

TANGUY SMOES

Centre for the Production of Improved Seed (CEPROSEM)

EXECUTIVE SUMMARY

Even though the potential for sufficient food production in the D.R. Congo is high, the population can not be adequately fed and is dependant on food imports. This is especially the case for Kinshasa, the 10 million capital. Space for agricultural production within the city is limited, productivity is low and access to farmland is difficult. The bad quality of utilised seeds poses severe limitations for agricultural production and is one of the main reasons for the necessity of food imports. In the past the Congolese government managed the entire seed production, but did not develop high quality seed varieties adapted to local conditions.

The Congolese Centre for Culture, Education and Development CECFOR, a NGO operating education and health care facilities, recognised these limitations but also the potential of the agricultural sector for development in the region. Cooperating with the European Union and development organisations from Italy and Spain CECFOR set up a research facility for improved seeds in the DRC – CEPROSEM. The Centre was approved by the national government and began experimenting on high quality seeds on previously bought farmland outside Kinshasa. Additionally CEPROSEM also cooperated with other organisations to train farmers in the correct utilisation of improved seeds. CEPROSEM furthermore developed a new marketing strategy to distribute the improved quality seed to farmers. Between 2006 and 2010 CEPROSEM selected 24 vegetable seeds, improved their quality and produced more than 9,000 tons of seed, which was sold to farmers and international organisations. In 2010 CEPROSEM became the first independent state-approved research facility in the Democratic Republic of Congo. Participating farmers benefited mostly from 30 percent lower costs for seeds, higher crop productivity and agricultural training.

INTRODUCTION

In the urban area surrounding Kinshasa, the 10 million capital of the DRC, located at the shores of the river Congo, more than 5.1 percent of the working population (i.e. more than 100,000 people) work in the agricultural sector. The wide spectrum of farmers ranges from city-dwelling mothers cultivating food on fallow ground by using household waste as organic fertiliser, to well-equipped agricultural businesses outside the city.

However, most vegetable farmers from Kinshasa have settled in on the outskirts of the city. Cultivable pieces of land vary in size and can spread across several hundred hectares, however, individual farmers usually cultivate only very small areas of several dozen acres. As the population is in search of resources, every available space in the city is used – vegetable patches can be even be found on roadsides, on motorway junctions, and on other untitled surfaces in Kinshasa. With the exception of certain areas where rice can be cultivated, production is limited to vegetables.

Trade with agricultural products is mainly dictated by so-called “helper mamas”. They either buy vegetables directly from the farmers’ parcels or, upon delivery of the goods by conveyors and owners, negotiate a price, which includes all applicable taxes.

Under these circumstances, the Congolese Centre for Culture, Education and Development (CECFOR), a non-profit organisation governed by Congolese law, was repeatedly facing problems relating to the provision of food. In 2001, CECFOR sought the support of ICU, an Italian NGO, to jointly analyse and define existing agricultural problems.

In March 2002 three fundamental problems were identified in relation to the region surrounding Kinshasa:

- Labour and land productivity is low in the agricultural sector;
- Access to farmland is limited;
- Marketing of agricultural products to low-income and uneducated farmers is complex.

With ICU’s support, CECFOR conducted a study to identify the main reasons for low labour productivity and bad crop yields, and to work out a strategy for solutions.

Four connected steps were identified to increase agricultural yields:

- Improving farmers' agricultural cultivation techniques;
- Refining the use of fertilisers and pesticides;
- Step-by-step mechanisation of agriculture;
- Use of resistant and high-yield plant varieties and improved seeds.

Following interviews and consultation with local farmers, and a subsequent study on current and planned measures relating to Kinshasa's agricultural sector, the production of improved seed was selected as the focal point.

At that time the production of seeds, which were adapted to local conditions was hardly prevalent in the DR Congo. The International Institute of Tropical Agriculture (IITA) and the Ministry of Agriculture focussed on the cultivation of conventional food products. Vegetable cultivation was neglected, although the necessity for improved seed had already been established by agricultural studies. Vegetable farmers were presented with two options: either to use common seeds without any guarantee as to the purity of the varieties selected and germination and viability of the seeds, or to use high-quality imported seeds which were significantly more expensive than conventional seeds and were created for soil and climatic conditions in other regions.

