



Kolokani Groundnut Innovation Platform Activities and Achievements Through TL III Project in Mali

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Abstract

Groundnut productions have been declining in Mali in spite of several new improved varieties being released, the key problem being inadequacy of the seed supply system. To solve this problem, Kolokani MSP was established in 2012 and reorganized with support from TL III in 2015 to include more stakeholders in the groundnut value chain—farmers particularly women, farmer associations, cooperative societies, seed producers, agro-dealers, grain traders, processors, research and extension. Four new varieties Fleur11, ICGV 86124, ICGV 86015, and ICGV 86024 were supplied to the platform for FPVS and among them two, Fleur 11 and ICGV 86124 were preferred for their high yields and large grain size under farmer conditions. Through training of trainers, the different members of the platform reached 1246 farmers among them 928 women with improved groundnut seed production, aflatoxin management, seed business plans, and small-scale mechanization. A total 47 FPVS, 50 Demonstrations, and three multi-locational variety trials were conducted annually from 2016 to 2018. Kolokani platform have played an important role in groundnut value chain by producing and marketing 85 tons groundnut certified seed of these varieties annually for farmers. This is expected to stop the national productivity decline while improving platform members' livelihoods and nutrition status.

Keywords

Multi-stakeholder platform · FPVS · New improved varieties · Seed production · Actors' training · Seed marketing

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4.1 Introduction

Groundnut, *Arachis hypogaea L.* is grown in all agro-ecological zones of Mali. According to FAO the National yields were 1.4 t/ha and area was 351,977 ha with a production of 509,363 tons. Since then the production has declined significantly to 301,207 tons and average yields dropped to 0.78 t/ha and though area increased to 386,993 ha (FAOSTAT 2017). Groundnut plays an important role in the country's agricultural system including crop rotation and soil health through nitrogen fixation. Currently, this crop offers opportunities for cropping systems diversification in the country. Lately, groundnut area in the country has been progressively increased but productivity has been declining. Indeed, there is a clear increase in areas in the north-west considered as groundnut belt which includes Kayes and Koulikoro regions and the center of the country (Segou, Mopti). Production of improved varieties is increasing in all regions with the contribution of TL III. Groundnut is widely used both as human food and animal feed. Because of its high protein and oils content, it helps to correct the deficiencies in proteins and vitamins B1 and B2 of the cereals which constitute the staple food of the Malians. The use of high-quality groundnut seeds is one of the most effective ways for the African farmer to improve his crop productivity. Thus, a better organization of quality seed production and dissemination to all users is important for the realization of any groundnut development plan and seed is often a prerequisite for the introduction of other productivity enhancing inputs (Mayeux et al. 2003). The following are considered as key requirements for a farmer who wishes to register in the national seed multiplication program. He/she must accept quality control including field inspection, seed sampling for analysis, and certification of his/her production. Farming practices and techniques must be optimized so that the plant can express its full potential and ensure quality seed production. It is important that plants develop under adequate fertility and optimum climatic conditions or under supplementary irrigation to ensure good pod filling and seed maturity and ultimately good yield (Ntare and Traoré 2004). Pod and seed size are important parameters in the value of a seed lot (Rapport Annuel 2004). The objective of the Kolokani innovation platform is to produce and market groundnut seeds to improve its members' productivity and livelihoods. The groundnut seed value chain from breeder seeds and foundation seeds to certified seed production and marketing by the platform has indeed improved farmers' incomes and welfare.

