since its creation

in 1994, it has advertised only once on the local radio station, in 1994. Farmers are their main customers, which is unlikely to change in the future. As various efforts currently aim at strengthening groups and cooperatives (in terms of organization, training and land management) these will likely become more important clients (Table 6.6).

Table 6.6. Clients of Comptoir Agricole.

	1995	2000	2005	2009	2015 (predicted)
<i>Individual farmers</i>	1	1	1	1	1
<i>Sunday farmers</i>	2	2	2	2	3
<i>Projects and NGOs</i>	–	–	3	3	4
<i>Groups and cooperatives</i>	–	–	4	4	2
<i>Local dealers</i>	–	–	–	–	–

Ranking assessment by senior management of seed enterprise, 1 being the most important.

6.5 Cereal and Potato Seed Producers' Union

6.5.1 History

After many years of experience in working with farmers, as extension officers, four agricultural engineers and two agricultural technicians decided to set up an organization to produce seeds in the Fouta region, in middle Guinea. Although they still receive their basic salaries, the government barely provides an operational budget for extension. Tired of being idle, they looked for an opportunity to make best use of their time and expertise. One of the agronomists noticed that investing in agriculture is profitable but that seed production is even more so. Knowing that good seed improves yields and crop quality, the agronomist discussed the idea with some colleagues and farmers and they decided to join the existing farmers' associations as a seed enterprise.

In 2006, 19 farmers (including the six extension agents) and ten cooperatives growing cereals, ware potatoes and vegetables founded a union (Union des Coopératives pour la Production des Semences de Céréales et Tubercules). It was officially registered at Labé, the regional capital of the Fouta.

The start-up capital of the Union came from membership subscriptions. But this was not enough to start the business. Then, in 2006 a CFC (Common Fund for Commodities) project provided seed potato as a loan to the Union. After its first harvest, the Union reimbursed double the amount of seed potato. Profits from the first activities were kept and used to expand production.

The Union has rapidly increased its seed production (Table 6.7). Net production is just the part of the harvest that is selected for seed. The rest

Table 6.7. Seed produced, Cereal and Potato Seed Producers' Union.

	2007	2008	2009
Cultivated area (hectares)			
<i>Potato</i>	5	14	22
<i>Maize</i>	3	6	10
<i>Rice</i>	2	8	12
Net production – sold as seed (tonnes)			
<i>Potato</i>	17.5	55	96
<i>Maize</i>	4.5	12	18
<i>Rice</i>	4	16	36

is eaten or sold as food. Production increased because: fertile land is available for expansion; the Union hosts many cooperatives (giving them a large customer base); the Union has a good marketing strategy; and the Union's managers are extension agents who easily convince farmers about the importance of using quality seed. Apart from their agricultural skills, extension agents can often bank on the social networks built up during their lifetime, both with the farming community and with research and source seed suppliers.

6.5.2 Structure

Management and staff. The Union is composed of ten cooperatives, each with 30 members, of which 80% are women. The cooperatives were set up by women to create income generating activities. They invited some men to join.

The leaders of the Union are male agronomists who are still paid as government extension agents. Alpha Oumar Balde, who is the regional director of the extension service for the Fouta region, is the president of the Union. The other three agronomists are each responsible for one of the three crops (potato, maize and rice). Two technicians help members and ensure strict adherence to the technical procedure. None of the management staff is paid by the Union. They think that if the activity develops they may request a salary in the future, but so far they do not charge the Union, since they still draw a government salary and they do not want to burden the Union but they want to allow it to grow. Though the Union has the required technical capacities, most women are illiterate and need skill strengthening.

Production. The Union operates on part of a vast lowland of about 7000 hectares, at an altitude of 1002–1115 metres. The main crop is dry season potato. After the potato harvest, rice is planted on the lower, wetter part of the area, while maize is sown on the upper part.

Seed potato is imported from France, the Netherlands and Belgium by Sica, a private company based in Labé. Five varieties dominate: Nicola, Spunta, Anova, Kaon and Désirée. At harvest, the Union members select the smallest or medium-size tubers as seed. They renew their foundation seed for potato, maize and rice every 3 years. For maize they isolate the farm on land where they used to produce potato so no other field of maize is near it.