CECFOR

CECFOR was founded with the intention of improving the living conditions of poor parts of the population in the south-western periphery of Kinshasa, in particular through access to education and health care services.

In a very volatile and poor environment, CECFOR succeeded in implementing projects in the health care and education sectors with the cooperation of other European NGOs and the support of various sources of financial aid. In the medical sector, 1991 saw the founding of Monkole Hospital, which today represents a model hospital in the joint districts of Mont-Ngafula I/II and Kitokimosi in the wider Kinshasa area. As Monkole Hospital is always at full capacity, a further hospital is currently being built. Because staff repeatedly noticed that many patients do not seek medical attention before their health is in very critical condition, CECFOR opened three further medical centres with the aim of improving health care for the population. In order to enhance the quality of medical care, CECFOR established training centres. In 1997 the nursing college Institut Supérieur des



More than 100,000 inhabitants of Kinshasa live of agriculture.

Sciences Infirmières (ISSI) was founded. In addition, CECFOR started up an education programme for all medical staff employed at its health care facilities.

In the experience of CECFOR staff employed in the education, health care and hospitality sectors, it is clear that many Congolese do not have enough money to seek medical treatment, while at the same time it is very difficult to find paid work. In order to break this vicious cycle, one of CECFOR's aims was to create productive paid work. CECFOR's knowledge and experience with regard to local health care problems and the prevailing level of poverty finally led it to agriculture. Agriculture is the only sector, which is able to offer a large number of people concrete prospects of a better quality of life.

The operation of schools and the Monkole Hospital in Kinshasa had turned CECFOR into one of the most important buyers of food and vegetables, the latter constituting an essential component of a healthy and balanced diet.

AGRICULTURE AND VEGETABLE PRODUCTION IN KINSHASA PROVINCE

Kinshasa is the capital city of the Democratic Republic of the Congo and is by far the smallest province of the country. Kinshasa can be considered a “city province” and is bordered to the north by the Congo River. As a consequence of Kinshasa’s rapid expansion, the remaining parts of the province were drawn in to form the periphery of the original city, creating outskirts where space is shared by new buildings and agricultural parcels.

Kinshasa is situated several hundred kilometres south of the equator. Its climate is tropically warm and humid, with the monthly average temperature ranging from 22 to 25 degrees. The average annual rainfall is almost 1500 mm, spread over eight months. The dry season is from approximately mid-May to mid-September. Heavy rainfall, combined with the fact that the city is built on hilly ground, leads to drainage problems. Due to the ground being sandy, heavy rainfalls can lead to erosions, which create gorges and threaten to destroy entire parts of the city and important traffic routes.

SOCIO-ECONOMIC STATUS QUO

Kinshasa’s population has rapidly increased over the last 50 years. In 2007, the National Statistical Institute (NSI) estimated a population count of almost 7.9 million. Pursuant to several estimates, in 2011 almost 10 million inhabitants populated an area of 9,965 km², and UN experts expect an annual increase of 3–5 percent in the city’s population by 2020.

Kinshasa’s population is young and underemployed. Half of the population is under 20 years of age, and unemployment amongst 15–29-year-olds is extremely prevalent at 30 percent. Most people earn their income in the informal non-agricultural sector (65 percent), and about 5 percent of the city’s population lives from agriculture. Especially the rural population is severely affected by material poverty, which reinforces the already present tendency to leave rural areas and relocate to Kinshasa.

VEGETABLE FARMERS AND FOOD SUPPLY IN KINSHASA

The province of Kinshasa is mainly an urban zone. Due to high demand for food and widespread unemployment amongst the population, the vegetable industry provides appealing work opportunities for a part of the population, notwithstanding the low incomes it offers. Although Kinshasa province compares well to the overall food supply figures for the country, there is a shortage of food, with one fifth of all children being moderately underweight.

Due to the deterioration of intra-state traffic routes and transport means, it is easier for supplies to reach Kinshasa from the Port of Matadi than from farmers in Bandundu, which is Kinshasa's neighbouring province to the east. If the growth gap between production and consumption were to remain at the current rate, in 2025 this would require 19 million tons of food to be imported, which would be equal to the DR Congo's entire annual production in 2006, or triple the amount of today's imports. Importing of processed products, in combination with low agricultural productivity, is hindering the development of a regional food industry, which could create numerous jobs around the city. It is evident from the development of global food prices that, sooner or later, Congolese cities are at risk of becoming dependent on imports.