4.2 Establishment of the Platform

Kolokani platform was established in 2012 with 25 members including eight women (Table 4.1). By 2015 with the reorganization of TL III project partners many other farmer associations and cooperatives joined the platform including five youths who were interested in improved groundnut seed production and one youth interested in input selling. The process of the platform establishment was initiated to solve the declining productivity of groundnut despite the use of improved seeds. The

Table 4.1 List of the initial platform members

Affiliation and role	Role	sex
Sababugnouma cooperative	Seed producer	M
Sababugnouma cooperative	Seed producer	F
Sababugnouma cooperative	Seed producer	M
Improved seeds user	Seed producer	F
Improved seeds user	Seed producer	F
Tièssiri cooperative	Seed producer	M
Senèyiriwaton cooperative	Seed producer	M
Gadiabaniton (CORAF)	Seed producer	M
Gadiabaniton (CORAF)	Seed producer	F
Extension service (two representatives)	Facilitation and advice	M
Input supply	Trader	M
ONG ASIC (two representatives)	Facilitation and advice	M
Daba Tayé Tienyé	Producer	M
Kondo Jigima savings Bank	Financial support	M
World vision NGO/	Facilitation and advice	F
Town hall	Facilitation and advice	F
Agricultural council	Facilitation and advice	M
IER	Research and technical advice	M
ICRISAT	Research and technical advice	M
RMCR	Facilitation and advice	M
Processors	Processing	F
Famolo Coulibaly cooperative (1 male and 1 female)	Producer	M

foundation meeting on 5–6 July 2012 in Kolokani had the following agenda: lower agricultural yields in general particularly for groundnut; non-organization of farmers in the different value chains except cotton; insufficient and difficult access to good quality seeds and the creation of a multifunctional platform.

4.3 Composition, Roles, and Responsibilities of the Platform Members

Kolokani platform is composed of several categories of stakeholders as follows:

- Producers of improved seeds composed mainly of five cooperatives such as Sababugnouma cooperative, Tièssiri cooperative, yiriwaton cooperative, Famolo and CORAF seed producers. Lately, many individual seed producers joined.
- Traders composed of three groups including Dabatayétienyé, Sabougouma group, and the Tièssiri group.
- Processors composed of four cooperatives including Benkadi Misola cooperative, Senèyiriwaton, Sababugnouma Cooperative, and Kolokani groundnut producers' association.

- Local Authorities: Representatives of City Hall and of Traditional Chiefs of Kolokani.
- Financial institutions: Kondo Jigima, RMCR fund, BNDA agricultural bank, and EPC /CAEB micro-credit fund.
- Agribusinesses composed of MPC, Stork, Toguna SA and Keita and Son Company.
- Advisory group: research institutions such as IER, ICRISAT, and LaboSEM.
- Extension support including the Extension Service and the Chamber of Agriculture.
- NGOs like World Vision and ASIC.

4.3.1 Roles and Responsibilities of Different Stakeholders Participating in the Platform Activities

The Table 4.2 summarizes the roles and responsibilities of various stakeholders involved in the Kolokani innovation platform.

There were a number of platform governance tools used that involved steering committee and arrangements in place to facilitate smooth implementation of platform activities. Facilitators were from Extension Service (first facilitator), from the West and Central African Council for Agricultural Research and Development (CORAF/WECARD) (second facilitator), from lead farmers, and farmer organizations. Their contacts can be sourced from “Institut d’Economie Rurale” (IER) office.

4.4 Platform Activities

A number of activities are conducted by Kolokani platform such as:

- Seed production. Each year the platform produces at least 85 tons of the following improved varieties: ICGV 86124, ICGV 86015, and Fleur11 while relying on

Table 4.2 Roles and responsibilities of stakeholders

Stakeholders	Roles and responsibilities
Improved seed producers	Produce improved groundnut seeds, certify them, and supply to the platform
Traders	Supply inputs to farmers and buy groundnut harvests from the platform
Processors	Buy groundnut harvests to manufacture processed products for the market
Local authorities	Play important role at institutional and political level
Financial institutions	Support in term of credit toward the implementation of different activities
Agribusinesses	Supply inputs and buy groundnut harvests from the platform
Advisory group	Technical support, access to improved seeds, and training

its research actors to supply foundation seeds. This target is achieved by the platform by utilizing common fields of producers per cooperatives.