Activities are organized by gender. The men build the fences to protect the seed crops from goats and cattle, while the women do everything else. Traditional wooden fencing costs about 5 million GNF (\$1000) per hectare. The second year, maintenance expenses are about 10% of the construction costs. The third year, there is a need to replace the fence. Using modern materials (mostly wire) the fence costs 14 million GNF (\$2750), but lasts for 20 years.

Each cooperative chooses one crop, often the one they were growing before for food. No group can produce seeds for two different crops. This is to balance the supply and demand of seed. If everybody produced seed of the same crop, some crops would be under-served.

Specializing in one crop is a good arrangement for members. If seed potato is more profitable, growing it demands more work. Specialization allows each actor to master the crop and become a real professional.

It is easy for the Union leaders to identify each member's needs for new skills, so that, when training opportunities occur or are created, it is easier to designate participants.

Other activities. Each cooperative of the Union produces seed on collective land assigned for seed production, and the Union sells the seed. On individual plots each member of the cooperative has other activities including raising crops to feed their families, animal husbandry and food processing for people and animals. Cattle raising is the most common activity for Foullah (Fulani). Animals eat rice straw and maize stalks and fertilize the soil with their dung.

Equipment. The Union has limited equipment and infrastructure. For seed storage, it hires space from big traders of the region. It owns two motor-pumps and a few animal-drawn implements. In 2009, the Union started using the tractor ploughing services of a Frenchman to expand production.

Links and partnership. The Union has strong ties with extension and research thanks to its management. It has also developed partnerships with projects, NGOs and government bodies whom it supplies with seeds. Other farmers not in the Union are important as potential clients. The Union is trying to strengthen relationships with them and create new ones.

Quality control. The Union works under the strict control of agricultural engineers and technicians, but without certification; the seeds can be sold only in Guinea, but the Union sells all the seed it produces.



Women from the cooperative grow seed potato, while former extension agents joined as technical advisers and linked them to source seed suppliers and the wider farming community.

6.5.3 Cash flow

Cooperatives or individual members of the Union access some credit from small, local private credit agencies (*établissements*) at an exorbitant interest rate (4.75% per month). Fortunately the Union members need little credit, mainly for foundation seed, which they reimburse quickly. The fertile soils need little fertilizer.

Cereal seed production is rewarding, but profit from seed potato is higher. First category potato seed has a vegetative cycle of 75 days and second category one of 90 days. Sica supplies the first category at 10,000 GNF (\$2.0) per kg and the second category at 6500 GNF (\$1.3). The CFC project also imports potato seed and supplies it at 8000 GNF (\$1.6). Ordinary farm-saved seed costs 7000 GNF (\$1.4). Ware potato costs on average 3500 GNF (\$0.7) per kg.

Reinvesting profits into the enterprise has been a key to success of various other enterprises presented in this book, ranging from the farmer seed producer groups in

northern Cameroon who applied revolving funds (Section 3.1.4) to NASECO, one of Uganda's leading companies (Section 10.2.3). But operational budgets based on membership fees and profits are often not enough. Governments and donors have a role to play in strengthening the financial sector to support rural entrepreneurs.

6.5.4 Marketing

The Union assesses the seed demands of its members, based on the areas they intend to devote to each crop. The management of the Union approaches some NGOs, projects and other government bodies that usually buy seed from them and assesses their interest in seed for the upcoming season.

The first clients of the Union are its members, who buy up to 40% of the seed produced. The rest is sold to organizations and projects, but mostly to individual farmers. The Union gives technical assistance to the members through rigorous follow-up programmes organized by its agricultural technicians, to make sure that the members produce the seed well. This helps producers to get expected results.

Each individual member brings at least one new customer every year, a personalised marketing strategy that banks on farmers' social networks. The Union is also getting ready to use community radios to advertise.

There were demands for potato and rice seed from Senegal and efforts were made to meet them. Unfortunately, the attempt was unsuccessful for lack of certification. So far, there is no authorised body that certifies seed in Guinea.

6.6 El-Hadj Tafsir Sow

6.6.1 History

From importer to seed grower. El-Hadj Tafsir Sow was a prosperous importer of sugar, wheat flour and other foodstuffs from France. On a business trip to France in 1987, he decided to visit farms and see how wheat grows. Among other crops, he saw sugar beet, maize and potato. He was most impressed by the yields and quality of the maize and potato. He realized that good seed is important. He was amazed because he used to produce maize and potato for his family's table, but he could never imagine achieving the results he saw in France. For El-Hadj Sow this new discovery had to be shared with farmers in the Fouta (the middle Guinea region).