The improvement of seeds increases yields for farmers in the area of Kinshasa.



DEVELOPMENT OF SEED PRODUCTION

The Congolese Ministry of Agriculture, which is responsible for the production of seed, assigned the Service National des Semences (SENASA), a state-owned national facility for seed, with quality control and the cultivation of new seed varieties. SENASA was originally responsible for controlling and regulating the market (public certification) as well as for seed production. For the production of seeds, SENASA cooperated with a network of state-owned farms, which were established in the 1970s with the support of the World Bank. The Institute National de Recherche Agronomique (INERA) was assigned to conduct research on seeds.

Since the 1980s, state-owned farms have been shut down due to economic problems, and the production of seed has been discontinued. One of the main issues was that state-owned farms were not geared towards the prevailing reality that Congolese agriculture is dominated by small farms. In reality it was difficult, if not impossible, to impart the use of improved seed to very poor farmers and for such farmers to partake in increased yields and the added value achieved. The absence of a marketing and sales strategy was also a major reason for the economic failure of the state-owned farms. In the Ministry's current reforms, SENASA has responsibility for a network of partner organisations. Commissioned partner organisations are responsible either for the selection, distribution or certification of seed.

The law on seeding material, which is being concluded at the time of this case study, is intended to create the legal basis for encouraging private investments in this sector. These developments in institutional organisation are managed by the Congolese government and implemented with the help of a project entitled "Support for the seed sector" (Appui au Secteur Semencier, ASS), which is run by the Belgian Technical Cooperation Agency.

APPROVAL AND FUNDING OF CEPROSEM

In 2004 the Project for the Production of Improved Seed was approved, and the Centre de Production des Semences (CEPROSEM – Centre for the Production of Improved Seed) was brought into life. A detailed feasibility study was conducted to determine the requirements relating to arable farmland, and the human and technical resources, which were necessary to establish the centre. The study confirmed the technical and financial plausibility of the centre, which was to provide access to adapted seed to many vegetable farmers, thereby increasing agricultural productivity.

CECFOR and ICU contacted potential investors, introduced them to CEPROSEM, presented the project plans, and defended their project. Jointly with CEPROSEM, CECFOR and ICU subsequently participated in a tender of the EU, which they won on the ground of their experience as development organisations in the DR Congo. The project was initially co-funded by the EU for a period of two years. In this first phase, arable farmland was to be made accessible and prepared, infrastructure was to be established and equipped, and the departments for the production of seeds were to be established.

Between 2007 and 2009, the EU funded the second project phase, the goal of which was to secure the continuation of CEPROSEM's activities. In the third phase, which commenced in 2009 and is being funded by the Italian Development Cooperation, the centre is being expanded and furnished with better technical equipment. In particular, new work tools are being procured with the purpose of reducing production costs. The third funding phase will be complete in 2012.

PRODUCTION SITES

Following approval and securing of funding for the project, a piece of land adequate for the centre to be built on was needed. A suitable property with 13 hectares of arable farmland was soon found. The extensive property was selected on the basis that an expansion of the project would be possible without any problems in case the first phase was successful.

The five hectares of flat land which immediately border on to the centre's main buildings were the first to be made accessible. Adjacent to the main building, which houses selection and seed production, are 37 small trial plots and several other buildings: a workshop for drying and sorting, a building for processing and storing the seeds, and an administration building.

The remaining production site was set up step by step and, in the course of the project, extended by two further pieces of arable land measuring four and three hectares respectively. During the addition of the new fields, attention was paid to making a further plateau-type area of four hectares and a hilly area of three hectares accessible, in order to experiment with varying soil conditions and agricultural cultivation methods.