- Training and information exchange.
 - On the guidelines for pre and post-harvest technologies for optimum quality assurance through radio broadcast. The objective is to build the capacities of the actors on the recommendations for improved groundnut, post-harvest, storage, and good practices for the management of aflatoxin. Also, to provide useful information on groundnut field isolation to keep varietal purity, phytosanitary control, and product certification.
 - In packaging technology and seed marketing. The platform in agreement with the technical actors trained 25 farmers including five women and 20 men on how seed must be well conditioned to attract customers and well presented in small packs accessible to all and with all the necessary information.
 - In quality seed production techniques. With the technical support of research scientists 120 farmers including 30 women and 90 men were trained in seed production techniques, business plan management, seed legislation, and many other helpful information.
 - In negotiation techniques especially in aggregating the harvest of different cooperatives in one place and looking for a potential buyer with whom an ad hoc committee starts negotiations of a single price benefiting all. The trainees included 50 farmers, ten women and 40 men.
- The organization of field days which are held once per cropping season; it brings together a very important number of representatives of all the actors to see each other's achievements and acquire new experiences, draw lessons of successes and failures from each other, provide advice as needed, appreciate achievements.
- The seed purchase by an appointed team of 20 people, including seven women and 13 men, to purchase seeds from the seed producers and retail to platform members for profit.
- The initiation of partnership between seed producers and research on better access to foundation seeds. Once a year the platform organizes a brainstorming session with IER, and farmer organizations involved in seed production to discuss availability and price affordability of foundation seeds.
- The infrastructure for seed storage. The platform benefitted from two warehouses of 100 tons capacity each on request of the Sababugnouma cooperative to WAAP with co-funding from the cooperative. Also, the Sababugnouma cooperative and WAAP equipped the two warehouses with 100 pallets, two scales, two tables, and four chairs.
- Periodic meetings are held each quarter, for the platform members to get updates on activities and special meetings are held as needed.
- The sensitization of farmers on the use of organic manure: at each meeting of the platform emphasis was on the importance of organic fertilizer on seed quality. The dose per hectare was given at 30 t/ha. The awareness raising through the media done once a week, the use of quality seeds of improved varieties is discussed on local radio stations with the support of technical partners. The key

messages are about the achievements of the cooperatives on use of quality seeds with verifiable testimonials.

4.5 The Main Problems Identified and Solved By the Platform

A number of challenges have been identified and solved through the platform:

the consensus among all the actors on the importance of the use of quality seeds; the importance of increasing adoption of improved varieties and mastery of good seed production practices; the use of organic fertilizer to ensure good pod filling and seed quality (DRPC-Koulikoro 2013); the management of groundnut against contamination by aflatoxin through mastering post and pre-harvest techniques; good management of grain and seed stocks; insuring that seeds of improved varieties are accessible everywhere to all small-scale farmers in Kolokani.

The platform enabled the various actors to initiate good collaboration among research, public institutions (political, customary) and the farmers, and the platform helped women improve access to land for all agricultural activities and the improvement of the living standards of all concerned communities.

4.5.1 Types of Issues Addressed By the Platform

Four key area issues were addressed by Kolokani platform:

Technical issues with regard to aflatoxin management and capacity building of platform members;

Policy issues in relation to gender mainstreaming, close collaboration with research institutions and rural municipalities (City Halls, customary chiefs);

Organizational issues to transform simple organizations into cooperatives with an office, decision-making bodies and regulations, great mobilization capacity of the platform, organization and massive participation in seed fairs, field days, and farmers exchange visits;

Managerial issues with a committee on negotiation and marketing to guarantee the interests of members in price fixing at purchasing and selling.

4.6 Facilitation of Platform Activities, Including Meetings

4.6.1 Description of the Process Followed to Help Platform Members Implement Their Activities

The platform carries out a certain number of activities as per a well-defined chronogram. The realization of these activities requires the involvement of all without exclusion.

For organization of field days all actors are invited at a precise venue through the radio and at least a week in advance. There is an organizing committee which selects the fields to be visited. The expense of the organizing committee and visitors' transportation to the field is supported by the platform or other supporting partners such as IER through TL III project.