Sow noticed that, without quality seed and other inputs, farmers get meagre results. Once back in Guinea, he approached the research and extension service to know more about seed and to understand how it is produced. The long and demanding process requires more care and equipment, specific technical and managerial skills and knowledge about production, harvest and postharvest.

El-Hadj Sow worked with extension agents and helped researchers set up experiments on his farm to study the behaviour of many crop varieties. They also did live-stock experiments. These trials became a sort of field school where he learned about seed production and farm management.

Despite all the barriers to a newcomer in the seed industry, El-Hadj Tafsir Sow was determined to take the lead in producing and distributing seed. But, when he

shared his new vision with people, they told him that he could not succeed with seed production in the Fouta. But he refused to go down without a fight. So he requested Nerica rice seed from the extension service and received 29.5 kg. Today, El-Hadj Sow is happy and proud to have transformed this into more than 50 tonnes of rice seed.

Portfolio. El-Hadj Sow produces seed for the main crops of his region, namely potato, rice, maize and cowpea (Table 6.8). Though he started in 2000 with Nerica rice seed production, he could only provide figures for the last 3 years. His cultivated land remained the same in 2007 and 2008, but increased by 1 hectare in 2009. The areas devoted to seed potato, cowpea and rice seed fluctuated while maize increased. El-Hadj Sow explained that he has more land and could farm more of it but his tractor broke down and the spare parts are not available in Guinea to fix it.

Table 6.8. Seed produced, El-Hadj Sow.

	2007	2008	2009
Cultivated area (hectares)			
<i>Potato</i>	10	8	9
<i>Rice</i>	7	8	5
<i>Maize</i>	3	4	6
<i>Cowpea</i>	2	2	3
Net production – sold as seed (tonnes)			
<i>Potato</i>	25	17	20
<i>Rice</i>	18	19	10
<i>Maize</i>	2	4	9
<i>Cowpea</i>	0.6	0.5	0.8

6.6.2 Structure

Management. Except for occasional labourers, El-Hadj Sow does all the farm work with his household. One of his sons, a fourth-year agronomy student at university, gives him technical advice. He is open to new technologies and eager to transform them into innovations.

Besides crop production, El-Hadj Sow expanded to livestock. When he started his seed business, he added to his stock of cattle (as a Fulani he always has something in his animal enclosure) because he believed that crop production would be more successful when associated with animals, who can turn crop residues into manure.

Land and equipment. El-Hadj Sow owns 29 hectares of land. He inherited 4 hectares and bought 25. His strategy was to start by renting 3 to 5 hectares from a landlord. After farming it for 2 to 3 years he earned enough money from seed to buy the land. He now has two motor-pumps and garden hoses for irrigation, and rents many buildings to store seed and other farm products.

Links and external relations. El-Hadj Sow has close ties with researchers and extension officers, who



El-Hadj Sow, the first potato seed grower in the Fouta region in Guinea, poses in front of his diffused-light seed potato stores, an appropriate technology.

do experiments on his farms and sell him foundation seed. When he has a technical problem he cannot solve, Sow calls upon these experts, and they always come. He has excellent relations with farmers who buy his seed. He advises his clients on how best to treat improved crop varieties. He has little or no interaction with other seed producers. Foundation seed potato importers are his suppliers.

6.6.3 Cash flow

This family farmer has more vision and ambition than capital, but no banks make agricultural loans in Guinea. This is in sharp contrast with Mali, where the government supports the Banque Nationale de Développement Agricole (BNDA) to provide farmers agricultural loans at an annual interest rate of 12% (Section 5.3.3).

El-Hadj Sow said that there are some small financial establishments but the biggest loans they give are much lower than the minimum he would need. Worst of all, they charge exorbitant interest rates, and the first payment has to be made just a month after taking the loan, long before one could harvest the crop and begin selling the seed to repay the debt.

6.6.4 Marketing

El-Hadj Sow is the first large-scale seed producer in his region. He is known for his insistence on quality seed and for strictly following the technical production system. He regularly visits his clients to encourage them and learn about their ever-changing demands.