SELECTION OF VARIETIES

From the beginning, varieties which were known and cultivated locally, such as tomatoes, eggplants and capsicums, were preferred. The selection of seeds was discussed with local agricultural stakeholders. The aim was to be able to offer farmers pure seed varieties with guaranteed germination rates. Through close cooperation with vegetable farmers, CEPROSEM's technical team, led by a former seed expert from SENASEM, was able to develop a catalogue of seeds which was popular amongst customers for its technical characteristics. Sometimes new varieties were imported from abroad. Other times farmers would bring their own plants to CEPROSEM (e.g. a type of courgette which was suggested by farmers as part of the Moloni project, introduced at a later stage), which were cleaned and tested by technicians in order to produce a stable variety that was then to be reproduced for general use. In yet other cases, local demand by wholesale purchasers and farmers led to the introduction of new varieties, for instance the "Roma" breed of tomatoes which was introduced upon request of the Food and Agricultural Organisation (FAO). The catalogue of seeds was eventually expanded to 29 vegetable varieties, ranging from cucumber, okra and beans to amaranth, cabbages and sorrel.

50 Congolese farmers are permanently employed by CEPROSEM.



According to the technical team, the challenge lies therein that the agricultural world opens to change, such as new varieties, cultivation methods, fertilisers etc., only with great difficulty. For this reason it is important to present a catalogue which contains “familiar solid values” as well as new varieties. It is also essential to have a well-trained team of advisers who can make recommendations on suitable varieties in accordance with prevailing soil conditions and seasons, thus highlighting the importance of dialogue between farmers and the selection team.

CULTIVATION AND PRODUCTION OF SEEDS

Seed production was commenced in 2006 on the first trial plots in small amounts, and gradually increased. The trial plots have since been spread across three sites, which allow for optimum conditions for the various cultivation types. Distribution across several different sites makes it possible to test a range of varieties under different conditions, which resemble the agricultural conditions surrounding Kinshasa (plateaus, valleys, and slopes).

Farmers are able to reap the following benefits from improved seed:

- Less seeds are required for cultivation;
- Better yields compared to conventional seeds;
- Use of a standard pesticide to control pests.

	PRODUCTION			SALES		
	PRODUCTION (IN KG)	COSTS (IN EURO)	COSTS PER KG (IN EURO)	SALES (IN KG)	RETURN (IN EURO)	RETURN PER KG (IN EURO)
2006/07	1,487	69,444	46.70	112	3,011	26.88
2008	2,781	132,855	47.78	454	22,944	50.54
2009	3,258	83,935	25.76	1,987	30,871	15.54
2010	1,866	241,666	129.52	1,708	72,127	42.23
2011	3,298	253,901	76.99	-	-	-
TOTAL	12,690	781,801	61.61	4,261	128,953	30.26

TABLE 1: Production volume and sales revenue from seeds produced between 2006 - 2011

The following points constitute disadvantages relating to improved seed:

- Special training is required to achieve higher yields;
- Artificial irrigation is necessary for efficient use of fertilisers.

CEPROSEM staff took on the production of seedlings for making seeds. The arable land, spread across 12 hectares, is farmed by a team of 50 permanently employed Congolese farmers, who are joined by day labourers where necessary. There are three production cycles per year. As the DR Congo is situated on the equator, the regional differences between the rainy and dry seasons and the year-round equatorial climate need to be taken into consideration. Small amounts of seeds were first produced in 2006. A total of 12.7 tons of seeds were produced between 2006 and year-end 2011. The annual production volume fluctuated very heavily and tended to be higher during the rainy season. However, solely taking the entire production volume into consideration is not a sufficient benchmark to assess production development as the specific weight of seeds can vary greatly between varieties.

The production costs are therefore a more suitable benchmark for determining the production value achieved. The total costs rose continuously from 69,444 Euro to 253,901 Euro, except in 2008. In relation to the amount produced, the average costs were 62 Euro per kilogramme, or 0.31 Euro for a standard packet of 5 grammes. New investments resulted in critical increases to the costs in 2010.

One of the main concerns of those responsible for production was to optimise the production processes in order to reduce costs. Two sub-goals, which still apply today, are related to such optimisation:

- To cover the costs of running CEPROSEM to secure the economic continuation of the centre and thereby prevent a similar fate to that experienced by state-owned subsidised farms in the 1980s; and
- To reduce seed prices so that more farmers are able to afford improved seed.