Improved seed is the most important input in agricultural production and its integrity and quality cannot be compromised. Good storage can guarantee all its intrinsic qualities (germination and seedling vigor). For this purpose, the appropriate measures were taken by the construction of two large warehouses and their equipment (pallets, hygiene standards, use of non-toxic products and new containers).

In collaboration with the technical services committee (comprised of IER, ICRISAT, and NGO), the modules on good agricultural practices are taught to actors and relayed by local media in the local language to reach the maximum number of farmers. NGOs help the platform train members in negotiation skills. There is an ad hoc committee of the platform made up of 20 people who are well trained to negotiate.

A revolving fund established from the net profit of the platform activities and members' contribution is used to support platform expenses. Sometimes this fund is used by the seed purchase appointed team to buy improved seeds for the members of the platform who will reimburse in kind.

For the purpose of facilitating platform meetings participation, telephone and local radio stations as well as village announcements are used. Awareness and use of quality seeds are promoted through testimonials during radio broadcasts and routine field visits. The production of quality seeds is subject to legislation which is accompanied by a phytosanitary control certificate. The acquisition of this document is facilitated by grouping of field visits by the agents and a partial support by the technical groups.

Most of the platform actors live in rural areas where they also produce seeds of dryland cereals in rotation with groundnuts with the help of research. In a customary way farmers exchange seed among themselves. This method also helps with the distribution of improved seeds among farmers. The platform installed a selling point for improved groundnut seeds at the office of the Chamber of Agriculture where the seed is accessible in all seasons. The seeds are presented in small packages of 1 kg, 2 kg, 10 kg, 20 kg, 25 kg, and 50 kg. The cooperative Dabatayétiényé, an actor of the platform is in agribusiness, and they sell the seeds in small packages (1 kg, 2 kg, 10 kg, 20 kg, 25 kg, and 50 kg) or wholesale to the local communities and also for export. In addition, the platform collaborates with seed companies like Faso kaba, farmer's organizations such as AOPP to sell or to get seeds of new varieties.

4.6.2 Mechanisms to Enhance Stakeholder Participation

The following tools ensure good governance and increase the participation of key actors:

- The membership is free without distinction of activity,
- The major decisions are taken in general assembly,
- The interests of the actors are guaranteed by transparency of management of the prices obtained through negotiation, and
- Free training obtained and information on good agricultural practices learned without distinction of gender or activity.
- Equal access to quality seeds for all platform members.

4.6.3 Platform Decision-Making Process

To make decision the platform meets once a month for activities planning, evaluation of activities that have been done. The process of decision-making is participatory, and all the decisions involved all the cooperatives and members.

4.7 Achievements of the Platform

From its creation to today the Kolokani platform has registered rich and long experience in running activities.

Achievements in Access to Improved Seed IER supplied improved groundnut seeds of Fleur11 and ICGV 86015 varieties to the platform. To illustrate the impact, farmer Daba Kané in Falakan village produced those two varieties on 1.5 ha in 2016. The farmer kept his production and he was able to grow 8 ha in 2017 and 12 ha in 2018 (Fig. 4.1). He was able to improve his livelihood with the income generated from his production over the 3 years. In another example R1 certified seed production of the fleur11 variety was conducted by the Falakan cooperative

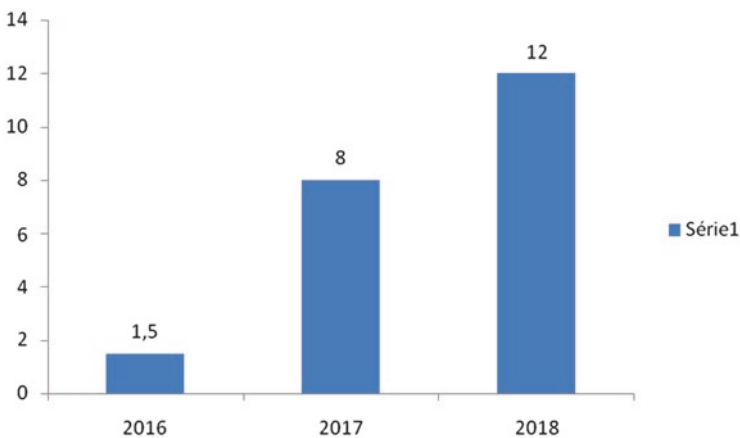


Fig. 4.1 Increase in area under improved groundnut with Daba Kané farmer in Falakan village

(4 ha) with a production of 5847 kg. The platform produced at least 85 T of certified seed of Fleur11, ICGV 86015, and ICGV 86124 every year.