His main customers include farmers from Labé district and state farms directed by the Chamber of Agriculture (Table 6.9).

Official orders for rice seed arrived at the Ministry of Agriculture from the embassies of The Gambia, Mali and Guinea Bissau in 2005 and 2006. As there is no certification, the seed could not be sold directly, but, for this special request

from one government to another, quality seed was sourced from El-Hadj Sow (see above). There are still opportunities for exporting seeds to neighbouring countries, but he cannot respond to them because of lack of certification.

Table 6.9. Clients of El-Hadj Sow.

	2000	2005	2009	2015 (predicted)
<i>Individual farmers</i>	1	1	1	1
<i>State farms</i>	2	2	2	2
<i>Export in region</i>	–	–	–	3
<i>Projects and NGOs</i>	–	–	–	4

Ranking assessment by senior management of seed enterprise, 1 being the most important.

6.7 Challenges and Strengths of the Seed Enterprises

The formal seed sector in Guinea is still fragile. The seed laws are not enforced and regulation and certification agencies are weak. Most seed is informal, supplied by

individual seed producers, farmers' associations or cooperatives. A few of them are formally registered. Seed entrepreneurs mostly supply good quality seed rather than certified seed.

Over time, the seed enterprises described above have learned about their markets and how to adapt to a changing environment with small and unpredictable seed demands, no subsidies, lack of credit and farmers who are often reluctant to pay extra for improved seed (e.g. because they do not know the variety, are unsure about the quality or believe they can save seed of a similar or even better quality). Thus production costs largely determine viability of seed enterprises. Sherif used to receive subsidized inputs, but now pays full costs. To stay in business he also produces local varieties that perform without use of fertilizers.

Unlike Sherif, Mama Adama has no relationship with rural development organizations and produces exclusively local varieties without any agrochemicals, thus reducing her production costs. Comptoir Agricole prefers buying seed from farmers and the research centre to minimize the risks of seed production. Although both enterprises have acquired a reputation among their clients, they differ fundamentally: while Mama Adama capitalizes on her social network to sell her seed, Comptoir Agricole relies on the social networks of young people who scout the area for quality seed at the time of harvest.

About 80% of the members of the Cereal and Potato Seed Producers' Union are women, eager to earn an income and feed their families. The Union has access to plenty of fertile land on the Fouta Plateau, as well as access to foundation seed and technical expertise through its management. As all are extension agents who have worked their entire lives with farmers, they have a vast network, deep respect and sound knowledge of farmers' needs.

El-Hadj Sow was inspired by a visit to France in the late 1980s, after which he developed strong institutional relations and still receives technical advice from research and extension. However, his client network is strong; he regularly visits his clients to support them and learn about their changing demands. He hardly sells to outside markets because of the lack of certification. The sustainability and reputation of Sow's seed enterprise rest on his entrepreneurial spirit, his solid management skills and his dedication to quality.

Besides the lack of subsidies and credit, rice seed producers face other challenges, especially scarce labour, which is in high demand during ploughing, weeding and harvest. Rice seed is produced at the same time as all the rest of the rice and during the growing season most households prefer to work first on their own farm, to assure their staple food supply. Paid labour becomes scarce and more expensive, making it difficult to expand seed enterprises.

Several seed enterprises in Guinea lack functional links with formal institutions, and make a business from selling quality seed of local varieties. Their networks and reputation are their major assets.

Various enterprises like the ones presented in this chapter survive without access to credit, which does not mean, however, that they would not benefit from more accessible and customer-friendly rural financial products and services. The government of Mali has done just that (Chapter 5).

Many publications on entrepreneurship in developing countries have argued that social networks are essential for entrepreneurial success. However, based on a study in Madagascar, Fafchamps and Minten (2002) stressed the need to distinguish

different components of social networks, e.g. relations with other traders and with potential lenders increased transaction productivity, whereas extended family relations reduced it. Egbert (2009) came to the same conclusion, namely that African entrepreneurs in Tanzania financially support the extended families despite the trouble it causes for their business. However, the case of Mama Adama described in this chapter (Section 6.2) shows how extended family ties can have a long-lasting positive effect on seed trade. Social networks are indeed complex and context-specific; no doubt they can be supportive and functional, as well as parasitic.

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