The optimisation of production processes continuously brings about innovations to meet growing production demands. For example, an irrigation system was installed on one of the trial plots to improve the dosage of chemical substances for the plants. Mineral fertilisation is now dispensed using a modern drip irrigation system, which allows for very precise dosage fertilisers. It is important to dosage fertilisers correctly as this has a major impact on the cost of fertilisers for farmers and on crop yields. For the purpose of biological fertilisation, CEPROSEM produces a water fern. This plant is well-suited for use as a biological fertiliser because of its ability to absorb atmospheric nitrogen.

MARKETING

CEPROSEM distributes its seeds via two channels: commercial sale, and distribution to farmers in the course of training programmes. A portion of the seeds is provided as part of a technical training programme, in collaboration with farmers' co-operatives.

Besides farmers as preferred recipients, other stakeholders also purchase seeds from CEPROSEM. CEPROSEM's marketing service mainly focuses on wholesale trade and major customers, such as aid organisations, which are active in the DR Congo. Customers either use seeds for the improvement of food security in other parts of the DR Congo, such as the Service National de Vulgarisation, Agrisud and Clinique des Plantes, or for general agricultural development measures, such as the Food and Agricultural Organisation (FAO), Action contre la Faim, the Red Cross, World Vision and Caritas Congo, or as partners of organisations which offer technical cooperation especially in the agricultural sector. CEPROSEM places importance on becoming well-known throughout the country and being able to react quickly to large tenders.

Distribution demands led to CEPROSEM needing to store large quantities of stock to be able to supply at short notice large amounts of seed, which are used by international organisations to ensure food security in the eastern (inner) part of the country. Between 2006 and 2010, about half of all seeds produced were placed into stock, on the one hand to be able to supply large amounts at short notice, and on the other hand because marketing of the seeds turned out to be more difficult than expected. Funding under the title "Strengthening CEPROSEM", which runs until the end of 2012, therefore focuses on boosting sales, marketing, and the presentation of seeds.

Seed prices for vegetables currently range from USD 0.50 for a 25 gramme packet of amaranth seeds, to USD 10 for 1 kilogramme of green beans. Taking into consideration packet sizes, green bean seeds at USD 10 per kilogramme are the least expensive. Seeds for Chinese beets (Navet chinois, longo) and the tomato varieties Roxana and Caraibo are significantly more expensive at USD 400 per kilogramme of seeds.

CEPROSEM's seeds are currently not distributed by small independent vendors as the centre prefers to employ its own technically trained sales persons. These trained employees sell seeds directly to farmers in production areas, mainly in Kinshasa's urban catchment. This special sales strategy was chosen in order to

VEGETABLE VARIETY	PACKET SIZE (IN GRAMMES)	PRICE (IN USD)
AMARANTH (GOMBE)	25	0.50
CABBAGE	25	1.00
CHINESE CABBAGE	25	1.50
SPINACH (LOCAL)	25	1.00
MOREL (LOCAL)	25	1.00
SORREL (LOCAL)	25	1.00
EGGPLANT (BLACK BEAUTY/ BARBENTANE)	5	1.00
CUCUMBER (MARKETER/ POINSETT)	5	1.00
ZUCCHINI (CLARITA, MOLONI)	25	2.50
OKRA (CLEMSON SPINELESS(POP 12/ PUSO)	25	2.00
GREEN BEANS (CORA, MINKOTI)	1,000	10.00
CHINESE BEET (LONGO)	5	2.00
PEPPER (CAYENNE)	5	1.00
PEPPER (SAFI)	5	1.50
PEPPER (CALIFORNIA WONDER/ CAPELLA)	5	1.50
TOMATO (CARIOCA/ HEINZ 1370/ XINA/ ROMA)	5	1.00
TOMATO (FLORADADE)	5	1.50
TOMATO (ROXANA/ CARAIBO)	5	2.00

SOURCE: sales prices according to CEPROSEM website

TABLE 2: Vegetable varieties and prices for seeds offered by CEPROSEM

reach farmers who use the conventional seeds, and who require technical support in order to use improved seed and maximise their use thereof. Traditional cultivation methods, which are widespread among farmers, lead to low germination rates of the high-quality seeds, resulting in unhappy farmers and a waste of the seeds. Direct sale further enables CEPROSEM to guarantee relatively low prices, allowing farmers, not middlemen, to profit from the improved seed.

It is also important to support farmers in the diversification of their products as the soil is depleted in some cultivation areas due to the absence of crop rotation, thereby severely reducing production capacity.