Access to Improved Varieties Before and After Formation of the Platform Before the platform farmers relied on the process of local seed exchange between actors with limited support from research and extension. Before having the platform farmers in Kolokani used to produce only two varieties namely JL24 and 47–10. With the platform, close collaboration was established with extension services, research, and NGO. This benefitted platform members in terms of group purchase of seeds and associated inputs at affordable price. Grouping of farmer seed producers greatly reduced the cost of certification; stronger research and platform collaboration facilitated ease of access to basic seed; and the search for a common market made it easier to bargain the price of platform products without selling off.

With the platform, more diverse varieties are accessed by farmers including Fleur11, ICGV 86124, ICGV 86015, and ICGV 86024 (Fig. 4.2). There have been remarkable improvements in access to improved seeds and other inputs. The platform has seen a recurring increase in the demand for seeds, and an increase in the areas cultivated. The number of non-platform members having access to quality seeds through the platform is estimated from 1000 to 1500 farmers. The areas sown to groundnut before the platform did not exceed 10 ha for both local and improved groundnut. Over the last 3 years, the platform has seen an exponential increase in improved groundnut area cultivated that is estimated to 40 ha for the Yiriwaton cooperative and 90 ha for the other platform producers including individuals' producers.

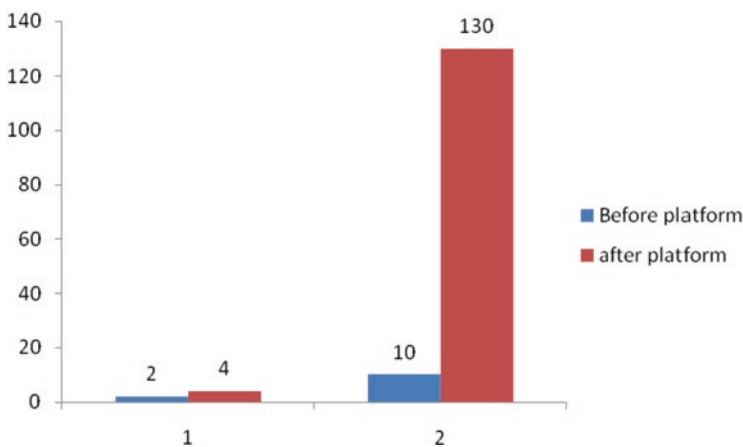


Fig. 4.2 Number of improved varieties and area before and after the platform.

Achievements in the Areas of Access to Knowledge and Farm Advisory Services Organization of open fields days with extension service and IER to do hands on training for platform members on seed conservation techniques, production, marketing, advocacy, negotiation, group purchase or group sales. An open field day was organized on mother/baby trials in Ntiobougou-Bolibana for 40 participants including five women and 35 men; Open field days were organized around Groundnut tests (demonstration of varieties and aflatoxin management) in Zirablenkoro. As part of the activities of the platform under extension service and IER support and advice, a number of trials were visited by the platform actors including plots of groundnut trials, seed production fields, multi-location trials, and demonstrations to provide advice while monitoring platform activities. Two actors (Thiory Kané and Paul Kamaté) participated in the training workshop on conservation, packaging, marketing, seed production, negotiation techniques, advocacy, isolations, basic seed purchases, access to credit, partnerships, use of improved varieties, possibility of subsidizing inputs by the state, use of organic manure.