Between 2006 and 2011, revenue from sales increased from 3,011 to 129,395 Euro. The improved sales revenues now cover approximately half of the annual running costs of 250,000 Euro, which is significantly more than in previous years. The continuous increase in sales revenues now allows the

management to feel positive about the future. The management's priorities are clearly set on increasing sales of seeds to achieve higher revenues, as opposed to further increasing the volume of stocked seeds.

AGRICULTURAL TRAINING OF FARMERS

Thanks to its geographical proximity to cultivation and production areas and contacts to agricultural associations and co-operatives, CEPROSEM has been able to start up a series of training courses. When training of farmers was commenced, the focus was mainly on the correct use of improved seed, management of nurseries, density of plantation on fields, diversification of vegetables, and crop rotation. Several training courses were also started upon request of other interest groups. For example, the military asked for technical support during vegetable production inside a barracks complex.

Since 2008, and especially since 2009 through the support of the Spanish Development Agency AECID, farmers are offered complete training courses in conjunction with seed distribution. Training covers all phases of agricultural production and is divided into several stages spanning across several cultivation seasons. This approach has two significant effects: producers are able to try out seed varieties without any initial investment, and the immediate evaluation of results, which is part of training, can help producers to assess the economic potential of improved seed for themselves. In addition to practical training, CEPROSEM has also written its own training material on production and the correct use of seeds, which is distributed as part of the training courses.

As a result of the courses on offer, CEPROSEM has been able to gain further professional recognition and is contacted at an increasing rate by other stakeholders involved in agricultural development for the purpose of forming partnerships. Meanwhile, the organisation's activities have been expanded to Lubumbashi in the south-eastern part of the country, where a new outlet was opened for the sale of improved seed.

THE MOLONI AND PAYSANNAT DEVELOPMENT PROJECTS

The original plans also provided for CEPROSEM to produce its own vegetables and train young farmers. These plans were soon dropped as administration became significantly more complex as a result of these two goals. For this reason, vegetable production and training of farmers was assigned to Project Moloni.



CEPROSEM offers agricultural training to farmers.

Since 2006 the project, which was also established by CECFOR, trains people who want to become farmers.

Project Moloni offers access to arable farmland to farmers who do not have their own soil. Farmers receive a cleared piece of land and in return are responsible for their own production, with the exception of pesticide treatment of crops where necessary. Farmers receive support through:

- Technical support for Moloni employees;
- Improved seed from CEPROSEM;
- Nursery care;
- Water points installed near fields; and
- Joint marketing of agricultural products.

To fund the project, in return Moloni receives a portion of the revenue made by farmers. The farmer's value being able to generate their own income, but their insecure health insurance situation concerns them. For this reason, the farmers plan to establish their own health insurance. The relatively lengthy travel time to the Moloni site has so far turned out to constitute a crucial obstacle to expansion of the project. This reduces the interest of people who do live near the farmland on offer.

For CEPROSEM, close cooperation with Moloni has the advantage of remaining in regular contact with farmers and the technical direction. Assessment by

participating farmers of seeds selected by CEPROSEM and local evaluation of seeds, have a positive impact on the participation of farmers. This has made it possible to pass on certain requests to the selection team, for example, a zucchini variety was added to CEPROSEM's seed catalogue upon request of Moloni farmers.

CECFOR also founded Project Paysannat (french for farming community). The project combines regular technical support (in the form of weekly theoretical and practical training) with a sales co-operative. Paysannat farmers supply products to the co-operative, which sell the goods to loyal customers such as restaurants, middlemen, and retailers.

GOVERNMENT APPROVAL OF CEPROSEM

The CEPROSEM laboratory was officially approved by SENOSEM in 2010. It is the first independent officially recognised laboratory to certify the quality of seeds. Quality is measured on the basis of moisture content, purity of variety and germination capacity. Approval constitutes a milestone for CEPROSEM's professional recognition. Currently there is no other laboratory in the DR Congo, which is certified to monitor the quality of seeds.

CEPROSEM'S GOALS FOR THE FUTURE

CEPROSEM's future essentially revolves around two tasks:

- Communicating competence in using seeds; and
- Further distribution of improved seed by producing and selling more seeds at lower prices.

COOPERATION WITH FARMERS

CEPROSEM cooperates with all farmers, not just those that are poor. Such cooperation is essential in a field as complex as agriculture. Producers must understand that they benefit from cooperating with one another, instead of considering others purely as competitors.

CECFOR disseminates this message through its range of projects in the health care and education sectors, and now also in the agricultural sector. CEPROSEM's

aim is to take into consideration the collective structures, which it encounters in the framework of training courses and commercial contacts. To empower farmers also means promoting their understanding of management and their ability to organise their own meetings.

Focussing on farmers and their stakeholders is a central issue. This constitutes the main difference between CEPROSEM and other seed producers. For this purpose, socio-economic surveys are regularly conducted amongst relevant stakeholders and taken into consideration in the centre's activities.

NATIONAL DISTRIBUTION OF IMPROVED SEED

To fulfil the second task, production costs must be reduced even further and distribution strategies adapted to the requirements of the market. To make the positive effects of improved seed accessible to all farmers, CEPROSEM's measures, i.e. selection and development of seeds, technical support in using seeds and training courses, must be brought to the national level. During a visit to CEPROSEM, the Congolese Minister of Agriculture said he would like to see the establishment of such centres in every province of the country. It remains to be seen whether, in the long term, the number of production centres will be increased following the example of CEPROSEM, or whether a part of the know-how will be passed on to independent producers to be supported and monitored by a responsible organisation.

LOCAL INTEREST IN THE PROVISION OF LOCAL SEED

Agricultural experts have often pointed out the importance of improving varieties used in the country. Farmers also know that their seeds should be adapted to local climatic and soil conditions, but generally do not have any affordable sources of supply. In some cases the use of imported seed has proven to be of value, however, further scientific development of local seed is absolutely necessary. In addition to training of specialised staff, CEPROSEM offers two advantages:

- CEPROSEM tests and purifies varieties under very similar conditions to those prevailing in the agricultural area surrounding Kinshasa; and
- The centre is in regular contact with farmers and is able to effectively meet the demand for seed.

The ability to react quickly to local needs has enabled CEPROSEM to develop seeds on the basis of local vegetable varieties over the years. CEPROSEM is able

to adapt its seed catalogue to actual conditions and local market requirements. This is the most important argument for founding and continuing CEPROSEM, especially because of the lack of research conducted by the government.

STRATEGY FOR EXPANDING SEED PRODUCTION

CEPROSEM has had its own activities examined in a study, which confirmed the need for improved seed. The production of improved seed is one of the most frequently cited factors for the improvement of agriculture in the DR Congo and is also repeatedly mentioned in national agriculture programmes and guidelines. Essentially there are two possibilities for expanding national seed production: founding a specialist centre, or decentralised organised agricultural proliferation of seeds by small-scale farmers.

In a country where traffic infrastructure and the level of specialisation in the agricultural sector are weak, according to the study it appeared to make more sense to found a centre for grouping all know-how required for seed production. The point was to join several production steps: the selection of varieties, cultivation of plants, seed production and quality certification of improved seed.

In the course of further development of activities, institutions and stakeholders will decide whether the proliferation of seeds should be transferred to specialised farms, or whether the technical support currently provided to farmers is fulfilling its purpose as best possible. In any case, CEPROSEM will continue to play a central part in the development of seed, not only in relation to selection and certification, but also through the know-how acquired by CEPROSEM's staff.

ECONOMIC SUSTAINABILITY OF THE PROJECT

CEPROSEM's annual production costs amount to 250,000 Euro. Analysis of the past four years shows that the project has reached a production capacity, which should enable it to be financially autonomous for the most part. However, this requires an improved marketing strategy and an increase in the sales of seed produced.

Such profit-focussed logic, which is oriented towards revenue from sales and production costs, is not always compatible with the goals of development cooperation. Financial aspects of management, technical cooperation and the promotion of diversification are important, however, in most cases the resulting costs cannot be borne by farmers.



The following points must be improved in order to ensure CEPROSEM's economic sustainability in the long run:

- Marketing of seeds in Kinshasa province with the aim of achieving higher sales revenues and providing more farmers with improved seed;
- Distribution of improved seed in other provinces of the DR Congo;
- Reduction of absolute and average production costs; and
- Permanent securing of external funding for technical training and supporting farmers, which is necessary for effective use of seeds.