Planning planting of trials, demonstrations, and delivery of seeds included trials for drought tolerance and cercosporiose, in Tongoye under the responsibility of extension services (agent Fakoro Cissé and a farmer named Kinta Traoré), Early maturing variety trial in Koumi village, Farmer Participatory Variety Selection with seven varieties in the villages of Kolokani, Sido and Tao Zirakorobougou, demonstrations trials on 0.5 ha with Fleur11, ICGV 86124 and ICGV 86015 in the villages of Zirablenkoro, Tiéneguébougou, NTiobougou, Falakan and Fakolombougou; Demonstrations tests on cultural practices comparing Fleur11, ICGV 86124 to a

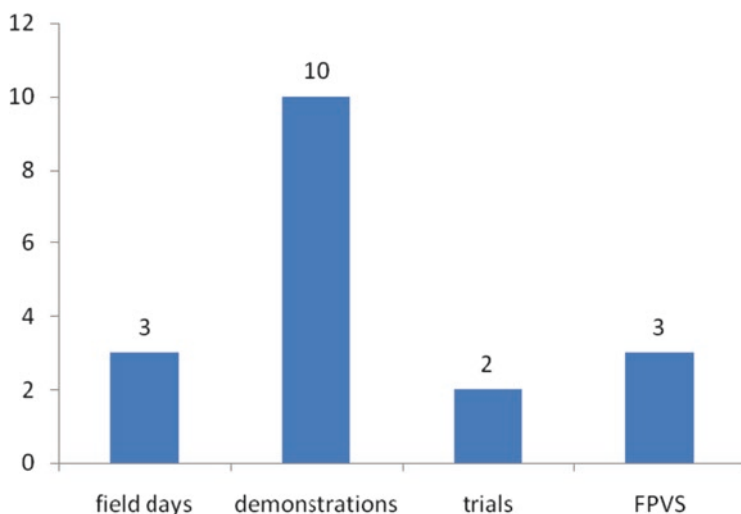


Fig. 4.3 Number of field days, demonstration, trials, and FPVS conducted by Kolokani platform from 2016 to 2018

local variety in the villages of Tongoye, Koumi, NTiobougou, Tiénéguébougou and Tao Marifara (Fig. 4.3).

Achievements in the Areas of Access to New Markets and Financial Services As a result of the collective marketing power of the platform, members gained access to new markets such as Dabatayétienyé, Agro dealers, Faso Kaba, AOPP agribusinesses to make group sales after negotiations for better prices. The platform gained access to agricultural loans with RMCR and BNDA financial institutions. The members with poor credit rating are guaranteed by the platform which controls farmer produce in the warehouse until they are sold at the most opportune time. The platform in collaboration with the local authorities facilitates registration for all member cooperatives which is a guarantor of access to credit.

Achievements in the Areas of Social Assets Members of the platform clearly indicate that their livelihood has changed because they are better able to meet their daily needs. Some have purchased agricultural equipment (plows, tractors, threshing machines, oxen). Others have managed to open savings accounts. Farmers use the social network SENEKELA of Orange mobile telecom Mali to have weather reports, and early warning systems. The cooperatives within the platform exchange information with each other on the social networks to find a buyer for their surplus. Kolokani is an affiliate member of platform associations whose head office is in Sikasso where they meet regularly.

Achievements in the Areas of Gender Equality and Youth Women are fully involved in the major decisions of the platform. Through the platform women got access to land rights which they did not have before. The involvement of youth in the training in new innovative farming techniques has helped retain young girls and boys in farming to help fight against poverty and the birth of a new hope for youth.

Perceptions of Platform Performance Gains include the good spirit of collaboration, the enthusiasm created by seed production with its economic, social, and technical advantages, the raising of the living standards of the actors directly and of the community indirectly, the revitalization of groundnut culture in the Kolokani sector, and today the Kolokani platform is a pride for the whole community and cited as a model of success everywhere in Mali.