SOCIAL IMPACT AND LEARNINGS

Local impacts on agricultural production are ascertained through technical support on site, during training courses, and through surveys amongst users of CEPROSEM's seeds. Until now, approximately 3,000 small-scale farmers have been directly involved in the project and have received technical support and training on how to use the seeds. In addition, more than 50 Congolese work for CEPROSEM.



Improved seeds have an up to 50 percent higher output than conventional seeds.

YIELD INCREASES AND REDUCED USE OF SEED

In terms of quantity, it is difficult to measure the effects on crop yields as many factors are involved. Measurements showed that the use of certified seed reduced the required amount of seed by 20 to 50 percent compared to conventional seeds. This benefit, coupled with higher crop yields, is sufficient to convince many producers to continue using improved seed.

Differences must be considered between plants with longer production cycles such as vegetables and fruit, and those with shorter cycles such as leafy vegetables. In the case of vegetables and plants with longer production times, the additional costs of quality seed compared to the achievable yield increases are of less significance to the business case of investing in the seed.

SATISFACTION WITH IMPROVED SEED

Surveys showed that most farmers are satisfied with the quality of the seed. Those farmers who are the most interested in professional production recognise

the leverage effect of improved seed, the use of which has a major impact on the whole production through comparatively low additional costs, as the cost of seed is significantly below that of fertilisers and labour.

Satisfaction of users fluctuates between 38 and 87 percent, depending on annual and regional differences. Unsatisfied users complain about the susceptibility of some varieties (e.g. tomatoes and eggplants) in connection with diseases. Although the seeds are not directly connected with the development of diseases as disease control is mainly undertaken on the level of cultivation methods with the help of pesticides, local interest in disease-resistant plants is clearly understandable.

In the eastern part of the country, where aid organisations have distributed CEPROSEM's seeds, distribution and marketing of seed is still relatively unheard of. The absence of technical support furthermore does not enable accurate feedback regarding satisfaction of farmers. Positive feedback is nevertheless received, and customers repeatedly provide themselves with seed from CEPROSEM. As Congolese farmers traditionally save and reuse their seed each year, it is presumed that CEPROSEM has hitherto played a more significant part in the national distribution of improved vegetable seed as could be established through studies and surveys.

The need to place the target group into the centre of action has been recognised in numerous meetings with various stakeholders. CEPROSEM realised that dialogue between buyers of seed and those responsible for the selection of seeds is crucial for the hitherto and future success of the project. Such dialogue has shown how important adequate training and technical support in the use of seeds are.

The most significant finding of the responsible NGO was how important it is to cooperate with all farmers, not only with the poorest and those that have no property. Farmers who already have some know-how and have the opportunity to invest in agriculture, can be innovators whose commitment can motivate and drive other farmers.

LEARNINGS

This case study clearly highlights the difficulties involved in the speedy agricultural development strived for and the establishment of a centre for the production of improved seed. It transpired that founding and establishing an organisation such as CEPROSEM requires more time than the originally funded period of two years. This challenge has been met as follows:

In relation to CECFOR, through:

- Strong local grounding which ensures long-term stability and investments;
- The ability to keep the team together in difficult situations;
- Close partnerships with other NGOs in the northern part of the country.

In relation to ICU, through:

- The ability to predict financial bottlenecks and procure funding on time;
- Close partnership with various agricultural stakeholders in the DR Congo which has brought about the confidence of donors and partner NGOs.

In relation to donor institutions, through:

- The first and second phases of the project, which were co-funded by the EU between 2005 and 2009. The continuation and expansion of the project was subsequently funded by the Italian and Spanish development agencies mentioned above;
- Cooperation of various European donor organisations from Italy and Spain on a common project, in particular the willingness of the Spanish Technical Development Agency (AECID) to financially support a project of the Italian Development Cooperation.

The financial support of the EU and the Italian and Spanish development agencies, as well as of the organisations CECFOR, ICU and ONAY, which were commissioned with the implementation of the centre, has been essential to the establishment and further development of CEPROSEM. After five years of work and commitment by various stakeholders, the project is now able to demonstrate its full potential. Any absence of the stability mentioned above could have caused significant harm to the project.

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