Sustainability of Multi-Stakeholder Platforms The following steps have been taken to enhance sustainability of platforms activities and achievements after TL III: the integration of crop and animal production activities to benefit from the complementarity of actions, the capacity building and external collaboration of platforms, the integration of entrepreneurship spirit among young actors, the creation of vast

networks with an open market, the youth settlement and support for youth projects, the prioritization of gender in communities for social equity and the value chain approach to farming and increased mechanization of agrarian systems to reduce production cost estimated to more than 600,000 F CFA per hectare (CORAF 2015).

4.8 Reflections on the Process

Improved seed production has had its ups and downs. Today we cannot say that the end of the tunnel is reached because many problems remain unresolved like the insufficiency and the difficult access to good quality seeds of improved varieties, their high price; difficult access to agricultural credits and the low level of mechanization of agrarian systems. Groundnut productivity in Mali continues its downward trend which must be arrested and reversed. Certainly, much effort was made by the platform and its partners in this direction (TLI, TLII, GSP, and TLIII). Insufficiency, access, and price of certified seeds can be solved by expanding the production to farmer organizations (POs) and private organizations in partnership with research organizations. Mostly, groundnut price in the market is regulated by the evolution of the supply and demand. Seed production is a business that deserves to be supported if all the actors are organized within groups offering a certain legal credibility. Financial institutions can support farming by equipping it with capital and equipment while being part of a safe, logical, and sustainable process. The state as the guarantor of the interest of all can play a decisive role by subsidizing inputs (basic seed, fertilizer, gypsum, aflatoxin test kit) to better support the system in terms of production, productivity, and health. As in perspective, the Kolokani platform adheres to the idea of creating a national platform that will bring together all the platforms to solve common issues. Because the groundnut industry is poorly organized, the platform plans to erect the industry to the level of inter profession including processing agro-industry to have more visibility. Vegetable production activities will be introduced to fill the gap in the off-season to produce food of marketable quality and also make cash gains. Thanks to the platform all the groundnut producing cooperatives of Kolokani are now producing safely with the required standards. The members make important profits that give them a better purchasing power. The community of Kolokani has moved from traditional groundnut production to more business-based groundnut production. Women and young people across the platform have their customary rights broadly improved. The well-structured Kolokani platform is boosting groundnut culture while winning the fight against poverty among the peasant masses and improving under-nutrition/malnutrition with its processors by incorporating groundnut into children's food (Misola exported to the sub-region).

Kolokani platform contributed in certified seed production at national level with 85 tons per year that will cover 80,000 ha in 5 years. Mali needs to set in place have 20 platforms such as Kolokani platform to cover 20% of the cultivated area in the next coming 5 years.

Areas to Focus on in the Future The Kolokani platform should focus on increasing the production of improved groundnut basic seeds to meet at least 50% of early generation seed (EGS) requirements of the country. The production currently at 85 tons per year is insignificant. There is need to incorporate more partners, multiply the number of selling points, and get more loans to increase capacity.

4.9 Lessons Learned

Many lessons have been learned. It is noted the benefits of teamwork because the dynamism of the actors helped the platform to acquire two large warehouses equipped with scales, pallets, tables, and chairs.

Capacity building has a strong impact on groundnut productivity and income of platform members. With the good collaboration of research organizations (IER and ICRISAT) the actors were trained in the cultural techniques, conservation, storage, isolation, marketing, business plan management, and the seed legislation and certification. These trainings improved groundnut production systems and increased production and productivity but on small scale. The incomes of members have been increased and the skill of marketing improved. The management of groundnut aflatoxin contamination and its effects on the health of humans and animals have also been improved. In this way, aflatoxin contamination in groundnut with all its misdeeds on human and animal health is a danger to the crop and groundnut consumers but this was very poorly known by the actors. Today thanks to the multiple training received, it is very well controlled by the actors. Improving and adapting communication to provide key technical information on improved seeds production, marketing, and business plan management greatly facilitated the activities of the platform. Broadcasting in local and national radio in local languages to reach a great number of farmers at the same time, and the use of mobile phones to convey messages (weather report, early warning system, meetings, and training) are good examples of innovations in communicating with platform members.

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